Oxygen XML Author 15.2

Notice

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Oxygen XML Author User Manual

Syncro Soft SRL.

Contact Syncro Soft SRL. Syncro Soft SRL provides a telephone number and e-mail address for you to report problems or to ask questions about your product, see the *Oxygen XML Web site*.

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Chapter 1

Introduction

Topics:

Welcome to the User Manual of Oxygen XML Author 15.2!

Oxygen XML Author is a cross-platform application designed for authors who want to edit XML documents visually without extensive knowledge about XML and XML related technologies. The WYSIWYG-like editor is driven by CSS stylesheets associated with the XML documents and offers the option to switch off XML tags completely when editing an XML document.

This user guide is focused mainly at describing features, functionality and application interface to help you get started in no time.

Key Features and Benefits of Oxygen XML Author

Multiplatform availability: Windows, Mac OS X, Linux, Solaris	Multilanguage support: English, German, French, Italian and Japanese
Visual WYSIWYG XML editing mode based on W3C CSS stylesheets.	Visual DITA Map editor
Closely integrate with the DITA Open Toolkit for generating DITA output	Support for latest versions of document frameworks: DocBook and TEI.
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 1.0 and 1.1, Relax NG , Schematron, DTD, NVDL schemas, XSLT, XSL:FO, WSDL, XQuery, HTML, CSS	Support for XML, CSS, XSLT, XSL-FO.
Multiple built-in validation engines (Xerces, libxml, Saxon SA, MSXML 4.0, MSXML.NET) and support for custom validation engines (XSV, SQC).	Multiple built-in XSLT transformers (Saxon 6.5, Saxon 9 Enterprise (schema aware), Xalan, libxslt, MSXML 3.0 / 4.0, Microsoft .NET 1.0, Microsoft .NET 2.0), support for custom JAXP transformers.
Support for latest versions of document frameworks: DocBook and TEI.	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, SFTP, HTTP / WebDAV and HTTPS / WebDAV	Easy error tracking - locate the error source by clicking on it
New XML document wizards to easily create documents specifying a schema or a DTD	Context sensitive content assistant driven by XML Schema, Relax NG, DTD, NVDL or by the edited document structure enhanced with schema annotation presenter
XML Catalog support	Unicode support
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
Canonicalize and sign documents	XML project manager
Batch validate selected files in project	Fully-fledged client for the Apache Subversion™ (SVN) versioning system with support for SVN 1.4, SVN 1.5, SVN 1.6 and SVN 1.7.
Configurable external tools	Configurable actions key bindings
Multi-line find and replace support allows regular expressions, is XML aware, is incremental, handles multiple files	Special viewer for very large files (up to 2 GB file size).
Associate extensions on Windows	Bookmark support
Mac OS X ready	Print documents
Model View	Attributes View

Multidocument environment	SVG Viewer
XSLT 2.0 and XSLT 3.0 full support	XPath 2.0 and XPath 3.0 execution and debugging support
Dockable views and editors	Document folding
Spell checking supporting English, German and French including locals	Custom protocol plugin support
All the usual editor capabilities (cut, copy, paste, find, replace, windows management)	Drag&drop support
Support for editing, modifying and using files directly from ZIP-type archives	Outline view in sync with a non well-formed document

Chapter 2

Installation

Topics:

This section explains platform requirements and installation procedures. It also provides instructions on how to obtain and register a license key, how to perform upgrades and uninstall Oxygen XML Author.

If you need help at any point during these procedures, please send us an email at support@oxygenxml.com

Installation Requirements

This section presents the details about the platform and environment requirements necessary to install and run Oxygen XML Author.

Platform Requirements

The run-time requirements of Oxygen XML Author are the following:

- CPU (processor): minimum - Intel Pentium III™/AMD Athlon™ class processor, 500 *Mhz*; recommended - Dual Core class processor.
- Computer memory: minimum - 512 MB of RAM (1 GB on Windows Vista™, Windows 7, and Mac OS) ; recommended - 2 GB of RAM.
- Hard disk space: minimum - 300 MB free disk space ; recommended - 500 MB free disk space.

Operating System

The operating system requirements of Oxygen XML Author are the following:

Windows	Windows XP, Windows Vista, Windows 7, Windows 2003, Windows Server 2008, Windows Server 2012.
Mac OS	Mac OS X version 10.5 64-bit or later.
Unix/Linux	Any Unix/Linux distribution with an available Java SE Runtime Environment version 1.6.0 or later from Oracle (formerly from Sun).

Environment Requirements

This section specifies the Java platform requirements and other tools that may be needed to install Oxygen XML Author.

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 at *the Download page* for every archive. You should check the MD5 sum of the downloaded archive with an MD5 checking tool available on your platform.

Java Virtual Machine Prerequisites

Prior to installation, ensure that your operating system environment complies with the following:

- Oxygen XML Author supports only official and stable Java Virtual Machines with the version number 1.6.0 or later (the recommended version is 1.6.0) from Oracle, formerly Sun Microsystems (available at *http://www.oracle.com/technetwork/java/javase/downloads/index.html*) and from Apple Computer. The Java Virtual Machine from Apple is pre-installed on Mac OS X computers. For Mac OS X, Java Virtual Machine updates are available at the Apple website. Oxygen XML Author may work very well with JVM implementations from other vendors, but the eventual incompatibilities will not be solved in further Oxygen XML Author releases. Oxygen XML Author *does not work with the GNU libgcj Java Virtual Machine*.
- The PATH environment variable is set to the most current Java Virtual Machine installation.
- References to older Java Virtual Machine installations are removed from the PATH.

JWS-specific Requirements

For **Windows** and **Linux** installations:

- The minimum Java Virtual Machine version should be 1.6 update 10 or later;
- The browser should support the New Java™ Plug-In Technology (usually this plug-in is installed together with the Java VM).

For **Mac OS X** installations, note that the New Java™ Plug-In Technology support is not enabled by default on Mac OS X. To enable the plugin follow these steps:

- Upgrade to Java VM version 1.6 update 17 or later;
- Open the **Java Preferences** application and toggle setting to *Run applets: in their own process*;
- Restart your **Safari** browser and try viewing the applet.

Caution:

If you want to *run the application with Java Web Start* directly from the Oxygen XML Author website or from your intranet server please configure your Java Web Start not to ask for desktop integration (File -> Preferences, Shortcuts). If you don't, the application will freeze because it will show up a dialog in the same time with the license registration dialog.

Installation Instructions

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

The installation kits and the executable files packaged inside the installation kits were checked before publication with an antivirus program to make sure they are not infected with viruses, trojan horses or other malicious software.

Note:

The following instructions assume that a Java Runtime Environment *JRE*) is installed. If you have downloaded an installation package that contains the *JRE*, please note that the package will automatically install a JRE before execution of the application but this JRE will be used on your computer only for running Oxygen XML Author, it will be invisible to other applications.

Windows Installation

Windows installation procedure.

The following steps describe the installation procedure of Oxygen XML Author, valid for Windows:

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

   The user preferences are stored in the `com.oxygenxml.author` subfolder of the folder that is the value of the `APPDATA` Windows variable for the user that starts the application.

   Note:

   To specify a different Java Virtual Machine for Oxygen XML Author to use, set the home folder of the desired Java Virtual Machine in one of the `JAVA_HOME` or `JDK_HOME` Windows variables. In case `JAVA_HOME` and `JDK_HOME` are not set, the Oxygen XML Author launcher looks for a JVM installed in a standard location on your computer and uses it to start the application. If you installed the kit that includes a Java Virtual Machine, rename or remove the `jre` subdirectory of the installation directory for the `JAVA_HOME` or `JDK_HOME` variables to take effect.

3. Copy to clipboard the license key you have received by email and paste it in the Oxygen XML Author license dialog.

Note:

If you have difficulties installing the product, use the (oxygenAuthor.zip) archive distribution. Just unzip it in a directory where you have write permissions and use the product launchers.

Mac OS X Installation

The following steps describe the installation procedure of Oxygen XML Author, valid for Mac OS X:

1. Download the Mac OS X Installation package (`oxygenAuthor.zip`).

   The compressed file should be recognized and expanded by the web browser (Safari). If it is not automatically expanded, you can expand it manually by double clicking it.
2. In **Finder**, move the expanded folder to your `Applications` folder.
3. To run Oxygen XML Author, double click `OxygenAuthor.app`

Note:

Oxygen XML Author uses the first JVM from the list of preferred JVM versions, set on your Mac computer, that has the version number 1.6.0 or newer. To change the version of the Java Virtual Machine that runs the Oxygen XML Author, go to Applications -> Utilities -> Java -> Java Preferences and drag the new JVM version up in the list of preferred versions.

4. Copy to clipboard the license key you have received by email and paste it in the Oxygen XML Author license registration dialog.

Note:

To avoid an unpredictable behavior of the cursor, use a fixed-size font, for example Monaco. You can find more details about this behaviour *here*.

Linux Installation

Linux installation procedure.

The following steps describe the installation procedure of Oxygen XML Author, valid for Linux:

1. Download the `oxygenAuthor-32bit.sh` installation kit for 32 bit Linux machines or the `oxygenAuthor-64bit.sh` installation kit for 64 bit Linux machines and run it.
2. Follow the instructions presented in the installation program.

Note:

To specify a different Java Virtual Machine for Oxygen XML Author to use, set the home folder of the desired Java Virtual Machine in the `JAVA_HOME` or `JDK_HOME` environment variables. If `JAVA_HOME` and `JDK_HOME` are not set, the Oxygen XML Author launcher looks for a Java Virtual Machine installed in a standard location on your computer and uses it to run the application.

All Platforms Installation

The following steps describe the installation procedure of Oxygen XML Author, valid for all supported platforms:

1. Create a folder named `oxygenAuthor` on your local disk.

2. In the `oxygenAuthor` folder, create a child folder named after the version number of Oxygen XML Author. The directory structure is /../oxygenAuthor/15.2/ .
3. Download the All Platforms Installation package (`oxygenAuthor.tar.gz`) to this folder.
4. Extract the archive to the same folder.
5. From a command line, run the following scripts: `oxygenAuthor.bat` on Windows, `oxygenAuthorMac.sh` on Mac OS X, and `oxygenAuthor.sh` on Unix / Linux.

   Note:

   To change the version of the Java Virtual Machine that runs Oxygen XML Author, go to the Java command at the end of the script file and specify the full path to the Java executable of the desired JVM version, for example:

   ```
   "C:\Program Files\Java\jre1.6.0\bin\java" -Xmx256m -Dsun.java2d.noddraw=true ...
   ```

   on Windows, or

   ```
   /System/Library/Frameworks/JavaVM.framework/Versions/1.6.0/Home/bin/java "-Xdock:name=Author" ...
   ```

   on Mac OS X.

   Important:

   A Java virtual machine version 1.6.0 or later has to be installed.

6. Copy to clipboard the license key you have received by email and paste it in the application license dialog.

Unix / Linux Server Configuration

Unix / Linux Server configuration procedure.

To install Oxygen XML Author on a Unix / Linux server, follow these steps:

1. Install Oxygen XML Author on the server and make sure the `oxygenAuthor.sh` script is executable and the installation directory is in the PATH of the users that need to use the editor.
2. If you need to run multiple instances of the Oxygen XML Author, make sure you add the *-Dcom.oxygenxml.MultipleInstances=true* parameter in the startup script.
3. Make sure you allocate sufficient memory to Oxygen XML Author by setting an appropriate value for the `-Xmx` parameter in the `.sh` startup script.
4. Make sure the X server processes located on the workstations allow connections from the server host. For this, use the **xhost** command.
5. Telnet (or ssh) on the server host.
6. Start an xterm process, with the **display** parameter set on the current workstation. For example: `xterm -display workstationip:0.0`.
7. Start Oxygen XML Author by typing `oxygenAuthor.sh` .

Windows NT Terminal Server Configuration

Windows NT Terminal Server configuration procedure.

1. Install Oxygen XML Author on the server and make its shortcuts available to all users.
2. If you need to run multiple instances of Oxygen XML Author, make sure you add the *-Dcom.oxygenxml.MultipleInstances=true* parameter in the `.bat` or `.sh` startup script.
3. Make sure you allocate sufficient memory to Oxygen XML Author by adding the `-Xmx` parameter either in the `.bat` or `.sh` startup script, or in the `.vmoptions` configuration file (if you start it from an executable launcher).

Unattended Installation

Unattended installation is possible only on Windows and Linux by running the installer executable from the command line and passing the -q parameter. The installer executable is `oxygenAuthor.exe` on Windows and `oxygenAuthor.sh` on Linux

In unattended mode, the installer does not overwrite files with the same name if a previous version of the Oxygen XML Author is installed in the same folder. The -overwrite parameter added after the -q parameter forces the overwriting of these files.

If the installer is executed in silent (unattended) mode and the -console parameter is passed as a second parameter after the -q parameter, a console that displays the output of the installer will be allocated on Windows. The command for running the installer in this case is:

```
start /wait oxygenAuthor.exe -q -console
```

Custom Settings in Unattended Installation

An unattended installation applies the default settings of the installer.

If you want to install Oxygen XML Author on a large number of computers but you need to change the default values of some settings (like the installation directory, whether a desktop icon or a quick launch shortcut is created, the file associations created in the operating system, the name of the program group on the Start menu, etc.), use a special settings file which specifies the new values for these settings. To generate the settings file, run the installer in normal attended mode once on a test computer and specify the exact options that you want for the unattended installation. When the installation is completed, a file called `response.varfile` and containing your selected options is created in the `.install4j` subfolder of the installation folder, by default C:\Program Files\Oxygen XML Author Author 15\.install4j on Windows. This is a one time process. After that, to apply these options on all the computers where an unattended installation is performed, specify this file in the command line. For example copy the file in the same location as the installer program and use the following command:

- on Windows:
```
oxygenAuthor.exe -q -varfile response.varfile
```

- on Linux:
```
oxygenAuthor.sh -q -varfile response.varfile
```

Privacy Options

The following parameters control the privacy options:

Table 1: Privacy Options Parameters

Parameter name	Description	Values
autoVersionChecking	Automatic version checking.	`true` / `false`. Default setting is `true`.
reportProblem	Allows you to report a problem encountered while using Oxygen XML Author.	`true` / `false`. Default setting is `true`.
usageDataCollector	When set to `true`, you can choose whether Oxygen XML Author sends anonymous information about how it is used.	`true` / `false`. Default setting is `true`.

They can be set either in the `response.varfile` configuration file, or directly in the command line, like in the following example:

- on Windows:
```
oxygenAuthor.exe -q -VautoVersionChecking=false -VreportProblem=false
-VusageDataCollector=false
```

- on Linux:
```
oxygenAuthor.sh -q -VautoVersionChecking=false -VreportProblem=false
-VusageDataCollector=false
```

Making Oxygen XML Author Portable

To create a portable distribution of Oxygen XML Author that you can keep on an USB stick, follow these instruction:

- For Windows:
  - go to *www.oxygenxml.com/InstData/Editor/Windows/VM/oxygen.zip* and save the ZIP archive on your disk;

    Note: The ZIP includes Java Virtual Machine.

  - unpack the ZIP and copy the `license.txt` file to the unpacked directory;
  - use /../oxygenAuthor/15.2/ .exe to start the application;
- For Mac OS X:
  - go to *http://www.oxygenxml.com/download_oxygenxml_editor.html?os=MacOSX* and download the MAC distribution;

    Note: The MAC distribution does not include Java Virtual Machine.

  - unpack the ZIP and copy the `license.txt` file to the unpacked directory;
  - use `Oxygen.app` to start the application. Java will be installed automatically in case it is not installed already.
- For Linux and Ubuntu:
  - Download and install a Linux kit on one computer and copy the installation directory to the USB/network drive to distribute it the everyone:
    - go to *http://www.oxygenxml.com/download_oxygenxml_editor.html?os=Linux* and download the Linux kit that corresponds to your platform architecture (32 bit/ 64 bit);

      Note: The ZIP includes Java Virtual Machine.

    - install it as a normal user (no root or `sudo`) in the user home and copy the `license.txt` file to the installation directory;
    - to start the application, use sh /../oxygenAuthor/15.2/ . Java is not needed on the system.

      Note: The `.desktop` files will not work because the installation path is hard coded.

    - Download and unpack the all platforms archive(tar.gz), download Java for Linux and place it in the Oxygen directory:
      - go to *http://www.oxygenxml.com/download_oxygenxml_editor.html?os=All* and download the all platforms kit;

        Note: Java Virtual Machine is not included.

      - go to *http://www.oracle.com/technetwork/java/javase/downloads/index.html*, download and unpack/install Linux JRE;
      - place the JRE in the `Oxygen` home directory, in a new directory named `jre`. The java executable should be `Oxygen\jre\bin\java`;
      - copy the `license.txt` file to the `Oxygen` directory;
      - use `sh oxygen.sh` to start the application.

        Note: Java is not needed on the system. You have it bundled it with Oxygen XML Author.

Java Web Start (JWS) Installer

Oxygen XML Author provides the tools to create your own JWS distribution that can be installed on a custom web server. Advantages of a JWS distribution include:

- Oxygen XML Author is run locally, not inside a web browser, overcoming many of the browser compatibility problems common to applets;
- JWS ensures that the most current version of the application will be deployed, as well as the correct version of JRE;
- applications launched with Java Web Start are cached locally. Thus, an already downloaded application is launched on par with a traditionally installed application;
- you can preconfigure Oxygen XML Author and the rest of your team will use the same preferences and frameworks.

Note: If you want to create your own JWS distribution package, please contact Syncro Soft for the Oxygen SDK agreement.

Note: A code signing certificate is needed to sign the JWS distribution. The following procedure assumes that you already have such a certificate (for example Thawte™, or Verisign™).

Important: When running the Java Web Start distribution on Mac OS X, due to changes in this *security release*, clicking the link to the JNLP file does not start the application. The selected JNLP is downloaded locally. Right click it and choose to open the resource.

The following schematics depicts the Oxygen XML Author Java Web Start deployment procedure:

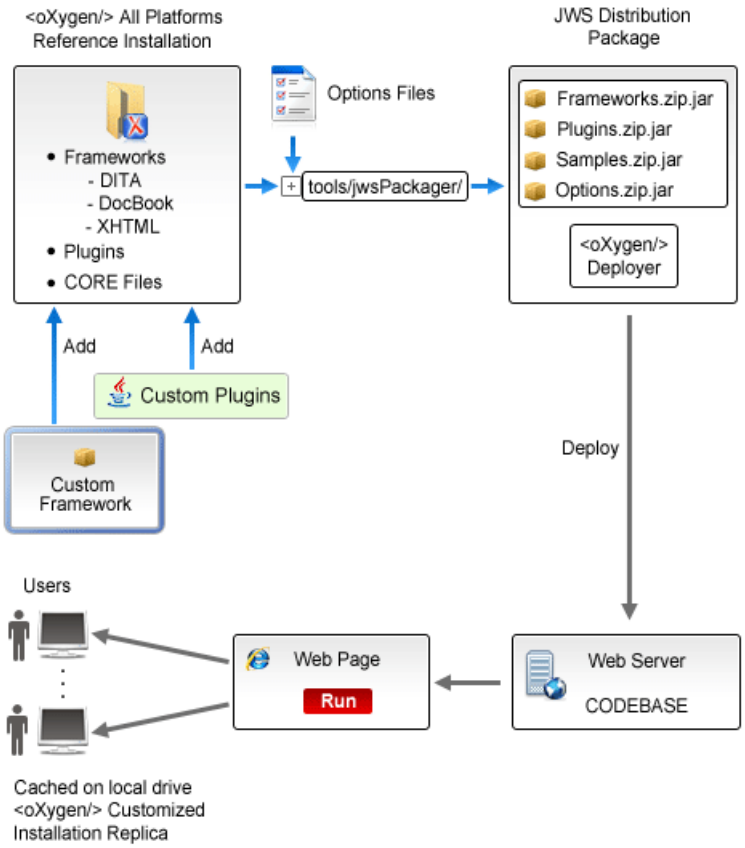


Figure 1: Java Web Start Deployment Procedure

The following steps describe the procedure of deploying an Oxygen XML Author installation on a custom server.

1. Go to `http://www.oxygenxml.com/InstData/Author/All/oxygenAuthor.tar.gz` and download the All Platforms Installation package to a local drive.
2. Expand the archive.
   The `oxygenAuthor` folder is created.
3. Optionally, you can customize the content of the **frameworks** folder, containing default template document files.
4. Edit the `oxygenAuthor\tools\jwsPackager\packager.properties` configuration file. The following properties need to be adjusted:
   - **codebase** - represents the location of the future JWS distribution;
   - **keystore** - keystore location path;
   - **storepass** - password for keystore integrity;
   - **storetype** - type of the certificate file, like `PKCS12` or `JKS`;
   - **alias** - keystore alias;
   - **optionsDir** - points to the options directory that may be distributed with the JWS installer. In case the directory contains an XML document named `options.xml` or `default.xml` containing exported options, these options will be used. Otherwise, the structure of the options folder has to match the structure of a stand alone application *options folder*.

     Note: This property is optional. It is provided only if *custom options* need to be delivered to the end users.

   The values of **keystore**, **storepass**, and **alias** properties are all provided by the code signing certificate. For more information, please check the documentation of the *`jarsigner`* tool.
5. Edit the JNLP `oxygenAuthor\tools\jwsPackager\dist\javawebstart\author\author.jnlp` template file to modify default settings. You can specify the list of files opened at startup by modifying the `<argument>` list. To pass system properties directly to Oxygen XML Author when it is started, add the `oxy` prefix to them (for example: `<property name="oxyPropertyName" value="testValue"/>`). The system property is passed to Oxygen XML Author with the prefix stripped.
6. Using a command-line console, run `ant` in the `oxygenAuthor\tools\jwsPackager` folder.
   The **ant** process creates the `oxygenAuthor\tools\jwsPackager\dist\InstData\authorJWS.zip` archive that contains the actual remote JWS installer.
7. Copy the expanded content of the archive to the folder specified in the **codebase** property, previously set in the **`packager.properties`** file.
8. Using your favorite web browser, go to the address specified in the **codebase** property or to its parent folder and start the remote installer.

Setting a Java Virtual Machine Parameter in the Launcher Configuration File / Start-up Script

There are two ways you can set new Java Virtual Machine parameters:

- *Setting parameters for the Oxygen XML Author launchers;*
- *Setting parameters in the command line scripts.*

Setting Parameters for the Application Launchers

Increasing the amount of memory that Oxygen XML Author uses on Windows

To increase the memory available to Oxygen XML Author on Windows:

- navigate to the installation directory of Oxygen XML Author;
- locate the -Xmx parameter in the oxygenAuthor15.2.vmoptions file;

> **Note:** For 32-bit Windows modify the parameter to -Xmx1024m or larger, but not over -Xmx1200m. Make sure you do not exceed your physical RAM. For 64-bit Windows modify the parameter to a larger value (for example -Xmx2048m). We recommended you to not use more than half of your existing physical RAM.

Restart Oxygen XML Author. Go to **Help** > **About** and verify the amount of memory that is actually available (see the last row in the **About** dialog). In case Oxygen XML Author does not start and you receive and error message saying that it could not start the JVM, decrees the -Xmx parameter and try again.

For Windows Vista/7, copy the oxygenAuthor15.2.vmoptions to your desktop (or to any other folder with write access), modify it there, then copy it back to the Oxygen XML Author installation folder.

> **Note:** The parameters from the `.vmoptions` file are used when you start Oxygen XML Author with the *oxygen* launcher (or with the desktop shortcut). In case you use the command line script `oxygen.bat`/`oxygen.sh`, modify the -Xmx parameter in the script file.

Increasing the amount of memory that Oxygen XML Author uses on Mac OS X

To increase the memory available to Oxygen XML Author on Mac OS X:

- **Ctrl (Meta on Mac OS) + Click** (or right click) the Oxygen XML Author icon in **Finder**;
- from the pop-up menu, select **Show Package Contents**;
- navigate to the `Contents` directory and open for editing the `Info.plist` file;

> **Note:** You can open this file either with the **Property List Editor**, or the **TextEdit**.

- Look for the **VMOptions** key and adjust the -Xmx parameter to a larger value (for example -Xmx1500m)

> **Note:** Try not to use more than half of your existing physical RAM if possible.

Setting a system property

To set a system property, you have to provide a parameter of the following form:

```
-Dproperty.name=value
```

To view the list of all system properties, go to *Custom System Properties* on page 778.

Setting Parameters in the Command Line Scripts

If you start Oxygen XML Author with the `oxygenAuthor.bat` script, you have to add or modify the parameter to the java command at the end of the script.

For example, to set the maximum amount of Java memory to 600 MB on **Windows**, modify the **-Xmx** parameter like this:

```
java -Xmx600m -Dsun.java2d.noddraw=true ...
```

on **Mac OS X** the java command should look like:

```
java "-Xdock:name=Author"\
 -Dcom.oxygenxml.editor.plugins.dir="$AUTHOR_HOME/plugins"\
 -Xmx600m\
 ...
```

and on **Linux** the Java command should look like:

```
java -Xmx600m\
 "-Dcom.oxygenxml.editor.plugins.dir=$AUTHOR_HOME/plugins"\
```

Starting Oxygen XML Author

This section specifies the steps for starting Oxygen XML Author on Windows, Mac OS X, and Linux and also for starting it using the all platforms kit.

Starting Oxygen XML Author on Windows

Start the Oxygen XML Author launcher.

Use one of the following two launchers:

- Oxygen XML Author - started from the shortcut created by the installer on the **Start** menu.
- `oxygenAuthor.bat` - located in the install folder and started from command line.

Starting Oxygen XML Author on Mac OS X

Start the Oxygen XML Author launcher.

Use one of the following two methods:

- The `Author` shortcut that the installer created on your **Desktop**.
- The `sh oxygenAuthorMac.sh` command, executed from the command line. This launcher file is located in the installation folder.

Notice: Two or more instances can be started on the same computer with the following command that should be executed for any new instance:

```
open -n Author.app
```

Starting Oxygen XML Author on Linux

Start the Oxygen XML Author launcher.

Use one of the following two methods:

- The `author` shortcut created on **Desktop** by the installer.
- The `sh oxygenAuthor.sh` command executed from the command line. This launcher file is located in the installation folder.

Starting Oxygen XML Author with the All Platforms Kit

Start the Oxygen XML Author launcher.

Use the following command:

- `oxygenAuthor.bat` on Windows;
- `sh oxygenAuthor.sh` on Linux;
- `sh oxygenAuthorMac.sh` on Mac OS X.

Obtaining and Registering a License Key

Oxygen XML Author is not free software. To enable and use Oxygen XML Author, you need a license.

For demonstration and evaluation purposes, a time limited license is available upon request at the *Oxygen XML Author website* . This license is supplied at no cost for a period of 30 days from the date of issue. During this period, the software is fully functional, enabling you to test all its aspects. Thereafter, the software is disabled. To further use it, you must purchase a permanent license. For special circumstances, if a trial period greater than 30 days is required, please contact support@oxygenxml.com .

For definitions and legal details of the license types, consult the End User License Agreement received with the license key.

Note: It is also available at *http://www.oxygenxml.com/eula_author.html* , or in the **About** dialog box.

There are several ways to register a license, depending on its type and use case:

- using the **Register** dialog of Oxygen XML Author (the most common case) to register a named-user based or concurrent license;
- storing the license key into a file (either text or xml) that is copied to the installation directory of Oxygen XML Author.

At start-up, Oxygen XML Author looks for a valid license key in the following locations, in this order:

- *in the xml file registration*;
- *in the text file registration*;
- in its internal settings files created after you used the **Register** dialog to validate a *named-user based* or *concurrent license*.

Named User License Registration

1. Save a backup copy of the message containing the new license key.
2. Start Oxygen XML Author.
3. Copy to the clipboard the license text as explained in the message.
4. If this is a new install of Oxygen XML Author, the registration dialog is displayed automatically at start-up. In the case you already used Oxygen XML Author and obtained a new license, use the menu option Help / Register

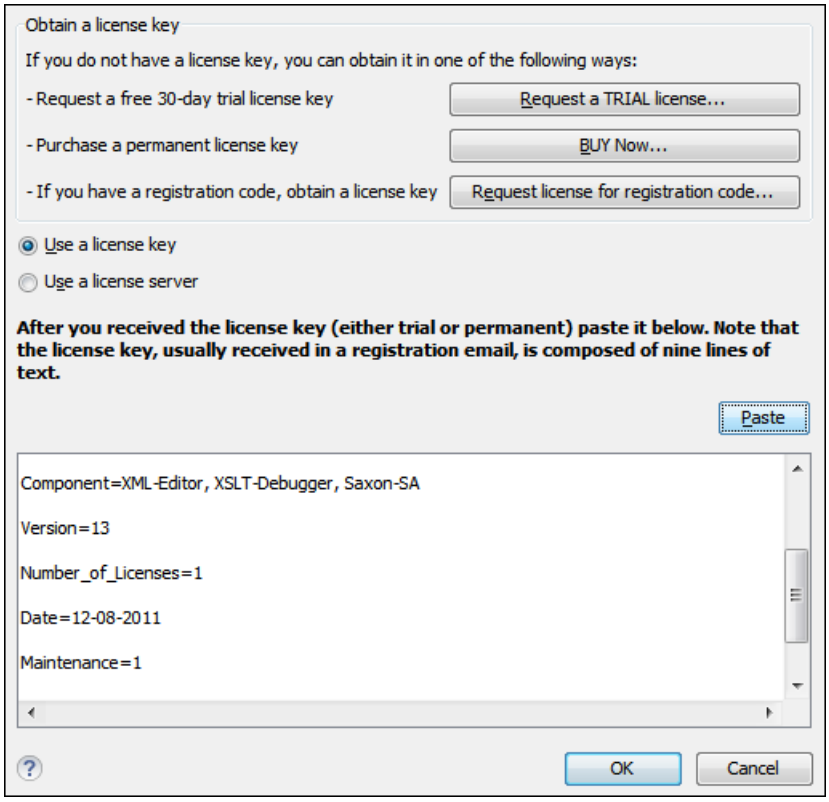


Figure 2: Registration Dialog

5. Select **Use a license key** as licensing method.
6. Paste the license text in the registration dialog.
7. Press the OK button.

Named User License Registration with Text File

1. Save the license key in a file named `licensekey.txt`.
2. Copy `licensekey.txt` in the installation folder of Oxygen XML Author or in the `lib` subfolder of the installation folder.
3. Start the Oxygen XML Author.

Named User License Registration with XML File

This procedure is designed to help system administrators register the application for multiple users, without the hassle of configuring the application licensing for each of them.

1. Depending on your license type, register Oxygen XML Author for the currently logged user, using one of the following procedures:
   - *Named User License Registration*;
   - *Request a Floating License from a License Server Running as a Standalone Process* or *Request a Floating License from a License Server Running as a Java Servlet*, if you have a floating license key.
2. Copy the `license.xml` file from the *preferences directory* of Oxygen XML Author to its installation directory (or its `lib` sub-directory).

3. For each installation of Oxygen XML Author (either on the same computer or on different computers) repeat step 2.

How Floating (Concurrent) Licenses Work

Floating licenses are *pooled* licenses that can be shared across a group of users. They are most often deployed when an organization has a group of users that only consume a license for a minority of their working hours. The licenses are returned back into the license pool as soon as they are released. Other users can then immediately reuse them.

Note: A user who runs two different distributions of Oxygen XML Author (for example Standalone and Eclipse Plugin) at the same time on the same computer, consumes a single license.

The license management is done either by the Oxygen XML Author itself, or by the Oxygen license server:

- If you plan to use the application on machines running in the same local network, Oxygen XML Author can manage the licenses usage by itself. Different running instances of Oxygen XML Author communicate between them, using UDP broadcast on the 59153 port, to the 239.255.255.255 group. The registration procedure requires you to paste the license key in the license registration dialog. for further details, go to *Named User License Registration*.
- If you plan to use the application on machines running in different network segments, use an Oxygen XML Author floating license server. A floating license server can be installed either as a *Java servlet* or as a *standalone process*.

Setting up a Floating License Server Running as a Java Servlet

Setting up the floating license servlet.

Apache Tomcat 5.5 or higher is necessary. To get it, go to *http://tomcat.apache.org*.

1. Download the **Web ARchive** (**.war**) license servlet from one of the download URLs included in the registration email message.
2. Go to the Tomcat Web Application Manager page. In the **WAR file to deploy** section choose the WAR file and click the **Deploy** button. The *oXygen License Servlet* should be up and running, but there is no licensing information set.
3. To set the license key, log on the deployment machine, and go to the Tomcat installation folder (usually `/usr/local/tomcat`). Then go to the `webapps/oXygenLicenseServlet/WEB-INF/license/` folder and create a new file called `license.txt`. Copy the license text that was sent to you via e-mail into this file and save it.
4. It is recommended to password protect your pages using a Tomcat Realm. Please refer to the Tomcat Documentation for detailed info, like the *Realm Configuration HOW-TO - Memory Based Realm section*.
5. Once you have defined a realm resource, you have to edit `webapps/oXygenLicenseServlet/WEB-INF/web.xml` file to configure user access rights on the license server. Note that Tomcat's standard security roles are used, i.e.: **standard** for licensing and **admin** or **manager** for the license usage report page.
6. By default, the license server is logging its activity in `/usr/local/tomcat/logs/oxygenLicenseServlet.log` file. To change the log file location, edit the `log4j.appender.R2.File` property from the `/usr/local/tomcat/webapps/oXygenLicenseServlet/WEB-INF/lib/log4j.properties` configuration file.
7. Restart *oXygen License Servlet* from the Tomcat Web Application Manager page.

Contact the Oxygen XML Author XML support staff at *support@oxygenxml.com* and ask for a new license key if:

- you have multiple license keys for the same Oxygen XML Author version and you want to have all of them managed by the same server;
- you have a multiple-user floating license and you want to split it between two or more license servers.

Report Page

You can access an activity report at `http://hostName:port/oXygenLicenseServlet/license-servlet/report`.

It displays in real time the following information:

- **License load** - a graphical indicator that shows how many licenses are available. When the indicator turns red, there are no more licenses available.
- **Floating license server status** - general information about the license server status like:
  - server start time;
  - license count;
  - rejected and acknowledged requests;
  - average usage time;
  - license refresh and timeout intervals;
  - location of the license key;
  - server version.
- **License key information** - license key data:
  - licensed product;
  - registration name;
  - company name;
  - license category;
  - number of floating users;
  - Maintenance Pack validity.
- **Current license usage** - lists all currently acknowledged users:
  - user name;
  - date and time when the license was granted;
  - name and IP address of the computer where Oxygen XML Author runs;
  - MAC address of the computer where Oxygen XML Author runs.

Note: The report is available also in XML format at `http://hostName:port/oXygenLicenseServlet/license-servlet/report-xml`.

Setting up a Floating License Server Running as a Standalone Process

Setting up the floating license server.

Important: Add oXygenLicenseServer.exe manually in the Window Firewall list of exceptions. Go to **Control Panel** > **System and Security** > **Windows Firewall** > **Allow a program or feature through Windows Firewall** > **Allow another program** and browse for oXygenLicenseServer.exe from the oXygen License Server installation folder.

1. Download the license server installation kit for your platform from one of the download URLs included in the registration email message with your floating license key.
2. Unzip the install kit in a new folder.

   The Windows installer *installs the license server as a Windows service*. It provides the following optional features that are not available in the other license server installers:

   - Set the Windows Service name;
   - Start the Windows service automatically at Windows startup;
   - Create shortcuts on the Start menu for starting and stopping the Windows service manually.

   If you use the zip archive on Windows you have to run the scripts provided in the archive for installing, starting, stopping and uninstalling the server as a Windows service.

The zip archive can be used for running the license server on any platform where a Java virtual machine can run (Windows, Mac OS X, Linux / Unix, etc).

3. Start the server using the startup script.

   The startup script is called `licenseServer.bat` for Windows and `licenseServer.sh` for Mac OS X and Unix / Linux. It has 2 parameters:

   - `licenseDir` - the path of the directory where the license files will be placed. Default value: `license`.
   - `port` - the TCP port number used to communicate with Oxygen XML Author instances. Default value: **12346**.

   The following is an example command line for starting the license server on Unix/Linux and Mac OS X:

   ```
   sh licenseServer.sh myLicenseDir 54321
   ```

   The following is an example command line for starting the license server on Windows:

   ```
   licenseServer.bat myLicenseDir 54321
   ```

The license folder must contain a text file called `license.txt` which must contain a single floating license key corresponding to the set of purchased floating licenses. If you have more than one floating license key for the same Oxygen XML Author version obtained from different purchases or you want to split a set of license keys between 2 different servers please contact us at *support@oxygenxml.com* to merge / split your license keys.

Install the License Server as a Windows Service

1. Download the Windows installer of the license server from the URL provided in the registration email message containing your floating license key.
2. Run the downloaded installer.
3. Enable the Windows service on the machine that hosts the license server, either during installation or at a later time with the service management batch scripts (*installWindowsService.bat*).

   If you want to install, start, stop and uninstall manually the server as a Windows service you must run the following scripts from command line. On Windows Vista and Windows 7 you have to run the commands as Administrator.

   - `installWindowsService.bat [serviceName]` - install the server as a Windows service with the name *serviceName*. The parameters for the license key folder and the server port can be set in the `oXygenLicenseServer.vmoptions` file.
   - `startWindowsService.bat [serviceName]` - start the Windows service.
   - `stopWindowsService.bat [serviceName]` - stop the Windows service.
   - `uninstallWindowsService.bat [serviceName]` - uninstall the Windows service.

   Note: If you do not provide the *serviceName* argument, the default name, *oXygenLicenseServer*, is used.

When the license server is used as a Windows service the output and error messages are redirected automatically to the following log files created in the install folder:

- `outLicenseServer.log` - server's standard output stream;
- `errLicenseServer.log` - server's standard error stream.

Note: Before starting the server, the JAVA_HOME variable must point to the home folder of a Java runtime environment installed on your Windows system.

Note: On Windows Vista and Windows 7 if you want to start or stop the Windows service with the Start menu shortcut called *Start Windows service* / *Stop Windows service* you have to run the shortcut as Administrator.

Common Problems

Here are the common problems that may appear when setting up a floating license server running as a standalone process.

Windows service reports Incorrect Function when started

The "Incorrect Function" error message when starting the Windows service usually appears because the Windows service launcher cannot locate a Java virtual machine on your system.

Make sure that you have installed a 32-bit Java SE from Oracle(or Sun) on the system:
http://www.oracle.com/technetwork/java/javase/downloads/index.html

When started, the Windows service reports Error 1067: The process terminated unexpectedly.

This error message appears if the Windows service launcher has quit immediately after being started.

This problem usually happens because the license key has not been correctly deployed(license.txt file in the license folder). More details about this can found *here.*

Request a Floating License from a License Server Running as a Standalone Process

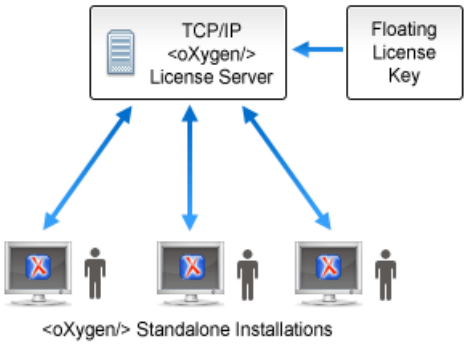


Figure 3: Floating License Server Running as a Standalone Process

1. Start Oxygen XML Author.
2. Go to **Help** > **Register** .
   The license dialog is displayed. Oxygen XML Author
3. Choose **Use a license server** as licensing method.
4. Select **Standalone server** as server type.
5. Fill-in the *Host* text field with the host name or IP address of the license server.
6. Fill-in the *Port* text field with the port number used to communicate with the license server.
7. Click the **OK** 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 XML Author. To display the license details, go to the **About** dialog and select **Help**. If the maximum number of licenses was exceeded a warning dialog pops up letting you know about the problem. The message contains information about the users who requested and successfully received the floating licenses before exceeding the maximum number of licenses.

Request a Floating License from a License Server Running as a Java Servlet

Starting with version 12.1, Oxygen XML Author can use a license server running as a Java Servlet to manage floating licenses.

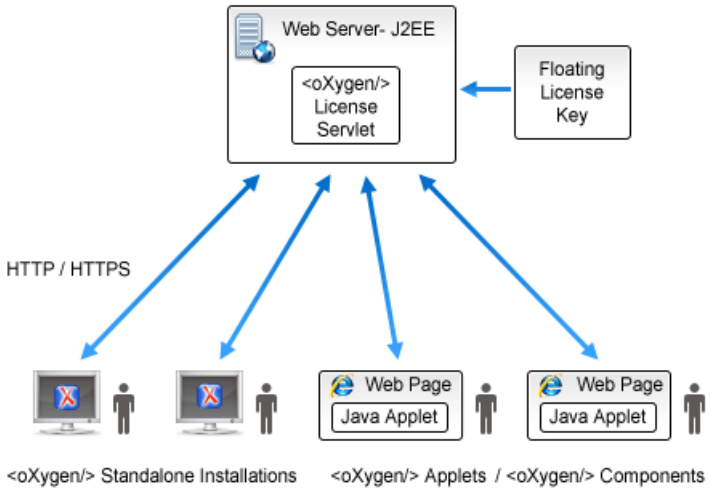


Figure 4: Floating License Server Running as a Servlet

1. Start the application.
2. Go to menu **Help** > **Register** .
   The license dialog is displayed.
3. Choose **Use a license server** as licensing method.
4. Select **HTTP/HTTPS Server** as server type.
5. Fill-in the *URL* text field with the address of the license server.
   The URL address has the following format:
   `http://hostName:port/oXygenLicenseServlet/license-servlet`
6. Fill-in the *User* and *Password* text fields. Contact your server administrator to supply you this information.
7. Click the **OK** 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 XML Author. The license details are displayed in the **About** dialog opened from the **Help** menu. If the maximum number of licenses was exceeded a warning dialog pops up letting you know about the problem. The message contains information about the users who requested and successfully received the floating licenses before exceeding the maximum number of licenses.

Note: Two different Oxygen XML Author instances (for example one standalone and one Eclipse plugin) run on the same machine, consume a single license key.

Release a Floating License

The floating license key registered for the current Oxygen XML Author instance will be released automatically when the connection with the license server is lost (after closing the application or as a result of a network failure).

To manually release a floating license key to be returned to the server's pool of available license keys:

1. Go to the menu **Help**.
2. Select **Register**.
3. Select **Use a license key** as licensing method.
4. Paste a Named User license key in the registration dialog. Leave the text area empty to return to the previously used license key, if any.
5. Press the **OK** button of the dialog.

License Registration with an Activation Code

If you have only an activation code and you want to register the associated license key you must request this license key by filling the registration code and other details associated with your license in a request form on the Oxygen XML Author website. The button **Request license for registration code** in the registration dialog available from menu **Help** > **Register** opens this request form in the default Web browser on your computer.

Unregistering the License Key

Sometimes, you may need to unregister your license key. For example, to release a *floating license* to be used by other user and still use the current Oxygen XML Author instance with a Named User license, or to transfer your license key to other computer before other user starts using your current computer.

1. Go to menu **Help** > **Register** > **Register**
   This displays the license registration dialog.
2. Make sure the text area for the license key is empty.
3. Make sure the option **Use a license server** is not selected.
4. Press the **OK** button of the dialog.
   This displays a confirmation dialog.
5. Select between falling back to the license key entered previously (for the case of releasing a floating license and reverting to Named User license) and removing your license key from your user account of the computer using the **Reset** button.

   The **Reset** button erases all the licensing information. To complete the reset operation, close and restart Oxygen XML Author.

Upgrading Oxygen XML Author

From time to time, upgrade and patch versions of Oxygen XML Author are released to provide enhancements that rectify problems, improve functionality and the general efficiency of the application.

Any personal configuration settings and customizations are preserved by installing an upgrade or a patch.

Upgrading the Standalone Application

Upgrading to a new version might require a new license key. To check if your license key is compatible with the new version, select **Help** > **Check for New Version**. Note that the application needs an Internet connection to check the license compatibility.

Note: Any customization that was applied to a *predefined document type* will be removed by an upgrade.

If there is a previous version of Oxygen XML Author already installed on your computer, it can coexist with the new one, which means you don't have to uninstall it. However, if you choose to uninstall the older version please note that all the files from its install directory will be removed, including any modification in Author frameworks files, XSLT stylesheets, XML catalogs, and templates. If you have modified any files in that directory, it is recommended to keep the older version until you are sure you don't need it anymore. The user preferences are stored in a different directory. They will not be removed and will be imported automatically in the new version at the first application launch.

1. Download the install kit of the new version.
2. Create a new folder under `/../oxygenAuthor` e. g. /../oxygenAuthor/15.2
3. Extract the content of the install kit into the new folder.

4. If you have defined Oxygen XML Author in the system PATH, modify it to point to the new installation folder.
5. Start Oxygen XML Author
   This will test that the application can start and that your license is recognized by the upgrade installation.

Checking for New Versions

Oxygen XML Author offers *the option of checking for new versions* at the *http://www.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.

To check for new versions manually, at any time, go to **Help** > **Check for New Versions**.

You are informed automatically that a new version is available as follows:

- in case the version you are using is the same with the latest released version, you are notified when new builds are available at *www.oxygenxml.com*;
- in case the version you are using is the penultimate version (for example you are using version 14.1 and version 14.2 is available at *www.oxygenxml.com*), you are informed that a new version was released;
- in case at *www.oxygenxml.com* two versions are available, for example version 14.1 and version 15, and you are using version 14.1, you are informed that version 15 was released. Apart from this notification, if you do not have the latest build installed, you are also informed about new 14.1 builds;
- in case at *www.oxygenxml.com* both a minor and a major version is available, and you are using a version older than both of them, you are informed about the major version and also about the minor one.

Installing and Updating Add-ons

Oxygen XML Author provides a framework and plugin deployment support which allows frameworks and plugins to be automatically discovered and installed from a remote location. Two types of add-ons are supported:

- framework - a collection of files (CSS stylesheets, XML schemas, transformation scenarios, specific actions, just to name a few) which provide custom functionality for a specific type of document;

  Note: Frameworks that you install through the add-ons system are read-only.

- plugin - a software component that adds extended functionality using a series of extension points provided by Oxygen XML Author.

To open the add-ons preferences page, go to **Options** > **Preferences** > **Add-ons**. The following options are available in the Add-ons preferences page:

- **Enable automatic updates checking** - allows Oxygen XML Author to search for available updates automatically;
- **Update Sites URLs** - this list contains the URLs of the update sites. An update site is an XML descriptor file which stores all the information about an add-on. You can add, edit, and delete URLs in this list.

To manage the add-ons, go to **Help** > **Manage add-ons...**. Oxygen XML Author reads the update site, detects the add-ons, and displays them.

Note:

By default, only the latest versions of the add-ons that are compatible with the current version of Oxygen XML Author are displayed.

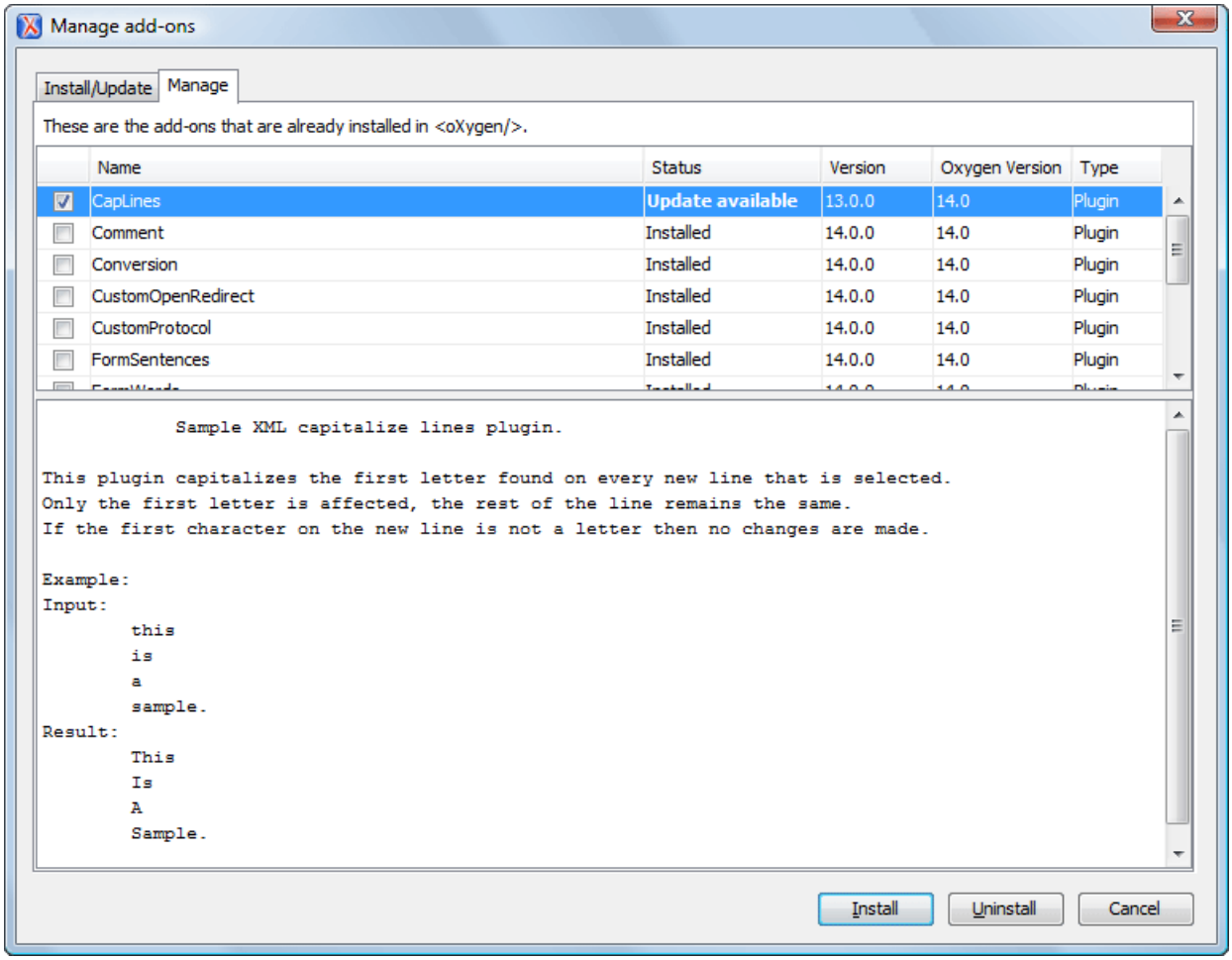


Figure 5: The Manage add-ons dialog

The **Manage add-ons dialog** contains two tabs:

- the **Install/Update** tab - this tab presents the list of available updates that are compatible with the current version of Oxygen XML Author. The updates list contains the name, the status, the update version, the oxygen version, and the type of the add-on (either framework, or plugin). A short description of each update is presented under the updates list. To visualize all the add-ons from the remote update site, disable **Show only compatible add-ons** and **Show only the latest version of the add-ons**;
- the **Manage** tab - this tab presents a list with the available updates (compatible with the current version of oxygen) and with the already installed updates. From the manage tab, you are able to install new updates, or remove installed ones. Under the updates list, Oxygen XML Author presents a short description of each update.

To install an add-on, enable its check-box and click the **Install** button. Oxygen XML Author opens the **License and signature** dialog. This dialog contains two sections. The first section presents a list with the add-ons you chose and the second section is composed of two tabs:

- **License** - presents the End User License Agreement;
- **Signature** - lets you know whether the add-on has a valid signature and presents information regrading the certificate.

After reading the information in the two tabs, enable **I accept all terms of the end user license agreement** and select **Update** to complete the operation.

The **Help** menu also contains the **Check for add-ons updates...** option. This option also opens the **Manage add-ons dialog**, but only presents the updates compatible with the current oxygen version.

When you install a new version of Oxygen XML Author, you can import add-ons from the previous version. Oxygen XML Author presents all the add-ons of the previous version, compatible or not.

To watch our video demonstration about the Add-ons support in Oxygen XML Author, go to *http://www.oxygenxml.com/demo/AddonsSupport.html*.

Uninstalling the Oxygen XML Author

This section contains uninstallation procedures.

Uninstalling the Oxygen XML Author Standalone

Caution: The following procedure will remove Oxygen XML Author from your system. **Please ensure that all valuable data stored in the install folder is saved to another location prior to performing this procedure.**

1. Backup all valuable data from the Oxygen XML Author installation folder.
2. Remove the application.
   - On Windows use the appropriate uninstaller shortcut provided with your OS.
   - On Mac OS X and Unix manually delete the installation folder and all its contents.
3. If you want to remove also the user preferences that were configured in the **Preferences** dialog you must remove the folder `%APPDATA%\com.oxygenxml.author` on Windows (usually %APPDATA% has the value [user-home-dir]\Application Data) / the subfolder `.com.oxygenxml.author` of the user home folder on Linux / the subfolder `Library/Preferences/com.oxygenxml.author` of the user home folder on Mac OS X.

Unattended Uninstall

The unattended uninstall procedure is available only on Windows and Linux.

Run the uninstaller executable from command line with the -q parameter.

The uninstaller executable is called `uninstall.exe` on Windows and `uninstall` on Linux and is located in the application's install folder.

Performance Problems

This section contains the solutions for some common problems that may appear when running Oxygen XML Author.

Large Documents

When started from the icon created on the Start menu or the Desktop on Windows or from the shortcut created on the Linux desktop the maximum memory available to Oxygen XML Author is set by default to 40% of the amount of physical RAM but not more than 700 MB. When started from the command line scripts the maximum memory is 256 MB. If large documents are edited in Oxygen XML Author and you see that performance slows down considerably after some time then a possible cause is that the application needs more memory in order to run properly. You can increase the maximum amount of memory available to Oxygen XML Author by *setting the -Xmx parameter in a configuration file* specific to the platform that runs the application.

Attention:

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.

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

External Processes

The *Memory available to the built-in FOP* option controls the amount of memory allocated to generate PDF output with the built-in Apache FOP processor. In case Oxygen XML Author throws an *Out Of Memory* error, go to **Options** > **Preferences** > **XML** > **XSLT-FO-XQuery** > **FO Processors** and increase the value of the *Memory available to the built-in FOP* option.

For external XSL-FO processors, XSLT processors, and external tools, the maximum value of the allocated memory is set in the command line of the tool using the -Xmx parameter set to the Java virtual machine.

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 *adding the startup parameter* -Dsun.java2d.pmoffscreen=false.

Help Menu

The **Help** menu contains the following options:

- **Welcome** - displays the **Welcome** dialog. This dialog is also presented by default each time you start Oxygen XML Author. In case you have open editors it is presented as an individual dialog. If not, at start-up, the **Welcome** dialog is integrated in the empty editing area;
- **Help** - opens the **Help** dialog;
- **Show Dynamic Help View** - loads automatically the relevant help section for the focused editor, view, or dialog box;
- **Check for add-ons updates...** - select this option to check for available add-ons updates. Oxygen XML Author lets you know whether updates are available or not. In case updates are available select **Review updates** to open the **Manage add-ons** view.
- **Manage add-ons** - select this option to open the **Manage add-ons** view;
- **Check for a New Version** - checks the availability of a new application version;
- **Browse oXygen website** - opens the Oxygen XML Author website in your default web browser;
- **Register** - opens the registration dialog;
- **Report problem** - opens a dialog that allows the user to write the description of a problem that was encountered while using the application. You are able to change the URL where the reported problem is sent using the *com.oxygenxml.report.problems.url* system property. The report is sent in XML format through the `report` parameter of the POST HTTP method.
- **Improvement Program Options** - allows you to activate or deactivate the application Product Improvement Program;
- **Support center** - opens the Oxygen XML Author Support Center web page in a browser;
- **About** - opens the **About** dialog.

The About Dialog

The **About** dialog contains the following tabs:

- **Copyright** - this tab contains general information about the product and the version of the product you are using, along with contact details and the *SGN* number. Details regarding the memory usage are also presented at the bottom of the dialog;
- **Libraries** - this tab presents the list of third party libraries that Oxygen XML Author uses. To view the End User Licence Agreement of each library, double click it;
- **Frameworks** - this tab contains a list with the frameworks that are bundled with Oxygen XML Author;
- **System Properties** - this tab contains a list with system properties and their values. The contextual menu allows you to select and copy the properties.

The Welcome Dialog

The **Welcome** dialog is an informative and functional panel displayed when you start Oxygen XML Author. It presents upcoming events, useful video demonstrations, the tip of the day and also gives you fast access to recently used files and projects and the possibility to create new ones.

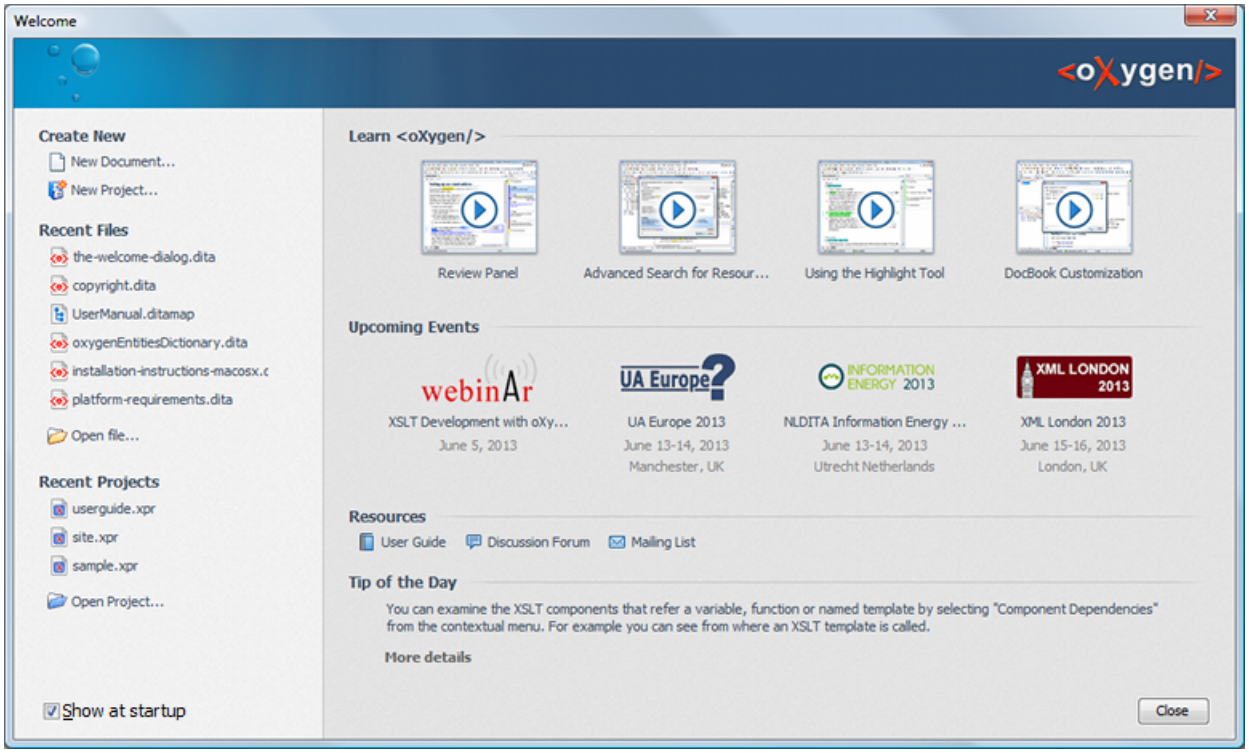


Figure 6: The Welcome Dialog

This dialog is displayed cut out from the main layout of Oxygen XML Author if documents are already opened in the editing area at startup. If not, the **Welcome** dialog is integrated in the empty editing area. To display it any time you want, go to **Help** > **Welcome**.

Chapter 3

Getting Started

Topics:

This section gets you started with the editing perspectives of Oxygen XML Author.

Getting Help

To access the online help, which is available at any time while working in Oxygen XML Author, go to **Help** > **Help**. Alternatively, you can press **F1** on your keyboard to display directly the matching help page of the currently focused editor, dialog, or view. If you want the relevant help pages to load automatically as you change the focus, go to **Window** > **Show View** > **Dynamic Help** or **Help** > **Show Dynamic Help View**.

The name and version of the third-party libraries and frameworks used by Oxygen XML Author 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.

Supported Types of Documents

Oxygen XML Author provides a rich set of features for working with:

- XML documents and applications
- CSS documents

Perspectives

The Oxygen XML Author interface uses standard interface conventions and components to provide a familiar and intuitive editing environment across all operating systems.

With Oxygen XML Author, you can edit documents in one of the following perspectives:

Editor perspective	Documents editing is supported by specialized and synchronized editors and views.
Database perspective	Multiple connections to relational databases, native XML databases, WebDAV sources and FTP sources can be managed at the same time in this perspective: database browsing, SQL execution, XQuery execution and data export to XML.

Editor Perspective

To edit the content of your documents, use the **Editor** perspective.

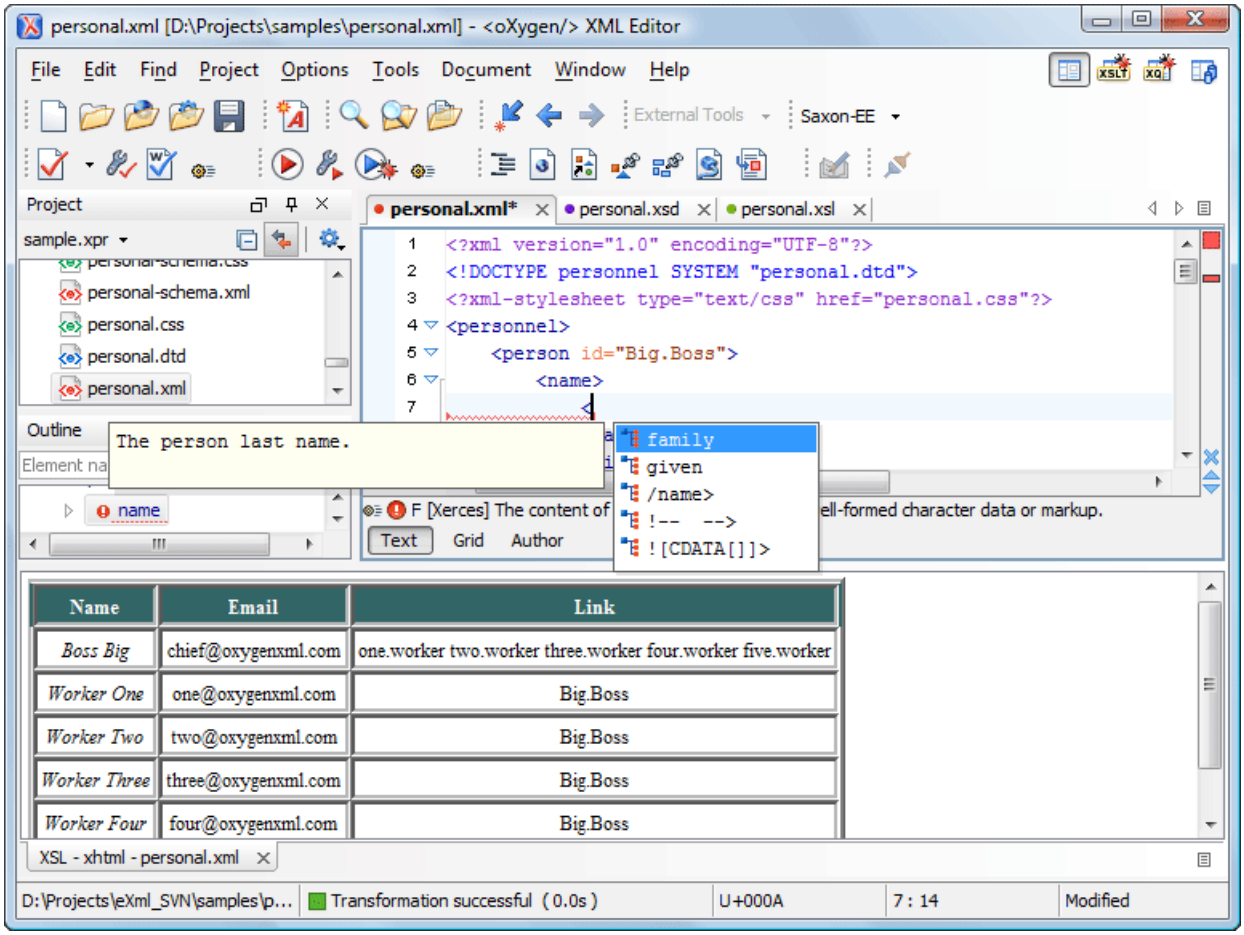


Figure 7: Editor perspective

When two or more views are displayed, the application provides divider bars. Divider bars can be dragged to a new position increasing the space occupied by one panel while decreasing it for the other.

As the majority of the work process centers around the Editor area, other views can be hidden using the controls located on the views headers.

This perspective organizes the workspace in the following sections:

- **Main menu** - Provides menu driven access to all the features and functions available in Oxygen XML Author.
- **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 area** - The place where you spend most of your time, reading, editing, applying markup and validating your documents.
- **Outline view** - It provides an XML document overview and offers functions such as modifications follow-up, document structure change, document tag selection, elements filtering.
- **Model view** - Presents the current edited element structure model and additional documentation as defined in the schema.
- **Results view** - Displays result messages obtained by performing user operations like search (the results of the **Find All** action applied to the current file or the results of a find action applied on a set of files), *validation*, *transformation* and *spell check*. The following actions are available in a vertical toolbar on the right side of the view:
  - **Grouping options** - allows you to choose grouping criteria, which reflects into a flat or tree-like presentation of the results. To display the results in a flat layout, you can either uncheck all selected criteria or press the **Ungroup all** button. All these actions are also available in the table header contextual menu.
  - **Remove selected** - removes the currently selected messages from the list.

- **Remove all** - clears the message list.

A contextual menu available on the table grid allows you to:

- Navigate to previous and next message. As alternative, you can use the default shortcut keys: **Ctrl (Meta on Mac OS) + Shift +]** for navigating to the next and **Ctrl (Meta on Mac OS) + Shift +[** for navigating to the previous message.
- Print the results or save them either in text or XML format.
- Expand or collapse all displayed items (with the shortcuts **Alt + Shift + PageUp** for the **Expand All** action and **Alt + Shift + PageDown** for the **Collapse All** action).
- Restore default grouping criteria and table column widths.

- **Project view** - Enables the definition of projects and logical management of the documents they contain.
- **Attributes view** - Presents all possible attributes of the current element
- **Elements view** - Presents a list of all defined elements that you can insert at the current caret position according to the document's schema.
- **Entities view** - Displays a list with all entities declared in the current document as well as built-in ones.
- **Transformation Scenarios view** - Displays a list with all currently configured transformation scenarios.

The Results View

The Results View displays the messages generated as a result of user actions like validations, transformations, search operations and others. Each message is a link to the location related to the event that triggered the message. Double clicking a message opens the file containing the location and positions the cursor at the location offset. The actions that can generate result messages are:

- ***Validate*** *action*
- ***Transform*** *action*
- ***Check Spelling in Files*** *action*
- **Find All** action from *the* ***Find/Replace*** *dialog*
- ***Find/Replace in Files*** *dialog*
- *XPath expression results*
- *SQL results*

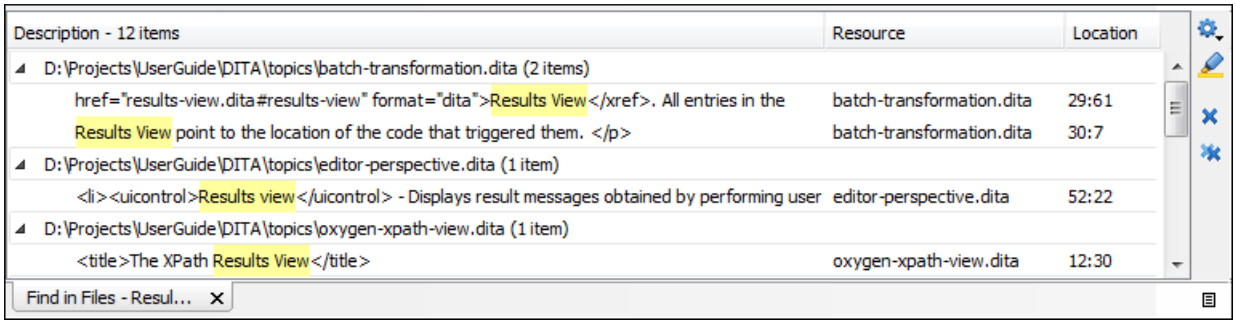


Figure 8: Results View

The view provides a toolbar with the following actions:

- grouping actions: **Group by 'Severity'**, **Group by 'Resource'**, **Group by 'System ID'**, **Group by 'Description'**, **Group by 'Operation description'**, **Ungroup all**, **Restore Defaults** - these actions group the messages according to a selected criteria so that they can be presented in a hierarchical layout. The criteria used for grouping can be the severity of the errors (error, warning, info message and so on), the resource name, the description of the message and so on. The **Ungroup all** action removes the grouping rule so that the messages are presented as a continuous list.
- **Highlight all results in editor** - Oxygen XML Author highlights all matches obtained after executing an XPath expression, or performing one of the following operations: **Find All**, **Find in Files**, **Search References**, and **Search Declarations**. Click **Highlight all results in editor** again to turn off highlighting.

Note: Go to **Options** > **Preferences** > **Editor** > **Highlights category** to do the following customizations:

- set a specific color of the highlights depending on the type of action you make.
- set a maximum number of highlights that the application displays at any given time.

- remove actions: **Remove selected**, **Remove all** - these actions reduce the number of the messages from the view by removing them. It is useful when you do not want unimportant messages to clutter the view.

The actions available on the contextual menu are:

- **Show message** - Displays a dialog box with the full error message, which is useful for a long message that does not have enough room to be displayed completely in the view.
- **Previous message** - Moves the selection in the view to the message above the current one.
- **Next message** - Moves the selection in the view to the message below the current one.
- **Remove selected** - Removes selected messages from the view.
- **Remove all** - Removes all messages from the view.
- **Copy** - Copies the information associated with the selected messages:
  - the file path of the document that triggered the output message,
  - the path of the main file (in case of *validation scenario* it is the path of the file from which the validation starts and which can be different than the validated file),
  - error severity (error, warning, info message an so on.),
  - name of validating processor,
  - name of *validation scenario*,
  - the line and column in the file that triggered the message.
- **Select All** - Extends the selection to all the messages from the view.
- **Print Results ...** - Sends the complete list of messages to a printer. For each message the included details are the same as the ones for *the **Copy** action*.
- **Save Results ...** - Saves the complete list of messages in a file in text format. For each message the included details are the same as the ones for *the **Copy** action*.
- **Save Results as XML** - Saves the complete list of messages in a file in XML format. For each message the included details are the same as the ones for *the **Copy** action*.
- **Group by** - *the same actions as on the toolbar* for grouping the messages in a hierarchical presentation.
- **Ungroup all** - Removes the grouping rule set by a **Group by** action so that the errors are presented as a continuous list.
- **Show Group Columns** -
- **Restore Defaults** - Restores the column size for each column and the grouping rule that were saved in the user preferences the last time when this view was used (possible in the previous Oxygen session). If it is the first time when this view is used, the action sets an initial default column size for each column and a grouping rule which is appropriate for the type of messages, for example:
  - group the messages by the path of the validated file in case of error messages from a validation action or spelling errors reported by the action **Check Spelling in Files**,
  - no grouping rule for the results of *applying an XPath expression*.
- **Expand All** - Expands all the nodes of the tree, which is useful when the messages are presented in a hierarchical mode.
- **Collapse All** - Collapses all the nodes of the tree, which is useful when the messages are presented in a hierarchical mode.

Database Perspective

The **Database** perspective is similar to the **Editor** perspective. It allows you to manage a database, offering support for browsing multiple connections at the same time, relational and native XML databases, SQL execution, XQuery execution and data export to XML.

This perspective offers database specific support for:

- Oracle Berkeley DB XML Database;
- eXist XML Database;
- IBM DB2 (Enterprise edition only);
- JDBC-ODBC Bridge;
- MarkLogic (Enterprise edition only);
- Microsoft SQL Server 2005 and Microsoft SQL Server 2008 (Enterprise edition only);
- MySQL;
- Oracle 11g (Enterprise edition only);
- PostgreSQL 8.3 (Enterprise edition only);
- Documentum xDb (X-Hive/DB) 10 XML Database (Enterprise edition only);
- Documentum (CMS) 6.5 (Enterprise edition only).

The XML capabilities of the databases marked in this list with "Enterprise edition only" are available only in the Enterprise edition of Oxygen XML Author. The non-XML capabilities of any database listed here are available also in the Academic and Professional editions of Oxygen XML Author by registering the database driver as a generic JDBC driver (the *Generic JDBC* type in the list of driver types) when *defining the data source* for accessing the database in Oxygen XML Author.

The non-XML capabilities are:

- browsing the structure of the database instance;
- opening a database table in the *Table Explorer* view;
- handling the values from **XML Type** columns as String values.

The XML capabilities are:

- displaying an XML Schema node in the tree of the database structure (for databases with such an XML specific structure) with actions for opening/editing/validating the schemas in an Oxygen XML Author editor panel;
- handling the values from columns of type XML Type as XML instance documents that can be opened and edited in an Oxygen XML Author editor panel;
- validating an XML instance document added to an XML Type column of a table, etc.

For a detailed feature matrix that compares the Academic, Professional and Enterprise editions of Oxygen XML Author please *go to the Oxygen XML Author website*.

Note: Only connections configured on relational data sources can be used to import data to XML or to generate XML schemas.

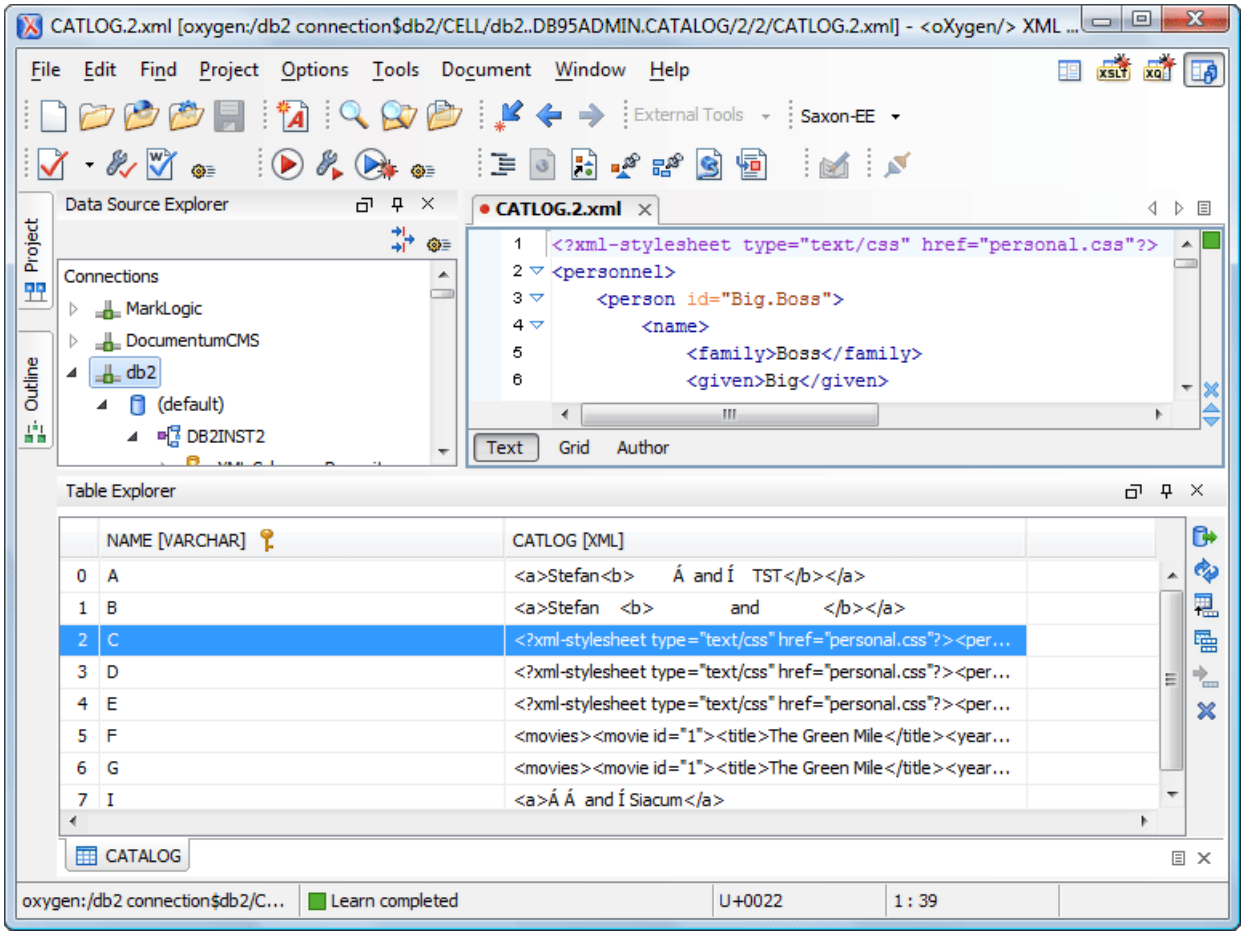


Figure 9: Database perspective

- Main menu - provides access to all the features and functions available within Oxygen XML Author.
- 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 area - the place where you spend most of your time, reading, editing, applying markup and validating your documents.
- Data Source Explorer - provides browsing support for the configured connections.
- Table explorer - provides table content editing support for inserting new rows, deleting table rows, cell value editing, export to XML file.

Dockable Views and Editors

All the Oxygen XML Author views available in the Editor Perspective are dockable.

You can drag any view to any margin of another view or editor inside the Oxygen XML Author window. Once you create a layout that suites your needs, you are able to save it from **Window** > **Save Layout...**. Oxygen XML Author creates a layout file containing the preferences of the saved layout. To load a layout, go to **Window** > **Load Layout...**. To reset it, select **Window** > **Reset Layout**.

Note: The **Load Layout...** menu lets you select between the default layout, a predefined layout, or a custom layout. The changes you make using the **Load Layout...** menu are also reflected in the **Perspectives Layout** preferences page.

The changes you make to any layout are preserved between working sessions. Also, changing to a different layout and returning to the previous one does not alter the changes you made to the first layout. The predefined layout files are saved in the preferences directory of Oxygen XML Author.

To gain more editing space in the Oxygen XML Author window, click **Toggle auto-hide** in any view. This button sets the view in the *auto-hide* state, making it visible only as a vertical tab, at the margins of the Oxygen XML Author window. To display a view in the *auto-hide* state, hover its side-tab with your cursor, or click it to keep the view visible until you click elsewhere. A view can also be set to a floating state, making it independent from the rest of the Oxygen XML Author window.

You can drag the editors and arrange them in any order you like, both horizontally and vertically.

The next figure presents two editors arranged as horizontal tiles. To arrange them vertically, drag one of them on top of the other. In the example below, the `personal.xml` file was dragged over the `personal-schema.xml` file. When doing this, a dark grey rectangle marks the rearranged layout.

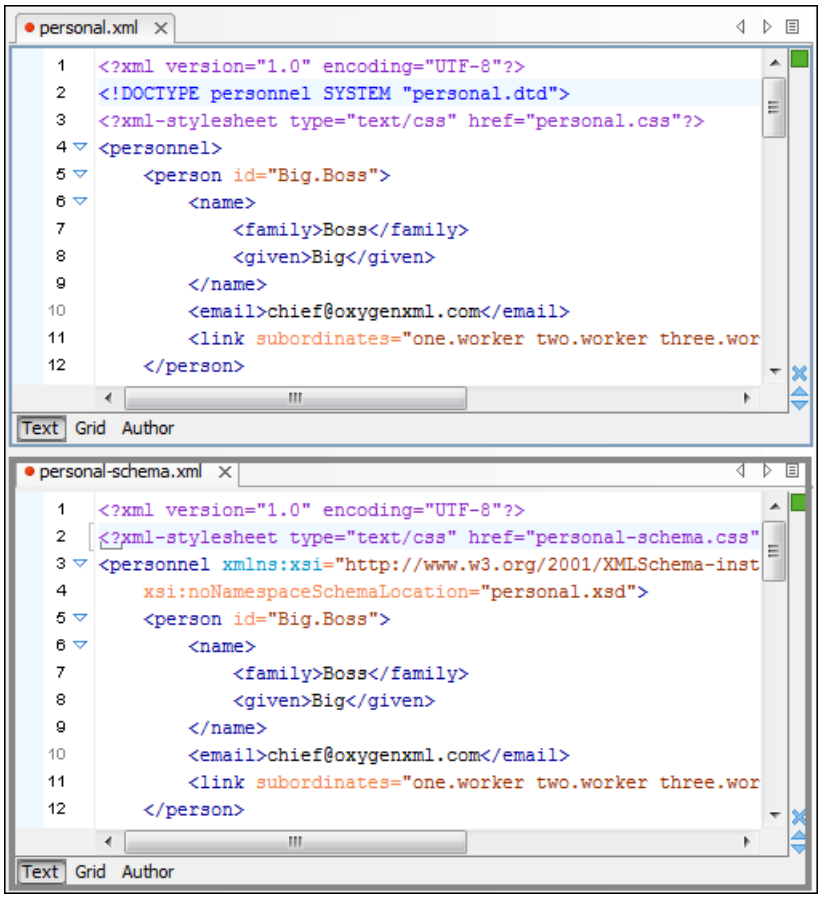


Figure 10: Drag and Drop Editors

You can also tile all the opened editors horizontally, vertically, or stacked together, both in the *Editor Perspective* or in the *Database Perspective*, using these actions from the **Window** menu:

- **Tile Editors Horizontally**;
- **Tile Editors Vertically**;
- **Stack Editors**.

Note:

When tiled, you can still drag and drop the editors, but note that they are docked in the same way as a window/view (instead of just tabs). You are actually rearranging the editor windows, so drag the editor tab and drop it to one of the sides of an editor (left/right/top/bottom). While dragging, you will see the grey dark rectangle aligned to one of the sides of the editor, or around the entire editor window. If you drop it to one of the sides it will dock

to that side of the editor. If you drop it when the rectangle is around the entire window of the editor it will get stacked on top of that editor. You can also grab one of the stacked editors and tile it to one of the sides.

To scroll through the tiled editors in the same time, enable the **Synchronous scrolling** action (from the same **Window** menu).

You can divide the editing area vertically and horizontally using the actions available in the **Split** toolbar and in the **Window** menu: **Split horizontally**, **Split vertically**, and **Unsplit**. To maximize or restore the editors, go to **Window** > **Maximize/Restore Editor Area**.

Any Oxygen XML Author view or toolbar can be opened at any time from the **Window** > **Show View** and **Window** > **Show Toolbar** menus. The current (focused) dockable view is made invisible (switched to hidden state) using the **Ctrl (Meta on Mac OS) + Shift + F4** shortcut. The users who prefer to use the keyboard instead of the mouse may find this shortcut to be a faster way of closing a view than clicking the **Close** button from the title bar of the view. The complementary action (opening a view with a shortcut) requires setting a custom shortcut for each view in *the **Menu Shortcut Keys** preferences*.

To watch our video demonstration about dockable and floating views and editors in Oxygen XML Author, go to *http://oxygenxml.com/demo/Dockable_Views.html*.

Chapter 4

Editing Modes

Topics:

To better suit any type of editing that you want to perform, Oxygen XML Author offers the following modes:

- ***Text*** - this mode presents the source of an XML document.
- ***Grid*** - this mode displays an XML document as a structured grid of nested tables.
- ***Author*** - this mode enables you to edit in a WYSIWYG like editor.

Text Editing Mode

The **Text** mode of Oxygen XML Author provides the usual actions specific for a plain text editor: undo / redo, copy / paste, find / replace, etc. These actions are executed from the menu bar or toolbar and also by invoking their usual keyboard shortcuts.

The Undo/Redo Actions

The typical undo and redo actions are available in Oxygen XML Author:

- **Undo** - menu **Edit** > **Undo (Ctrl (Meta on Mac OS)+Z)** or the  **Undo** toolbar button - Reverses a maximum of 200 editing actions (configurable in the *Editor preferences page*) to return to the preceding state.

   **Note:** Complex operations like **Replace All** or **Indent selection** count as a single undo event.

- **Redo** - menu **Edit** > **Redo (Ctrl+Y for Windows, Cmd+Shift+Z for Mac OSX and Linux)** or the  **Redo** toolbar button - Recreates a maximum of 100 editing actions that were undone by the **Undo** function.

Copying and Pasting Text

The typical copying and pasting actions are available:

- **Edit** > **Cut (Ctrl (Meta on Mac OS)+X)** or the toolbar button  **Cut** - removes the current selected node from the document and places it in the clipboard as RTF. All text attributes such as color, font or syntax highlight are preserved when pasting into another application;
- **Edit** > **Copy (Ctrl (Meta on Mac OS)+C)** or the toolbar button  **Copy** - places a copy of the current selection in the clipboard as RTF. All text attributes such as color, font or syntax highlight are preserved when pasting into another application;
- **Edit** > **Paste (Ctrl (Meta on Mac OS)+V)** or the toolbar button  **Paste** - places the current clipboard content into the document at the cursor position;
- **Edit** > **Select All (Ctrl (Meta on Mac OS)+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

This section walks you through the find and replace features available in Oxygen XML Author.

You can use a number of advanced views depending on what you need to find in the document you are editing and in even in your entire project. The ***Find/Replace** dialog* searches through the current project or selected resources and offers a set of options to improve your search. The ***Find All Elements/Attributes** dialog* searches through the structure of the current document for elements and attributes.

As an alternative to the dedicated search dialogs, use the ***Quick Find** toolbar*.

The Find / Replace Dialog

To open the **Find / Replace** dialog, either go to **Find** > **Find / Replace...** or click the  **Find / Replace** toolbar button. You can also press **Ctrl (Meta on Mac OS) + F** keys on your keyboard to display the **Find/Replace** dialog.

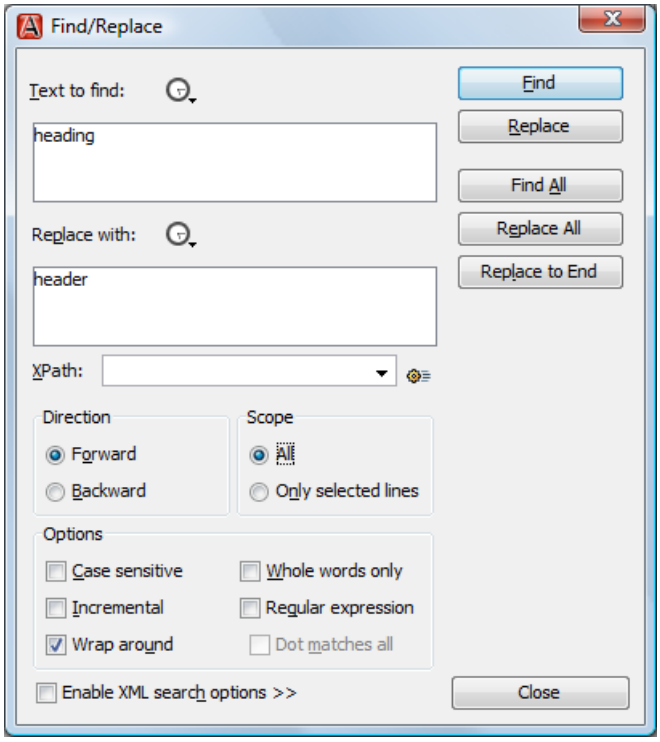


Figure 11: Find / Replace Dialog

You can use the **Find/Replace** dialog to perform the following operations:

- Replace occurrences of target defined in the **Text to find** area with a new fragment of text defined in **Replace with** area.
- Find all the occurrences of a word or string of characters (that can span over multiple lines) in the document you are editing. This operation also takes into account all the white spaces contained in the fragment you are searching for.

Note: The **Find/Replace** dialog counts the number of occurrences of the text you are searching for and displays it at the bottom of the dialog, above the **Close** button. This number is also displayed in *the **Results** view*.

The *find* operation works on multiple lines, meaning that a find match can cover characters on more than one line of text. To input multiple-line text in the **Text to find** and **Replace with** areas, do one of the following:

- press **Ctrl (Meta on Mac OS) + Enter** keys on your keyboard;
- use the **Insert newline** contextual menu action.

You can use *Perl 5* regular expressions to define patterns. A content completion assistant window is available in the **Text to find** and **Replace with** areas to help you edit regular expressions. It is activated every time you type \(backslash key) or on demand if you press **Ctrl (Meta on Mac OS) + Space** keys on your keyboard.

The *replace* operation can bind *Perl 5* regular expression group variables ($1, $2, and so on.) from the find match.

> To replace an XML tag called `tag-name` with the tag `tag-name1`, use *<tag-name(\s+)(.*)>* in the **Text to find** area and *<tag-name1$1$2>* in the **Replace with** area.

The dialog contains the following options:

- **Text to find** - The target character string to search for. You can search for Unicode characters specified in the `\uNNNN` format. Also, hexadecimal notation (`\xNNNN`) and octal notation (`\0NNNN`) can be used. In this case you have to select the **Regular expression** option. For example, to search for a space character you can use the `\u0020` code.

- **Replace with** - The character string with which to replace the target. The string for replace can be on a line or on multiple lines. It can contain *Perl 5* regular expression group markers, only if the search expression is a regular expression and the **Regular expression** option is selected.

  Note: Some regular expressions can block indefinitely the application. If the execution of the regular expression does not end in about 5 seconds, the application displays a dialog that allows you to interrupt the operation.

  Note: Special characters like *newline* and *tab* can be inserted in the **Text to find** and **Replace with** text boxes using dedicated actions in the contextual menu (**Insert newline** and **Insert tab**).

  Unicode characters can also be used in the **Replace with** area.

- The history buttons - Contain lists of the last find and replace expressions.
- **XPath** - The XPath 2.0 expression you input in this combo is used for restricting the search scope.

  Note: The **Content Completion Assistant** helps you input XPath expressions, valid in the current context.

- **Direction** - Specifies if the search direction is from current position to end of file (**Forward**) or to start of file (**Backward**).
- **Scope** - In **Author** mode, the search scope is restricted to the entire document only.
- **Find** - Executes a find operation for the next occurrence of the target. It stops after highlighting the find match in the editor panel.
- **Replace** - Executes a replace operation for the target followed by a find operation for the next occurrence.
- **Find All** - Executes a find operation and displays all results in the ***Results*** *view*. The results are *displayed in the Results view*.
- **Replace All** - Executes a replace operation in the entire scope of the document.
- **Replace to End** - Executes 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**).
- **Case sensitive** - When checked, the search operation follows the exact letter case of the **Text to find**.
- **Whole words only** - Only entire occurrences of a word are included in the search operation.
- **Incremental** - The search operation is started every time you type or delete a letter in the **Text to find** text box.
- **Regular expression** - When this option is enabled, you can use regular expressions in *Perl 5* syntax to look for specific pieces of text. A match can span over multiple lines of text.
- **Dot matches all** - A dot used in a regular expression matches also end of line characters.
- **Wrap around** - When the end of the document is reached, the search operation is continued from the start of the document, until its entire content is covered.
- **Enable XML search options** - Provides access to a set of options that allow you to search specific XML component types when editing in **Text** mode:
  - **Element names** - Only the element names are included in the search operation which ignores XML-tag notations ('<', '/', '>'), attributes or white-spaces.
  - **Element contents** - Search in the text content of XML elements.
  - **Attribute names** - Only the attribute names are included in the search operation, without the leading or trailing white-spaces.
  - **Attribute values** - Only the attribute values are included in the search operation, without single quotes(') or double quotes(").
  - **Comments** - Only the content of comments are included in the search operation, excluding the XML comment delimiters ('<!--', '-->').
  - Processing Instructions (**PIs**) - Only the content are searched, skipping '<?', '?>'. e. g.: <?processing instruction?>
  - **CDATA** - Searches inside content of CDATA sections.
  - **DOCTYPE** - Searches inside content of DOCTYPE sections.
  - **Entities** - Only the entity names are searched.

The two buttons **Select All** and **Deselect All** allow a simple activation and deactivation of all types of XML components.

Note: Please note that since searching in some XML component types is performed only on their content skipping some of their headers / footers (see the list above), even if all the XML component types are checked, some filtering is still performed. To disable it completely, uncheck **Enable XML search options**.

- **Find All Elements / Attributes ...** - While editing in **Author** mode, press the **Find All Elements / Attributes ...** to extend the search scope to XML-specific markup (names and values of both attributes and elements).

The Find All Elements / Attributes Dialog

To open the **Find All Elements / Attributes** dialog, go to **Find** > **Find All Elements...**(**Ctrl (Meta on Mac OS) + Shift + E**) or from the shortcut **Find All Elements / Attributes** that is available in *the **Find / Replace** dialog* . It assists you in defining XML elements / attributes search operations on the current document.

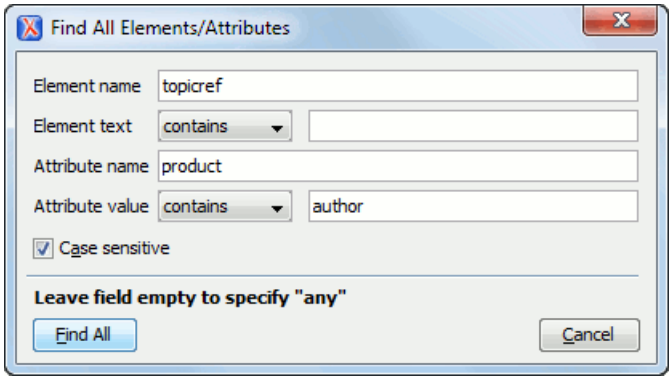


Figure 12: Find All Elements / Attributes dialog

The dialog can perform the following actions:

- Find all the elements with a specified name;
- Find all the elements which contain or not a specified string in their text content;
- Find all the elements which have a specified attribute;
- Find all the elements which have an attribute with or without a specified value.

You can combine all these search criteria to fine filter your results.

The results of all the operations in the **Find All Elements / Attributes** dialog will be presented as a list in the message panel.

The following fields are available in the dialog:

- **Element name** - the target element name to search for. Only the elements with this exact name are returned. For any element name just leave the field empty;
- **Element text** - the target element text to search for. The combo box beside this field allows you to specify that you are looking for an exact or partial match of the element text. For any element text, select **contains** in the combo box and leave the field empty. If you leave the field empty but select **equals** in the combo box, only elements with no text will be found. Select **not contains** to find all elements which do not have the specified text inside;
- **Attribute name** - the name of the attribute which needs to be present in the elements. Only the elements which have an attribute with this name will be returned. For any / no attribute name just leave the field empty;
- **Attribute value** - the combo box beside this field allows you to specify that you are looking for an exact or partial match of the attribute value. For any / no attribute value select **contains** in the combo box and leave the field empty. If you leave the field empty but select **equals** in the combo box, only elements that have at least an attribute with an empty value will be found. Select **not contains** to find all elements which have attributes without a specified value;
- **Case sensitive** - When this option is checked, operations are case sensitive.

The Quick Find Toolbar

A reduced version of *the Find / Replace dialog* is available as a toolbar that is activated by the shortcut specified in the **Find** menu: **Alt + Shift + F** on Windows and Linux, **Alt + Shift + F** on Mac OS X. The toolbar is displayed by default at the bottom of the Oxygen XML Author window, above the status bar.

The **Next**, **Previous**, **All**, **Incremental** and **Case sensitive** controls work *in the same way as in the Find / Replace dialog*. The search process works as if the **Search also 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. You can also use the last two toolbar actions to quickly open the *Find / Replace* and the *Find / Replace in Files* dialogs. The toolbar becomes invisible again when the **(ESC)** key is pressed.

The enabling shortcut can be changed in **Options** > **Preferences** > **Menu Shortcut Keys** > **Quick Find**. *As 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. However the buttons of this toolbar can be used only if it has a horizontal layout so docking it to the West side or the East side of the window is not allowed.

Keyboard Shortcuts for Finding the Next and Previous Match

Navigating from one match to the next or previous one is very easy to perform using the F3 and Shift F3 keyboard shortcuts. They are useful to quickly repeat the last find action performed in *the Find / Replace dialog*, taking into account the same find options.

Finding and Replacing Text in Multiple Files

To open the **Find / Replace in Files** dialog do one of the following:

- go to **Find** > **Find / Replace in Files...** ;
- click the  **Find / Replace in Files** toolbar button;
- go to the contextual menu of the **DITA Maps Manager** view;
- go to the contextual menu of the **Project** view;
- go to the contextual menu of the **Data Source Explorer** view for Documentum xDb (X-Hive/DB), eXist and WebDAV connections. This action is available for Documentum (CMS), but lacks the *replace* feature.

The operation works on both local and remote files from an (S)FTP, WebDAV or *CMS* server.

It 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** the expression *<tag-name(\s+)(.*)>* and as the **Replace with** expression *<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 XML Author uses by default the UTF-8 encoding for files of type XML, that is for files with one of the extensions: `.xml`, `.xsl`, `.fo`, `.xsd`, `.rng`, `.nvdl`, `.sch`, `.wsdl` or *an extension associated with the XML editor type*. For the other files it uses *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.

Because the content of read-only files cannot be modified, the **Replace** operation is not processing those files. For every such file, a warning message is displayed in the message panel.

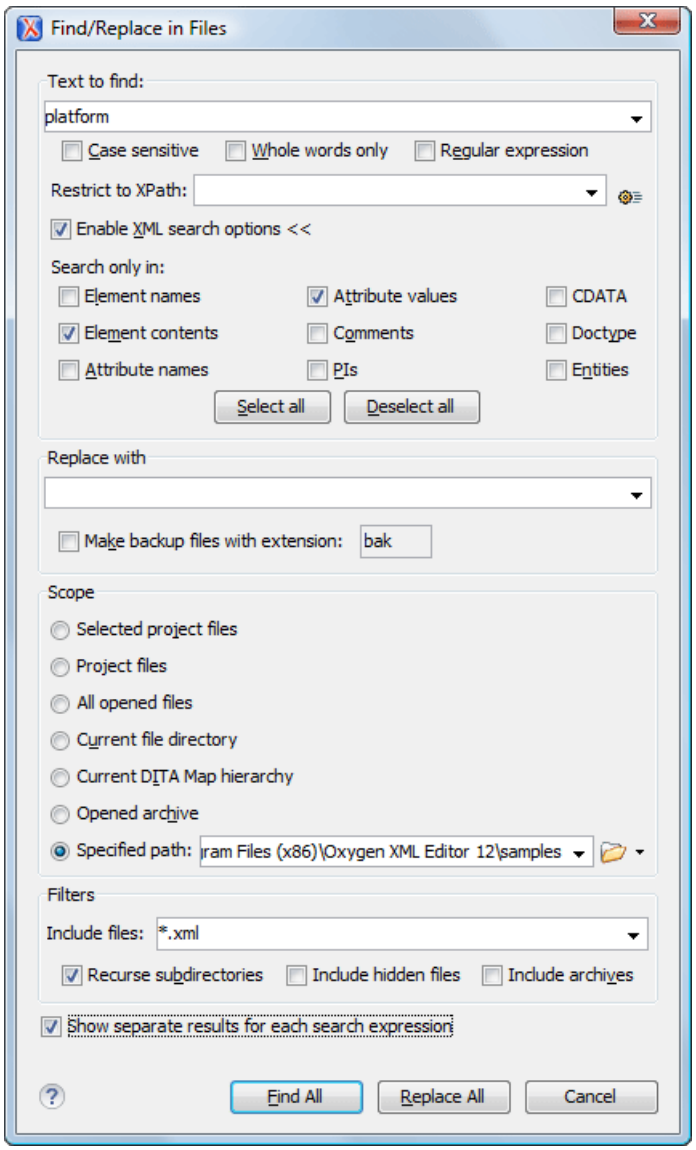


Figure 13: Find / Replace in Files

The dialog contains the following options:

- **Text to find** - The target character string to search for. You can search for Unicode characters specified in the `\uNNNN` format. Also, hexadecimal notation (`\xNNNN`) and octal notation (`\0NNNN`) can be used. In this case you have to select the **Regular expression** option. For example, to search for a space character you can use the `\u0020` code.
- **Case sensitive** - When checked, the search operation follows the exact letter case of the **Text to find**.
- **Whole words only** - Only entire occurrences of a word are included in the search operation.
- **Regular expression** - When this option is enabled, you can use regular expressions in *Perl 5* syntax to look for specific pieces of text. A match can span over multiple lines of text.
- **XPath** - The XPath 2.0 expression you input in this combo is used for restricting the search scope.

  Note: The **Content Completion Assistant** helps you input XPath expressions, valid in the current context.

- **Enable XML search options** - Provides access to a set of options that allow you to search specific XML component types when editing in **Text** mode:
  - **Element names** - Only the element names are included in the search operation which ignores XML-tag notations ('<', '/', '>'), attributes or white-spaces.

- **Element contents** - Search in the text content of XML elements.
- **Attribute names** - Only the attribute names are included in the search operation, without the leading or trailing white-spaces.
- **Attribute values** - Only the attribute values are included in the search operation, without single quotes(') or double quotes(").
- **Comments** - Only the content of comments are included in the search operation, excluding the XML comment delimiters ('<!--', '-->').
- Processing Instructions (**PIs**) - Only the content are searched, skipping '<?', '?>'. e. g.: <?processing instruction?>
- **CDATA** - Searches inside content of CDATA sections.
- **DOCTYPE** - Searches inside content of DOCTYPE sections.
- **Entities** - Only the entity names are searched.

The two buttons **Select All** and **Deselect All** allow a simple activation and deactivation of all types of XML components.

Note: Please note that since searching in some XML component types is performed only on their content skipping some of their headers / footers (see the list above), even if all the XML component types are checked, some filtering is still performed. To disable it completely, uncheck **Enable XML search options**.

- **Replace with** - The character string with which to replace the target. It may contain regular expression group markers if the search expression is a regular expression and the **Regular expression** checkbox is checked.
- **Make backup files with extension** - In the replace process Oxygen XML Author makes backup files of the modified files. The default extension is `.bak` but you can change the extension as you prefer.
- **Selected project files** - Searches only in the selected files of the current opened project. Not displayed when dialog is started from contextual menu of ***DITA Maps** view* and *Archive Browser* view.
- **Project files** - Searches in all files from the current project. Not displayed when dialog is started from contextual menu of ***DITA Maps** view* and *Archive Browser* view.
- **All opened files** - Searches in all files opened in Oxygen XML Author (regular files or DITA Maps). You are prompted to save all modified files before any operation is performed. Not displayed when dialog is started from contextual menu of ***DITA Maps** view* and *Archive Browser* view.
- **Current file directory** - 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. Not displayed when dialog is started from contextual menu of ***DITA Maps** view* and *Archive Browser* view.
- **Current DITA Map hierarchy** - The search is done in all maps and topics referenced by the current edited DITA Map. If **Recurse referenced maps** option is checked, the references from the maps referenced in the main DITA map are also searched in. If there is no opened DITA Map, this option is disabled in the dialog. You are prompted to save all modified files before any operation is performed. Displayed only when dialog is opened from ***DITA Maps** view*.
- **Opened archive** - The search is done in archive opened in *Archive Browser* view. Displayed only when dialog is opened from *Archive Browser* view.
- **Specified path** - Chooses the search path.
- **Include files** - Narrows the scope of the operation only to the files that match the given filters.
- **Recurse subdirectories** - When checked, the search is performed recursively in the sub directories found in the specified directory path.
- **Include hidden files** - When checked, the search is performed also in the hidden files.
- **Include archives** - When checked, the search is also done in all individual file entries from all supported ZIP-type archives.
- **Show separate results for each search expression** - When checked, the application opens a new tab to display the result of each new search expression. When the option is unchecked, the search results are displayed in the *Find in Files* tab, replacing any previous search results.
- **Find All** - Executes a find operation and returns the result list to the message panel. The results are *displayed in a view* that allows grouping the results as a tree with two levels.
- **Replace All** - Replaces all occurrences of the target contained in the specified files.

When you replace a fragment of text, Oxygen XML Author provides a preview of the changes you make. The **Preview** dialog is divided in two sections. The first section presents a list of all the documents containing the fragment of text you want to modify. The second section offers a view of the original file and a view of the final result. It also allows you to highlight all changes using the vertical bar from the right side of the view. The **Next change** and **Previous change** buttons allow you to navigate through the changes displayed in the **Preview** dialog.

Caution: 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.

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 (Meta on Mac OS) + NumPad + "+"**) - increases the font size with one point for each execution of the action;
- **Document** > **Font size** > **Decrease editor font** (**Ctrl (Meta on Mac OS) + NumPad + "-"**) - decreases the font size with one point for each execution of the action;
- **Document** > **Font size** > **Normal editor font** (**Ctrl (Meta on Mac OS) + 0**) - resets the font size to *the value of the editor font set in Preferences*.

Word/Line Editor Actions

The **Text** editor implements the following actions:

- **(Ctrl+Delete (Meta+Delete on Mac))** - deletes the next word;
- **(Ctrl+Backspace (Meta+Backspace on Mac))** - deletes the previous word;
- **(Ctrl+W (Meta+W on Mac))** - cuts the previous word;
- **(Ctrl+K (Meta+K on Mac))** - cuts to end of line.

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.

Inserting a File at Caret Position

The action from menu **Document** > **File** > **Insert file...** inserts in the current document the content of the file with the file path at the current position of the caret.

Opening the File at Caret in System Application

The action from menu **Document** > **File** > **Open File at Caret in System Application** opens the filename under the current position of the caret with the default system application associated with the file.

Opening the File at Caret Position

The action from menu **Document** > **File** > **Open File at Caret** opens in a new panel the file with the file path at the caret position. If the path represents a directory path, it will be opened in system file browser. If the file does not exist at the specified location the error dialog that is displayed contains a **Create new file** button which starts the **New**

document wizard. This allows you to choose the type or the template for the file. If the action succeeds, the file is created with the referred location and name and is opened in a new editor panel. This is useful when you decide first on the file name and after that you want to create it in the exact location specified at the current caret position.

Printing a File

Printing is supported in **Text**, **Author,** and **Grid** modes of the XML editor panel. The action from menu **File** > **Print** > **Ctrl (Meta on MAC OS) + P** displays the **Page Setup** dialog used for defining the page size and orientation properties for printing.

A **Print Preview** action is available in the **File** menu. It allows you to manage the format of the printed document. To change the print styling of a document use the *print media type*.

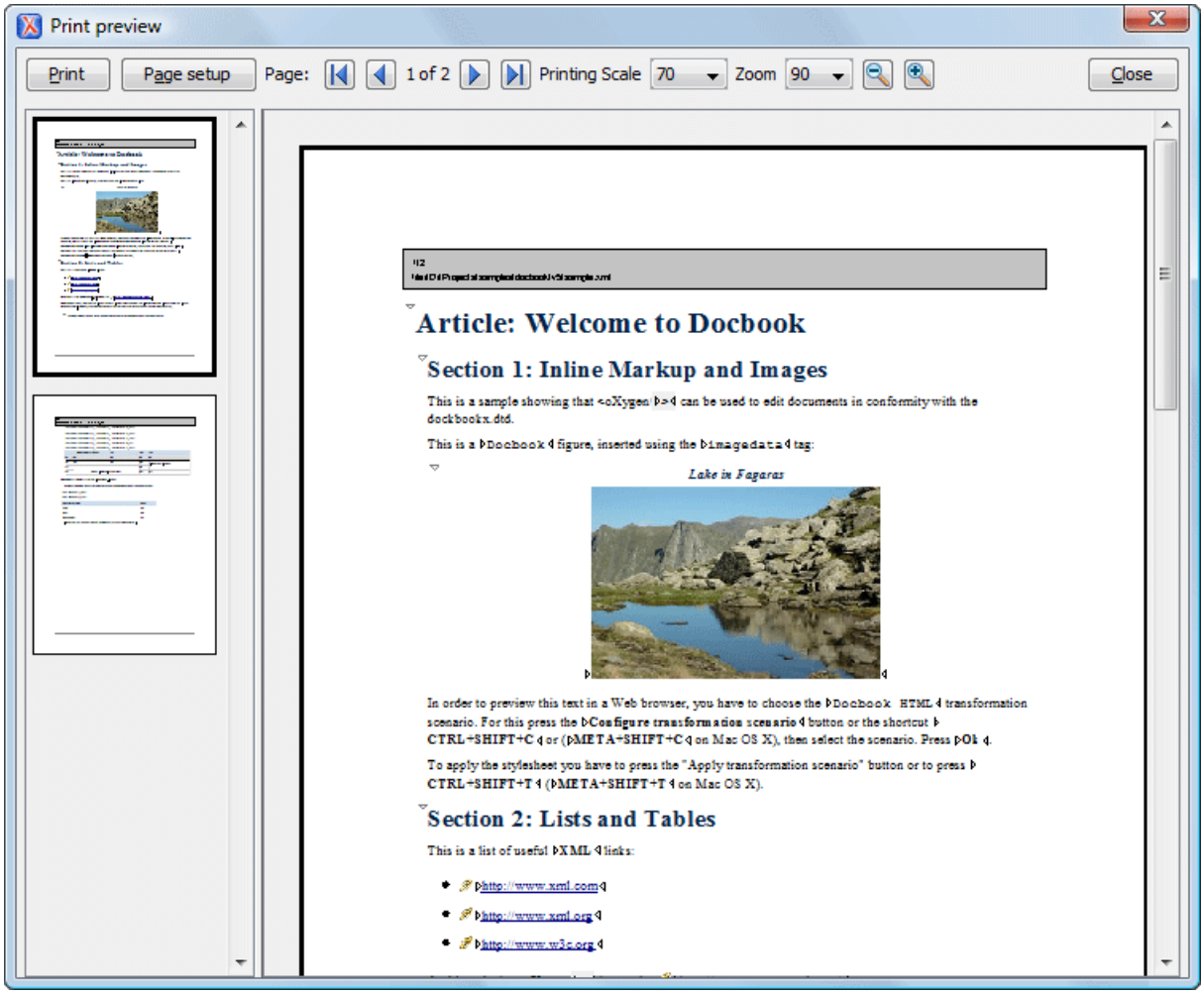


Figure 14: Print Preview Dialog

The main window is split in three sections:

- **Preview area** - Displays the formatted document page as it will appear on printed paper.
- **Left stripe** - The left-hand side stripe which displays a list of thumbnail pages. Clicking any of them displays the page content in the main preview area.
- **Toolbar** - The toolbar top area which contains controls for printing, page settings, page navigation, print scaling, and zoom.

Note: If your document is open in Author mode and contains *Track Changes*, you can print (or print preview) a copy of the document as if all changes have been accepted by switching the *Track Changes Visualization Modes* to **View Final**.

Grid Editing Mode

To activate the **Grid** mode, select **Grid** at the bottom of the editing area. This type of editor displays the XML document as a structured grid of nested tables.

In case you are a non-technical user, you are able to modify the text content of the edited document without working with the XML tags directly. You can expand and collapse the tables using the mouse cursor and also display or hide the elements of the document as nested. The document structure can also be changed easily with drag and drop operations on the grid components. To zoom in and out, use **Ctrl (Meta on Mac OS + "+"**, **Ctrl (Meta on Mac Os) + "-"**, **Ctrl (Meta on Mac OS) + 0** or **Ctrl (Meta on Mac OS) + Scroll Forward**/**Ctrl (Meta on Mac OS) + Scroll Backwards**.

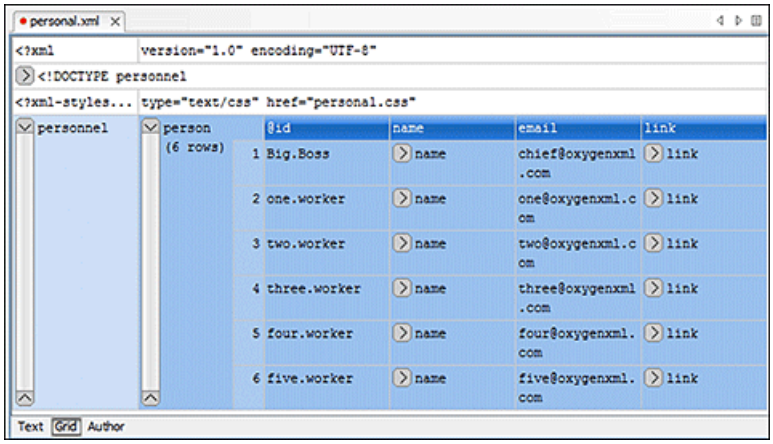


Figure 15: The Grid Editor

To switch back from the **Grid** mode to the **Text** or **Author** mode, use the **Text** and **Grid** buttons from the bottom of the editor. You are also able to perform this switch from **Document** > **Edit Mode** > **Grid** and **Document** > **Edit Mode** > **Text**.

If the edited document is associated with a schema (DTD, XML Schema, Relax NG, etc.), the editor offers **Content Completion Assistant** for the elements and attributes names and values. If you choose to insert an element that has required content, the subtree of needed elements and attributes are automatically included.

To display the content completion pop-up, you have to start editing (for example, double click a cell). Pressing **(Ctrl (Meta on Mac OS)- Space)** on your keyboard also displays the pop-up.

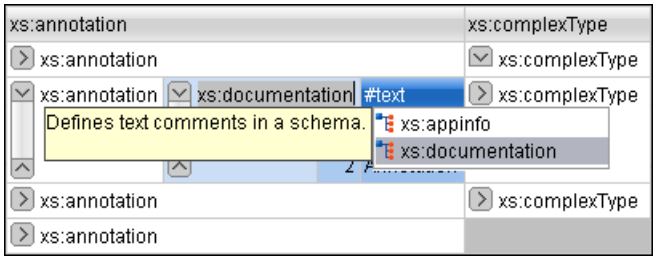


Figure 16: Content Completion in Grid Editor

To watch our video demonstration about some of the features available in the **Grid** editor, go to *http://oxygenxml.com/demo/Grid_Editor.html*.

Layouts: Grid and Tree

The **Grid** editor offers two layout modes. The default one is the grid layout. This smart layout detects the recurring elements in the XML document and creates tables having the children (including the attributes) of these elements as columns. This way, it is possible to have tables nested in other tables, reflecting the structure of your document.

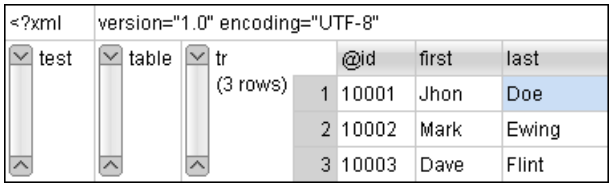


Figure 17: Grid Layout

The other layout mode is tree-like. It does not create any tables and it only presents the structure of the document.

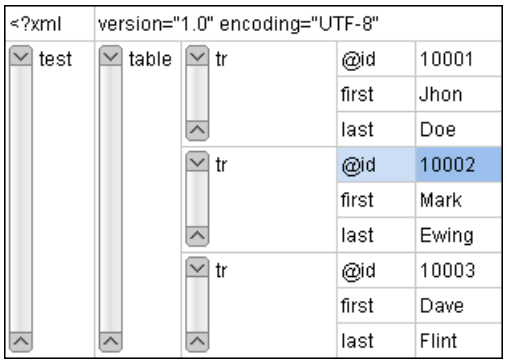


Figure 18: Tree Layout

To switch between the two modes, go to **Document** > **Grid Layout** > **Grid mode/Tree mode**.

Grid Move Navigation

At first, the content of a document opened in the **Grid** mode is collapsed. Only the root element and its attributes are displayed. The grid disposition of the node names and values is similar to a web form or a dialog. The same set of key shortcuts used to select dialog components is also available in the **Grid** mode:

Table 2: Shortcuts in the Grid Mode

Key	Action
Tab	Moves the caret to the next editable value in a table row.
Shift + Tab	Moves the caret to the previous editable value in a table row.
Enter	Begins editing and lets you insert a new value. Also commits the changes after you finish editing.
Up Arrow/Page Up	Navigates toward the beginning of the document.
Down Arrow/Page Down	Navigates toward the end of the document.
Shift	Used with the navigation keys, creates a selection area. To extend this area with other nodes from a different part of the document, use the caret and the **Ctrl (Meta on Mac OS)** key.

The following key combinations can be used to scroll the grid:

- **Ctrl (Meta on Mac OS) + Up Arrow** - scrolls the grid upwards;
- **Ctrl (Meta on Mac OS) + Down Arrow** - scrolls the grid downwards;
- **Ctrl (Meta on Mac OS) + Left Arrow** scrolls the grid to the left;
- **Ctrl (Meta on Mac OS) + Right Arrow** scrolls the grid to the right.

An arrow sign displayed at the left of the node name indicates that this node has child nodes. To display the children, click this sign. The expand/collapse actions can be invoked either with the **NumPad + Plus** and **NumPad + Minus** keys, or from the **Expand/Collapse** submenu of the contextual menu or from **Document** > **Grid Expand/Collapse**.

The following actions are available on the **Expand/Collapse** menu:

- **Expand All** - Expands the selection and all its children;
- **Collapse All** - Collapses the selection and all its children;
- **Expand Children** - Expands all the children of the selection but not the selection;
- **Collapse Children** - Collapses all the children of the selection but not the selection;
- **Collapse Others** - Collapses all the siblings of the current selection but not the selection.

Specific Grid Actions

In order to access these actions, you can click the column header and choose the **Table** item from the contextual menu. The same set of actions is available in the **Document** menu and on the **Grid** toolbar which is opened from menu **Window** > **Show Toolbar** > **Grid**.

Sorting a Table Column

You can sort the table by a specific column. The sorting can be either ascending or descending. The icons for this pair of actions are and .

The sorting result depends on the data type of the column content. It can be different in case of number (numerical sorting) or text information (alphabetical sorting). The editor analyses automatically the content and decides what type of sorting to apply. When a mixed set of values is present in the sorted column, a dialog is displayed allowing you to choose the desired type of sorting between *numerical* and *alphabetical*.

Inserting a Row in a Table

You can add a new row using the **Copy**/**Paste** row operation, or by selecting **Insert row** from the **Table** contextual menu.

For a faster way to insert a new row, move the selection over the row header, and then press **Enter**. The row header is the zone in the left of the row that holds the row number. The new row is inserted below the selection.

Inserting a Column in a Table

You can insert a column after the selected one, using the **Insert column** action from the **Table** contextual menu.

Clearing the Content of a Column

You can clear all the cells from a column, using the **Clear content** action from the **Table** contextual menu.

Adding Nodes

Using the contextual menu you can add nodes before, after, or as last child of the currently selected node.

The sub-menus containing detailed actions are:

- **Insert before**;
- **Insert after**;

- **Append child**.

Duplicating Nodes

A quicker way of creating new nodes is to duplicate the existing ones. The action is available in the **Duplicate** contextual menu and in the **Document** > **Grid Edit** > **Duplicate** menu.

Refresh Layout

When using drag and drop to reorganize the document, the resulted layout can be different from the expected one. For instance, the layout can contain a set of sibling tables that could be joined together. To force the layout to be recomputed, you can use the **Refresh** action. The action is available in the **Refresh selected** contextual menu and in the **Document** > **Grid Edit** > **Refresh selected** menu.

Start Editing a Cell Value

You can simply press **(Enter)** after you have selected the grid cell or you can use the **Start Editing** action found in the **Document** > **Grid Edit** menu.

Stop Editing a Cell Value

You stop editing a cell value when you press **(Enter)** or use the **End Editing** action found in the **Document** > **Grid Edit** menu.

To cancel the editing without saving the current changes in the document, press the **(Esc)** key.

Drag and Drop in the Grid Editor

You are able to arrange different sections in your XML document in the **Grid** mode using drag and drop actions.

With drag and drop you can:

- copy or move a set of nodes;
- change the order of columns in the tables;
- move the rows from the tables.

These operations are available for both single and multiple selection. To deselect one of the selected fragments, use **Ctrl (Meta on Mac OS) + Click**.

While dragging, the editor paints guide-lines showing the locations where you can drop the nodes. You can also drag nodes outside the **Grid** editor and text from other application into the **Grid**. For more information, see *Copy and Paste in the Grid Editor*.

Copy and Paste in the Grid Editor

The selection in the **Grid** mode is a bit complex compared to the selection in a text component. It consists of a current selected cell and additional selected cells. These additional cells are either hand picked by you with the cursor, or implied by the current selected cell. To be more specific, let's consider you click the name of the column - this becomes the current selected cell, but the editor automatically extends the selection so that it contains all the cells from that column. The current selected cell is painted with a color that is different from the rest of the selection.

You can select discontinuous regions of nodes and place them in the clipboard using the copy action. To deselect one of the selected fragments, use **Ctrl (Meta on Mac OS) + Click**. Pasting these nodes relative to the current selected cell may be done in two ways: just below (after) as a brother, which is the default behavior, or as the last child of the selected cell.

The **Paste as Child** action is available in the contextual menu.

The same action can be found in the menu **Document** > **Grid Edit** > **Paste as Child**.

The nodes copied from the **Grid** editor can also be pasted into the **Text** editor or other applications. When copying from the **Grid** into the **Text** editor or other text based applications, the inserted string represents the nodes serialization. The nodes from tables can be copied using HTML or RTF in table format. The resulting cells contain only the concatenated values of the text nodes.

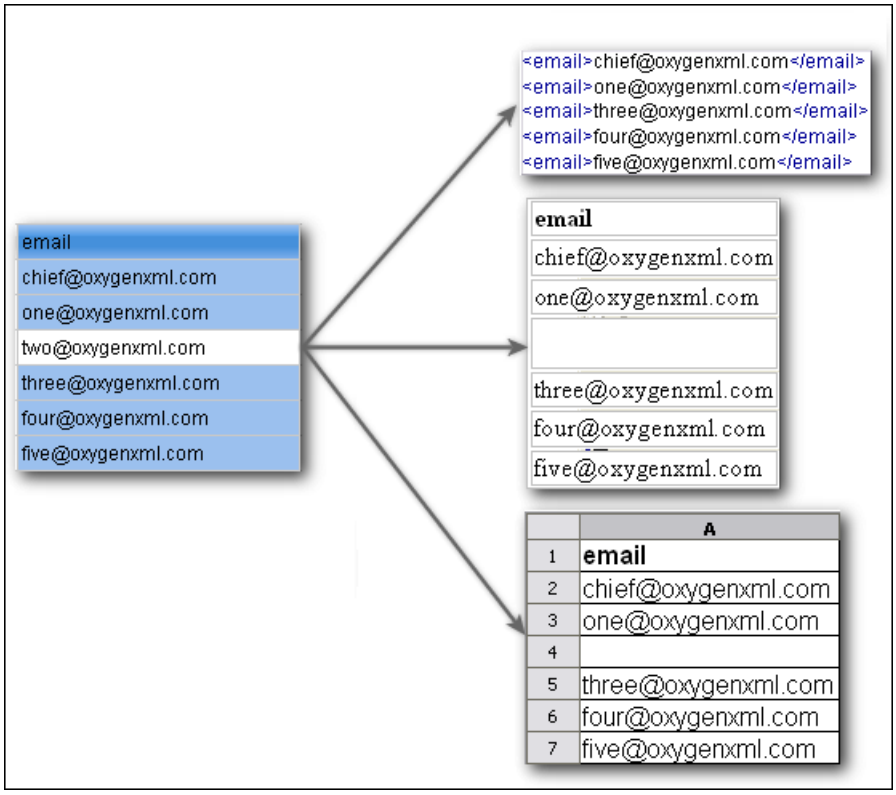


Figure 19: Copying from Grid to Other Editors

In the **Grid** editor you can paste well-formed XML content or tab separated values from other editors. If you paste XML content, the result will be the insertion of the nodes obtained by parsing this content.

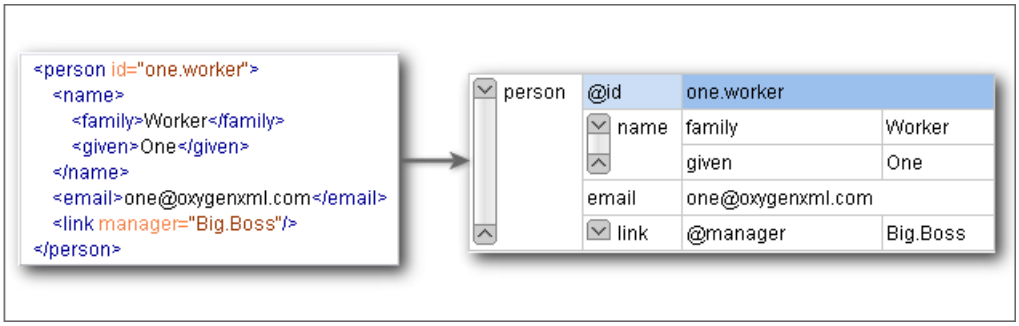


Figure 20: Copying XML Data into Grid

If the pasted text contains multiple lines of tab separated values it can be considered as a matrix of values. By pasting this matrix of values into the **Grid** editor the result will be a matrix of cells. If the operation is performed inside existing cells, the existing values will be overwritten and new cells will be created when needed. This is useful, for example, when trying to transfer data from Excel like editors into the **Grid** editor.

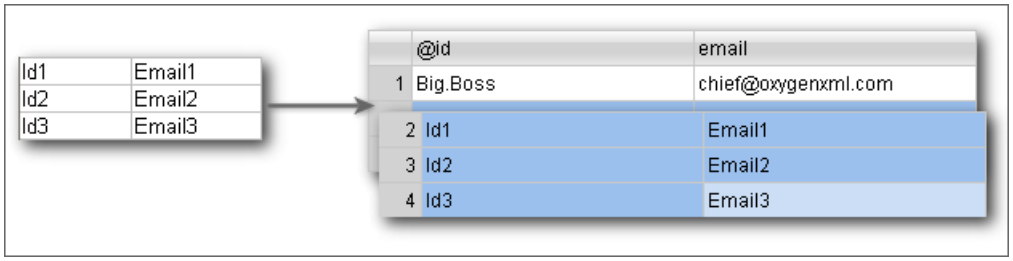


Figure 21: Copying Tab Separated Values into Grid

Bidirectional Text Support in Grid Mode

If you are editing documents employing a different text orientation, you can change the way the text is rendered and edited in the grid cells by using the **Ctrl (Meta on Mac OS) + Shift + O** shortcut to switch from the default left to right text orientation to the right to left orientation.

Note: This change applies only to the text from the cells, and not to the layout of the grid editor.

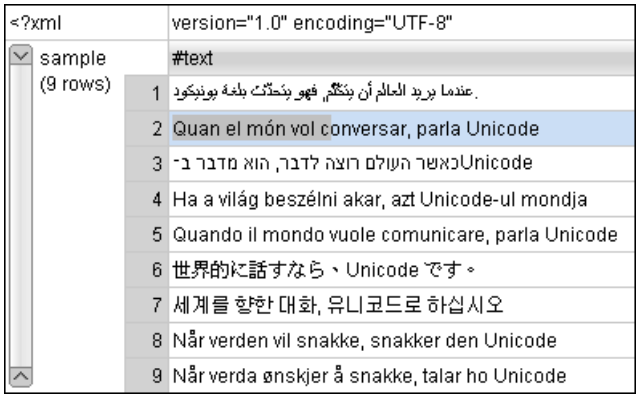


Figure 22: Default left to right text orientation

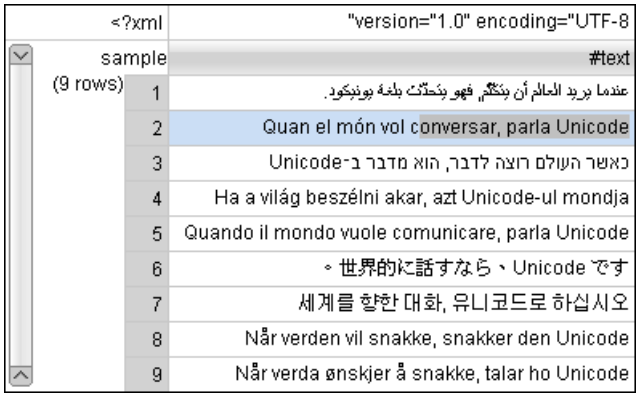


Figure 23: Right to left text orientation

Author Editing Mode

This chapter presents the WYSIWYG like editor, called **Author** editor, targeted to content authors.

Tagless XML Authoring

Once the structure of an XML document and the required restrictions on its elements and their attributes are defined with an XML schema, the editing of the document becomes easier in a WYSIWYG (what-you-see-is-what-you-get) editor in which the XML markup is not visible.

This tagless editor is available as the **Author** mode of the XML editor. To enter the **Author** mode, click the **Author** button at the bottom of the editing area. The **Author** mode renders the content of the XML document visually based on a CSS stylesheet associated with the document. Many of the actions and features available in **Text** mode are also available in **Author** mode.

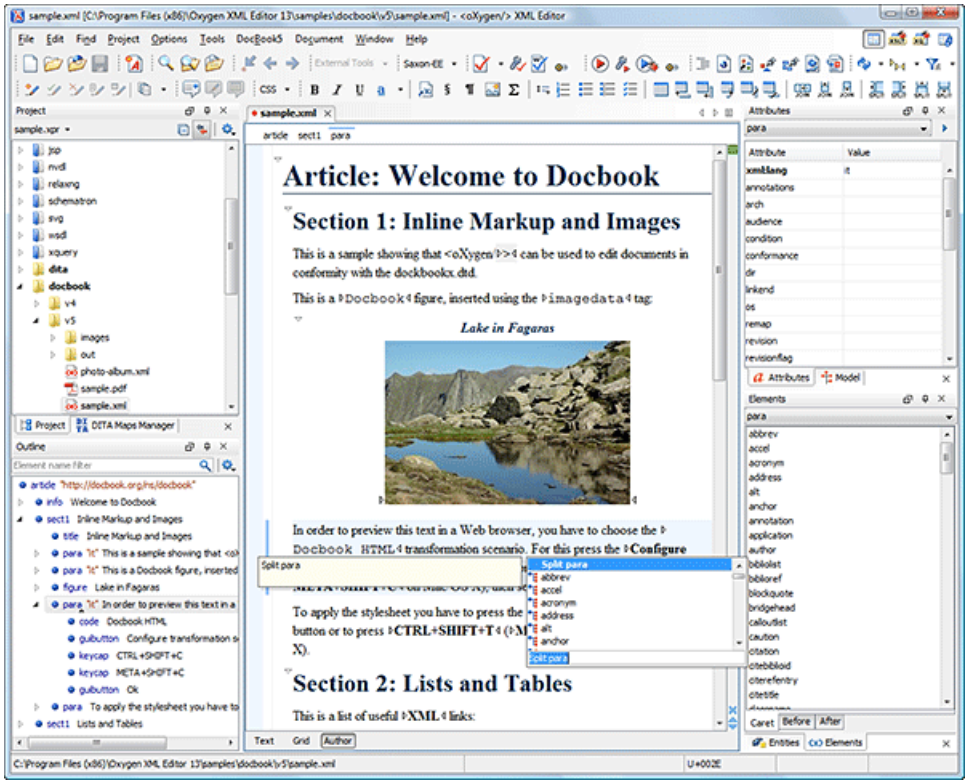


Figure 24: Author Editing Mode

Associating a CSS with an XML Document

The tagless rendering of an XML document in the **Author** mode is driven by a CSS stylesheet which conforms to the *version 2.1 of the CSS specification* from the W3C consortium. Some CSS 3 features like namespaces and custom extensions of the CSS specification are supported also.

The CSS specification is convenient for driving the tagless rendering of XML documents as it is an open standard maintained by the W3C consortium. A stylesheet conforming to this specification is easy to develop and edit in Oxygen XML Author as it is a plain text file with a simple syntax.

The association of such a stylesheet with an XML document is straightforward: an `xml-stylesheet` XML processing instruction with the attribute `type="text/css"` must be inserted at the beginning of the XML document. In case you do not want to alter your XML documents, you should set-up a *document type*.

For XHTML documents, there is a second method for the association of a CSS stylesheet: an element `link` with the `href` and `type` attributes in the `head` child element of the `html` element as specified in the *W3C CSS specification*.

Author Mode User Roles

There are two main types of users of the **Author** mode: *framework developers* and *content authors*. A *framework developer* is a technical person with advanced XML knowledge who defines the framework for authoring XML documents in the tagless editor. Once the framework is created or edited by the developer, it is distributed as a deliverable component ready to plug into the application to the content authors. A *content author* does not need to have advanced knowledge about XML tags or operations like validation of XML documents or applying an XPath expression to an XML document. The author just plugs the framework set-up by the developer into the application and starts editing the content of XML documents without editing the XML tags directly.

The framework set-up by the developer is called *document type* and defines a type of XML documents by specifying all the details needed for editing the content of XML documents in tagless mode:

- the CSS stylesheet which drives the tagless visual rendering of the document;
- the rules for associating an XML schema with the document which is needed for content completion and validation of the document;
- transformation scenarios for the document;
- XML catalogs;
- custom actions available as buttons on the toolbar.

The tagless editor comes with some ready to use predefined document types for XML frameworks largely used today like DocBook, DITA, TEI, XHTML.

To watch our video demonstration about the basic functionality of the **Author** mode, go to *http://oxygenxml.com/demo/WYSIWYG_XML_Editing.html*.

General Author Presentation

A content author edits the content of XML documents in the **Author** mode disregarding the XML tags as they are not visible in the editor. If he edits documents conforming to one of the predefined types he does not need to configure anything as the predefined document types are already configured when the application is installed. Otherwise he must plug the configuration of the document type into the application. This is as easy as unzipping an archive directly in the `[Oxygen-install-folder]/frameworks` folder.

In case the edited XML document does not belong to one of the document types *set up in Preferences* you can specify the CSS stylesheets to be used by inserting an `xml-stylesheet` processing instructions. You can insert the processing instruction by editing the document or by using the  **Associate XSLT/CSS stylesheet** action.

The syntax of such a processing instruction is:

```
<?xml-stylesheet type="text/css" media="media type" title="title"
href="URL" alternate="yes|no"?>
```

You can read more about associating a CSS to a document in the section about *customizing the CSS of a document type*.

When the document has no CSS association or the referred stylesheet files cannot be loaded, a default one is used. A warning message is also displayed at the beginning of the document presenting the reason why the CSS cannot be loaded.

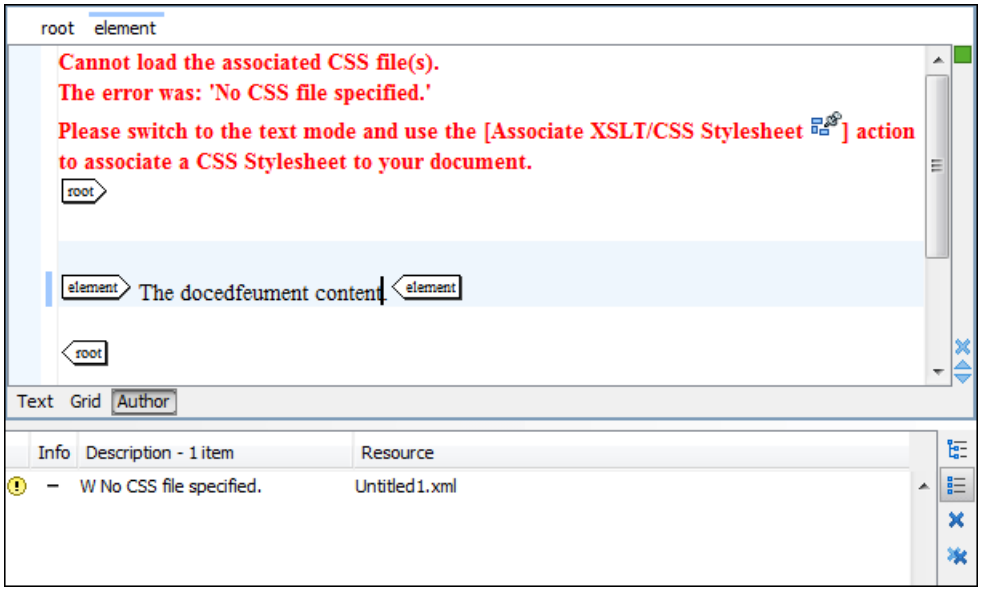


Figure 25: Document with no CSS association default rendering

Author Views

The content author is supported by special views which are automatically synchronized with the current editing context of the editor panel. The views present additional information about this context thus helping the author to see quickly the current location in the overall document structure and the available editing options.

Outline View

The **Outline** view offers the following functionality:

- *Document Overview*;
- *Outline View Specific Actions*;
- *Modification Follow-up*;
- *Document Structure Change*;
- *Document Tag Selection*.

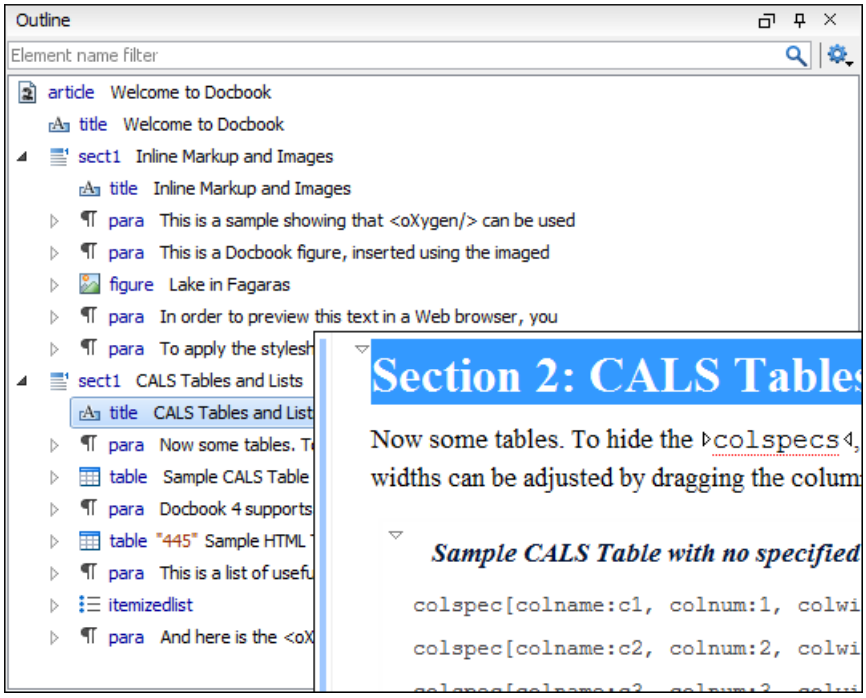


Figure 26: The Outline View

XML Document Overview

The **Outline** view displays a general tag overview of the current edited XML document. It also shows the correct hierarchical dependencies between the tag elements. This functionality makes it easier for the user to be aware of the document structure and the way tags are nested.

The **Outline** view allows you to:

- insert or delete nodes using pop-up menu actions;
- move elements by dragging them to a new position in the tree structure;
- highlight elements in the **Author** editor area.

Note: The **Outline** view is synchronized with the **Author** editor area. When you make a selection in the **Author** editor area, the corresponding elements of the selection are highlighted in the **Outline** view and vice versa. This functionality is available both for single and multiple selection. To deselect one of the elements, use **Ctrl (Meta on Mac OS) + Click**.

Document errors (such as an element inserted in an invalid position, or a wrong attribute name, or a missing required attribute value) are highlighted in the **Outline** tree:

- a red exclamation mark decorates the element icon;
- a dotted red underline decorates the element name and value;
- a tooltip provides more information about the nature of the error, when you hover with the mouse pointer over the faulted element.

Modification Follow-up

When you edit a document, the **Outline** view dynamically follows the changes that you make, displaying the node that you modify in the middle of the view. This functionality gives you great insight on the location of your modifications in the document that you edit.

Document Structure Change

Entire XML elements can be moved or copied in the edited document using only the mouse in the **Outline** view in drag-and-drop operations. Several drag and drop actions are possible:

- If you drag an XML element in the **Outline** 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 target element will be expanded first and the dragged element will be moved inside the drop target element after its opening tag.
- You can also drop an element before or after another element if you hold the mouse pointer towards the upper or lower part of the targeted element. A marker will indicate whether the drop will be performed before or after the target element.
- If you hold down the **(Ctrl (Meta on Mac OS))** key after dragging, there will be performed a copy operation instead of a move one.

The drag and drop action in the **Outline** view can be *disabled and enabled from the Preferences dialog.*

Tip: You can select and drag multiple nodes in the Author Outline tree.

Outline Filters

The following actions are available in the **Settings** menu on the Outline view's toolbar:

- **Flat presentation mode of the filtered results** - when active, the application flattens the filtered result elements to a single level.
- **Show comments and processing instructions** - show/hide comments and processing instructions in the **Outline** view.
- **Show element name** - show/hide element name.
- **Show text** - show/hide additional text content for the displayed elements.
- **Show attributes** - show/hide attribute values for the displayed elements. The displayed attribute values can be changed from *the Outline preferences panel*.
- **Configure displayed attributes** - displays the *XML Structured Outline preferences page*.

The upper part of the view contains a filter box which allows you to focus on the relevant components. Type a text fragment in the filter box and only the components that match it are presented. For advanced usage you can use wildcard characters (*, ?) and separate multiple patterns with commas.

The Contextual Menu of the Outline Tree

The contextual menu of the **Outline** tree contains the following actions:

- **Edit attributes** - A dialog is presented allowing the user to see and edit the attributes of the selected node.
- The **Append child**, **Insert before** and **Insert after** submenus allow to quickly insert new tags in the document at the place of the element selected in the **Outline** tree. The **Append 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 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 **Cut**, **Copy** and **Delete** actions execute *the same actions as the **Edit** menu items with the same name* on the elements currently selected in the **Outline** tree.
- You can insert a well-formed element before, after or as a child of the currently selected element by accessing the **Paste before**, **Paste after** or **Paste as Child** actions.
- The **Toggle Comment** item encloses the currently selected element of the **Outline** tree in an XML comment, if the element is not commented, or removes the comment if it is commented.
- Using the **Rename Element** action 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.
- The **Expand More / Collapse All** actions expand / collapse the selection and all its children.

Tip: You can copy, cut or delete multiple nodes in the **Outline** by using the contextual menu after selecting multiple nodes in the tree.

Elements View

The **Elements** view presents a list of all defined elements that you can insert in your document. All elements from a sequence are presented but the invalid proposals (which cannot be inserted in the current context) are grayed-out. The upper part of the view features a combo box that contains the current element's ordered ancestors. Selecting a new element in this combo box updates the list of the allowed elements in **Before** and **After** tabs.

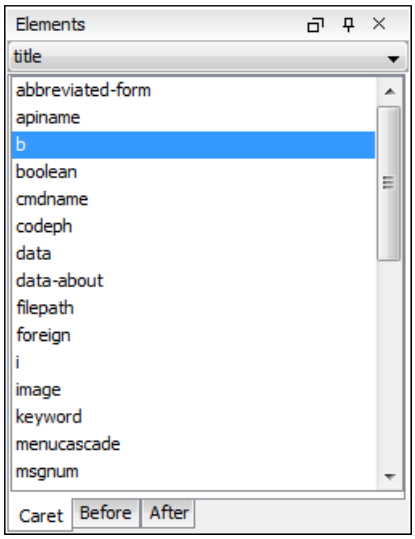


Figure 27: The Elements View

Three tabs present information relative to the caret location:

- **Caret** - Shows a list of all the elements allowed at the current caret location. Double-clicking any of the listed elements inserts that element at the caret position.
- **Before** - Shows a list of all elements that can be inserted before the element selected in the combo box. Double-clicking any of the listed elements inserts that element before the element at the caret position.
- **After** - Shows a list of all elements that can be inserted after the element selected in the combo box. Double-clicking any of the listed elements inserts that element after the element at the caret position.

Double clicking an element name in the list surrounds the current selection in the editor panel with the start tags and end tags of the element. If there is no selection, just an empty element is inserted in the editor panel at the cursor position.

Attributes View

The **Attributes** view presents all the attributes of the current element determined by the schema of the document. It allows you to insert attributes in the current element or change the value of the attributes already inserted. The attributes are rendered differently depending on their state:

- the names of the attributes with a specified value are rendered with a bold font, and their value with a plain font;

  Note: The names of the attributes with an empty string value are also rendered bold.

- default values are rendered with a plain font, painted gray;
- empty values display the text "[empty]", painted gray;
- invalid attributes and values are painted red;

Double-click a cell in the **Value** column to edit the value of the corresponding attribute. In case the possible values of the attribute are specified as list in the schema of the edited document, the **Value** column acts as a combo box that allows you to insert the values in the document.

You can sort the attributes table by clicking the **Attribute** column header. The table contents can be sorted as follows:

- by attribute name in ascending order;
- by attribute name in descending order;

- custom order, where the used attributes are displayed at the beginning of the table sorted in ascending order, followed by the rest of the allowed elements sorted in ascending order.

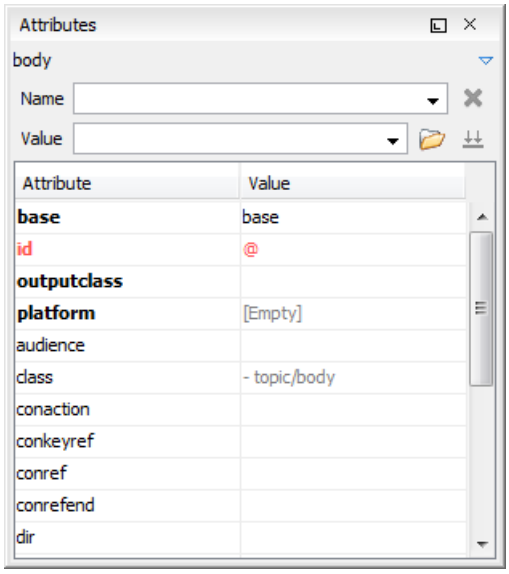


Figure 28: The Attributes View

A combo box located in the upper part of the view allows you to edit the attributes of the ancestors of the current element.

The following actions are available in the contextual menu:

- **Add** - allows you to insert a new attribute. Adding an attribute that is not in the list of all defined attributes is not possible when the *Allow only insertion of valid elements and attributes* schema aware option is enabled;
- **Set empty value** - Specifies the current attribute value as empty;
- **Remove** - Removes the attribute (action available only if the attribute is specified). You can invoke this action by pressing the **(Delete)** or **(Backspace)** keys;
- **Copy** - copies the `attrName="attrValue"` pair to the clipboard. The `attrValue` can be:
  - the value of the attribute;
  - the value of the default attribute, in case the attribute does not appear in the edited document;
  - empty, in case the attribute does not appear in the edited document and has no default value set.
- **Paste** - this action is available in the contextual menu of the **Attributes** view, in the **Text** and **Author** modes. Depending on the content of the clipboard, the following cases are possible:
  - in case the clipboard contains an attribute and its value, both of them are introduced in the **Attributes** view. The attribute is selected and its value is changed if they exist in the **Attributes** view;
  - in case the clipboard contains an attribute name with an empty value, the attribute is introduced in the **Attributes** view and you can start editing it. The attribute is selected and you can start editing it if it exists in the **Attributes** view;
  - in case the clipboard only contains text, the value of the selected attribute is modified.

To edit in place the attributes of an element in the editor panel, select the attribute and press **Alt + Enter** on your keyboard. This shortcut pops up a small window with the same content of the **Attributes** view. The default form of the pop-up window presents the **Name** and **Value** fields, with the list of all the possible attributes collapsed.

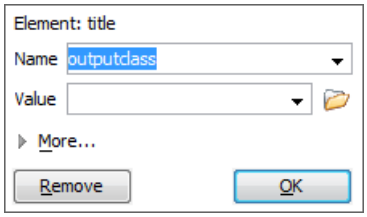


Figure 29: Edit attributes in place

The small right arrow button expands the list of possible attributes allowed by the schema of the document as in the **Attributes** view.

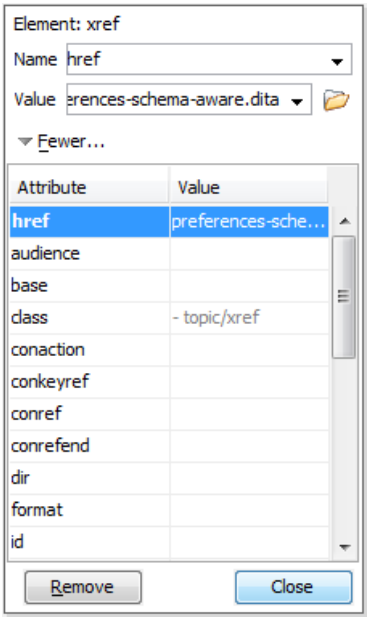


Figure 30: Edit attributes in place - full version

The **Name** field auto-completes the name of the attribute: the complete name of the attribute is suggested based on the prefix already typed in the field as the user types in the field.

Entities View

This view displays a list with all entities declared in the current document as well as built-in ones. Double clicking one of the entities will insert it at the current cursor position.

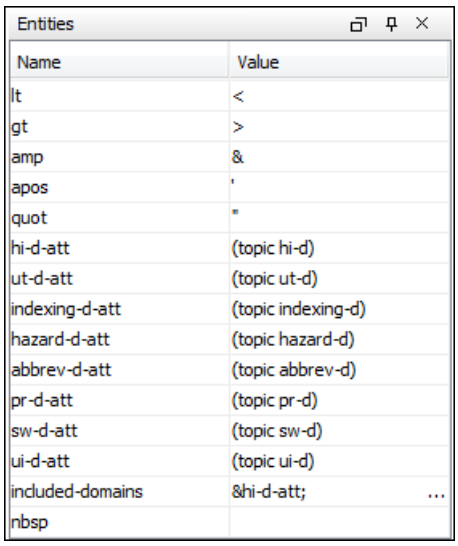


Figure 31: The Entities View

The Author Editor

This section explains the features of the CSS-driven WYSIWYG-like editor for XML documents.

Navigating the Document Content

Using the Keyboard

Oxygen XML Author allows you to quickly navigate through a document using **Tab** to go to the next XML node and **Shift + Tab** to go to the previous one. The caret is moved to the next / previous editable position. When your caret is positioned in a space preserve element, press a key on your keyboard and then use **Tab** to arrange the text. You can also arrange the text using **Tab** if you position the cursor in a space preserve element using your mouse. In case you encounter a space preserve element when you navigate through a document and you press no other key, the next **Tab** continues the navigation.

To navigate one word forward or backwards, use **Ctrl (Meta on Mac OS) + Right Arrow**, and **Ctrl (Meta on Mac OS) + Left Arrow**, respectively. Entities and hidden elements are skipped.

Using the Navigation Toolbar

The locations of selected text are stored in an internal list which allows you to navigate between them with the **Back** (**Ctrl (Meta on Mac OS) + Alt + [**) and **Forward** (**Ctrl (Meta on Mac OS) + Alt +]**) buttons from the **Navigation** toolbar. The **Last Modification** (**Ctrl (Meta on Mac OS) + Alt +G**) button automatically takes you to the latest edited text.

Using the Breadcrumb Helpers

A left-hand side stripe paints a vertical thin light blue bar indicating the span of the element found at caret position. Also a top stripe called *breadcrumb* indicates the path from document root to the current element.

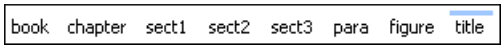


Figure 32: The breadcrumb in Editor view

The last element is also highlighted by a thin light blue bar for easier identification. Clicking one element from the top stripe selects the entire element in the editor view.

The tag names displayed in the breadcrumb can be customized with an Author extension class that implements `AuthorBreadCrumbCustomizer`. See the *Author SDK* for details about using it.

The **Append child**, **Insert before** and **Insert after** submenus of the top stripe popup menu allow you to insert new tags in the document at the place of the selected element. The **Append 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 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 **Cut**, **Copy**, **Paste** 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 stripe. The **Cut** and **Copy** operations (like the `display:block` property or the tabular format of the data from a set of table cells) preserve the styles of the copied content. The **Paste before**, **Paste after** and **Paste as Child** actions allow the user to insert an well-formed element before, after or as a child of the currently selected element.

The **Toggle Comment** item of the **Outline** tree popup menu encloses the currently selected element of the top stripe in an XML comment, if the element is not commented, or removes the comment if it is commented.

Using the **Rename Element** action the selected element and the elements that have the same name as the current element can be renamed according with the options from the **Rename** dialog.

Using the Folding Support

When working on a large document, the **folding support** can be used to collapse some elements content leaving in focus only the ones you need to edit. Foldable elements are marked with a small triangle painted in the upper left corner. Hovering with the mouse pointer over that marker, the entire content of the element is highlighted by a dotted border for quick identification of the foldable area. The following actions are available in the contextual menu, **Folding** sub-menu:

- **Toggle Fold** - toggles the state of the current fold;
- **Close Other Folds** (**Ctrl (Meta on Mac OS) + NumPad + /**)- folds all the elements except the current element;
- **Collapse Child Folds** (**Ctrl (Meta on Mac OS) + NumPad + .**) - folds the elements indented with one level inside the current element;
- **Expand Child Folds**- unfolds all child elements of the currently selected element;
- **Expand All** (**Ctrl (Meta on Mac OS) + NumPad + ***) - unfolds all elements in the current document.

Using the Linking Support

When working on a suite of documents that refer to one another (references, external entities, XInclude, DITA conref, etc), the **linking support** is useful for navigating between the documents. In the predefined customizations that are bundled with Oxygen XML Author links are marked with an icon representing a chain link: . When hovering with the mouse pointer over the marker, the mouse pointer changes its shape to indicate that the link can be followed and a tooltip presents the destination location. Click a followable link to open the referred resource in an editor. The same effect can be obtained by using the action **Open file at caret** when the caret is in a followable link element.

To position the cursor at the beginning or at the end of the document you can use **Ctrl (Meta on Mac OS) + Home**, and **Ctrl (Meta on Mac OS) + End** respectively.

Displaying the Markup

In the **Author** mode, you can control the amount of displayed markup using the following dedicated actions from the toolbar:

- **Full Tags with Attributes** - displays full name tags with attributes for both block level as well as in-line level elements;
- **Full Tags** - displays full name tags without attributes for both block level as well as in-line level elements;
- **Block Tags** - displays full name tags for block level elements and simple tags without names for in-line level elements;
- **Inline Tags** - displays full name tags for inline level elements, while block level elements are not displayed;

- **Partial Tags** - displays simple tags without names for in-line level elements, while block level elements are not displayed;
- **No Tags** - no tags are displayed. This is the most compact mode.

To set a default mode of the tags mode, go to *Author preferences page* and configure the **Tags display mode** mode. However, if the document opened in Author editor does not have an associated CSS stylesheet, then the **Full Tags** mode will be used.

Block-level elements are those elements of the source document that are formatted visually as blocks (e. g. paragraphs), while the inline level elements are distributed in lines (e. g. emphasizing pieces of text within a paragraph, inline images, etc). The graphical format of the elements is controlled from the CSS sources via the `display` property.

Bookmarks

A position in a document can be marked with a bookmark. Later the cursor can go quickly to the marked position with a keyboard shortcut or with a menu item. This is useful to ease the navigation in a large document or to work on more than one document when the cursor must move between several marked positions.

A bookmark can be placed with:

- one of the menu items available on the menu **Edit** > **Bookmarks** > **Create**;
- the menu item **Edit** > **Bookmarks** > **Bookmarks Quick Creation (F9)**;
- the keyboard shortcuts associated with these menu items and visible on the menu **Edit** > **Bookmarks**.

A bookmark can be removed when a new bookmark is placed in the same position as an old one or with the action **Edit** > **Bookmarks** > **Remove All**. The cursor can go to a bookmark with one of the actions available on the menu **Edit** > **Bookmarks** > **Go to**.

Position Information Tooltip

When the caret is positioned inside a new context, a tooltip will be shown for a couple of seconds displaying the position of the caret relative to the current element context.

Here are the common situations that can be encountered:

- The caret is positioned before the first block child of the current node.

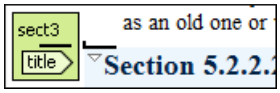


Figure 33: Before first block

- The caret is positioned between two block elements.

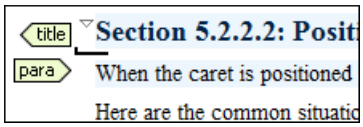


Figure 34: Between two block elements

- The caret is positioned after the last block element child of the current node.

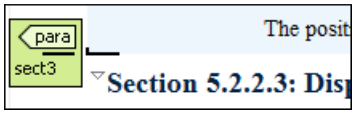


Figure 35: After last block

- The caret is positioned inside a node.

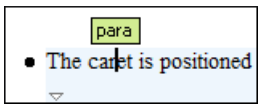


Figure 36: Inside a node

- The caret is positioned inside an element, before an inline child element.

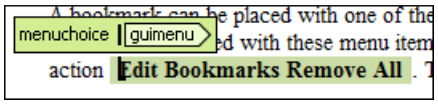


Figure 37: Before an inline element

- The caret is positioned between two inline elements.

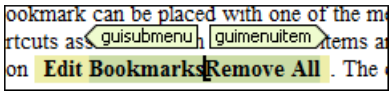


Figure 38: Between two inline elements

- The caret is positioned inside an element, after an inline child element.

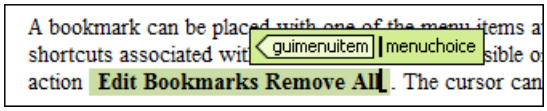


Figure 39: After an inline element

The nodes in the previous cases are displayed in the tooltip window using their names.

You can deactivate this feature by unchecking the **Options** > **Preferences** > **Editor / Author** > **Show caret position tooltip** check box. Even if this option is disabled, you can trigger the display of the position tooltip by pressing **Shift+F2**.

Note: The position information tooltip is not displayed if one of the modes *Full Tags with Attributes* or *Full Tags* is selected.

Displaying Referred Content

The references to entities, XInclude, and DITA conrefs are expanded by default in Author mode and the referred content is displayed. You can control this behavior from the *Author preferences page*. The referred resources are loaded and displayed inside the element or entity that refers them, however the displayed content cannot be modified directly.

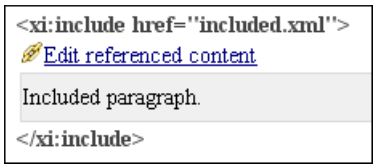


Figure 40: XInclude reference

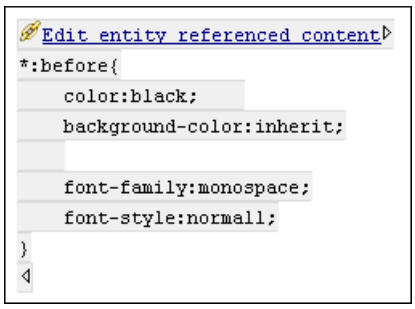


Figure 41: External entity reference

When the referred resource cannot be resolved, an error will be presented inside the element that refers them instead of the content.

If you want to make modifications to the referred content, you must open the referred resource in an editor. The referred resource can be opened quickly by clicking the link (marked with the icon) which is displayed before the referred content or by using the **Edit Reference** action from the contextual menu (in this case the caret is placed at the precise location where the action was invoked in the main file). The referred resource is resolved through the XML Catalog set in **Preferences**.

The referred content is refreshed:

- automatically, when it is modified and saved from Oxygen XML Author;
- on demand, by using the *Refresh references action*. Useful when the referred content is modified outside the Oxygen XML Author scope.

Finding and Replacing Text

You can search for a specific word or string of characters using the following features:

- ***Find/Replace** dialog box*
- ***Find/Replace in Files** dialog box*
- ***Quick Find** toolbar*
- ***Find all Elements** dialog box*

Complex search operations may take some time to complete. If a search operation takes more than 5 seconds, you are prompted to decide whether you want to continue the operation or stop it.

Contextual Menu

More powerful support for editing the XML markup is offered via actions included in the contextual menu. Two types of actions are available: **generic actions** (actions that not depends on a specific document type) and **document type actions** (actions that are configured for a specific document type).

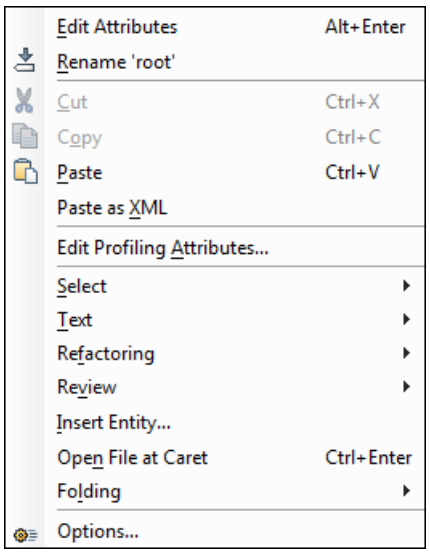


Figure 42: Contextual menu

The generic actions are:

- **Edit Attributes** - A pop-up window is displayed allowing you to manage the element attributes;
- **Rename** - The element from the caret position can be renamed quickly using the content completion window. If the *Allow only insertion of valid elements and attributes* schema aware option is enabled only the proposals from the content completion list are allowed, otherwise a custom element name can also be provided;
- **Cut**, **Copy**, **Paste** - Common edit actions with the same functionality as those found in the text editor;
- **Paste As XML** - Similar to **Paste** operation, except that the clipboard's content is considered to be XML;
- **Edit Profiling Attributes** - Allows you to select the profiling attributes;
- **Select** - Contains the following actions:
  - **Select** > **Select Element** - Selects the entire element at the current caret position;
  - **Select** > **Select Content** - Selects the entire content of the element at the current caret position, excluding the start and end tag. Performing this action repeatedly will result in the selection of the content of the ancestor of the currently selected element content;
  - **Select** > **Select Parent** - Selects the parent of the element at the current caret position;

  Note: You can select an element by triple clicking inside its content. If the element is empty you can select it by double clicking it.

- **Text** - Contains the following actions:
  - **Text** > **To Lower Case** - Converts the selection content to lower case characters;
  - **Text** > **To Upper Case** - Converts the selection content to upper case characters;
  - **Text** > **Capitalize Sentences** - Converts to upper case the first character of every selected sentence;
  - **Text** > **Capitalize Words** - Converts to upper case the first character of every selected word;
  - **Text** > **Count Words** - Counts the number of words and characters (no spaces) in the entire document or in the selection for regular content and read-only content;

    Note: The content marked as deleted with track changes is ignored when counting words.

- **Refactoring** - Contains a series of actions designed to alter the document's structure:
  - **Toggle Comment** - Encloses the currently selected text in an XML comment, or removes the comment if it is commented;
  - **Move Up** - Moves the current node or selected nodes in front of the previous node;
  - **Move Down** - Moves the current node or selected nodes after the successive node;

- **Split Element** - Splits the content of the closest element that contains the caret's position. Thus, if the caret is positioned at the beginning or at the end of the element, the newly created sibling will be empty;
- **Join Elements** - Joins two adjacent elements that have the same name. The action is available only when the caret position is between the two adjacent elements. Also, joining two elements can be done by pressing the Delete or Backspace keys and the caret is positioned between the boundaries of these two elements;
- **Surround with Tag...** - Selected text in the editor is marked with the specified start and end tags;
- **Surround with '<Tag name>'** - Selected text in the editor is marked with start and end tags used by the last '**Surround with Tag...**' action;
- **Rename Element** - 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;
- **Delete Element Tags** - Deletes the tags of the closest element that contains the caret's position. This operation is also executed if the start or end tags of an element are deleted by pressing the **(Delete)** or **(Backspace)** keys;

- **Review** - Provides access to *Track Changes* and Manage Comments actions;
- **Manage IDs** - Provides access to *searching and refactory actions for ID/IDREFS*;
- **Insert Entity** - Allows the user to insert a predefined entity or a character entity. Surrogate character entities (range #x10000 to #x10FFFF) are also accepted. Character entities can be entered in one of the following forms:
  - #<*decimal value*> - e. g. #65;
  - &#<*decimal value*>; - e. g. A
  - #x<*hexadecimal value*> - e. g. #x41;
  - &#x<*hexadecimal value*>; - e. g. A
- **Open File at Caret** - Opens in a new editor panel the file with the path under the caret position. If the path represents a directory path, it will be opened in system file browser. If the file does not exist at the specified location, the error dialog that is displayed contains a **Create new file** action which displays the **New** file dialog. This allows you to choose the type or the template for the file. If the action succeeds, the file is created with the referred location and name and is opened in a new editor panel. This is useful when you decide first on the file name and after that you want to create it in the exact location specified at the current cursor position;
- **Options** - Opens the *Author options page*.

Document type actions are specific to some document type. Examples of such actions can be found in the *Predefined document types* section.

Editing XML Documents in Author

This section details how to edit the text content and the markup of XML documents in **Author** mode. It explains also how to edit tables and MathML content in **Author** mode.

Editing the XML Markup

One of the most useful feature in Author editor is the content completion support. The fastest way to invoke it is to press **Enter** or **Ctrl (Meta on Mac OS) + Space** in the editor panel.

Content completion window offers the following types of actions:

- inserting allowed elements for the current context according to the associated schema, if any;
- inserting element values if such values are specified in the schema for the current context;
- inserting new undeclared elements by entering their name in the text field;
- inserting CDATA sections, comments, processing instructions;
- inserting *code templates*.
- if the **Show all possible elements in the content completion list** option from the *Schema aware preferences page* is enabled, the content completion pop-up window will present all the elements defined by the schema. When choosing an element from this section, the insertion will be performed using the schema aware smart editing features.

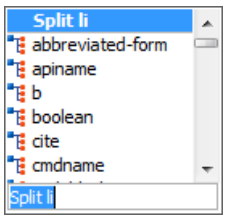


Figure 43: Content completion window

If you press **(Enter)** the displayed content completion window will contain as first entries the **Split <Element name>** items. Usually you can only split the closest block element to the caret position but if it is inside a list item, the list item will also be proposed for split. Selecting **Split <Element name>** splits the content of the specified element around the caret position. Thus, if the caret is positioned at the beginning or at the end of the element, the newly created sibling will be empty.

If the caret is positioned inside a space preserve element the first choice in the content completion window is **Enter** which inserts a new line in the content of the element. If there is a selection in the editor and you invoke content completion, a **Surround with** operation can be performed. The tag used will be the selected item from the content completion window.

By default you are not allowed to insert element names which are not defined by the schema. This can be changed by unchecking the **Allow only insertion of valid elements and attributes** check box from the *Schema aware preferences page*.

Note: The content completion list of proposals contains elements depending on the elements inserted both before and after the caret position.

Joining two elements - You can choose to join the content of two sibling elements with the same name by using the **contextual menu** > **Join elements** action.

The same action can be triggered also in the next situations:

- The caret is located before the end position of the first element and **(Delete)** key is pressed.
- The caret is located after the end position of the first element and **(Backspace)** key is pressed.
- The caret is located before the start position of the second element and **(Delete)** key is pressed.
- The caret is located after the start position of the second element and **(Backspace)** key is pressed.

In either of the described cases, if the element has no sibling or the sibling element has a different name, **Unwrap** operation will be performed automatically.

Unwrapping the content of an element - You can unwrap the content of an element by deleting its tags using the **Delete element tags** action from the editor contextual menu.

The same action can be triggered in the next situations:

- The caret is located before the start position of the element and **(Delete)** key is pressed.
- The caret is located after the start position of the element and **(Backspace)** key is pressed.
- The caret is located before the end position of the element and **(Delete)** key is pressed.
- The caret is located after the end position of the element and **(Backspace)** key is pressed.

Removing all the markup of an element - You can remove the markup of the current element and keep only the text content with the action **Remove All Markup** available on the submenu **Refactoring** of the contextual menu and on the toolbar **XML Refactoring**.

When you press **(Delete)** or **(Backspace)** in the presented cases the element is unwrapped or it is joined with its sibling. If the current element is empty, the element tags will be deleted.

When you click on a marker representing the start or end tag of an element, the entire element will be selected. The contextual menu displayed when you right-click on the marker representing the start or end tag of an element contains **Append child**, **Insert Before** and **Insert After** submenus as first entries.

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 when the word at cursor position is a prefix of such a short name. If there is no prefix at cursor position (a whitespace precedes the cursor), all the code templates are listed.

Oxygen XML Author comes with numerous predefined code templates. You can also *define* your own code templates for any type of editor.

To obtain the template list, you use the **Ctrl (Meta on Mac OS) + Space** content completion shortcut key, or the **Ctrl (Meta on Mac OS) + Shift + Space** code templates shortcut key. The first shortcut displays the code templates in the same *content completion list with elements from the schema of the document*. The second shortcut displays only the code templates and is the default shortcut of the action **Document** > **Content Completion** > **Show Code Templates**.

The syntax of the code templates allows you to use the following *editor variables*:

- **${caret}** - The position where the caret is inserted. This variable can be used in a code template, in **Author** operations, or in a selection plugin;
- **${selection}** - The current selected text content in the current edited document. This variable can be used in a code template, in **Author** operations, or in a selection plugin;
- **${ask('message', type, ('real_value1':'rendered_value1'; 'real_value2':'rendered_value2'; ...), 'default_value')}** - To prompt for values at runtime, use the *ask('message', type, ('real_value1':'rendered_value1'; 'real_value2':'rendered_value2'; ...), 'default-value'')* editor variable. You can set the following parameters:
  - `'message'` - the displayed message. Note the quotes that enclose the message;
  - `type` - optional parameter. Can have one of the following values:
    - `url` - input is considered an URL. Oxygen XML Author checks that the URL is valid before passing it to the transformation;
    - `password` - input characters are hidden;
    - `generic` - the input is treated as generic text that requires no special handling;
    - `relative_url` - input is considered an URL. Oxygen XML Author tries to make the URL relative to that of the document you are editing;

      Note: You can use the `$ask` editor variable in file templates. In this case, Oxygen XML Author keeps an absolute URL.

    - `combobox` - displays a dialog that contains a non-editable combo-box;
    - `editable_combobox` - displays a dialog that contains an editable combo-box;
    - `radio` - displays a dialog that contains radio buttons;
  - `'default-value'` - optional parameter. Provides a default value in the input text box;

    Examples:

    - `${ask('message')}` - Only the message displayed for the user is specified.
    - `${ask('message', generic, 'default')}` - `'message'` is displayed, the type is not specified (the default is string), the default value is `'default'`.
    - `${ask('message', password)}` - `'message'` is displayed, the characters typed are masked with a circle symbol.
    - `${ask('message', password, 'default')}` - same as before, the default value is `'default'`.
    - `${ask('message', url)}` - `'message'` is displayed, the parameter type is URL.
    - `${ask('message', url, 'default')}` - same as before, the default value is `'default'`.
- **${timeStamp}** - Time stamp, that is the current time in Unix format. It can be used for example to save transformation results in different output files on each transform;
- **${uuid}** - Universally unique identifier;An unique sequence of 32 hexadecimal digits generated by the Java *UUID* class;

- **${id}** - Application-level unique identifier;A short sequence of 10-12 letters and digits which is not guaranteed to be universally unique;
- **${cfn}** - Current file name without extension and without parent folder. The current file is the one currently opened and selected;
- **${cfne}** - Current file name with extension. The current file is the one currently opened and selected;
- **${cf}** - Current file as file path, that is the absolute file path of the current edited document;
- **${cfd}** - Current file folder as file path, that is the path of the current edited document up to the name of the parent folder;
- **${frameworksDir}** - The path (as file path) of the `frameworks` subfolder of the Oxygen XML Author installation folder;
- **${pd}** - Current project folder as file path. Usually the current folder selected in the Project View;
- **${oxygenInstallDir}** - Oxygen XML Author installation folder as file path;
- **${homeDir}** - The path (as file path) of the user home folder;
- **${pn}** - Current project name;
- **${env(VAR_NAME)}** - Value of the *VAR_NAME* environment variable. The environment variables are managed by the operating system. If you are looking for Java System Properties, use the **${system(var.name)}** editor variable;
- **${system(var.name)}** - Value of the *var.name* Java System Property. The Java system properties can be specified in the command line arguments of the Java runtime as `-Dvar.name=var.value`. If you are looking for operating system environment variables, use the**${env(VAR_NAME)}** editor variable instead;
- **${date(pattern)}** - Current date. The allowed patterns are equivalent to the ones in the *Java SimpleDateFormat class*. Example: yyyy-MM-dd;

  Note: This editor variable supports both the xs:date and xs:datetime parameters. For details about xs:date, go to *http://www.w3.org/TR/xmlschema-2/#date*. For details about xs:datetime, go to *http://www.w3.org/TR/xmlschema-2/#dateTime*.

To watch our video demonstration about code templates, go to *http://oxygenxml.com/demo/Code_Templates.html*.

Editing the XML Content

By default you can type only in elements which accept text content. So if the element is declared as empty or element only in the associated schema you are not allowed to insert text in it. This is also available if you try to insert `CDATA` inside an element. Instead a warning message is shown:

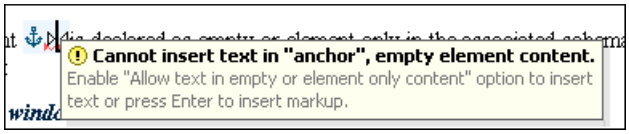


Figure 44: Editing in empty element warning

You can disable this behavior by checking the **Allow Text in empty or element only content** check box in the *Author preferences page*.

Entire sections or chunks of data can be moved or copied by using the drag and drop support. The following situations can be encountered:

- when both the drag and drop sources are Author pages, an well-formed XML fragment is transferred. The section is balanced before dropping it by adding matching tags when needed.
- when the drag source is the Author page but the drop target is a text-based editor only the text inside the selection is transferred as it is.
- the text dropped from another text editor or another application into the Author page is inserted without changes.

Removing the Text Content of the Current Element

You can remove the text content of the current element and keep only the markup with the action **Remove Text** available on the submenu **Refactoring** of the contextual menu and on the toolbar **XML Refactoring**. This is useful when the markup of an element must be preserved, for example a table structure but the text content must be replaced.

Duplicating Elements with Existing IDs

If the **Auto generate IDs for elements** option (available in the **ID Options** dialog from DITA, Docbook and TEI document types) is turned off and you duplicate elements with existing IDs, the duplicates lose these IDs. If the previously mentioned option is active, when you duplicate content, Oxygen makes sure that if there is an ID attribute set in the XML markup, the newly created duplicate has a new, unique ID attribute value. The option **Remove ID's when copying content in the same document** allows you to control if a pasted element should retain its ID.

Table Layout and Operations

Oxygen XML Author provides support for editing data in a tabular form. The following operations are available:

- adjusting column width:

  You are able to manage table width and column width specifications from the source document. These specifications are supported both in fixed and proportional dimensions. The predefined frameworks (DITA, DocBook, and XHTML) also support this feature. The layout of the tables for these document types takes into account the table width and the column width specifications particular to them. To adjust the width of a column or table, drag the border of the column. The changes you make to a table are committed into the source document.

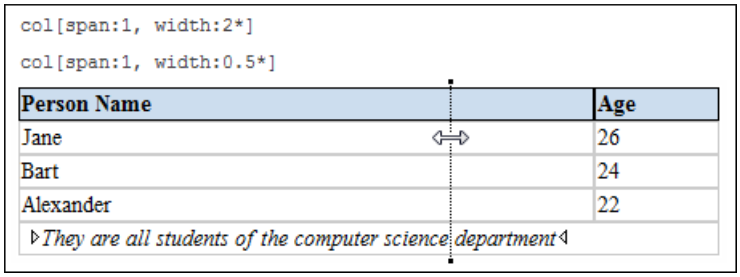


Figure 45: Resizing a column in Oxygen XML Author Author editor

- column and row selection:

  To select a row or a column of a table, place the mouse cursor above the column or in front of the row you want to select, then click. When you position the mouse cursor above a column or in front of a row, without clicking, Oxygen XML Author only highlights the column or the row. When you make a selection, Oxygen XML Author changes the cursor to  for row selection and to  for column selection.

- drag and drop:

  You can use the drag and drop action to edit the content of a table. You are able to select a column and drag it to another location in the table you are editing. When you drag a column and hover the cursor over a valid drop position, Oxygen XML Author decorates the target location with bold rectangles. The same drag and drop action is also available for rows.

- copy-paste and cut for columns and rows:

  In Oxygen XML Author, you are able to copy entire rows or columns of the table you are editing. You can paste a copied column or row both inside the source table and inside other tables. The cut operation is also available for rows and columns. You can use the cut and the copy-paste actions for tables located in different documents as well.

  When you paste a column in a non-table content, Oxygen XML Author introduces a new table which contains the fragments of the source column. The fragments are introduced starting with the header of the column. When you copy a column of a CALS table, Oxygen XML Author preserves the width information of the column. This information is then used when you paste the column in another CALS table.

- content deletion:

  To delete only the content of a table, select a row or column and press either **Delete**, or **Backspace** on your keyboard.

  To delete an entire row or column, use  **Delete a table row** or  **Delete a table column**.

DocBook Table Layout

The DocBook table layout supports two models: CALS and HTML.

In the CALS table model, you can specify column widths using the `colwidth` attribute of the associated `colspec` element. The values can be fixed or proportional. By default, when you insert, drag and drop, or copy/paste a column, the value of the `colwidth` attribute is `1*`.

Also the `colsep` and `rowsep` attributes are supported. These control the way separators are painted between the table cells.

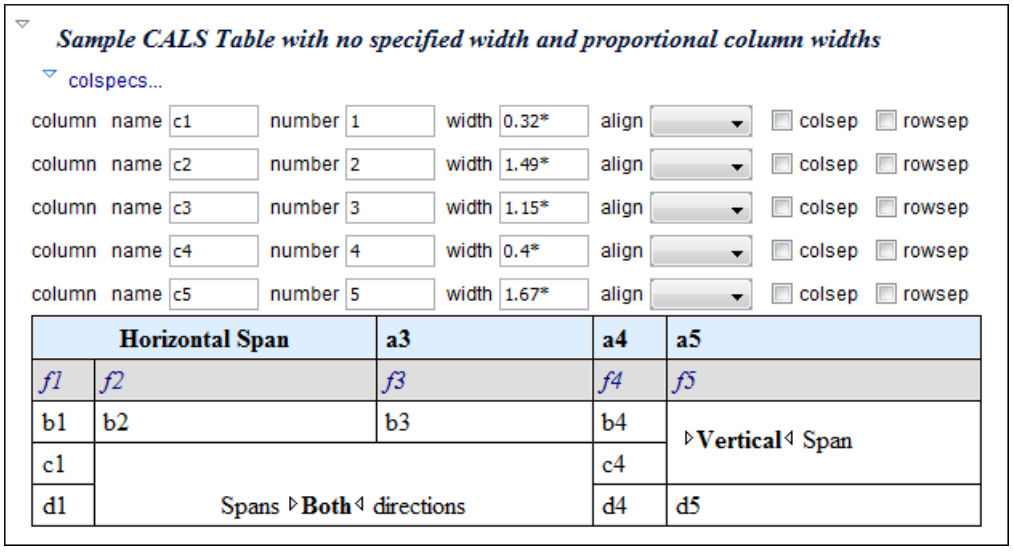


Figure 46: CALS table in Docbook

XHTML Table Layout

The HTML table model accepts both table and column widths. Oxygen XML Author uses the `width` attribute of the `table` element and the `col` element associated with each column. Oxygen XML Author displays the values in fixed units, proportional units, or percentages.

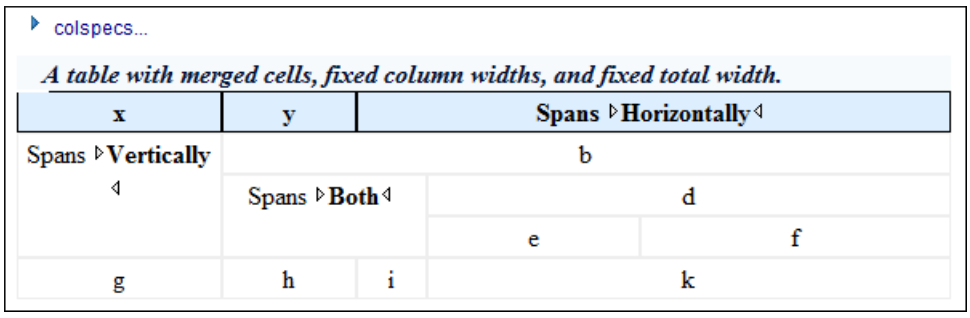


Figure 47: HTML table

DITA Table Layout

Depending on the context, the DITA table layout accepts CALS tables, simple tables, and choice tables.

In the CALS table model, you can specify column widths using the `colwidth` attribute of the associated `colspec` element. The values can be fixed or proportional. By default, when you insert, drag and drop, or copy/paste a column, the value of the `colwidth` attribute is `1*`.

Also the `colsep` and `rowsep` attributes are supported. These control the way separators are painted between the table cells.

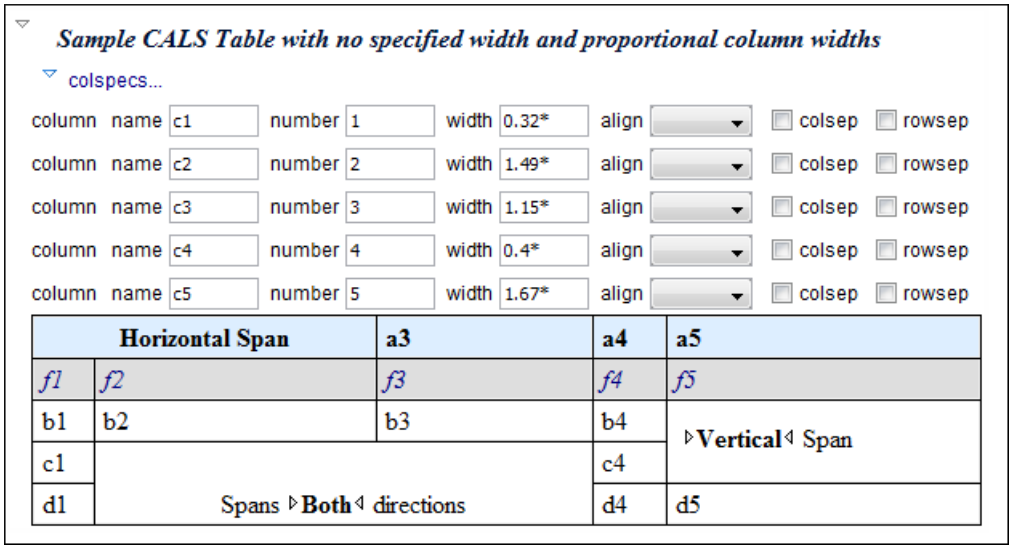


Figure 48: CALS table in DITA

The simple tables accept only relative column width specifications by using the `relcolwidth` attribute of the `simpletable` element.

Header 1	Header 2
Column 1	Column 2

Figure 49: DITA simple table

You can insert choice tables in DITA tasks either using the **Content Completion Assistant** or using the toolbar and contextual menu actions.

Sorting Content in Tables and List Items

Oxygen XML Author offers support for sorting the content of tables and list items of ordered and unordered lists.

What do you want to do?

- *Sort an entire table*;
- *Sort a selection of rows in a table*;
- *Sort a table that contains cells merged over multiple rows*;
- *Sort a table based on multiple sorting criteria*;
- *Sort list items*.

Sorting an Entire Table

To sort an entire table either right click the table and select **Sort**, or select the table and click **Sort** on the main toolbar. Any of the two opens the **Sort** dialog box.

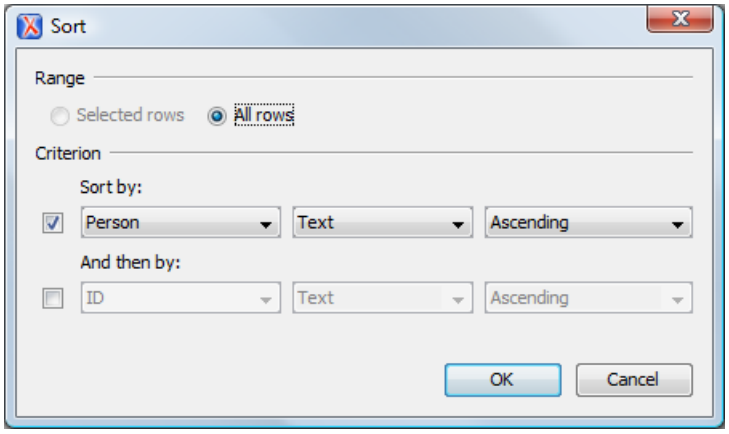


Figure 50: The "Sort" Dialog Box

This dialog box sets the range that is sorted and the sorting criterion. The range is selected automatically depending on whether you sort an entire table or only a selection of its rows.

Note: When you invoke the sorting operation over an entire table, the **Selected rows** option is disabled.

The **Criterion** section specifies the sorting criteria (at most three sorting criteria are available). Each sorting criteria is defined by:

- a name, which is collected from the column heading;
- the type of the information that is sorted (either text, numeric, or date);
- the sorting direction (either ascending or descending).

The sort criteria is set automatically to the column where the caret is located at the time when the sorting operation is invoked.

Note: The sorting mechanism of Oxygen XML Author recognizes multiple date formats like *short*, *medium*, *long*, *full*, *xs:date*, and *xs:dateTime*.

After you finish configuring the options in the **Sort** dialog box, click **OK** to complete the sorting operation. In case you want to go back to the initial order of your content, press **Ctrl (Meta on Mac OS) + Z** on your keyboard.

Note: The sorting support takes into account the value of the `xml:lang` attribute and sorts the content in a natural order.

Sorting a Selection of Rows

To sort a selection of rows in a table, select the rows that you want to sort and either right click the selection and choose **Sort**, or click **Sort** on the main toolbar. Any of the two opens the **Sort** dialog box.

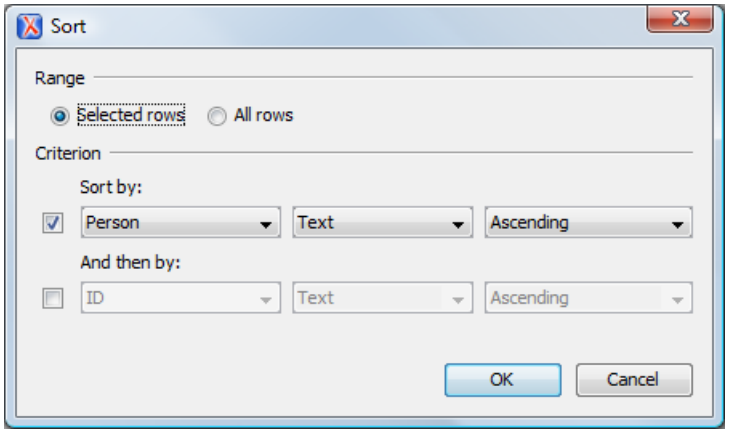


Figure 51: Sort Selected Rows

This dialog box sets the range that is sorted and the sorting criterion. The range is selected automatically depending on whether you sort an entire table or only a selection of its rows.

The **Criterion** section specifies the sorting criteria (at most three sorting criteria are available). Each sorting criteria is defined by:

- a name, which is collected from the column heading;
- the type of the information that is sorted (either text, numeric, or date);
- the sorting direction (either ascending or descending).

The sort criteria is set automatically to the column where the caret is located at the time when the sorting operation is invoked.

Note: The sorting mechanism of Oxygen XML Author recognizes multiple date formats like *short*, *medium*, *long*, *full*, *xs:date*, and *xs:dateTime*.

After you finish configuring the options in the **Sort** dialog box, click **OK** to complete the sorting operation. In case you want to go back to the initial order of your content, press **Ctrl (Meta on Mac OS) + Z** on your keyboard.

Note: The sorting support takes into account the value of the `xml:lang` attribute and sorts the content in a natural order.

Sorting a Table that Contains Merged Cells

In case a table contains cells that span over multiple rows, you can not perform the sorting operation over the entire table. Still, the sorting mechanism works over a selection of rows that do not contain rowspans.

Note: For this type of table, the **Sort** dialog keeps the **All rows** option disabled even if you perform the sorting operation over a selection of rows.

Sorting Using Multiple Criteria

You can sort both an entire table or a selection of its rows based on multiple sorting criteria. To do so, enable the rest of the criteria in the **Sort** dialog, configure the items of each criterion and click **OK** to complete the sorting operation.

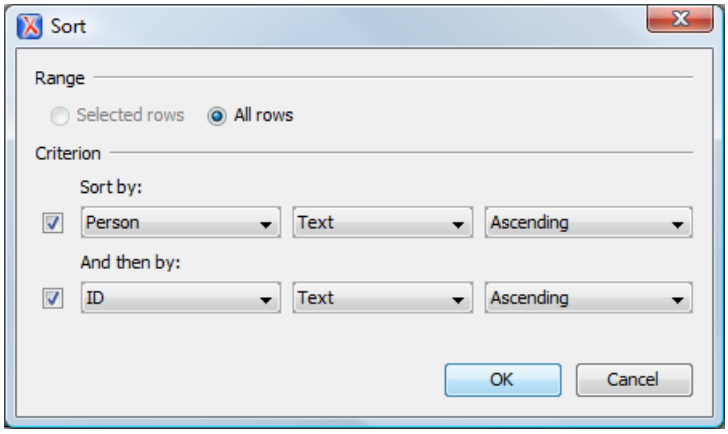


Figure 52: Sorting Based on Multiple Criteria

Sorting List Items

You can perform the sorting operation over list items of ordered and unordered lists.

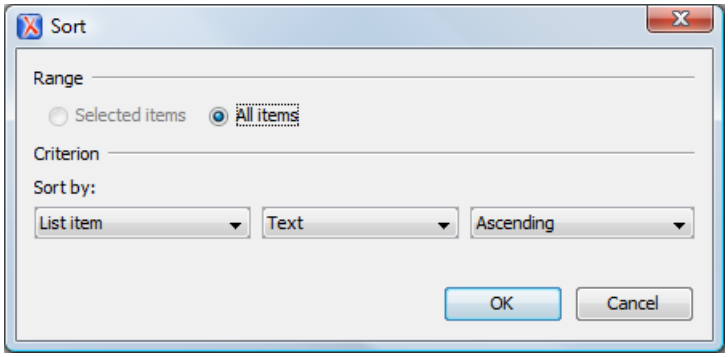


Figure 53: Sorting List Items

To sort the items in a list, either click **Sort** on the main toolbar or right click the list and select **Sort** from its contextual menu. The sorting mechanism works on an entire list and on a selection of list items as well.

Note: The sorting support takes into account the value of the `xml:lang` attribute and sorts the content in a natural order.

Image Rendering

The **Author** editor and the output transformation process might render differently the images referenced in the XML document, since they use different rendering engines.

Table 3: Supported Image Formats

Image Type	Support	Additional Information
GIF	built-in	Animations not yet supported
JPG, JPEG	built-in	*JPEG images with CMYK color profiles* are properly rendered only if color profile is inside the image.
PNG	built-in	
SVG, SVGZ, WMF	built-in	Rendered using the open-source Apache Batik library which supports SVG 1.1.
BMP	built-in	

Image Type	Support	Additional Information
TIFF	built-in	Rendered using a part of the Java JAI Image library.
EPS	built-in	Renders the preview TIFF image inside the EPS.
AI	built-in	Renders the preview image inside the Adobe Illustrator file.
JPEG 2000, WBMP	plug-in	Renders by *installing the Java Advanced Imaging (JAI) Image I/O Tools plug-in*.
CGM	plug-in	Renders by *installing an additional library*.
PDF	plug-in	Renders by *installing the Apache PDF Box library*.

When an image cannot be rendered, Oxygen XML Author **Author** mode displays a warning message that contains the reason why this is happening. Possible causes:

- the image is too large. Enable *Show very large images* option;
- the image format is not supported by default. It is recommended to *install the Java Advanced Imaging(JAI) Image I/O Tools plug-in*.

Scaling Images

Image dimension and scaling attributes are taken into account when an image is rendered. The following rules apply:

- if you specify only the width attribute of an image, the height of the image is proportionally applied;
- if you specify only the height attribute of an image, the width of the image is proportionally applied;
- if you specify width and height attributes of an image, both of them controls the rendered image;
- if you want to scale proportionally both the width and height of an image, use the *scale* attribute.

Note:

As a Java application, Oxygen XML Author uses Java Advanced Imaging which provides a pluggable support for new image types. In case you have an *ImageIO* library that supports additional image formats, just copy this library to `[oXygen install folder]/lib`.

Installing Java Advanced Imaging(JAI) Image I/O Tools plug-in

Follow this procedure:

1. Start Oxygen XML Author and open the **Help** > **About** dialog. Open the **System properties** tab and look for *java.runtime.name* and *java.home* properties. Keep their values for later use.
2. *Download* the JAI Image I/O kit corresponding to your operating system and Java distribution (found in the *java.runtime.name* property).

   Please note that the JAI API is not the same thing as JAI Image I/O. Make sure you have installed the latter.
3. Execute the installer. When the installation wizard displays the **Choose Destination Location** page, fill-in the **Destination Folder** field with the value of the *java.home* property. Continue with the installation procedure and follow the on-screen instructions.

Mac OS X Workaround

There is no native implementation of JAI Image I/O for Mac OS X 10.5 and later. However, the JAI Image I/O has a Java implementation fallback which also works on Mac OS X. Some of the image formats are not fully supported in this fallback mode, but at least the TIFF image format is known to be supported.

1. Download a Linux(tar.gz) distribution of JAI Image I/O from: *http://download.java.net/media/jai-imageio/builds/release/1.1/* e.g. `jai_imageio-1_1-lib-linux-amd64.tar.gz`
2. In the `Oxygen/lib` directory create a directory named `endorsed` e.g. `Oxygen/lib/endorsed`.

3. Unpack the tar.gz and navigate to the lib directory from the unpacked directory. e.g. `jai_imageio-1_1/lib`. Copy the jar files from there(`clibwrapper_jiio.jar` and `jai_imageio.jar`) to the `Oxygen/lib/endorsed` directory.
4. Restart the application and the JAI Image I/O support will be up and running.

Customize Oxygen XML Author to Render CGM Images (Experimental Support)

Oxygen XML Author provides experimental support for CGM 1.0 images.

Attention: Image hotspots are not supported.

Since it is an experimental support, some graphical elements might be missing from the rendered image.

The CGM rendering support is based on a third party library. In its free of charge variant it renders the images watermarked with the string `Demo`, painted across the panel. You can find more information about ordering the fully functioning version here: *http://www.bdaum.de/cgmpanel.htm*.

Follow this procedure to enable the rendering of CGM images in **Author** mode:

1. Download the `CGMPANEL.ZIP` from *http://www.bdaum.de/CGMPANEL.ZIP*.
2. Unpack the ZIP archive and copy the `cgmpanel.jar` into `OXYGEN_INSTALL_DIR\lib` directory.
3. Restart the application.

Customize Oxygen XML Author to Render PDF Images (Experimental Support)

Oxygen XML Author provides experimental support for PDF images using the Apache PDFBox library.

Follow this procedure to enable the rendering of PDF images in **Author** mode:

1. Download the `pdfbox-1.8.3-src.zip` from *http://pdfbox.apache.org/*.
2. Unpack the ZIP archive and copy the `pdfbox-app-1.8.3.jar` into `OXYGEN_INSTALL_DIR\lib` directory.
3. Restart the application.

Customize Oxygen XML Author to Render EPS and AI Images

Most EPS and AI image files include a preview picture of the content. Oxygen XML Author tries to render this preview picture. The following scenarios are possible:

- the EPS or AI image does not include the preview picture. Oxygen XML Author cannot render the image.
- the EPS image includes a TIFF preview picture.

  Note: Some newer versions of the TIFF picture preview are rendered in gray-scale.

- the AI image contains a JPEG preview picture. Oxygen XML Author renders the image correctly.

Adding an Image

To insert an image in a document while editing in **Author** mode, use one of the following methods:

- Click the **Insert Image Reference** action from the toolbar and choose the image file you want to insert. Oxygen XML Author tries to reference the image with a path that is relative to that of the document you are currently editing. For example, if you want to add the `file:/C:/project/xml/dir/img1.jpg` image into `file:/C:/project/xml/doc1.xml` document, Oxygen XML Author inserts a reference to `dir/img1.jpg`. This is useful when multiple users work on a common project and they have it stored in different locations in their computers.

  Note: The **Insert Image Reference** action is available for the following document types: DocBook 4, DocBook 5, DITA, TEI P4, TEI P5, XHTML.

- Drag an image from other application and drop it in the **Author** editor. If it is an image file, it is inserted as a reference to the image file. For example, in a DITA topic the path of the image file is inserted as the value of the `href` attribute in an `image` element:

```
<image href="../images/image_file.png"/>
```

- Copy the image from other application (like an image editor) and paste it in your document. Oxygen XML Author prompts you to first save it. After saving the image to a file, a reference to that file path is inserted at the drop position.

Editing MathML Notations

The **Author** editor includes a built-in editor for *MathML* notations. To start the *MathML* editor, either double click a *MathML* notation, or select the **Edit Equation** action from its contextual menu. In the *MathML* editor you are able to edit the mathematical symbols of a *MathML* notation. You can open a *MathML* file of your current project directly in the *MathML* editor. To do this, select **Open with** > **MathML editor** from the contextual menu in the **Project** view.

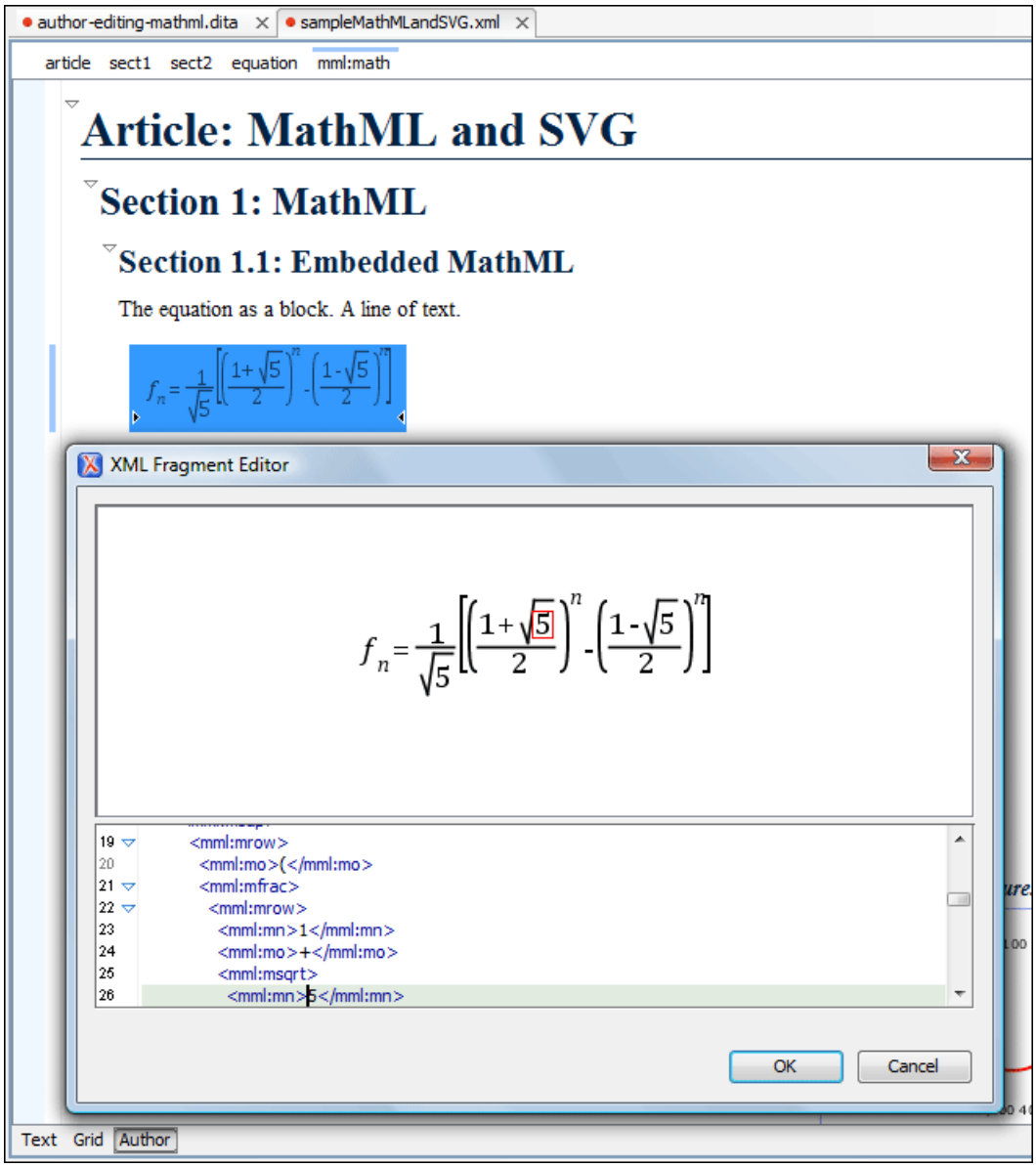


Figure 54: The default *MathML* editor

To customize the font size of the mathematical symbols and the *MathFlow* SDK, go to **Options** > **Preferences** > **Editor** > **Edit modes** > **Author** > **MathML**.

Configure the MathFlow Editor

The MathFlow Components (the MathFlow SDK) can replace the default MathML editor with a specialized MathML editor. You have to *purchase a MathML component from Design Science* and configure it in Oxygen XML Author with the following procedure:

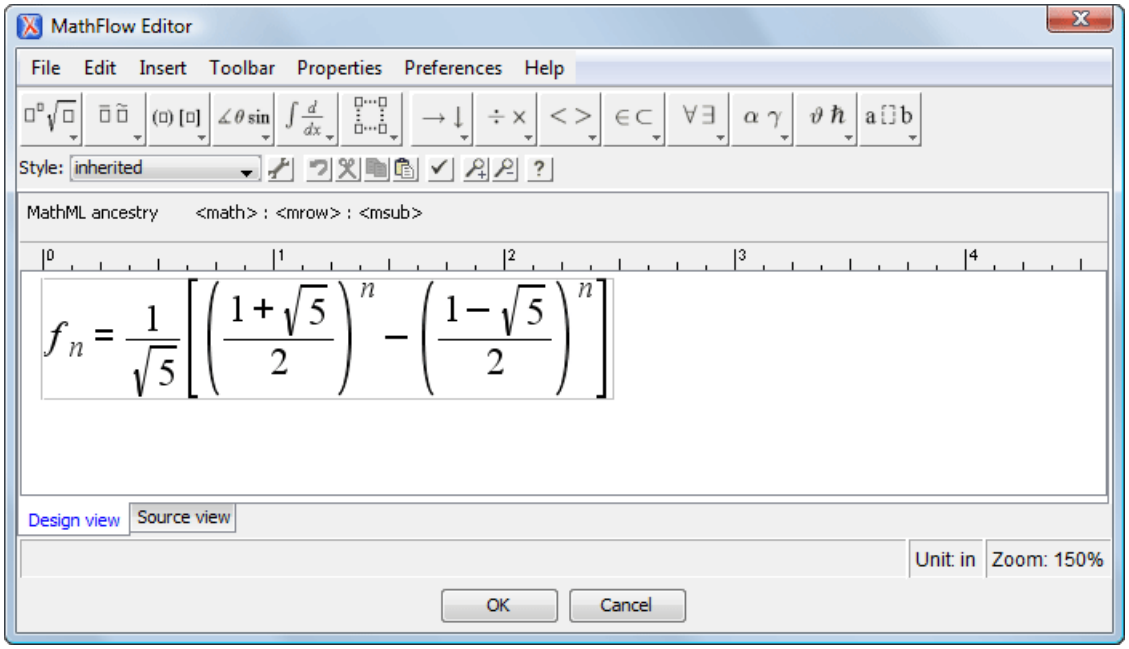


Figure 55: The default MathML editor

1. Install MathFlow Components (the MathFlow SDK).
2. On Windows make sure there is a copy of the FLEXlm DLL, that is the file `[MathFlow-install-folder]/resources/windows/lmgr10.dll`, in a folder that is added to the *PATH* environment variable.
3. Set the path to the MathFlow install folder *in the **Preferences***.
4. Set the path to the MathFlow license file *in the **Preferences***.

Refreshing the Content

On occasion you may need to reload the content of the document from the disk or reapply the CSS. This can be performed by using the **Reload** action.

For refreshing the content of the referred resources you can use the **Refresh references** action. However, this action will not refresh the expanded external entities, to refresh those you will need to use the **Reload** action.

Validation and Error Presenting

Automatic validation as well as validate on request operations are available while editing documents in the Author editor. A detailed description of the document validation process and its configuration is described in section *Validating Documents*.

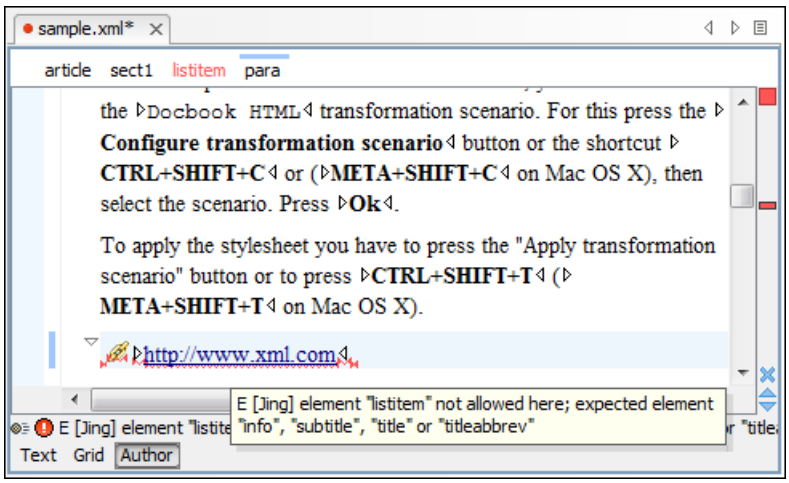


Figure 56: Error presenting in Oxygen XML Author Author editor

A fragment with a validation error or warning will be marked by underlining the error region with a red color. 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:

- The top area - 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.
- The middle area - 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.

- The bottom area - 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** > **Automatic validation** > **Next error** (**Ctrl (Meta on Mac OS) + .**) and **Document** > **Automatic validation** > **Previous error** (**Ctrl (Meta on Mac OS) + ,**).

The validation status area is the line at the bottom of the editor panel that presents the message of the current validation error. Clicking on opens the ***Document checking*** page in Oxygen XML Author user preferences.

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

Whitespace Handling

There are several major aspects of white-space handling in Oxygen XML Author which are important in the following cases:

- when opening documents;
- when switching from other editing mode to **Author** mode;
- when saving documents in **Author** mode;
- when switching from Author mode to another one.

- **Open documents** - When deciding if the white-spaces from a text node are to be preserved, normalized or stripped, the following rules apply:

- If the text node is inside an element context where the `xml:space="preserve"` is set then the white-spaces are preserved;
- If the CSS property `white-space` is set to `pre` for the node style then the white-spaces are preserved;
- If the text node contains other non-white-space characters then the white-spaces are normalized;
- If the text node contains only white-spaces:
  - If the node has a parent element with the CSS `display` property set to `inline` then the white-spaces are normalized;
  - If the left or right sibling is an element with the CSS `display` property set to `inline` then the white-spaces are normalized;
  - If one of its ancestors is an element with the CSS `display` property set to `table` then the white-spaces are striped;
  - Otherwise the white-spaces are ignored.

- **Save documents** - The Author editor will try to format and indent the document while following the white-space handling rules:
  - If text nodes are inside an element context where the `xml:space="preserve"` is set then the white-spaces are written without modifications;
  - If the CSS property `white-space` is set to `pre` for the node style then the white-spaces are written without any changes;
  - In other cases the text nodes are wrapped.

  Also, when formatting and indenting an element that is not in a space-preserve context, additional line separators and white-spaces are added as follows:
  - Before a text node that starts with a white-space;
  - After a text node that ends with a white-space;
  - Before and after CSS `block` nodes;
  - If the current node has an ancestor that is a CSS `table` element.
- **Editing documents** - You cannot insert consecutive space characters in any text nodes. Line breaks are permitted only in space-preserve elements. Tabs are marked in the space-preserve elements with a little marker.

Minimize Differences Between Versions Saved on Different Computers

The number of differences between versions of the same file saved by different content authors on different computers can be minimized by imposing the same set of formatting options when saving the file, for all the content authors. An example for a procedure that minimizes the differences is the following.

1. Create an Oxygen XML Author project file that will be shared by all content authors.
2. Set your own preferences in the following panels of the **Preferences** dialog: **Editor** / **Format** and **Editor** / **Format** / **XML**.
3. Save the preferences of these two panels in the Oxygen XML Author project by selecting the button **Project Options** in these two panels.
4. Save the project and commit the project file to your versioning system so all the content authors can use it.
5. Make sure the project is opened in the **Project** view.
6. Open and save your XML files in the **Author** mode.
7. Commit the saved XML files to your versioning system.

When other content authors will change the files only the changed lines will be displayed in your diff tool instead of one big change that does not allow to see the changes between two versions of the file.

Managing Changes

You can review the changes you or other authors made and then accept or reject them using the **Track Changes** toolbar buttons  , or the similar actions from the **Edit** > **Review** menu:

- **Track Changes** - enables or disables the track changes support for the current document;
- **Accept Change(s)** - accepts the change located at the caret position. If you select a part of a delete or insert change, then only the selected content is accepted. If you select multiple changes, all of them are accepted. For an insert change, it means keeping the inserted text and for a delete change it means removing the content from the document;
- **Reject Change(s)** - Rejects the change located at the caret position. If you select a part of a delete or insert change, then only the selected content is rejected. If you select multiple changes, all of them are rejected. For an insert change, it means removing the inserted text and for a delete change it means preserving the original content from the document;
- **Comment Change** - you can decide to add additional comments to an already existing change. The additional description appears in the tooltip when hovering over the change and in the **Manage Tracked Changes** dialog when navigating changes;
- **Highlight** - enables the ***Highlight*** *tool*;
- **Colors** - opens the colors palette of the ***Highlight*** *tool*;
- **Stop Highlighting** - disables the ***Highlight*** *tool*;
- **Add Comment** - inserts a comment in the document you are editing, at the caret position;
- **Edit Comment** - edits a selected comment from the edited document;
- **Remove Comment** - removes a selected comment from the edited document;
- **Manage Reviews** - opens the ***Review*** *view*.

Track Changes Visualization Modes

Four specialized actions allow you to switch between the following visualization modes:

- **View All Changes/Comments** - this mode is active by default. When you use this mode, all tracked changes are represented in the Author mode;
- **View only Changes/Comments by** - only the tracked changes made by the author you select are presented;
- **View Final** - this mode offers a preview of the document as if all tracked changes (both inserted and deleted) were accepted;
- **View Original** -this mode offers a preview of the document as if all tracked changes (both inserted and deleted) were rejected. You cannot edit the document in this mode. Attempting to do so switches the view mode to **View All Changes**.

All four actions are available only in a drop-down list in the **Author Review** toolbar. If you use **View Final** mode and **View Original** mode, highlighted comments are not displayed. To display highlighted comments, use **View All Changes/Comments**.

To watch our video demonstration about the Track Changes support, go to *http://oxygenxml.com/demo/Change_Tracking.html*.

Track Changes Behavior

This section explains the behaviour of the **Track Changes** feature depending on the context and whether it is activated.

You can use the **Track Changes** feature to keep track of multiple actions.

What do you want to do?

- *Keep tracking of inserted content*;
- *Keep tracking of deleted characters*;

- *Keep tracking of deleted content*;
- *Keep tracking of copied content*;
- *Keep tracking of pasted content*;
- *Keep tracking of attribute changes*.

Keep Tracking of Inserted Content

When **Track Changes** is disabled and you insert content, the following cases are possible:

- making an insertion in a **Delete** change - the change is split in two and the content is inserted without being marked as change;
- making an insertion in a **Delete** change - the change is split in two and the content is inserted without being marked as change;
- making an insertion in an **Insert** change, the change is split in two and the content is inserted without being marked as change;
- making an insertion in regular content - regular insertion.

When **Track Changes** is enabled and you insert content, the following cases are possible:

- making an insertion in a **Delete** change - the change is split in two and the current inserted content appears marked as an INSERT;
- making an insertion in an **Insert** change:
  - if the original insertion was made by another user, the change is split in two and the current inserted content appears marked as an INSERT by the current author;
  - if the original **Insert** change was made by the same user, the change is just expanded to contain the inserted content. The creation time-stamp of the previous insert is preserved;
  - if we insert in regular content, the current inserted content appears marked as an **Insert** change.

Keep Tracking of Deleted Characters

When **Track Changes** is disabled and you delete content character by character, the following cases are possible:

- deleting content in an existing **Delete** change - nothing happens;
- deleting content in an existing **Insert** change - the content is deleted without being marked as a deletion and the INSERT change shrinks accordingly;
- deleting in regular content - regular deletion.

When **Track Changes** is enabled and you delete content character by character, the following cases are possible:

- deleting content in an existing **Delete** change:
  - if the same author created the **Delete** change, the previous change is marked as deleted by the current author;
  - if another author created the **Delete** change, nothing happens.
- deleting content in an existing **Insert** change:
  - if the same author created the **Insert** change, the content is deleted and the **Insert** change shrinks accordingly;
  - if another author created the **Insert** change, the **Insert** change is split in two and the deleted content appears marked as a **Delete** change by the current author.
- deleting in regular content - the content is marked as **Delete** change by the current author.

Keep Tracking of Deleted Content

When **Track** changes is disabled and you delete selected content, the following cases are possible:

- the selection contains an entire **Delete** change - the change disappears and the content is deleted;
- the selection intersects with a **Delete** change (starts or ends in one) - nothing happens;
- the selection contains an entire **Insert** change - the change disappears and the content is deleted ;
- the selection intersects with an **Insert** change (starts or ends in one), the **Insert** change is shrieked and the content is deleted.

When **Track** changes is enabled and you delete selected content, the following cases are possible:

- the selection contains an entire **Delete** change - the change is considered as rejected and then marked as deleted by the current author, along with the other selected content;
- the selection intersects a **Delete** change (starts or ends in one) - the change is considered as rejected and marked as deleted by the current author, along with the other selected content;
- the selection contains an entire **Insert** change:
  - if the **Insert** is made by the same author, the change disappears and the content is deleted;
  - if the **Insert** is made by another author, the change is considered as accepted and then marked as deleted by the current author, along with the other selected content;
- if the selection intersects an **Insert** change (starts or ends in one), the **Insert** change shrinks and the part of the **Insert** change that intersects with the selection is deleted.

Keep Tracking of Copied Content

When **Track Changes** is disabled and you copy content the following cases are possible:

- if the copied area contains **Insert** or **Delete** changes, these are also copied to the clipboard.

When **Track Changes** is enabled and you copy content the following cases are possible:

- if the copied area contains **Insert** or **Delete** changes, these are all accepted in the content of the clipboard (the changes will no longer be in the clipboard).

Keep Tracking of Pasted Content

When **Track Changes** is disabled and you paste content the following cases are possible:

- if the clipboard content contains INSERT OR DELETE changes, they will be preserved on paste.

When **Track Changes** is enabled and you paste content the following cases are possible:

- if the clipboard content contains **Insert** or **Delete** changes, all the changes are accepted and then the paste operation proceeds according to the insertion rules.

Keep Tracking of Attribute Changes

The **Track Changes** feature is able to keep the track of changes you make to attributes in a document. If the ***Callouts*** *support is enabled*, all the attribute changes are presented as callouts in the document you are editing. The changes are also presented in the ***Review*** *view* and ***Attributes*** *view*.

When you copy a fragment that contains tracked attribute changes, the following cases are possible:

- if you perform the copy operation with **Track Changes** enabled, all the attribute changes in the fragment are accepted;
- if you perform the copy operation with **Track Changes** disabled, the fragment holds the attribute changes inside it.

When you paste a fragment that contains tracked attribute changes, the following cases are possible:

- if you perform the paste operation with **Track Changes** enabled, the changes are accepted before the paste operation;
- if you perform the paste operation with **Track Changes** disabled, the changes are pasted in the document.

Track Changes Limitations

Recording changes has limitations and there is no guarantee that rejecting all changes will return the document to exactly the same state in which it originally was. Some of the limitations are listed below:

1. Recorded changes are not hierarchical, a change cannot contain other changes inside. For example, if you delete an insertion made by another user, then reject the deletion, the information about the author who made the previous insertion is not preserved.
2. Surrounding a selection with a certain element is not (yet) recorded as a change.

Track Changes Markup

Depending on the type of your edits, the following track changes markup appears in a document when you activate the  **Track Changes** feature:

Edit Type	Element Start Tag	Element End Tag	Element Attributes
Insertion	`<?oxy_insert_start?>`	`<?oxy_insert_end?>`	`author`, `timestamp`
Deletion	`<?oxy_delete?>`	_	`author`, `timestamp`, `content`
Comment	`<?oxy_comment_start?>`	<?oxy_comment_end?>	`author`, `timestamp`, `comment`, `mid`
Attribute Change	`<?oxy_attributes?>`	_	`id`, `type`, `oldValue`, `author`, `timestamp`

In case a comment is intersecting with another, the `mid` attribute is used to correctly identify start tags and end tags.

Intersecting Comments Markup

```
<?oxy_comment_start author="Andrew" timestamp="20130111T151520+0200" comment="Do we have a task
about pruning trees?"?>Unpruned
   <?oxy_comment_start author="Matthew" timestamp="20130111T151623+0200" comment="What time of
the year do they flower?" mid="3"?>lilacs<?oxy_comment_end?>
      flower reliably every year<?oxy_comment_end mid="3"?>
```

Review

Tracking Document Changes

Track Changes is a way to keep track of the changes you make to a document. To activate track changes for the current document, either choose **Edit** > **Review** > **Track Changes** or click the **Track Changes** button on the **Author Review** toolbar. When **Track Changes** is enabled, your modifications are highlighted using a distinctive color. The name of the author who is currently making changes and the colors can be customized from the *Review* preferences page.

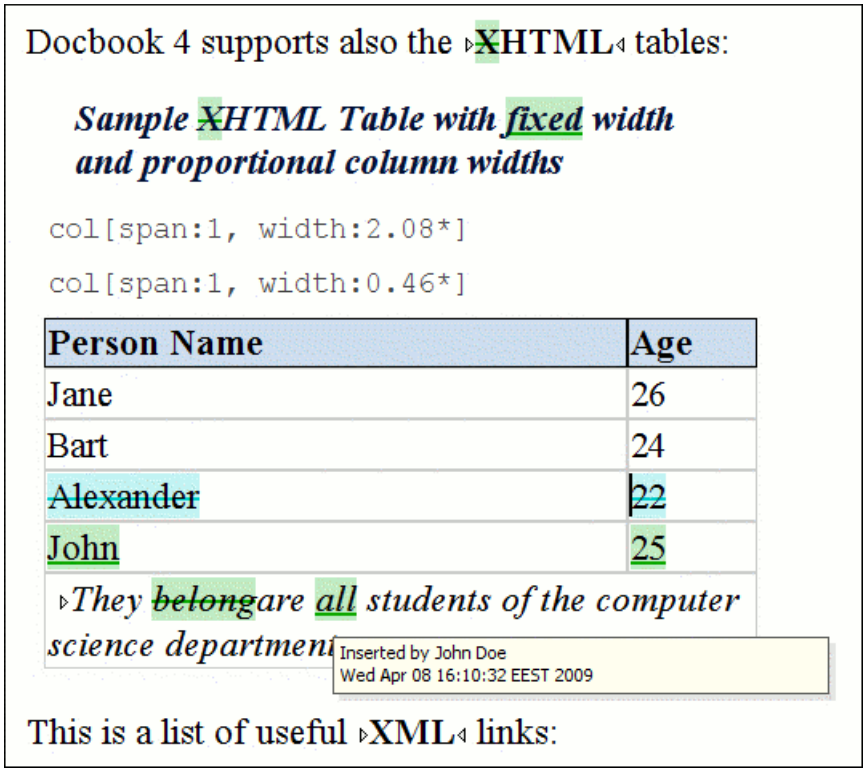


Figure 57: Change Tracking in Author Mode

When hovering a change the tooltip displays information about the author and modification time.

Track Changes highlights textual changes and also changes that you make to the attributes in a document. The following table offers you a detailed view of the tracked and untracked changes:

Tracked Changes	**Untracked Changes**
Inserting, deleting content (text or elements)	Performing a **Split** operation
Drag and drop content (text or elements)	Performing a **Surround with** operation
Cutting, or pasting content (text or elements)	
Inserting, deleting and changing the structure of tables	
Inserting and editing lists and their content	
Inserting and deleting entities	
Deleting element tags	
Editing attributes	

If the selection in the **Author** contains track changes and you are copying it, the clipboard contains the selection with all the *accepted* changes. This filtering is performed only if the selection is not entirely inside a tracked change. The changes are stored in the document as processing instructions and they do not interfere with validating and transforming it. For each change the author name and the modification time are preserved. The following processing instructions are examples of storing *insert* and *delete* changes in the document:

- `<?oxy_insert_start author="John Doe" timestamp="20090408T164459+0300"?>all<?oxy_insert_end?>`
- `<?oxy_delete author="John Doe" timestamp="20090508T164459+0300" content="belong"?>`

Note: The **Outline** view is synchronized with the **Track Changes**. Deleted content is rendered with a strike through in the **Outline** view.

Adding Document Comments

You can associate a note or a comment to a selected area of content. Comments can highlight virtually any content from your document, except *read-only* text. The difference between such comments and change tracking is that a comment can be associated to an area of text without modifying or deleting the text.

The actions for managing comments are **Add Comment**, **Edit Comment**, **Delete Comment** and **Manage Comments** and are available on the **Author Review** toolbar and on the **Review** submenu of the contextual menu of Author editor.

Tip: The comments are stored in the document as processing instructions containing information about the author name and the comment time:

```
<?oxy_comment_start author="John Doe" timestamp="20090508T164459+0300" comment="Do not change this content"?>
    Important content
<?oxy_comment_end?>
```

Comments are persistent highlights with a colored background. The background color is customizable or can be assigned automatically by the application. This behavior can be controlled from the *Review preferences page*.

Note: Oxygen XML Author presents the tracked changes in DITA conrefs and XInclude fragments.

Managing Comments

A comment is marked in the **Author** mode with a background that is configured for each user name.

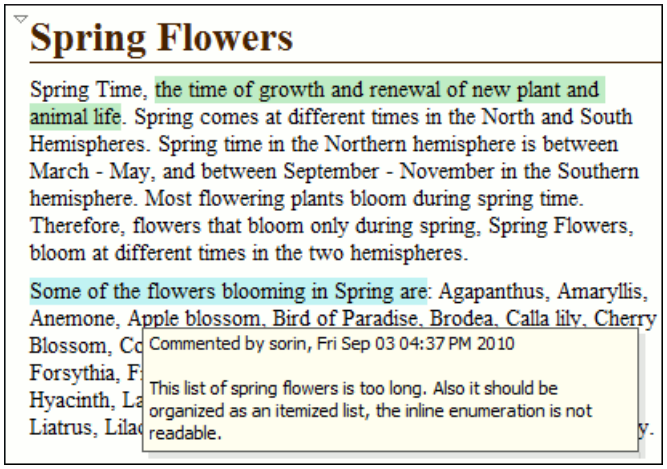


Figure 58: Manage Comments in Author Editor

You can manage comments using the following actions:

- **Add Comment...** - allows you to insert a comment at the cursor position or on a specific selection of content. The action is available on the Author toolbar;
- **Edit Comment...** - allows you to change an existing content. The action is available both on the Author toolbar and the contextual menu;
- **Remove Comment(s)...** - Removes the comment at the cursor position or all comments found in the selected content. The action is available on the Author contextual menu, **Review** sub-menu.

Managing Highlights

Use the **Highlight** tool to mark the text in your document using different colours.

You can find the **Highlight** option on the main toolbar, in the **Edit** > **Review** menu, or in the contextual menu of a document, in the **Review** st of options.

What do you want to do?

- *Mark selected text*;
- *Mark fragments of the document you are editing*;
- *Remove highlighting*.

Tip: In case the **Highlight** tool is not available on your toolbar, enable **Author Comments** in the contextual menu of the toolbar.

Note: Oxygen XML Author keeps the highlighting of a document between working sessions.

To watch our video demonstration about using the **Highlight** tool, go to *http://oxygenxml.com/demo/Highlight_Tool.html*.

Mark Selected Text

To mark the text you select in a document:

1. Select the text you want to highlight.

   Note: To mark more than one part of the document you are editing, press and hold **Ctrl (Meta on Mac OS)** and using you cursor select the parts you want to highlight.

2. Click the small arrow next to the **Highlight** icon and select the colour that you want to use for highlighting. The selected text is highlighted.
3. Click the **Highlight** icon to exit the highlighting mode.

Mark Document Fragments

To mark fragments in a document, follow these steps:

1. Click the **Highlight** icon on the toolbar.
   The highlighting mode is on. The cursor changes to a dedicated symbol that has the same color with the one set in the **Highlight** palette.
2. Select the text you want to highlight with your cursor.
3. To highlight different fragments using multiple colors, click the small arrow next to the **Highlight** icon, choose the colour that you want to use for highlighting, and repeat **step 2**.
   The fragments are highlighted.
4. To exist the highlighting mode, press **Esc** on your keyboard, click the **Highlight** icon, or start editing the document.

Remove Highlighting from the Entire Document or Part of It.

To remove highlighting from the document you are editing, follow these steps:

1. Either select the text you want to remove highlighting from using your cursor, or press **CTRL (Meta on Mac OS)+A** in case you want to select all of the text.
2. Click the small arrow next to the **Highlight** icon and select **No color (erase)**, or right click the highlighted content and select **Remove highlight(s)**.
   The highlighting is removed.
3. Click the **Highlight** icon to exit the highlighting mode.

Author Callouts

A *callout* is a vertical stripe, with a balloon-like look, that Oxygen XML Author displays in the right side of the editing area. Callouts are decorated with a colored border and also have a colored background. A horizontal line, which has the same color as the border, connects text fragments with their corresponding callouts. Oxygen XML Author assigns an

individual color for the callouts depending on the user who is editing the document. To customize the list of these colors, go to **Options** > **Preferences** > **Editor** > **Edit Modes** > **Author** > **Review**. You are able to add, edit, or remove colors in this list. You can choose to use the same color for any user who modifies the content or inserts a comment. To do this, select the **fixed** option and choose a color from the color box. Once you set a fixed color for a user you are able to edit it. Press the color box and select a different color from the **Choose color** dialog box.

Oxygen XML Author uses callouts to provide an enhanced view of the changes you, or other authors make to a document. They hold specific information depending on their type. In addition, Oxygen XML Author uses callouts to display *comments* that you associate with fragments of the document you are editing. For more information about editing comments, go to *Managing Comments*. To enable callouts, go to ***Options*** > ***Preferences*** > ***Editor*** > ***Edit Modes*** > ***Author*** > ***Review*** > ***Callouts***. Enable the following options:

- **Comments** - Oxygen XML Author displays comment callouts when you insert a comment. You can use two types of comments in Oxygen XML Author:
  - author review comments: comments that you associate with specific fragments of text;
  - change comments: comments that you add in an already existing insertion or deletion callout.

  By default, the fragment of text that you comment is highlighted and a horizontal line connects it with the comment callout. A comment callout contains the name of the author who inserts the callout and the comment itself. To customize the content of a comment callout and display the date and time of its insertion, go to **Options** > **Preferences** > **Editor** > **Edit Modes** > **Author** > **Review** > **Callouts** and enable **Show review time**;

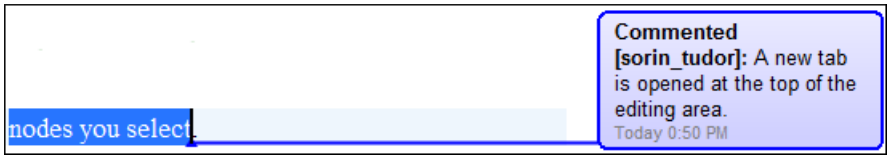


Figure 59: Comment Callouts

- **Track Changes deletions** - Oxygen XML Author displays deletion callouts when you delete a fragment of text. By default, a deletion callout contains the type of callout (*Deleted*) and the name of the author that makes the deletion. You are able to customize the content of a deletion callout to display the date and time of the deletion and the deleted fragment itself. To do this, go to **Options** > **Preferences** > **Editor** > **Edit Modes** > **Author** > **Review** > **Callouts** and enable **Show review time** and **Show deleted content in callout**;

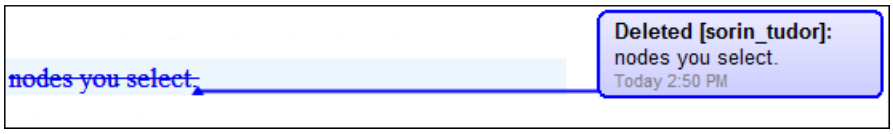


Figure 60: Deletion Callouts

- **Track Changes insertions** - Oxygen XML Author displays insertion callouts when you insert a fragment of text. By default, an insertion callout contains the type of callout (*Inserted*) and the name of the author that makes the insertion. You are able to customize the content of an insertion callout to contain the date and time of the insertion and the inserted fragment itself. To do this, go to **Options** > **Preferences** > **Editor** > **Edit Modes** > **Author** > **Review** > **Callouts** and enable **Show review time** and **Show inserted content in callout**.

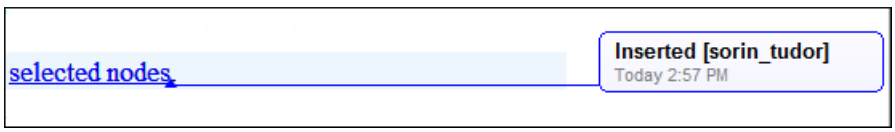


Figure 61: Insertion Callouts

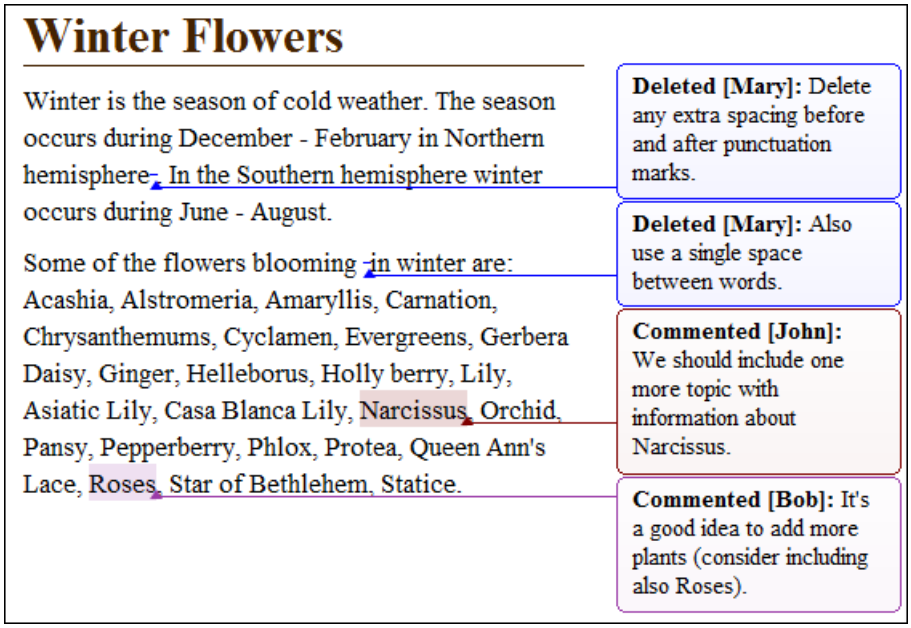


Figure 62: Multiple Authors Callouts

Note: Oxygen XML Author displays callouts only if **View All Changes/Comments** or **View Only Changes/Comments by** is selected. Oxygen XML Author does not display callouts in **View Final** and **View Original** modes.

To select a callout, either click the callout or its source. Selected callouts have a more intense background and a bold border. The connecting line between the source and the callout is also rendered in bold font. If you select a fragment of text which is associated with one or more callouts, the callouts are highlighted.

Important: The callouts are displayed in the right side of the editing area. However, in some cases, the text you are editing can span into the callouts area. For example, this situation can appear for callouts associated with wide images or space-preserve elements (like *codeblock* in DITA or *programlisting* in DocBook) which contain long fragments. To help you view the text under the covered area, Oxygen XML Author applies transparency to these callouts. When the caret is located under a callout, the transparency is enhanced, allowing you to both edit the covered content and access the contextual menu of the editing area.

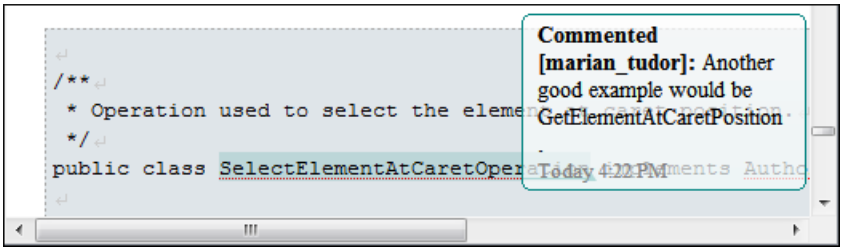


Figure 63: Transparent Callout

Note: Oxygen XML Author does not display callouts located in folded areas of the edited document.

The following actions are available in the contextual menu of an insertion, or deletion callout:

- **Accept Change** - select this option to accept the changes you or other authors make to a document;
- **Reject Change** - select this option to reject the changes you or other authors make to a document;
- **Comment Change** - select this option to comment an existing change in your document. You are also able to add a comment to a change from the **Comment Change** button available on the **Author Review** toolbar;

- **Edit Reference** - in case the fragment that contains callouts is a reference, use this option to go to the reference and edit the callout;
- **Callouts Options** - select this option to open the *preferences page* of the callouts.

The following options are available in the contextual menu of the comment callouts:

- **Edit Comment** - select this option to modify the content of a comment callout;

  Note: The text area is disabled if you are not the author which inserted the comment.

- **Remove Comment** - select this option to remove a comment callout;
- **Edit Reference** - in case the fragment that contains callouts is a reference, use this option to go to the reference and edit the callout;
- **Callouts Options** - select this option to open the *preferences page* of the callouts.

When you print a document from Oxygen XML Author, all callouts you, or other authors added to the document are printed. For a preview of the document and its callouts, go to **File** > **Print preview...**.

To watch our video demonstration about the Callouts support, go to *http://oxygenxml.com/demo/CalloutsSupport.html*.

The Review View

The **Review** view is a framework-independent panel, available both for built-in, and custom XML document frameworks. It is designed to offer an enhanced way of monitoring all the changes that you make to a document. This means you are able to view and control highlighted, commented, inserted, and deleted content, or even changes made to attributes, using a single view.

The **Review** view is useful when you are working with documents that contain large quantities of edits. The edits are presented in a compact form, in the order they appear in the document. Each edit is marked with a type-specific icon.

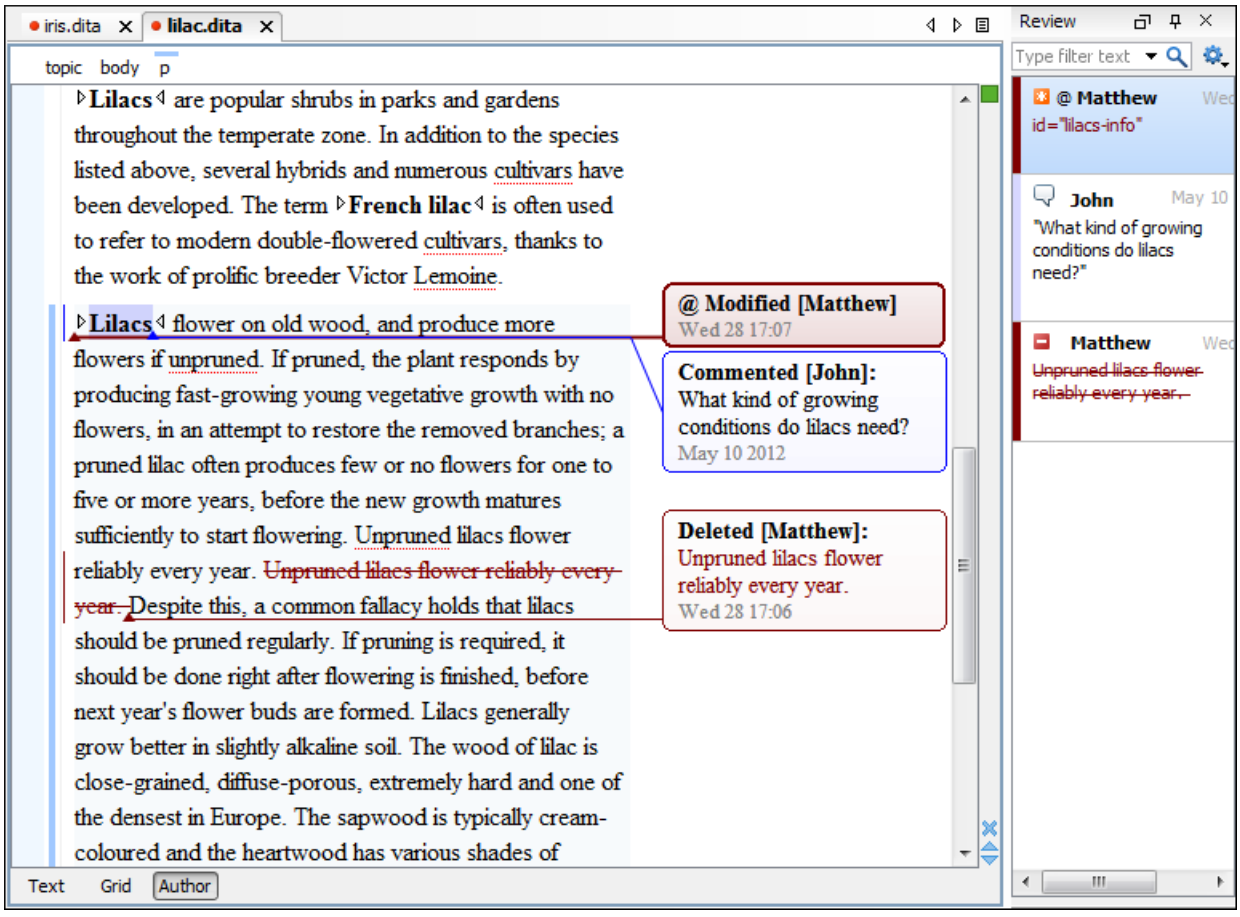


Figure 64: The Review View

To activate the **Review** view, do one of the following:

- click the  **Manage reviews** button on the **Author Review** toolbar;
- right click in a document and from the contextual menu go to **Review**, **Manage reviews**;
- go to **Window** > **Show View** > **Review**.

This view and the editing area are synchronized. When you select an edit listed in the **Review** view, its corresponding fragment of text is highlighted in the editing area and. The reverse is also true. For example, when you place the caret inside an area of text marked as inserted, its corresponding edit is selected in the list.

The upper part of the view contains a filtering area which allows you to search for specific edits. Use the small arrow symbol from the right side of the search field to display the search history. The **Settings** button allows you to:

- **Show highlights** - controls whether the **Review** view displays the highlighting in your document;
- **Show comments** - controls whether the **Review** view displays the comments in the document you are editing;
- **Show track changes** - controls whether the **Review** view displays the inserted and deleted content in your document;
- **Show review time** - displays the time when the edits from the **Review** view were made.

The following actions are available when you hover the edits in the **Review** view, using the cursor:

- **Remove** - this action is available for highlights and comments presented in the **Review** view. Use this action to remove these highlights or comments from your document;
- **Accept** - this action is available for inserted and deleted content presented in the **Review** view. Use this action to accept the changes in your document;
- **Reject** - this action is available for inserted and deleted content presented in the **Review** view. Use this action to reject the changes in your document.

Depending on the type of an edit, the following actions are available in its contextual menu in the **Review** view:

- **Show comment** - this option is available in the contextual menu of changes not made by you and of any comment listed in the **Review** view. Use this option to view a comment in the **Show comment** dialog;
- **Edit comment** - this option is available in the contextual menu of your comments, listed in the **Review** view. Use this action to start editing the comment;
- **Remove comment** - this option is available in the contextual menu of a comment listed in the **Review** view. Use this action to remove the selected comment;
- **Show only reviews by** - this option is available in the contextual menu of any edit listed in the **Review** view. Use this action to keep visible only the edits of a certain author in the view;
- **Remove all comments** - this option is available in the contextual menu of any comment listed in the **Review** view. Use this action to remove all the comments that appear in the edited document;
- **Change color** - opens a palette that allows you to choose a new color for the highlighted content;
- **Remove highlight** - removes the selected highlighting;
- **Remove highlights with the same color** - removes all the highlighting in a document that has the same color;
- **Remove all highlights** - clears all the highlighting in your document;
- **Accept change** - accepts the selected change;
- **Reject change** - rejects the selected change;
- **Comment change** - this option is available in the contextual menu of an insertion or deletion that you made. Use this option to open the **Edit comment** dialog and comment the change you made;
- **Accept all changes** - accepts all the changes made to a document;
- **Reject all changes** - rejects all the changes made to a document.

To watch our video demonstration about the **Review** view, go to *http://oxygenxml.com/demo/Review_Panel.html*.

Profiling / Conditional Text

Conditional text is a way to mark blocks of text meant to appear in some renditions of the document, but not in others. It differs from one variant of the document to another, while unconditional text appear in all document versions.

For instance you can mark a section of a document to be included in the manual designated for the *expert* users, other for the *novice* users manual while unmarked sections are included in any rendition.

You can use conditional text when you develop documentation for:

- a series of similar products
- different releases of a product
- various audiences

The benefits of using conditional text include reduced effort for updating and translating your content and an easy way to customize the output for various audiences.

Oxygen XML Author comes with a preconfigured set of profiling attribute values for some of the most popular document types. These attributes can be redefined to match your specific needs. Also, you can define your own profiling attributes for a custom document type.

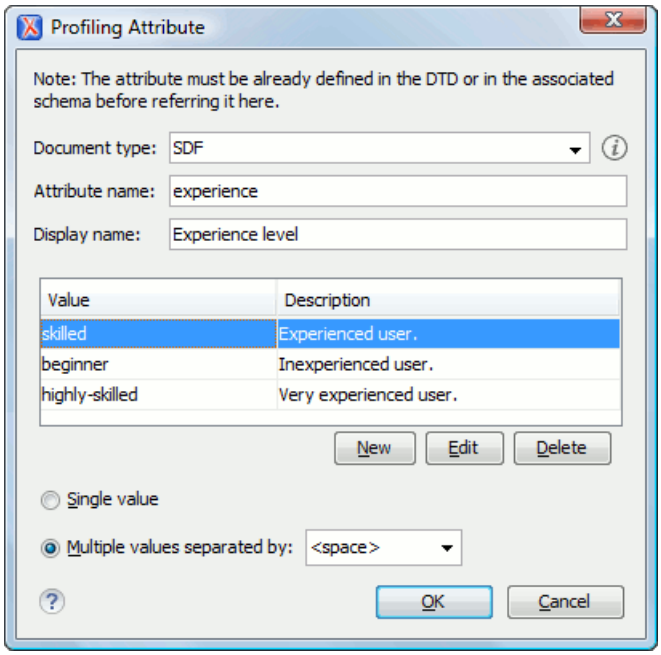
Create Profiling Attributes

Note: To ensure the validity of the document, the attribute must be already defined in the document DTD or schema before referring it here.

To create custom profiling attributes for a specific document type, follow these steps:

1. Open the **Profiling/Conditional Text** preferences page from application's toolbar **Options** > **Preferences** > **Editor** > **Edit modes** > **Author** menu .
2. In the **Profiling Attributes** area, press the **New** button.

   The following dialog is opened:



3. Fill-in the dialog as follows:
   a) Choose the document type on which the profiling attribute is applied. ***** and **?** are used as wildcards, while **,**(comma character) can be used to specify more patterns. For example use *DITA** to match any document type name that starts with *DITA*.
   b) Set the attribute name.
   c) Set a display name. This field is optional, being used only as a more descriptive rendering in application's profiling dialogs.
   d) Use the **New**, **Edit**, **Delete** buttons to add, edit and delete possible values of the attribute. Each attribute value can have a description.
   e) Choose whether the attribute accepts a single value (**Single value** option checked) or multiple values. Multiple values can be separated by a default delimiter (*space*, *comma*, *semicolon*), or a custom one, that must be supported

by the specified document type. For example, the DITA document type only accepts spaces as delimiters for attribute values.

4. Click **OK**.
5. Click **Apply** to save the profiling attribute.

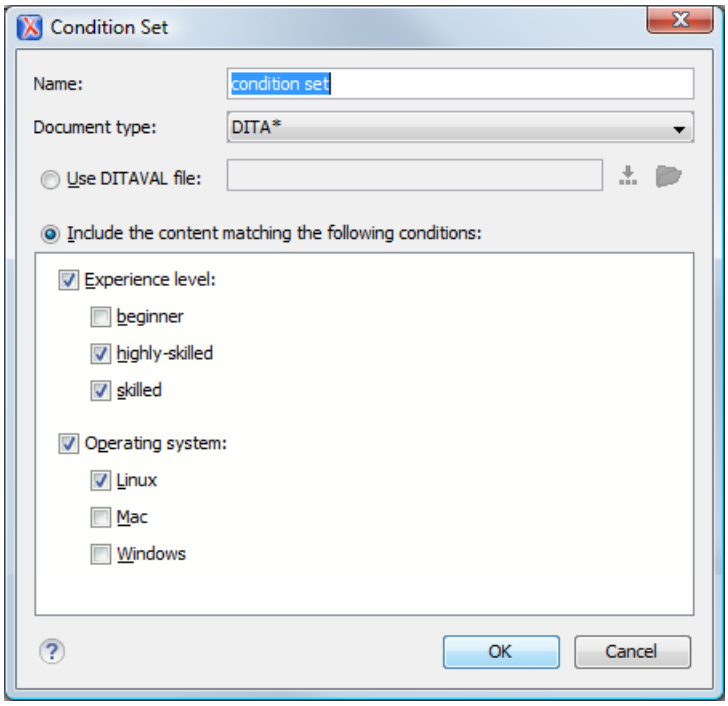
Create Profiling Condition Sets

Several profiling attributes can be aggregated into a profiling condition set that allow you to apply more complex filters on the document content. A Profiling Condition Set is a very powerful and convenient tool used to preview the content that goes into the published output. For example, an installation manual available both in Windows and Linux variants can be profiled to highlight only the Linux procedures for more advanced users.

To create a new profiling condition set:

1. Open the **Profiling/Conditional Text** preferences page from application's toolbar **Options** > **Preferences** > **Editor** > **Edit modes** > **Author** menu .
2. In the **Profiling Condition Sets** area, press the **New** button.

   The following dialog is opened:



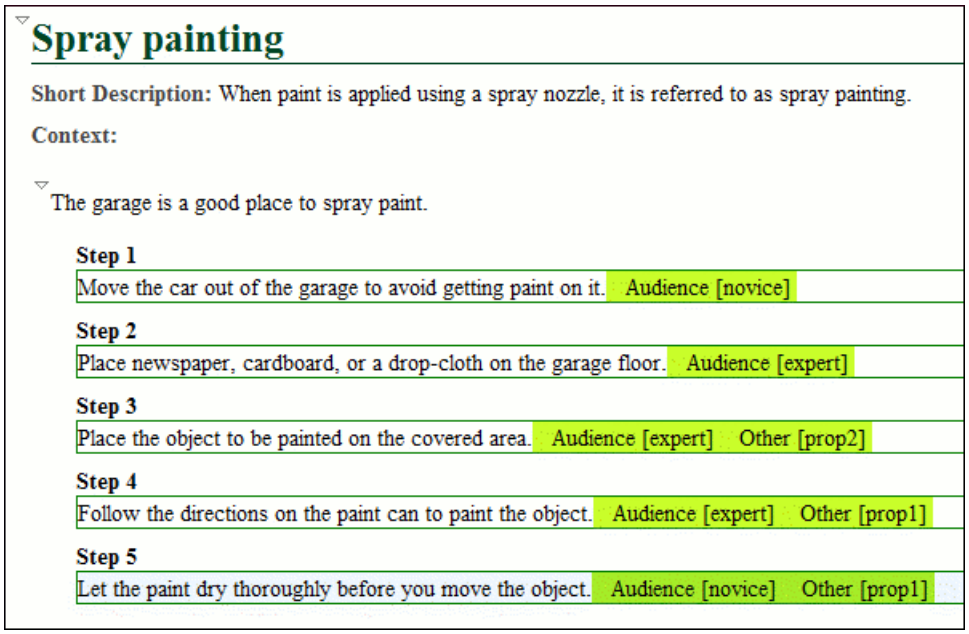
3. Fill-in the dialog as follows:
   a) Type the condition set's name.

      If you want the Profiling Condition Set to refer a DITAVAL file, enable the **Use DITAVAL file** option and select the DITAVAL file from your disk.

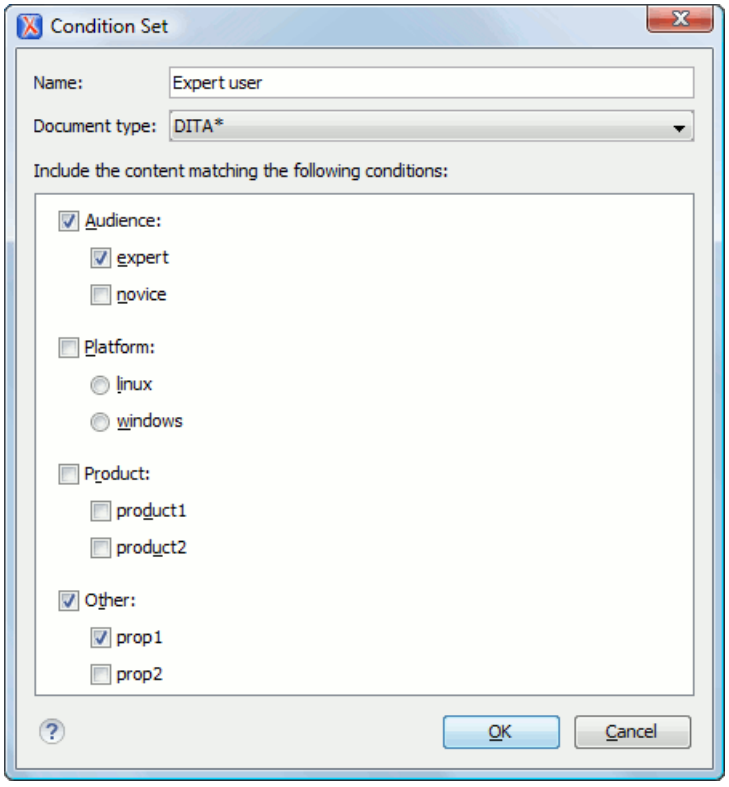
   b) Choose the document type for which you have previously defined profiling attributes.
      After choosing a document type, all profiling attributes and their possible values are listed in the central area of the dialog.
   c) Define the combination of attribute values by ticking the appropriate checkboxes.
4. Click **OK**.
5. Click **Apply** to save the condition set. All saved profiling condition sets are available in the ***Profiling / Conditional Text** toolbar menu*.

Apply Profiling Condition Sets

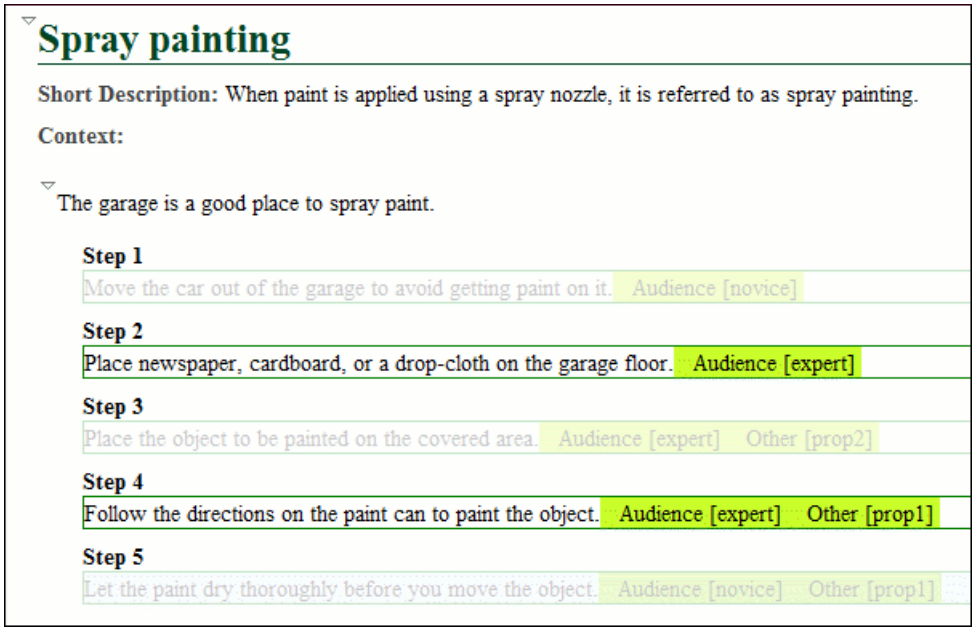
All defined Profiling Condition Sets are available as shortcuts in the Profiling / Conditional Text menu. Just click on a menu entry to apply the condition set. The filtered content is grayed-out. An element is filtered-out when one of its attributes is part of the condition set and its value does not match any of the value covered by the condition set. As an example, let us suppose that you have the following document:



If you apply the following condition set it means that you want to filter-out the content written for non-expert audience and having the *Other* attribute value different than *prop1*.



And this is how the document looks like after you apply the *Expert user* condition set:



Apply Profiling Attributes

Profiling attributes are applied on element nodes.

You can apply profiling attributes on a text fragment, on a single element, or on multiple elements in the same time. To profile a fragment from your document, select the fragment in the **Author** mode and follow these steps.

Note: If there is no selection in your document, the profiling attributes are applied on the element at caret position.

1. Invoke the **Edit Profiling Attributes...** action from the contextual menu.

   The displayed dialog shows all profiling attributes and their values, as defined on the document type of the edited content. The checkboxes corresponding with the values already set in the profiled fragment are enabled.

2. In the **Edit Profiling Attributes** dialog, enable the checkboxes corresponding to the attribute values you want to apply on the document fragment. The profiling attributes having different values set in the elements of the profiled fragment are marked with a gray background and they are disabled by default. You can change the values of these attributes by choosing the **Change Now** option associated with all attributes.
3. Click **OK** to finish the profiling configuration.

   The attributes and attributes values selected in the **Edit Profiling Attributes** dialog are set on the elements contained in the profiled fragment.

   If you select only a fragment of an element's content, this fragment is wrapped in phrase-type elements on which the profiling attributes are set. Oxygen XML Author comes with predefined support for DITA and Docbook. For more developer-level customization options, see the *Customize Profiling Conditions* topic.

   If **Show Profiling Attributes** option (available in the ***Profiling / Conditional Text*** *toolbar menu*) is set, a light green border is painted around profiled text, in the **Author** mode. Also, all profiling attributes set on the current element are listed at the end of the highlighted block and in its tooltip message. To edit the attributes of a profiled fragment, click one of the listed attributes. A form control pops up and allows you to add or remove attributes using their checkboxes.

Profiling / Conditional Text Menu

The **Profiling / Conditional Text** toolbar menu groups the following actions:

- **Show Profiling Attributes** - Enable this option to turn on conditional text markers. They are displayed at the end of conditional text block, as a list of attribute name and their currently set values.
- The list of all profiling condition sets that match the current document type. Click on a condition set entry to activate it.
- **Configure Profiling Condition Sets...** - Link to the *Profiling / Conditional Text* preference page, where you can manage profiling attributes and profiling condition sets.

Smart Paste Support

The *Smart Paste* capability was developed to help authors copy content from various sources (like web pages or office-type documents) and paste it into DITA, TEI, Docbook and XHTML documents. Oxygen XML Author eases this process by keeping the original text styling (like bold, italics) and formatting (like lists, tables, paragraphs), while providing assistance to obtain a valid structured document.

The Oxygen XML Author *Smart Paste* support encapsulates the following capabilities:

- The conversion of the copied content into valid DITA, Docbook, TEI and XHTML fragments:

  Styled content can be inserted in the Author editor by copying or dragging it from:

  - Office-type applications (**Microsoft Word** and **Microsoft Excel**, **OpenOffice.org Writer** and **OpenOffice.org Calc**);
  - web browsers (like **Mozilla Firefox** or **Microsoft Internet Explorer**);
  - the **Data Source Explorer** view (where resources are available from WebDAV or CMS servers).

  The styles and general layout of the copied content like: sections with headings, tables, list items, bold, and italic text, hyperlinks, are preserved by the paste operation by transforming them to the equivalent XML markup of the target document type. This is available by default in the following *predefined document types*: *DITA*, *DocBook 4*, *DocBook 5*, *TEI 4*, *TEI 5*, *XHTML*.

  This support is enabled by default, but you can disable it trough the *Convert external content on paste* option, available in the **Schema Aware** preferences.

- Inserting the converted fragment at the correct location in the document.

  This capability is controlled by the *Smart paste and drag and drop* option, available in the **Schema Aware** preferences.

To watch our video demonstration about the Smart Paste support, go to *http://oxygenxml.com/demo/Smart_Paste_Copy_Paste_from_Web_Office_Documents_to_DITA_DocBook_TEI_XHTML_Documents.html*.

Bidirectional Text Support in Author Mode

Oxygen XML Author offers support for languages that require right to left scripts. This means that authors editing documents in the **Author** mode are able to create and edit XML content in Arabic, Hebrew, Persian and others. To achieve this, Oxygen XML Author implements the *Unicode Bidirectional Algorithm* as specified by the Unicode consortium. The text arrangement is similar to what you get in a modern HTML browser. The final text layout is rendered according with the directional CSS properties matching the XML elements and the Unicode directional formatting codes.

To watch our video demonstration about the bidirectional text support in the **Author** mode, go to *http://oxygenxml.com/demo/BIDI_Support.html*.

Controlling the Text Direction Using XML Markup

Oxygen XML Author Supports the following CSS properties:

Table 4: CSS Properties Controlling Text Direction

`direction`	Specifies the writing direction of the text. The possible values are `ltr` (the text direction is left to right), `rtl` (the text direction is right to left, and `inherit` (specifies whether the value of the direction property is inherited from the parent element).
`unicodeBidi`	Used with the `direction` property, sets or returns whether the text is overridden to support multiple languages in the same document. The possible values of this property are `bidi-override` (creates an additional level of embedding and forces all strong characters to the direction specified in the `direction`), `embed` (creates an additional level of embedding), `normal` (does not use an additional level of embedding), and `inherit` (the value of the `unicodeBidi` property is inherited from parent element).

For instance, to declare an element as being Right to Left, you could use a stylesheet like the one below:

XML File:

```
<article>
  <myRTLpara>RIGHT TO LEFT TEXT</myRTLPara>
</article>
```

Associated CSS File:

```
myRTLpara{
    direction:rtl;
    unicode-bidi:embed;
}
```

Oxygen XML Author recognizes the `dir` attribute on any XML document. The supported values are:

`ltr`	The text from the current element is Left to Right, embedded.
`rtl`	The text from the current element is Right to Left, embedded.
`lro`	The text from the current element is Left to Right, embedded.
`rlo`	The text from the current element is Right to Left, embedded.

The following XML document types make use of the `dir` attribute with the above values:

- DITA;
- Docbook;
- TEI;
- XHTML.

Note: When the inline element tags are visible, the text in the line is arranged according to the BIDI algorithm after replacing the tags symbols with Object Replacement Characters. This makes it possible to get a different text arrangement when viewing a document in the **No Tags** mode versus viewing it in the **Full Tags** mode.

Controlling the Text Direction Using the Unicode Direction Formatting Codes

These Unicode Direction Formatting Codes codes can be embedded in the edited text, specifying a text direction and embedding. However, it is not recommended to use them in XML as they are zero width characters, making it hard to debug the text arrangement.

Table 5: Directional Formatting Codes

U+202A (LRE)	LEFT-TO-RIGHT EMBEDDING	Treats the following text as embedded left-to-right.
U+202B (RLE)	RIGHT-TO-LEFT EMBEDDING	Treats the following text as embedded right to left.
U+202D (LRO)	LEFT-TO-RIGHT OVERRIDE	Forces the following characters to be treated as strong left-to-right characters.
U+202E (RLO)	RIGHT-TO-LEFT OVERRIDE	Forces the following characters to be treated as strong right-to-left characters.
U+202C (PDF)	POP DIRECTIONAL FORMATTING CODE	Restores the bidirectional state to what it was before the last LRE, RLE, RLO, or LRO.
U+200E (LRM)	LEFT-TO-RIGHT MARK	Left-to-right strong zero-width character.
U+200F (RLM)	RIGHT-TO-LEFT MARK	Right-to-left strong zero-width character.

To insert Unicode Direction Formatting Codes, use the ***Character Map*** dialog. To easily find such a code, you can either enter directly the hexadecimal value, or use the **Details** tab to enter the codes name.

Oxygen XML Author offers the support for bi-directional text in all the side views (**Outline** view, **Attributes** view and so on) and text fields.

Chapter 5

Editing Documents

Topics:

This chapter explains the editor types available in Oxygen XML Author and how to work with them for editing different types of documents.

Working with Unicode

Unicode provides a unique number for every character, independent of the platform and 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 XML Author 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 Author XML Editor uses 16bit characters covering the Unicode Character set.

As a Java application, Oxygen XML Author comes with a default Java input method for typing characters with Unicode codes. However, the default input method does not cover all the Unicode codes, for example the codes for some accented characters or characters found in East Asian languages. Such characters can be inserted in the editor panel of Oxygen XML Author either with *the **Character Map** dialog* available from menu **Edit** > **Insert from Character Map** or by installing a Java input method that supports the insertion of the needed characters. The *installation of a Java input method* depends on the platform on which Oxygen XML Author runs (Windows, Mac OS X, Linux, etc) and is the same for any Java application.

Note: Oxygen XML Author may not be able to display characters that are not supported by the operating system (either not installed or unavailable).

Tip: On windows, you can enable the support for **CJK** (Chinese, Japanese, Korean) languages from **Control Panel / Regional and Language Options / Languages / Install files for East Asian languages**.

Opening and Saving Unicode Documents

When loading documents, Oxygen XML Author reads the document prolog to determine the specified encoding type. This encoding is then used to instruct the Java Encoder to load support for and to save the document using the specified code chart. When the encoding type cannot be determined, Oxygen XML Author prompts and display the **Available Java Encodings** dialog which provides a list of all encodings supported by the Java platform.

If the opened document contains an unsupported character, Oxygen XML Author applies *the policy specified for handling such errors.* If the policy is set to REPORT, Oxygen XML Author 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 is replaced with a standard replacement character for that encoding.

While in most cases you are using UTF-8, simply changing the encoding name causes the application to save the file using the new encoding.

On saving the edited document, if it contains characters not included in the encoding declared in the document prolog Oxygen XML Author detects the problem and signals it to the user. The user is responsible to resolve the conflict before saving the document.

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

When a document with a UTF-16 encoding is edited and saved in Oxygen XML Author, the saved document has a byte order mark (BOM) which specifies the byte order of the document content. The default byte order is platform-dependent. That means that a UTF-16 document created on a Windows platform (where the default byte order mark is *UnicodeLittle*)

has a different BOM than a UTF-16 document created on a Mac OS platform (where the byte order mark is *UnicodeBig*). The byte order and the BOM of an existing document are preserved when the document is edited and saved. This behavior can be changed in Oxygen XML Author from the *Encoding preferences panel*.

The Symbols Toolbar

To display the **Insert from Character Map** action on the main toolbar, right click the toolbar and from the contextual menu select **Symbols**.

The **Insert from Character Map** action opens the **Character Map** dialog allowing you to select one character in the matrix of all characters available in a font and insert it in the edited document. This action is available in the **Edit** menu also.

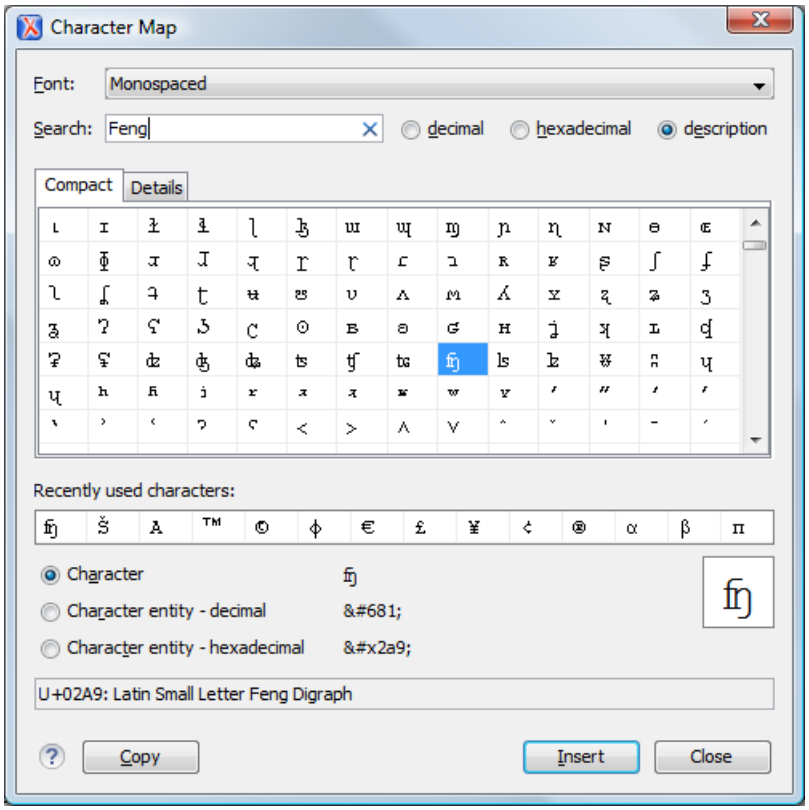


Figure 65: The Character Map dialog

You can search for a character by its **decimal** or **hexadecimal** value and also by its **description**, using the **Search** field. Selecting the **description** option places the focus on the **Details** tab. This tab displays the available characters in a tabular format, presenting their decimal and hexadecimal value along with their description. In case you enter a character description in the **Search** field, the **description** option is selected automatically. If the **Search** field is filled in, the searching operation in the map starts.

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 editor 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. You can see the name and range name of a character either at the bottom of the dialog, or when hovering the cursor over the character.

The *Character Map* dialog cannot be used to insert Unicode characters in *the grid version of a document editor*. Accordingly, the *Insert* button of the dialog will be disabled if the current document is edited in grid mode.

Creating, Opening, and Closing Documents

This section explains the actions and wizards available for creating new files, opening existing files, and closing files.

Creating Documents

This section details the procedures available for creating new documents.

The New Document Wizard

Oxygen XML Author supports a wide range of document types. The **New Document** wizard presents the default associations between a file extension and the type of editor that opens the file. To customize these default associations, go to ***Options*** > ***Preferences*** > ***Editor*** > ***File Types***.

1. To create a document in Oxygen XML Author, either select **File** > **New** > **Ctrl (Meta on Mac OS) + N**, or click the  **New** button on the toolbar.
   Oxygen XML Author displays the **New Document** wizard and groups the supported document types in multiple categories:
   - **Recently used** - contains the list of the most recently used files;
   - **New Document** - contains the list of all supported document types. This list includes XML, CSS, Text, PHP, JavaScript.
   - **Global templates** - contains the list of predefined templates as well as templates defined in the *Document Templates* preferences page.
   - **Framework templates** - contains the list of templates defined in the *Document Type Association* preferences page, **Templates** tab.
2. Select a document type.
3. Click one of the following:
   - **Customize** - action available only for XML, XML Schema, Schematron, and XSL documents. Depending on the document type, you can set different properties before you create the file.
   - **Create** - uses default settings to create a file.

   If you select **Create**, Oxygen XML Author opens the new file in the editor view.
4. If you select **Customize**, Oxygen XML Author opens the following dialog box. You can customize different options depending on the document type you select.

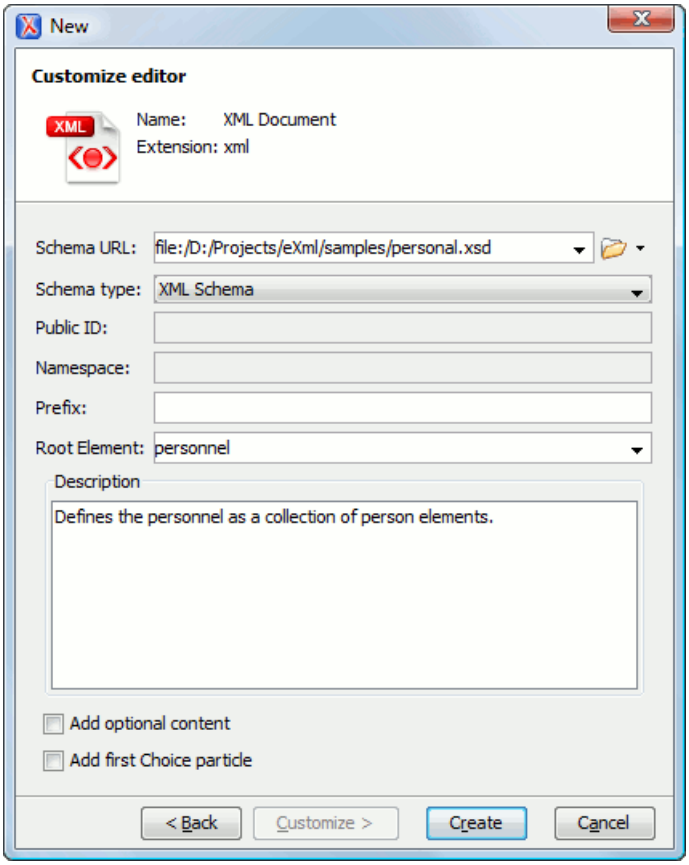


Figure 66: New XML Document Dialog Box

- **Schema URL** - specifies the path to the schema file. When you select a file, Oxygen XML Author analyzes its content and tries to fill the rest of the dialog box;
- **Schema type** - allows you to select the schema type. The following options are available: XML Schema, DTD, RelaxNG XML syntax, RelaxNG compact syntax, and NVDL;
- **Public ID** - specifies the PUBLIC identifier declared in the document prolog;
- **Namespace** - specifies the document namespace;
- **Prefix** - specifies the prefix for the namespace of the document root;
- **Root Element** - populated with elements defined in the specified schema, enables selection of the element used as document root;
- **Description** - shows a small description of the selected document root;
- **Add optional content** - if you select this option, the elements, and attributes defined in the XML Schema as optional, are generated in the skeleton XML document;
- **Add first Choice particle** - if you select this option, Oxygen XML Author generates the first element of an *xs:choice* schema element in the skeleton XML document. Oxygen XML Author creates this document in a new editor panel when you click **OK**.

Creating Documents Based on Templates

*The **New** wizard* enables you to select predefined templates or custom templates. Custom templates are created in previous sessions or by other users.

The list of templates presented in the dialog includes:

- Document Types templates - Templates supplied with the defined document types.

- User defined templates - The user can add template files in the `templates` folder of the Oxygen XML Author install directory. Also in the option page **Options** > **Preferences** > **Editor** > **Templates** > **Document Templates** can be specified a custom templates folder to be scanned.

1. Go to menu **File** > **New**.
2. Select a document type.
3. Press the **Finish** button.

The newly created document already contains the structure and content provided in the template.

Document Templates

Templates are documents that have a predefined structure. They provide the starting point from which you are able to build new documents rapidly, based on the same characteristics (file type, prolog, root element, existing content). Oxygen XML Author offers a rich set of templates for a number of XML applications. You may also create your own templates from **Options** > **Preferences** > **Editor** > **Templates** > **Document Templates** and share them with others.

You can also use *editor variables* in the template files' content and they will be expanded when the files are opened.

Saving Documents

You can save the document you are editing with one of the following actions:

- **File** > **Save**;
- The  **Save** toolbar button. If the document was not saved yet it displays the **Save As** dialog;
- **File** > **Save As** - displays the **Save As** dialog, used either to name and save an open document to a file or to save an existing file with a new name;
- **File** > **Save To URL** - displays the **Save to URL** dialog, used either to name and save an open document to a file or to save an existing file with a new name, *using FTP/SFTP/WebDAV*;
- **File** > **Save All** - saves all open documents. If any document does not have a file, displays the **Save As** dialog.

Opening/Navigating Existing Documents

To open a document in Oxygen XML Author, do one of the following:

- Go to **File** > **Open (Ctrl (Meta on Mac OS)+O)**, to display the **Open** dialog. The start folder of the **Open** dialog can be either the last folder visited by this dialog or the folder of the currently edited file. This can be *configured in the user preferences.*
- Click the  **Open** toolbar button to display the **Open** dialog.
- Go to **File** > **Open URL ...**, to open a document using *FTP/SFTP/WebDAV*.
- Click the  **Open URL ...** toolbar button to run the same action.
- Go to **File** > **Open/Find Resource ... (Ctrl (Meta on Mac OS)+Shift+R)** to look for a document from *the current project* or from a DITA map opened in *the DITA Maps Manager view* by typing a part of the file name.
- Click the  **Open/Find Resource ...** toolbar button to run the same action.
- Go to **File** > **Revert** to load the last saved file content. All unsaved modifications are lost.
- Go to **File** > **Reopen** to reopen one of the recently opened document files. The list containing recently opened files can be emptied by invoking the **Clear history** action.
- Select the **Open** action from the contextual menu of the **Project** view. This opens the selected file from the **Project** view.

The Open/Find Resource View

The **Open/Find Resource** view is designed to offer advanced search capabilities either by using a simple text search or by using the *Apache Lucene - Query Parser Syntax*. To open this view, go to **Window** > **Show View** > **Open/Find Resource**. The view is presented in the left side of the default Oxygen XML Author layout, next to the **Project** and **DITA Maps Manager** views.

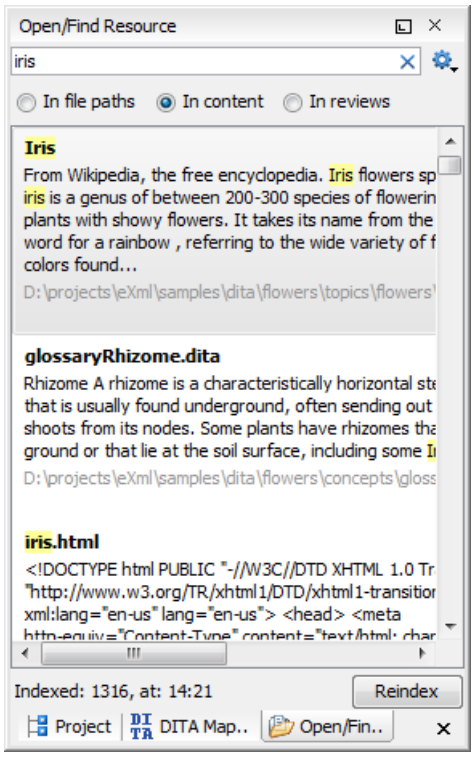


Figure 67: The Open/Find Resource View

You can use this view to find a file in the current Oxygen XML Author project or in one of the DITA maps opened in *the **DITA Maps Manager** view* by typing only a few letters of the file name of a document or a fragment of the content you are searching for. The Open/Find Resource view also supports searching in document edits (comments, insertions, deletions, and highlighted content).

Note: Full support for searching in document edits is available only in the Enterprise edition of Oxygen XML Author and Oxygen XML Editor. The Professional edition offers support to search through a maximum of 10 edits.

Search results are presented instantly, after you finish typing the content you are searching for. The matching fragments of text are highlighted in the results list displayed in the view. When you open one of the documents from the results list, the matching fragments of text are highlighted in the editing area. To remove the highlighting from your document close the ***Results** view*. To display the search history, position the caret in the search field and press **Ctrl (Meta on Mac OS) + Down Arrow** or **Ctrl (Meta on Mac OS) + Up Arrow** on your keyboard. Pressing only the **Down Arrow** key moves the selection to the list of results.

The content of the resources used to search in is parsed from an index. The indexing is performed both automatically and on request.

Note: Automatic indexing is performed when you modify, add, or remove resources in the currently indexed project. In case the index was never initialized, the index in not updated on project changes.

Note: Searches are case insensitive. For example, if you search for *car* you get the same results as when you search for *Car*.

Note: Suffix searches are supported, both for searching in the content of your resources and in their name. For this, you can use wildcards. If you search **in content** for **ing* you will find documents that contain the word *presenting*. If you search **in file paths** for **/samples/*.gif* you will find all the images from the `samples` directory.

Note: You can drag resources from the **Open/Find Resource** view and drop them in a document to create a link to that resource.

The Open/Find Resource view offers the following options:

- **Settings** - displays settings of the view;
  - **Clear Index** - clears the index;
  - **Show description** - presents the search results in a more compact form, displaying only the title and the location of the resources;
  - **Options** - opens the ***Open/Find Resource*** *preferences page*.
- ***In file paths*** - select this option to search for resources by their name or by a fragment of their full path
- ***In content*** - select this option to search through the content of your resources;
- ***In reviews*** - select this option to search through the comments, insertions, and deletion in your resources;
- **Reindex** - reindexes your resources.

The Open/Find Resource Dialog

To open the **Open/Find Resource** dialog, go to **File** > **Open/Find Resource ...** **(Ctrl (Meta on Mac on OS)+Shift+R)**. You can also click the **Open/Find Resource ...** toolbar button or use the **Search for file** action, available for some URL input fields.

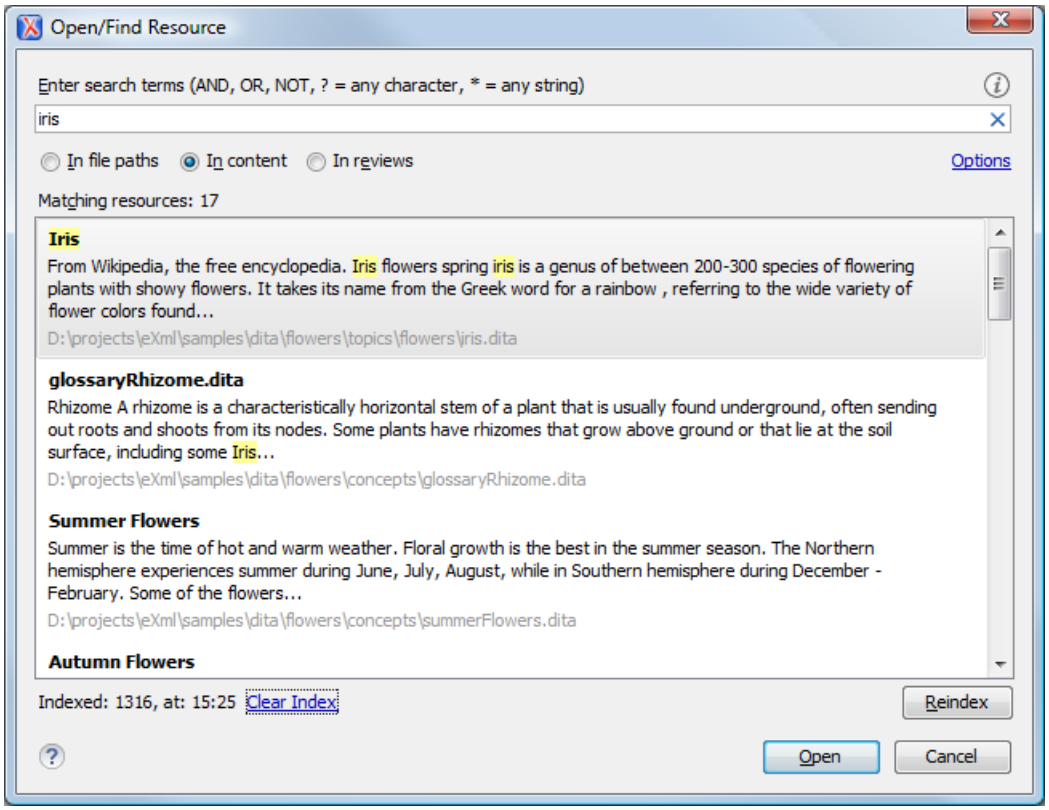


Figure 68: The Open/Find Resource Dialog

You can use this dialog to find a file in the current Oxygen XML Author project or in one of the DITA maps opened in *the* ***DITA Maps Manager*** *view* by typing a few letters of the file name of a document or a fragment of the content you

are searching for. The Open/Find Resource dialog also supports searching in document edits (comments, insertions, deletions, and highlighted content).

Note: Full support for searching in document edits is available only in the Enterprise edition of Oxygen XML Author and Oxygen XML Editor. The Professional edition offers support to search through a maximum of 10 edits.

Search results are presented instantly, after you finish typing the content. The matching fragments of text are highlighted in the results list displayed in the dialog. When you open one of the documents from the results list, the matching fragments of text are highlighted in the editing area. To remove the highlighting from your document close the ***Results view***. To display the search history, position the caret in the search field and press **Ctrl (Meta on Mac OS) + Down Arrow** or **Ctrl (Meta on Mac OS) + Up Arrow** on your keyboard. Pressing only the **Down Arrow** key moves the selection to the list of results.

Note: Searches are case insensitive. For example, if you search for *car* you get the same results as when you search for *Car*.

Note: Suffix searches are supported, both for searching in the content of your resources and in their name. For this, you can use wildcards. If you search **in content** for **ing* you will find documents that contain the word *presenting*. If you search **in file paths** for **/samples/*.gif* you will find all the images from the `samples` directory.

Note: You can drag resources from the **Open/Find Resource** view and drop them in a document to create a link to that resource.

The **Open/Find Resource** dialog offers the following options:

- ***In file paths*** - select this option to search for resources by their name or by a fragment of their full path;
- ***In content*** - select this option to search through the content of your resources;
- ***In reviews*** - select this option to search through the comments, insertions, and deletion in your resources;
- **Options** - opens the ***Open/Find Resource** preferences page*;
- **Clear Index** - clears the index;
- **Reindex** - reindexes your resources.

When you perform a search a caching mechanism is used to gather the paths of all files linked in the current project. When the first search is performed, all project files are indexed and added to the cache. The next search operations use the information extracted from the cache, thus improving the processing time. The cache is kept for the currently loaded project only, so when you perform a search in a new project the cache is rewritten. Also, the cache is reset when you press the **Reindex** button.

If there is no file found that matches your file pattern or text search, a possible cause is that the file you are searching for was added to the Oxygen XML Author project after the last caching operation. In this case, re-indexing the project files from the **Reindex** button enables the file to be found. The date and time of the last index operation are displayed below the file list.

Once you find the files that you want to open, select them in the list and press the **Open** button. Each of the selected files is opened in *the editor associated with the type of the file*.

To watch our video demonstration about the **Open/Find Resource** dialog and search capabilities, go to *http://oxygenxml.com/demo/Open_Find_Resource.html*.

The Open/Find Resources Preferences Page

The **Open/Find Resource** preferences page allows you to configure the **Open/Find Resource** dialog and the **Open/Find Resources** view. To open this page, go to **Options** > **Preferences** > **Open/Find Resource**.

The following options are available in the **Open/Find Resource** preferences page:

- **Limit search results to** - specifies the maximum number of results that are displayed in the **Open/Find Resource** dialog or in the **Open/Find Resources** view;

- **Enable searching in content** - enable this option to activate the **In content** option of the **Open/Find Resource** view and **Open/Find Resource** dialog. In case this option is disabled you can only use the **Open/Find Resource** feature to search in file paths;
- **Ignore content of these files** - allows you to select specific directories, files, or file types that are ignored when you perform a search. For example, `*.txt` ignores all the `.txt` files, `*/topics/*` ignores all the files from the `topics` directory, regardless of their depth, and `file:/C:/tmp/*` ignores everything from the `tmp` directory.

  Note: The specified pattern must begin with the desired protocol (in our case *file*) and also contain forward flash (`/`).

- **Index the content of remote resources** - controls the indexing of resources that are not local. For example, the resources referenced in a DITA Map opened from a remote server (from a CMS or from a WebDAV location) are not indexed by default. To index the content of these resources, enable this option.

  Note: Enabling this option may lead to delays when the indexing is computed.

- **Exact matches** - this option controls whether the search results should exactly match the whole words that you introduce in the search field of the **Open/Find Resource** dialog or **Open/Find Resources** view;
- **Prefix matches** - this option controls whether the search results should match documents containing words starting with the searched terms. For instance searching for "pref page" will find documents containing also "preference pages";
- **Automatically join search terms using:** - select the default boolean operator that Oxygen XML Author applies when you perform a search. For example if the AND operator is selected and you enter "car assembly" in the dialog, the resulted documents must contain both of the words. If you choose OR, the resulted documents must contain one of the selected search terms. Results containing both words are promoted to the top of the list.
- **Enable XML-aware searching for files with size less than** - allows you to perform an *XML specific search* for XML elements and attributes.

  Note: Enabling this option may slow down the indexing of your documents and increase the index size on the disk.

Searching in Content

To perform a search through the content of your resources, open the **Open/Find Resources** dialog or the **Open/Find Resource** view, enable the **in content** option, and in the search field enter the terms that you want to search for.

The **Open/Find Resource** feature is powered by *Apache Lucene*. Apache Lucene is a free open source information retrieval software library.

You can use the **Open/Find Resource** dialog and the **Open/Find Resource** view either to perform a simple text search or to perform a more complex search using the *Apache Lucene - Query Parser Syntax*. Using the *Apache Lucene - Query Parser Syntax* means you can perform any of the following searches:

Term Searches

Use the **Open/Find Resource** view or dialog to search for plain text:

```
Garden Preparation
```

Element Specific Searches

Use the **Open/Find Resource** view or dialog to search for content that belongs to a specific element:

```
title:"Garden Preparation"
```

Wildcard Searches

Use wildcards to make your search more permissive:

```
Garden Prepar?tion
```

Fuzzy Searches

In case you are not sure what is the exact form of a term that you are interested in, use the fuzzy search to find the terms that are similar to what you introduce in the **Open/Find Resource** view or dialog. To perform a fuzzy search, use the ~ symbol after the word that you are not sure of:

```
Garden Preparing~
```

Proximity Searches

Use proximity searches to find words that are within a specific distance away. To perform a proximity search, use the ~ symbol at the end of your search. For example, to search for the word *Garden* and the word *Preparation* within 6 words of each other use:

```
"Garden Preparation"~6
```

Range Searches

Use range searches to match documents whose element values are between the lower and upper bound specified in the range query. For example, to find all documents whose titles are between *Iris* and *Lilac*, use:

```
title:{Iris TO Lilac}
```

The curly brackets denote an exclusive query. The results you get when using this query are all the documents whose titles are between *Iris* and *Lilac*, but not including *Iris* and *Lilac*. To create an inclusive query use square brackets:

```
title:[Iris to Lilac]
```

Term Prioritising Searches

Use term prioritising searches in case the fragment of text that you are searching for contains certain words that are more important to your search than the rest of them. For example, if you are searching for *Autumn Flowers*, a good idea is to prioritise the word *Autumn* since the word *Flowers* occurs more often. To prioritise a word use the ^ symbol:

```
Autumn^6 Flowers
```

Searches Using Boolean Operators

You are able to use the **AND**, **+**, **OR**, **-**, and **NOT** operators.

To search for documents that contain both the words *Garden* and *Preparation*, use:

```
Garden AND Preparation
```

To search for documents that must contain the word *Garden* and may contain the word *Preparation*, use:

```
+Garden Preparation
```

To search for documents that contain either the word *Garden* or the word *Preparation*, use:

```
Garden OR Preparation
```

To search for documents that contain *Garden Preparation* but not *Preparation of the Flowers*, use:

```
"Garden Preparation" - "Preparation of the Flowers"
```

Searches Using Grouping

To search either for the word *Garden* or *Preparation*, and the word *Flowers*, use:

```
(Garden OR Preparation) AND Flowers
```

Searches Using Element Grouping

To search for a title that contains both the word *Flowers* and the phrase *Garden Preparation*, use:

```
title:(+Flowers +"Garden Preparation")
```

Searching in File Paths

To perform a search in the file paths of your resources, open the **Open/Find Resources** dialog or the **Open/Find Resource** view, enable the **in file paths** option, and in the search field enter the terms that you want to search for.

The **Open/Find Resource** view and dialog allows you to search for a resource either by its name or by a fragment of its full path.

You can use wildcards when you perform such searches:

- Use "*" to match any sequence of characters;
- Use "?" to match any single character.

For example, if you search for **-preferences-page* you will find all the resources that contain the *-preferences-page* fragment in their name. If you search for **/samples/*.gif*, you will find all the `.gif` images from the `samples` directory.

Searching in Reviews

To perform a search in the edits of your resources, open the **Open/Find Resource** dialog or the **Open/Find Resource** view, enable the **In reviews** option, and in the search field enter the terms that you want to search for.

The following options are available:

- **Type** - specifies whether you want to search for content in comments, insertions, deletions, or highlighted content;
- **Author** - displays all the authors of the edits in your resources. The authors are collected when indexing. You can set a specific author for your search or all of them;
- **Time**- specifies the time when the edits that you are searching through were created.

Both the view and the dialog display the edits that contain the search results and their parent topics along with a short description. To hide this description, go to **Settings** and disable the **Show Description** option.

Technical Aspects

When Oxygen XML Author performs the indexing of your resources, the refereed content from your documents is not taken into account. For example, when DITA documents are indexed, the content from the `conref` elements is not parsed. The files that make up the index are stored on the disk in the `C:\Users\USER_NAME\AppData\Roaming\com.oxygenxml.author\lucene` folder.

Opening Local Files at Start-up from Command Line

To open a local file at start-up when you open Oxygen XML Author from the command line, add the paths for one or more local files as parameters in the command line:

- scriptName [pathToXMLFile1] [pathToXMLFile2] ... where scriptName is the name of the startup script for your platform (`oxygenAuthor.bat` on Windows, `oxygenAuthor.sh` on Unix/Linux, `oxygenAuthorMac.sh` on Mac OS) and *`pathToXMLFileN`* is the name of a local XML file.

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.

Opening and Saving Remote Documents via FTP/SFTP/WebDAV/SharePoint

Oxygen XML Author supports editing remote files, using the FTP, SFTP ,WebDAV, SharePoint, and SharePoint Online for Office 365 protocols. You can edit remote files in the same way you edit local files.For example, you are able to add remote files a project, or make them subject of XSL and FO transformations.

You can open one or more remote files in *the **Open URL** dialog*.

A WebDAV resource can be locked when it is opened in Oxygen XML Author by checking the ***Lock WebDAV files on open*** option to prevent other users to modify it concurrently on the server. If a user tries to edit a locked file, Oxygen XML Author displays an error message that contains the lock owner's name. The lock is released automatically when the editor for that resource is closed in Oxygen XML Author.

To avoid conflicts with other users when you edit a resource stored on a SharePoint server, you can **Check Out** the resource.

To improve the transfer speed, the content exchanged between Oxygen XML Author and the HTTP / WebDAV server is compressed using the GZIP algorithm.

The current *WebDAV Connection* details can be saved using the button and then used in the *Data Source Explorer* view.

The Open URL Dialog

To open the **Open URL** dialog, go to**File** > **Open URL ...** or click the **Open URL ...** toolbar button.

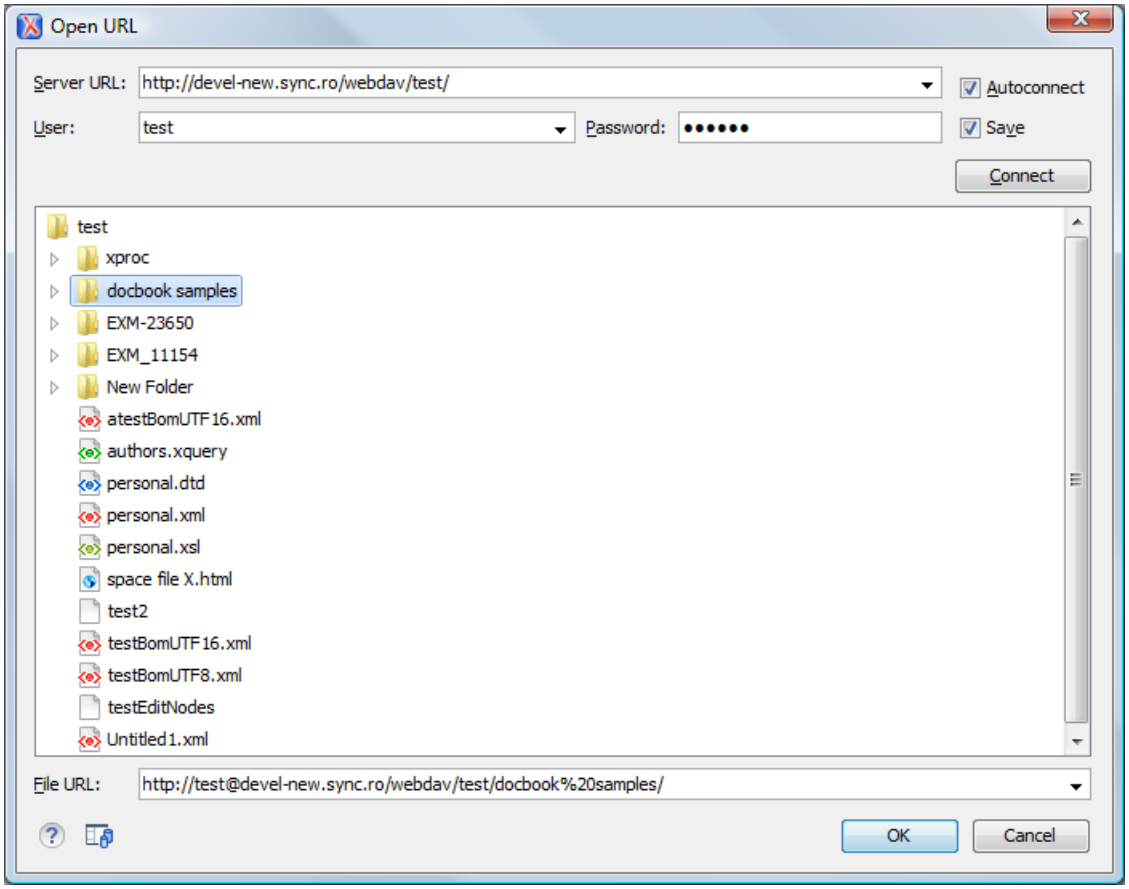


Figure 69: Open URL Dialog

The displayed dialog is composed of several parts:

- The *Identification* section contains the access credentials. 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 in the options file.

  Note:

  Your password is well protected. In the case the options file is used on other machine by a user with a different username the password will become unreadable, since the encryption is username dependent. This is also true if you add URLs having user and password to your project.

- In the server combo you can specify the protocol (HTTP, HTTPS or FTP) and the host name or IP of the server.

  Tip:

  Server URLs

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

  When you access a WebDAV server you must specify the path to the directory of the WebDAV repository along with the protocol and the host name.

  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/

  When you access a SharePoint server you can also specify the path to a SharePoint site apart from the protocol a

  By pressing the **Connect** button the directory listing will be shown in the component below. If the input URL points to a SharePoint server, a dedicated SharePoint browsing component is presented. When **Autoconnect** is selected, the browse action is performed every time when you open the dialog.

- The browser view:
  - In case you are browsing a WebDAV or FTP repository, the items are presented in a tree-like fashion. You can browse the directories, and make multiple selections. Additionally, you may use the **Rename**, **Delete**, and **New Folder** actions to manage the file repository.

    Note: The file names are sorted in a case-insensitive way.

  - When you browse a SharePoint repository, a specialized component is presented instead of the WebDAV/FTP tree.

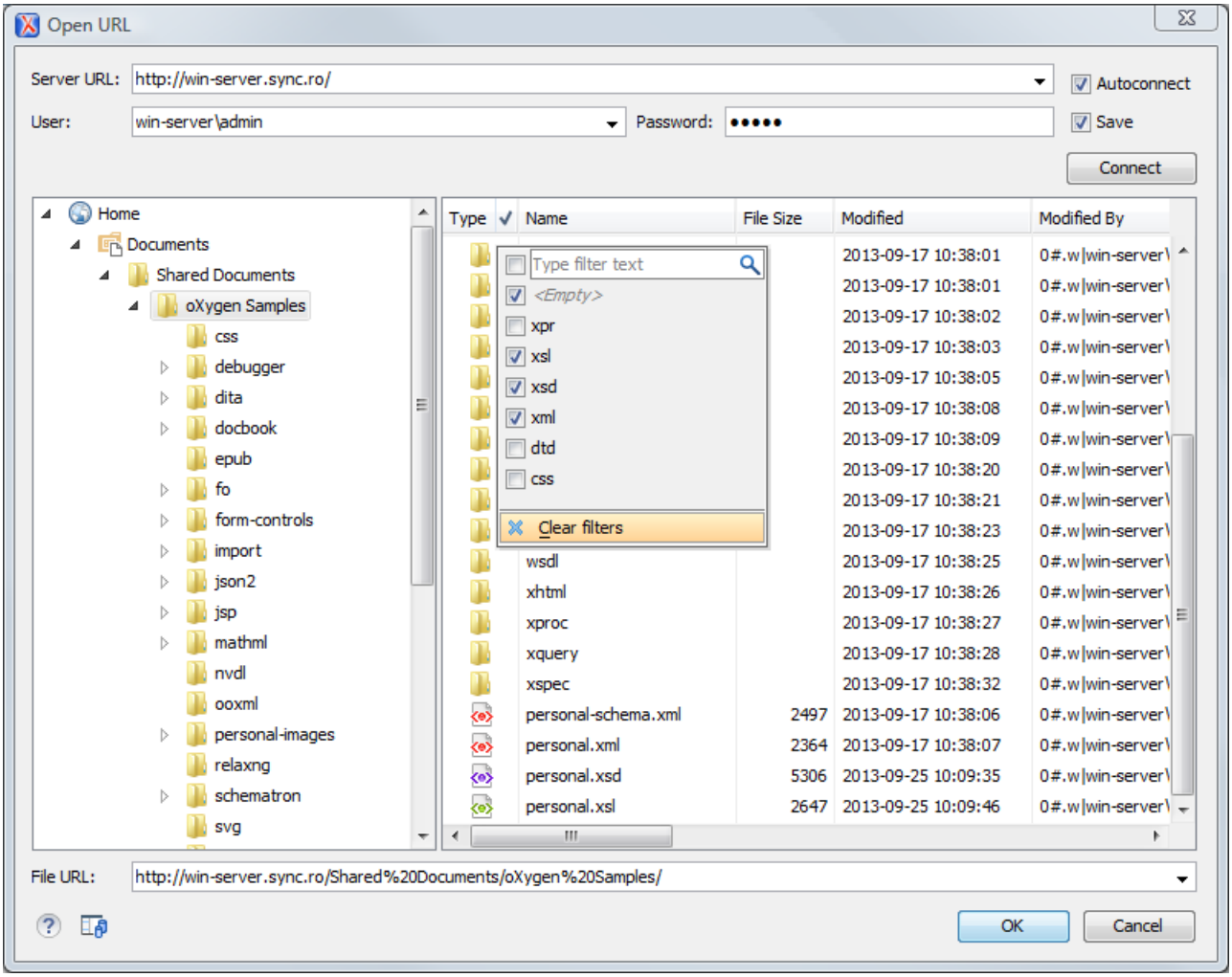


Figure 70: Browsing a SharePoint Repository

The left side of the browsing component displays the SharePoint site structure in a tree like fashion organized in sites, libraries, and folders. The contextual menu of a folder allows you to create new folders, new documents, and rename and delete the folder. The rename and delete actions are not available for library root folders (folders located at first level in a SharePoint library).

The content of a folder selected in the tree is displayed in the right side table. The table columns are defined in the default view of the parent library. The rename and delete actions are available in the table view's contextual menu both for documents and folders. You are able to check out, check in, and discard check out one or more documents at the same time. You can also filter and sort the displayed items. To display the available filters of a column, click the filter widget located on the column's header. You can apply multiple filters at the same time.

Note: A column can be filtered or sorted only if it was configured this way on the server side.

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

  Tip:

  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.

Changing File Permissions on a Remote FTP Server

Some FTP servers allow the modification of permissions of the files served over the FTP protocol. This protocol feature is accessible directly in the FTP/WebDAV file browser dialog by right-clicking on a tree node and selecting the *Change permissions* menu item.

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

WebDAV over HTTPS

If you want to access a WebDAV repository across an insecure network, Oxygen XML Author 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 as part of the HTTPS protocol, without any user intervention. Oxygen XML Author 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 XML Author. This means that Oxygen XML Author 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 key store if you get the error *No trusted certificate found* when trying to access the WebDAV repository.

Troubleshooting HTTPS

When Oxygen XML Author cannot connect to an HTTPS-capable server, most likely there is no certificate set in the *Java Runtime Environment (JRE)* that oXygen runs into. The following procedure describes how to:

- export a certificate to a local file using any HTTPS-capable Web browser (for example Internet Explorer);
- import the certificate file into the JRE using the **keytool** tool that comes bundled with Oxygen XML Author.

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.

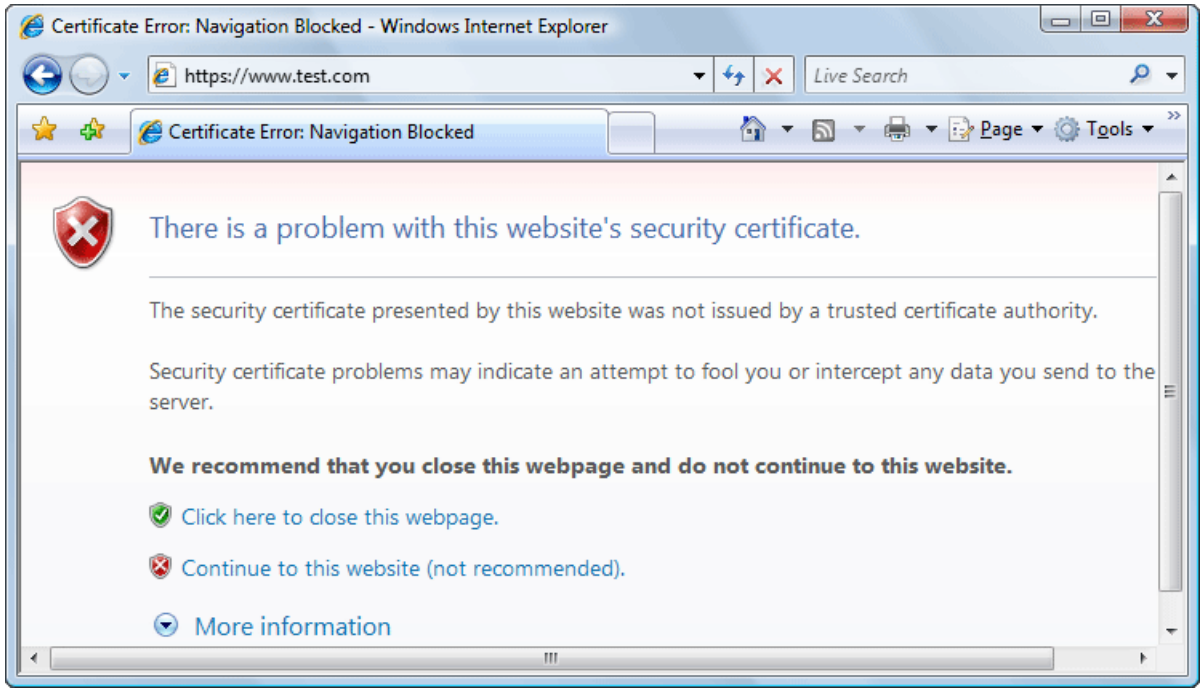


Figure 71: Security alert - untrusted certificate

b) Go to menu **Tools** > **Internet Options**.
Internet Options dialog is opened.
c) Select **Security** tab.
d) Select **Trusted sites** icon.
e) Press **Sites** button.
This will open **Trusted sites** dialog.
f) Add repository URL to **Websites** list.
g) Close **Trusted sites** dialog and **Internet Options** dialog.
h) Try again to connect to the same repository URL in Internet Explorer.
The same error page as above will be displayed.
i) Select **Continue to this website** option.
A clickable area with a red icon and text **Certificate Error** is added to Internet Explorer address bar.
j) Click on **Certificate Error** area.
A dialog containing **View certificates** link is displayed.
k) Click on **View certificates** link.
Certificate dialog is displayed.
l) Select **Details** tab of **Certificate** dialog.
m) Press **Copy to File** button.
Certificate Export Wizard is started.
n) Follow indications of wizard for DER encoded binary X.509 certificate. Save certificate to local file `server.cer`.

2. Import the local file into the JRE running Oxygen XML Author.

a) Open a text-mode console with administrative rights.
b) Go to the `lib/security` directory of the JRE running Oxygen XML Author. You find the home directory of the JRE in the *java.home* property that is displayed in the **About** dialog, **Installation Details**, **System properties** tab. On Mac OS X systems, the `lib/security` directory is usually located in `/System/Library/Java/JavaVirtualMachines/1.6.0.jdk/Contents/Home` directory.
c) Run the following command:

```
..\..\bin\keytool -import -trustcacerts -file server.cer -keystore cacerts
```

The `server.cer` file contains 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.

Note: To make Oxygen XML Author accept a certificate even if it is invalid, go to the **Options** > **Preferences** > **Connection settings** > **HTTP(S)/WebDAV** preferences page and enable the **Automatically accept a security certificate, even if invalid** option.

3. Restart Oxygen XML Author.

Opening the Current Document in System Application

To open the currently edited document in the associated system application, use the **Open in Browser/System Application** action available on the **Document** > **File** menu and also on the **Document** toolbar. The action is enabled when the current document has the file, FTP, HTTP or SFTP protocol.

Switching Between Opened Tabs

There are two actions for cycling through the opened file tabs:

- **(Ctrl (Meta on Mac OS) + Tab)** - Switches between the tabs with opened files in the order most recent ones first.
- **(Ctrl (Meta on Mac OS) + Shift + Tab)** - Switches between the tabs with opened files in the reverse order.

Closing Documents

To close open documents, use one of the following methods:

- Go to menu **File** > **Close (Ctrl (Meta on Mac OS)+W)** : Closes only the selected tab. All other tab instances remain opened.
- Go to menu **File** > **Close All** : If you try to close a modified or a newly created document, you are first prompted to save it.
- Click **Close** in the contextual menu of an open tab to close it.
- Click **Close Other Files** in the contextual menu of an open tab to close all the open tabs except the selected one.
- Click **Close All** in the contextual menu of an open tab to close all open tabs.

The Contextual Menu of the Editor Tab

The contextual menu is available when clicking the current editor tab label. It shows the following actions:

- **Close** - closes the current editor;
- **Close Other Files** - closes all opened editor but the one you are currently viewing;
- **Close All** - closes all opened editors;
- **Reopen last closed editor** - reopens the last closed editor;
- **Maximize/Restore Editor Area** - collapses all the side views and spans the editing are to cover the entire width of the main window;
- **Add to project** - adds the file you are editing to the current project;
- **Add all to project** - adds all the opened files to the current project;
- **Copy Location** - copies the disk location of the file;
- **Show in Explorer (Show in Finder on Mac OS X)** - opens the Explorer to the file path of the file.

Viewing File Properties

In the **Properties** view, you can quickly access information about the current edited document like:

- character encoding
- full path on the file system
- schema used for content completion and document validation
- document type name and path
- associated transformation scenario
- file's read-only state
- bidirectional text (left to right and right to left) state
- total number of characters in the document
- line width
- indent with tabs state
- indent size

The view can be accessed from **Window** > **Show View** > **Properties**.

To copy a value from the **Properties** view in the clipboard, for example the full file path, use the **Copy** action available on the contextual menu of the view.

Grouping Documents in XML Projects

This section explains how to create and work with projects.

Using the Project View

The Project view 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.

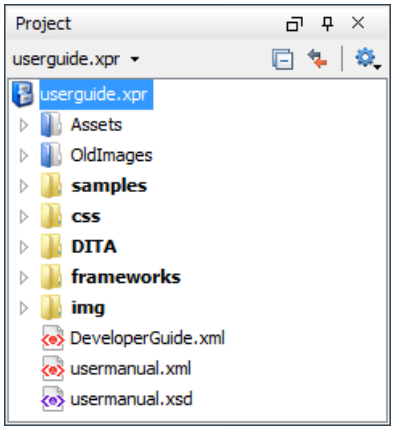


Figure 72: The Project View

The default layout initialized by the **Window** > **Reset Layout** menu item positions the **Project** view on the left side of the Oxygen XML Author window, above *the Outline view.* A closed view can be quickly reopened at any time with the **Project** > **Show Project View** menu action.

The tree structure occupies most of the view area. In the upper left side of the view, there is a drop-down list that holds all recently used projects and project management actions:

- **Open Project ... (Ctrl (Meta on Mac OS)+F2)** - Opens an existing project. An alternate way to open a project is to drop an Oxygen XML Author XPR project file from the file explorer in the **Project panel**.
- **New Project** - Creates a new, empty project.

The following actions are grouped in the upper right corner:

- **Collapse All** - Collapses all project tree folders. You can also collapse/expand a project tree folder if you select it and press the **Enter** key.
- **Link with Editor** - When selected, the project tree highlights the currently edited file.

  Note: This button is disabled automatically when you move to the **Debugger** perspective.

- **Settings** - A sub-menu containing the following actions:
  - **Filters** - Allows you to filter the information displayed in the **Project** view. Click the toolbar button to set filter patterns for the files you want to show or hide. Also, you can set filter patterns for the linked directories that are hidden.
  - **Show Full Path** - When selected, linked files and folders are presented with a full file path.
  - **Enable Master Files Support** - Select this option to enable the ***Master Files** support*.

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

- *Logical folders* - marked with a blue icon on Windows and Unix/Linux () and a magenta icon on Mac OS X (). This folder type has no correspondent on the physical disk, being used as containers for related items. Creating and deleting them does not affect the file system on disk.
- *Linked folders* - marked with a yellow icon on Windows and a blue icon on Mac OS X which is exactly the folder icon used by the Windows Explorer and Mac OS Finder applications. They content mirror a real folder existing in the file system on disk.

Creating New Project Items

A series of actions are available in the contextual menu:

- **New** > **File** - Creates a new file and adds it to the project structure.
- **Add Folder** - Adds a link to a physical folder, whose name and content mirror a real folder existing in the file system on disk. The icon of this action is different on Mac OS X () as the standard folder icon on Mac OS X is not the usual one from Windows and Unix/Linux systems.
- **New** > **Logical Folder** - Creates a logical folder in the tree structure (the icon is a magenta folder on Mac OS X - ).
- **New** > **Logical Folders from Web** - Replicates the structure of a remote folder accessible over FTP/SFTP/WebDAV, as a structure of logical folders. The newly created logical folders contain the file structure of the folder it points to.
- **New** > **Project** - Creates a new project, after closing the current project and all open files.

Add Content to a Logical Folder

You can add content to a logical folder using one of the actions available in the contextual menu:

- **Add Folder** - Adds a link to a physical folder, whose name and content mirror a real folder existing in the file system on disk. The icon of this action is different on Mac OS X () as the standard folder icon on Mac OS X is not the usual one from Windows and Unix/Linux systems.
- **Add Files** - Adds links to files on disk.
- **Add Edited File** - Adds a link to the current edited file to the project.

Managing Project Content

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 **Add Folder**.

Note: The liked files presented in the **Project** view are marked with a special decorator.

Also, you can *move the resources of the project* with drag and drop operations on the files and folders of the tree.

When adding files to a project, the default target is the project root. To change a target, select a new folder. Files may have multiple instances within the folder system, but cannot appear twice within the same folder.

To remove one or more files or folders, select them in the project tree and press the **Delete** key or run the contextual menu action **Remove from Project**. To remove a file or folder both from project and disk, run the contextual menu action **Remove from Disk (Shift+Delete)** which is available for both logic and linked files.

Caution: In most cases this action is irreversible, deleting the file permanently. Under particular circumstances (if you are running a Windows installation of Oxygen XML Author and the *Recycle Bin* is active) the file is moved to *Recycle Bin*.

To create a file inside a linked folder, choose the **New** > **File** action from the contextual menu.

There are three ways you *rename an item in the **Project** view*: To begin editing an item name in the **Project** view, select the item and do one of the following:

- invoke the **Rename** action from the contextual menu;
- press **F2**;
- click the selected item.

To finish editing the item name, press **Enter** on your keyboard.

Note: The **Rename** action is available on logic files also.

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 is 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 it and with one of the **Open** actions from the pop-up menu. The files with known types are opened in the associated editor while the *binary files* are opened with the associated system application. To open a file of known type with other editor than the default one, use the **Open with** action.

The project file is saved automatically on disk, every time the content of the Project view is modified by actions like adding or removing files or folders and drag and drop to/from the Project view.

Validate Files

The currently selected files in the **Project** view can be validated against a schema of type Schematron, XML Schema, Relax NG, NVDL, or a combination of the later with Schematron with one of the following contextual menu actions:

- **Check Well-Formedness** - checks if the selected file or files are well-formed.
- **Validate** - validates the selected file or files against their associated schema. EPUB files make an exception, because this action triggers a ***Validate and Check for Completeness*** operation.
- **Validate with Schema...** - validates the selected file of files against a specified schema.
- **Configure Validation Scenario** - allows you to configure and run a *validation scenario*.

Applying Transformation Scenarios

The currently selected files in the **Project** view can be transformed in one step with one of the actions **Transform** > **Apply Transformation Scenario(s)**, **Transform** > **Configure Transformation Scenario(s)...** and ***Transform*** >

Transform with... available on the right-click menu of the **Project** view. This, together with the logical folder support of the project allows you to group your files and transform 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 like the ones available in *the **Properties** view* can be obtained with the **Properties** action of the contextual menu invoked on a file node of the **Project** view tree, in the following dialog:

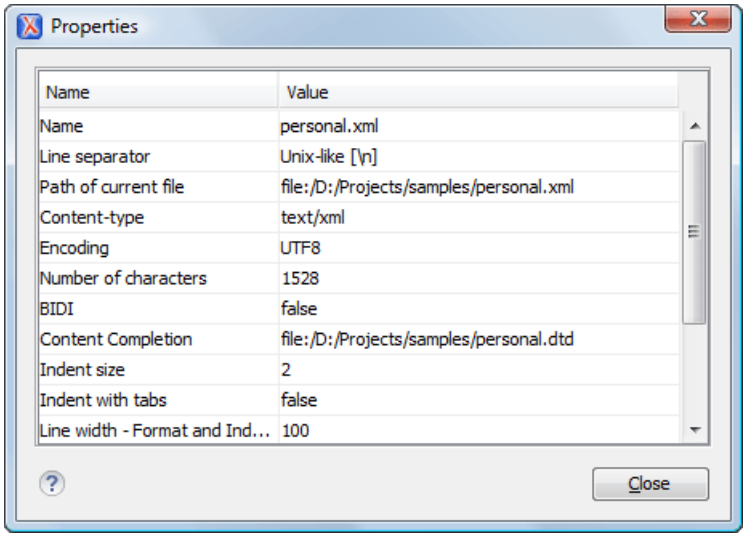


Figure 73: The Properties Dialog

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.

You can also use drag and drop to arrange the files in logical folders (but not in linked folders). Also, dragging and dropping files from the project tree to the editor area results in the files being opened.

Other Context-Dependent Actions

Many of the actions available in the **Project** view are grouped in a contextual menu. This menu is displayed after selecting a file or folder and then pressing right-click (or Ctrl+Click on Mac OS X)

- **Show in Explorer** (or **Show in Finder** on Mac OS X) - On Windows, the content of the selected folder, or the selected file is presented in a specific explorer window. On MAC OS X, the parent folder is opened and the selected folder is highlighted in a specific finder window. This window also presents selected files.
- **Open with** - Open selected file with one of internal tools: *SVG Viewer* , *Hex Viewer* , *Large File Viewer* , *MathML Editor* , WSDL/SOAP Analyzer, *DITA Maps Manager* , *Archive Browser* .
- **Open All Files** - Opens in the author view all files contained by the selected resources.
- **Refresh** - Refreshes the content of the **Project** view;
- **Find/Replace in Files** - Allows you to *find and replace text in multiple files.*
- **Check Spelling in Files** - Allows you to *check the spelling of multiple files.*
- **Open in SVN Client** - *Syncro SVN Client* tool is opened and it highlights the selected resource in its corresponding working copy.

Menu Level Actions

The following actions are available in the **Project** menu:

- **New Project** - Creates a new, empty project.

- **Open Project ... (Ctrl (Meta on Mac OS)+F2)** - Opens an existing project. An alternate way to open a project is to drop an Oxygen XML Author XPR project file from the file explorer in the **Project panel**.
- **Save Project As...** - Allows you to save the current project under a different name.
- **Validate all project files** - Checks if the project files are well-formed and their mark-up conforms with the specified DTD, XML Schema, or Relax NG schema rules. It returns an error list in the message panel.
- **Show Project View** - Displays the project view.
- **Reopen Project** - Contains a list of links of previously used projects. This list can be emptied by invoking the **Clear history** action.

Team Collaboration - Apache Subversion™

There is an *SVN (Subversion) Client* application embedded in Oxygen XML Author. You may start it from the **Tools** menu and use it for synchronizing your working copy with a central repository.

Another way of starting it is by using the contextual menu of the **Project** tree: **Team** > **Open in SVN Client**. This action displays Syncro SVN Client and shows the selected project file in the **Working Copy** view.

Project Level Settings

You can store into the project not only lists of files and directories, but also transformation scenarios and other setting specific to that project. For more information see the *Preference Sharing* and *Sharing the Transformation Scenarios* topics.

Moving/Renaming Resources in the Project View

The **Project** view allows you to move or rename a file from the current project.

To move a file or a directory, drag and drop it to the new location in the tree structure from the **Project** view. You can also right click the file or directory and select the **Refactoring** > **Move resource** action from its contextual menu, or use the usual **Cut** and **Paste** actions. Oxygen XML Author presents the **Move** dialog if you used the drag and drop or the **Cut/Paste** actions. The **Move resource** dialog is presented in case you used the refactoring actions. The following fields are available:

- **Destination** - available in the **Move resource** dialog only. Presents the path to the current location of the resource you want to move and gives you the option to introduce a new location;
- **New name** - presents the current name of the moved resource and gives you the option to change it;
- **Update references of the moved resource(s)** - enable this option to update the references to the resource you are moving, in accordance with the new location and name.

To quickly rename a file or a directory, use the in-place editing either by pressing **F2** or by selecting **Rename** from the contextual menu of the resource. You can also right click a file or a directory and select the **Refactoring** > **Rename resource** action from its contextual menu. Oxygen XML Author presents the **Rename** dialog in case you used in-place editing. The **Rename resource** dialog is presented if you used the refactoring actions. The following fields are available:

- **New name** - presents the current name of the edited resource and allows you to modify it;
- **Update references of the renamed resource** - enable this option to update the references to the resource you are renaming;
- **Scope** - specifies the *scope of the rename operation*.

In case the **Update references of the moved resource(s)** option is enabled, a **Preview** option which opens the **Preview** dialog is available for both actions. The **Preview** dialog presents a list with the resources that are updated.

Note: The support to update references is available for XML documents.

Problems with Updating References of Moved/Renamed Resources

In some case the references of a moved or a renamed resource can not be update. One case is when a resource is resolved through an XML catalog. Another problem can appear when the path to the moved/renamed resource contains entities. For these cases, Oxygen XML Author displays a warning dialog.

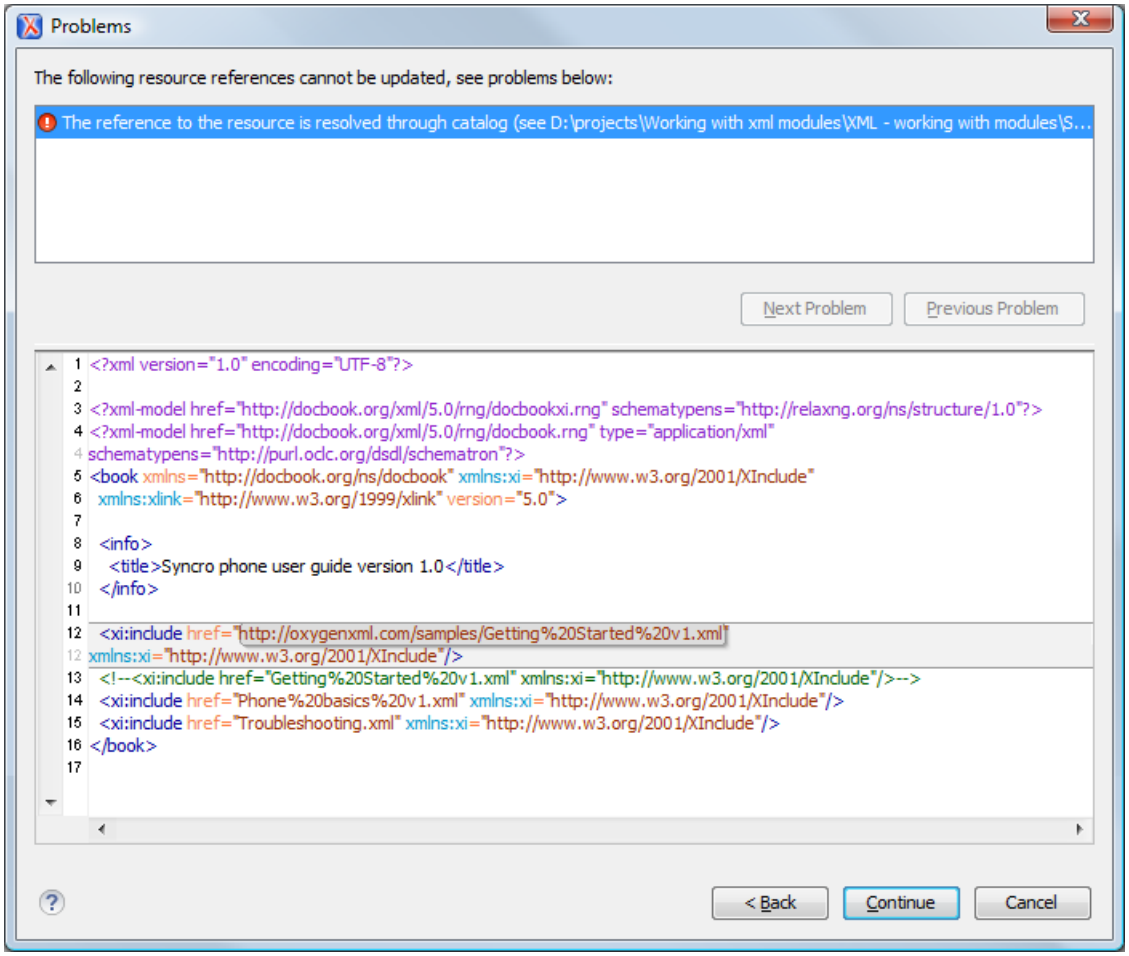


Figure 74: Problems Dialog

Defining Master Files at Project Level

This chapter details the **Master Files** support available in Oxygen XML Author.

The **Master Files** support helps you simplify the configuration and development of XML projects. A master file generally means the root of an import/include tree of modules.

Introduction

Oxygen XML Author allows you to define master files at project level. These master files are automatically used by Oxygen XML Author to determine the context for operations like validation, content-completion, refactoring or search for XML. Oxygen XML Author maintains the hierarchy of the master files, helping you to determine the editing context.

To watch our video demonstration about the **Master Files** support for XML documents, go to *Working with Modular XML Files*.

Master Files Benefits

When you edit a module after defining the master files, you have the following benefits:

- when the module is validated, Oxygen XML Author automatically identifies the master files which include that module and validates all of them;
- the ***Content Completion Assistant*** presents all the components collected starting from the master files towards the modules they include;

- the master files defined for the current module determines the *scope of the search and refactory actions*. Oxygen XML Author performs the search and refactory actions in the context that the master files determine, improving the speed of execution.

Enabling the Master Files Support

Oxygen XML Author stores the master files in a folder located in the **Project** view, as the first child of the project root. The **Master Files** support is disabled by default. To enable the **Master Files** support, go to the **Settings** menu of the **Project** view and select **Enable Master Files Support**. You can also select **Enable Master Files Support** from the contextual menu of the **Master Files** directory, or from the contextual menu of the project itself. Oxygen XML Author allows you to enable/disable the **Master Files** support for each project you are working on.

When the master files support is disabled Oxygen XML Author displays a window tip located at the bottom of the project view. This window contains an **Enable** button and a **read more...** option. Clicking the **read more** option takes you to the user guide. Clicking the **Enable** button opens the **Enable Master Files** dialog. This dialog contains general information about the **Master Files** support and allows you to enable the support. You can also use the **Detect and Enable** option to detect the master files from the current project.

Note: Once you close this window tip, Oxygen XML Author hides it for all projects. To make the window tip reappear, restore Oxygen XML Author to its default settings.

Note: Restoring Oxygen XML Author to its default settings causes loss of your customized options.

Detecting Master Files

Oxygen XML Author allows you to detect the master files using the **Detect Master Files...** option available in the contextual menu of the project. This action applies to the folders you select in the project. To detect master files over the entire project do one of the following:

- right click the root of the project and select **Detect Master Files...**;
- use the **Detect Master Files from Project...** option available in the contextual menu of the **Master Files** folder.

Both these options display the **Detect Master Files** wizard dialog. The detected master files are presented in a tree like fashion. The resources are grouped in three categories:

- Possible master files - the files presented on the first level in this category are not imported/included from other files. These files are most likely to be set as master files.
- Cycles - the files that are presented on the first level have circular dependencies between them. Any of the files presented on the first level of a cycle is a possible master file.
- Standalone - files that do not include/import other files and are also not included/imported themselves. No need to be set as master files.

To set the master files you can enable their check-boxes. Oxygen XML Author marks all the children of a master file as modules. Modules are renderer in gray and their tool-tip presents a list with their master files. A module can be accessed from more than one master file.

The master files already defined in the project are marked automatically in the tree and cannot be removed. The only way to disable a master file is to delete it from the **Master Files** folder.

The third panel displays a list with the selected master files. Click the **Finish** button to add the master files in the **Master Files** folder.

You can use the **Select Master Files** option to mark automatically all master files. This action sets as master files all the resources from the **Possible Master Files** category and the first resource of each **Cycle**.

Tip: We recommend you to add only top-level files (files that are the root of the include/import graph) in the **Master Files** directory. Keep the file set to a minimum and only add files that import or include other files.

Attention: In case the **Master Files** support is disabled, the **Master Files** directory is rendered only if it contains master files.

Adding/Removing a Master File

The **Master Files** directory contains only logic folders and linked files. To add files in the **Master Files** directory, use one of the following methods:

- right click a file from your project and select **Add to Master Files** from the contextual menu;
- select **Add Files** or **Add Edited File** from the contextual menu of the **Master Files** directory;
- drag and drop files in the **Master Files** directory;
- from the contextual menu of the **Resource Hierarchy Dependencies** view, using the **Add to Master Files** action.

You can view the master files for the current resource in the **Properties** dialog of the **Project** view and the master files for the current editor in the **Properties** and **Information** views.

Project Validation and Transformation

The **Master Files** support is also useful for project level validation and transformation. When you hover the mouse cursor over a file in the **Master Files** directory, Oxygen XML Author displays the **Validate** and **Transform** buttons at the right of the file. Select one of these buttons to run a transformation, or validation scenario. In case the current node is selected, Oxygen XML Author executes a batch transformation and validation. In case the current node is not selected, Oxygen XML Author executes the validation and transformation for the current node only. The behavior of these actions is the same as the behavior of the transformation actions available in the contextual menu.

Note: The tooltip of the **Validate** and **Transform** buttons displays the associated scenarios that you can execute.

When you hover the mouse cursor over the **Master Files** directory itself, apart from the **Validate** and **Transform** buttons, Oxygen XML Author displays a **Help** button. Either click this button, or press F1 on your keyboard to open the Help section regrading the **Master Files** support.

The Contextual Menu of the Master Files

The contextual menu of the **Master Files** directory contains the following actions:

- **New** - allows you to create a file, logical folder, or project;
- **Add Files** - allows you to add master files to the **Master Files** directory;
- **Add Edited File** -use this option to add the file you are editing to the **Master Files** directory;
- **Open All Files** - opens all the files of the **Master Files** directory;
- **Paste** - pastes the files you copy in the **Master Files** directory;
- **Rename** - allows you to rename a file of the **Master Files** directory;
- **Refresh** - refreshes the content of the **Master Files** directory;
- **Find/Replace in Files...** - opens the ***Find/Replace*** *dialog*;
- **Open/Find Resource** - opens the ***Open/Find Resource*** *dialog*;
- **Check Spelling in Files** - opens the ***Check Spelling in files*** *dialog;*
- **Transform** - this action allows you to select one of the following options:
  - **Apply Transformations Scenario(s)** - applies the transformation scenarios associated with the **Master Files** directory;
  - **Configure Transformation Scenario(s)...** - opens the ***Configure Transformation Scenario*** *dialog*;
  - **Transform with...** - opens the **Transform with** dialog which allows you to select the transformation scenario you want to execute;
- **Validate** - this action allows you to select one of the following options:

- **Check Well-Formedness** - allows you to check if a document is *Namespace Well-Formed XML*;
- **Validate** - Oxygen XML Author performs the validation of the master files;
- **Validate with Schema** - opens the **Validate with** dialog. Oxygen XML Author performs the validation of the master files using a schema;
- **Configure Validation Scenario** - opens the ***Configure validation scenario*** *dialog*.

- **Detect Master Files from Project...** - enables automatic detection of master files;
- **Enable Master Files Support** - select this option to enable the **Master Files** support.

Editing XML Documents

This section explains the XML editing features of the application. All the user interface components and actions available to users are described in detail with appropriate procedures for various tasks.

Associate a Schema to a Document

This section explains the methods of associating a schema to a document for validation and content completion purposes.

Setting a Schema for Content Completion

This section explains the available methods of setting a schema for content completion in an XML document edited in Oxygen XML Author.

Supported Schema Types for XML Documents

The supported schema types are:

- W3C XML Schema 1.0 and 1.1 (with and without embedded Schematron rules);
- DTD;
- Relax NG - XML syntax (with and without embedded Schematron rules);
- Relax NG - compact syntax;
- NVDL;
- Schematron (both ISO Schematron and Schematron 1.5).

Setting a Default Schema

Oxygen XML Author uses the following search pattern when it tries to detect an XML schema:

- in the *validation scenario* associated with the document;
- in the validation scenario associated with the document type (if defined).
- specified in the document;

  Note: If a DTD schema is specified in the document, the content completion for Author mode is based on this schema (even if there is already one detected from the validation scenario);

- detected from the document type that matches the edited document - Each document type available in *Document Type Association* preferences page contains a set of rules for associating a schema with the current document.

  Note: The locations are sorted by priority, from high to low.

The schema has one of the following types: XML Schema, XML Schema with embedded Schematron rules, Relax NG (XML syntax or compact syntax), Relax NG (XML syntax) with embedded Schematron rules, Schematron, DTD, NVDL.

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, then the list of tags to be inserted is updated.

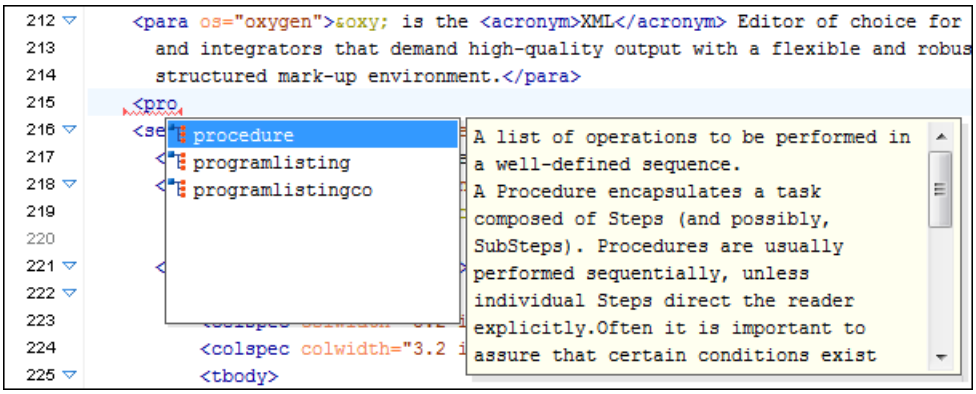


Figure 75: Content Completion Driven by DocBook DTD

Making the Schema Association Explicit in the XML Instance Document

The schema used by the ***Content Completion Assistant*** and *document validation* engine can be associated with the document using the **Associate Schema** action. For most of the schema types, it uses *the `xml-model` processing instruction*, the exceptions being:

- W3C XML Schema - the `xsi:schemaLocation` attribute is used;
- DTD - the `DOCTYPE` declaration is used.

The association can specify a relative file path or a URL of the schema. The advantage of relative file path is that you can configure the schema at file level instead of document type level.

Go to menu **Document** > **Schema** > **Associate schema...** or click the **Associate schema** toolbar button to select the schema that will be associated with the XML document. The following dialog is displayed:

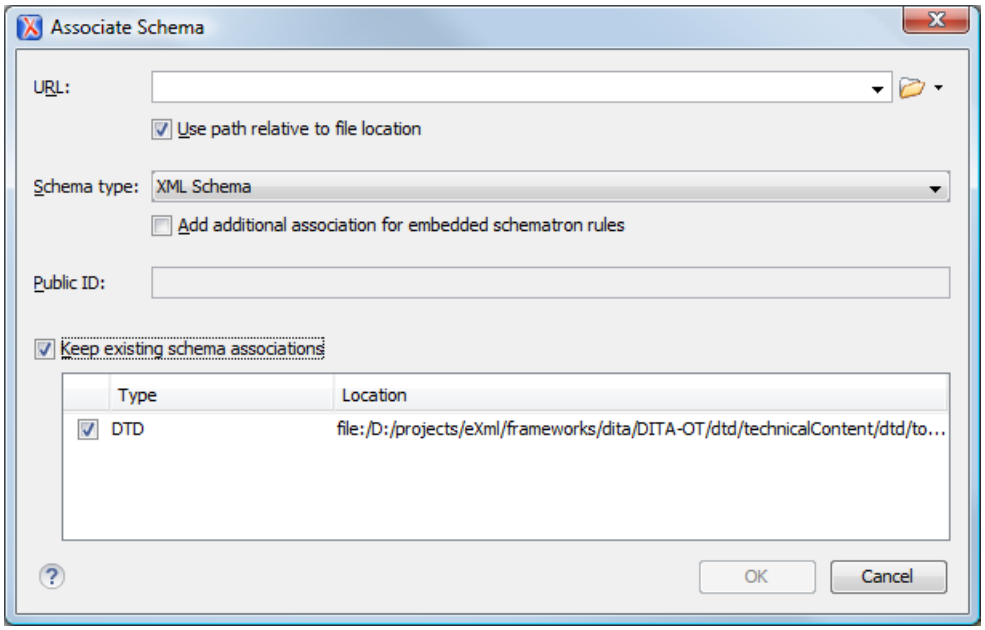


Figure 76: The Associate Schema Dialog

The available options are:

- **URL** - contains a predefined set of schemas that are used more often and it also keeps a history of the last used schemas. The URL must point to the schema file which can be loaded from the local disk or from a remote server through HTTP(S), FTP(S);
- **Schema type** - selected automatically from the list of possible types in the **Schema type** combo box (XML Schema, DTD, Relax NG, Relax NG Compact, Schematron, NVDL) based on the extension of the schema file that was entered in the **URL** field;
- **Public ID** - Specify a public ID if you have selected a DTD;
- **Add additional association for embedded schematron rules** - if you have selected XML Schema or Relax NG schemas with embedded Schematron rules, enable this option;
- **Use path relative to file location** - enable this option if the XML instance document and the associated schema contain relative paths. The location of the schema file is inserted in the XML instance document as a relative file path. This practice allows you, for example, to share these documents with other users, without running into problems caused by different project locations on physical disk;
- **Keep existing schema associations** - enable this option to keep the associations of the currently edited document with a Schema when you associate a new one.

The association with an XML Schema is added as an attribute of the root element. The **Associate schema** action adds a:

- `xsi:schemaLocation` attribute, if the root element of the document sets a default namespace with an `xmlns` attribute;
- or a `xsi:noNamespaceSchemaLocation` attribute, if the root element does not set a default namespace.

The association with a DTD is added as a `DOCTYPE` declaration. The association with a Relax NG , Schematron or NVDL schema is added as *`xml-model` processing instruction*.

Associating a Schema With the Namespace of the Root Element

The namespace of the root element of an XML document can be associated with an XML Schema using an *XML catalog*. If there is no `xsi:schemaLocation` attribute on the root element and the *XML* document is not matched with a *document type*, the namespace of the root element is searched in *the XML catalogs set in Preferences*.

If the XML catalog contains an `uri` or `rewriteUri` or `delegateUri` element, its schema will be used by the application to drive the *content completion* and document *validation*.

The `xml-model` Processing Instruction

The `xml-model` processing instruction associates a schema with the XML document that contains the processing instruction. It must be added at the beginning of the document, just after the XML prologue. The following code snippet contains an `xml-model` processing instruction declaration:

```
<?xml-model href="../schema.sch" type="application/xml" schematypens="http://purl.oclc.org/dsdl/schematron"
phase="ALL" title="Main schema"?>
```

It is available in the *Content Completion Assistant*, before XML document root element and has the following attributes:

- `href` - schema file location. Mandatory attribute.
- `type` - content type of schema. Optional attribute with the following possible values:
  - for DTD the recommended value is `application/xml-dtd`;
  - for W3C XML Schema the recommended value is `application/xml` or can be left unspecified;
  - for RELAX NG the recommended value is `application/xml` or can be left unspecified;
  - for RELAX NG - compact syntax the recommended value is `application/relax-ng-compact-syntax`;
  - for Schematron the recommended value is `application/xml` or can be left unspecified;
  - for NVDL the recommended value is `application/xml` or can be left unspecified.
- `schematypens` - namespace of schema language of referenced schema with the following possible values:
  - for DTD - not specified;
  - for W3C XML Schema the recommended value is `http://www.w3.org/2001/XMLSchema`;
  - for RELAX NG the recommended value is `http://relaxng.org/ns/structure/1.0`;

  - for RELAX NG - not specified;
  - for Schematron the recommended value is `http://purl.oclc.org/dsdl/schematron`;
  - for NVDL the recommended value is `http://purl.oclc.org/dsdl/nvdl/ns/structure/1.0`.
- `phase` - phase name of validation function in Schematron schema. Optional attribute.
- `title` - title for associated schema. Optional attribute.

Older versions of Oxygen XML Author used the `oxygen` processing instruction with 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. It is used together with the RNGSchema attribute and can have the value "xml" or "compact";
- `NVDLSchema` - specifies the path to the NVDL schema associated with the current document;
- `SCHSchema` - specifies the path to the SCH schema associated with the current document.

Note: Documents that use the `oxygen` processing instruction are compatible with newer versions of Oxygen XML Author.

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 XML Author is able to learn and translate the document structure to a DTD. You can choose to save the learned structure to a file in order to provide a DTD as an initialization source for *content completion* and *document validation*. This feature is also useful for producing DTD's for documents containing personal or custom element types.

When you open a document that is not associated with a schema, Oxygen XML Author automatically learns the document structure and uses it for *content completion*. To disable this feature you have to uncheck the checkbox ***Learn on open document*** *in the user preferences*.

Create a DTD from Learned Document Structure

When there is no schema associated with an XML document, Oxygen XML Author can learn the document structure by parsing the document internally. This feature is enabled with *the option* ***Learn on open document*** that is available in the user preferences.

To create a DTD from the learned structure:

1. Open the XML document for which a DTD will be created.
2. Go to **Document** > **XML Document** > **Learn Structure** > **Ctrl (Meta on Mac OS) + Shift + L**.
   The **Learn Structure** action reads the mark-up structure of the current document. The **Learn completed** message is displayed in the application's status bar when the action is finished.
3. Go to **Document** > **XML Document** > **Save Structure** > **Ctrl (Meta on Mac OS) + Shift + S**. Enter the DTD file path.
4. Press the *Save* button.

Streamline with Content Completion

The intelligent **Content Completion Assistant** available in Oxygen XML Author enables rapid, in-line identification and insertion of structured language elements, attributes and, in some cases, their parameter options.

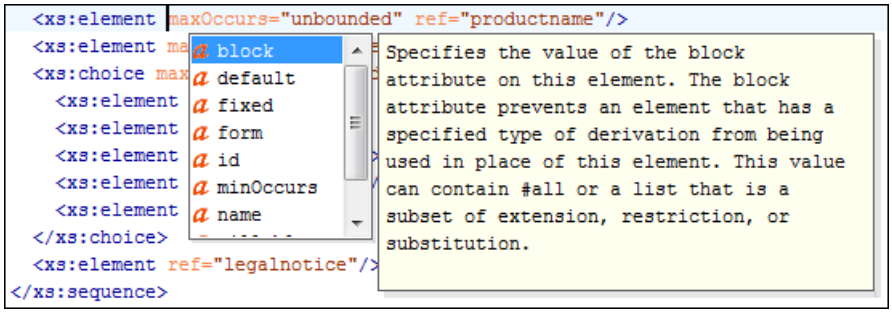


Figure 77: Content Completion Assistant

The functioning of the **Content Completion Assistant** feature is schema-driven (XML Schema, DTD, and RELAX NG). When Oxygen XML Author detects a schema, it logs its URL in the *Information view*.

The **Content Completion Assistant** is enabled by default, but you can disable it from ***Options*** > ***Preferences*** > ***Editor*** > ***Content Completion***. It is activated:

- automatically, after a configurable delay from the last key press of the < character. You can adjust the delay *from the Content Completion preferences page*;
- on demand, by pressing CTRL (Meta on Mac OS)+Space on a partial element or attribute name.

Note: If the Content Completion list contains only one valid proposal, when you press the CTRL (Meta on Mac OS)+Space shortcut key, the proposal is automatically inserted.

Note: You can also start the **Content Completion Assistant** from **Document** > **Content Completion** > **Start Content Completion**.

When active, it displays a list of context-sensitive proposals valid at the current caret position. Elements are highlighted in the list using the Up and Down cursor keys on your keyboard. For each selected item in the list, the **Content Completion Assistant** displays a documentation window. You can customize the size of the documentation window by dragging its top, right, and bottom borders.

To insert the selected content:

- press Enter or Tab on your keyboard to insert both the start and end tags.
- press CTRL (Meta on Mac OS)+ Enter on your keyboard. The application inserts both the start and end tags and positions the cursor between the tags, so you can start typing content.

Note: When the DTD, XML Schema or RELAX NG schema specifies required child elements for the newly added element, they are inserted automatically only if the Add Element Content option (found in the **Preferences** > **Editor** > **Content Completion** preferences page) is enabled. The **Content Completion Assistant** can also add optional content and first choice particle, as specified in the DTD or XML Schema or RELAX NG schema. To activate this feature, select the **Add optional content** and **Add first Choice particle** check boxes in the **Preferences** > **Editor** > **Content Completion** preferences page.

After inserting an element, the cursor is positioned:

- before the > character of the start tag, if the element allows attributes, in order to enable rapid insertion of any of the attributes supported by the element. Pressing the space bar displays the Content Completion list once again. This time it contains the list of allowed attribute names. If the attribute supports a fixed set of parameters, the assistant list displays the list of valid parameters. If the parameter setting is user-defined and therefore variable, the assistant is closed to enable manual insertion. The values of the attributes can be learned from the same elements in the current document;
- after the > character of the start tag if the element has no attributes.

The **Content Completion Assistant** is displayed:

- 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;
- 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 items that populate the **Content Completion Assistant** depend on the element structure specified in the DTD, XML Schema, Relax NG (full or compact syntax) schema, or NVDL schema associated with the edited document.

Note: The **Content Completion Assistant** is able to offer elements defined both by XML Schemas version 1.0 and 1.1.

The number and type of elements displayed by the **Content Completion Assistant** is dependent on the cursor's current position 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 NVDL schema.

A schema may declare certain attributes as *ID* or *IDREF/IDREFS*. When the document is validated, Oxygen XML Author checks the uniqueness and correctness of the ID attributes. It also collects the attribute values declared in the document to prepare the **Content Completion Assistant**'s list of proposals. This is available for documents that use DTD, XML Schema, and Relax NG schema.

Also, values of all the *xml:id* attributes are handled as ID attributes. They are 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 or a fixed value is defined in the XML Schema used in validation for an attribute or element, then that value is offered in the **Content Completion Assistant** window.

Set Schema for Content Completion

The DTD, XML Schema, Relax NG, or NVDL 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 XML Author reads the beginning of the document and resolves the location of the DTD, XML Schema, Relax NG schema, or NVDL schema;
- the default schema rule declared in *the Document Type Association preferences panel* which matches the edited document;

Content Completion in Documents with Relax NG Schemas

Inside the documents that use a Relax NG schema, the **Content Completion Assistant** is able to present element values if such values are specified in the Relax NG schema. Also in Relax NG documents the **Content Completion Assistant** presents additional values of type ID for an *anyURI* data type. It presents also pattern names defined in the Relax NG schema as possible values for pattern references. For example if the schema defines an *enumValuesElem* element like:

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

In documents based on this schema, the **Content Completion Assistant** offers the following list of values:

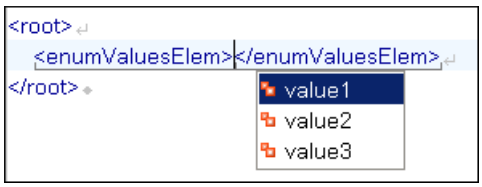


Figure 78: Content Completion assistant - element values in Relax NG documents

Schema Annotations

If the document's schema is an XML Schema, Relax NG (full syntax), NVDL or DTD and it contains element, attributes or attributes values annotations, these will be presented when the content completion window is displayed, only 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. The tooltip window can be invoked at any time using the F2 shortcut.

In an XML Schema the annotations are specified in an <xs:annotation> element like this:

```
    <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 an XML Schema, Oxygen XML Author 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.

When editing a Schematron schema the **Content Completion Assistant** displays XSLT 1.0 functions and optionally XSLT 2.0 / 3.0 functions in the attributes *path*, *select*, *context*, *subject*, *test* depending on *the Schematron options* that are set in Preferences. If the Saxon 6.5.5namespace (`xmlns:saxon="http://icl.com/saxon"`) or the Saxon 9.5.0.1 namespace is declared in the Schematron schema (`xmlns:saxon="http://saxon.sf.net/"`) the content completion displays also the XSLT Saxon extension functions as in the following figure:

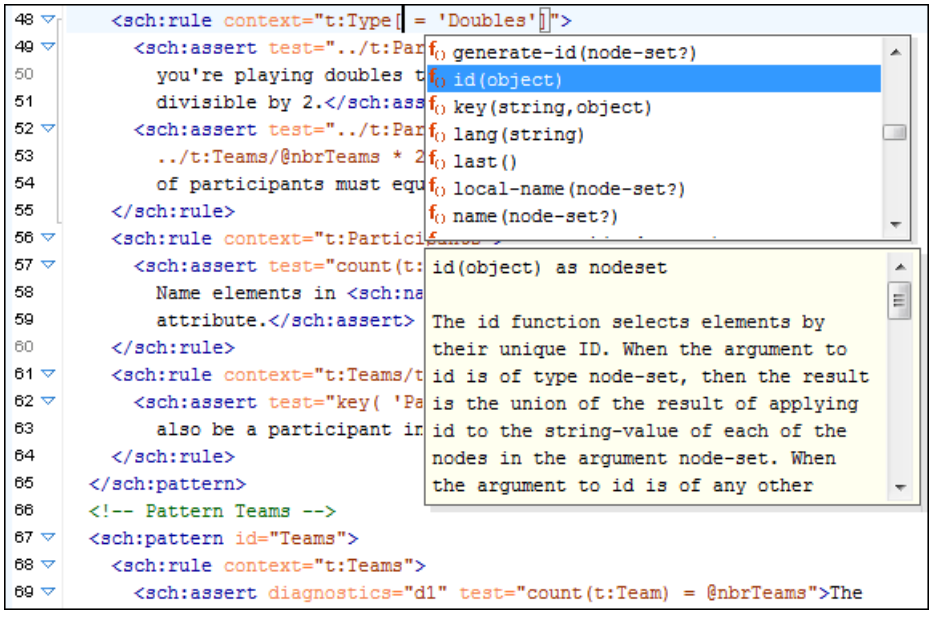


Figure 79: XSLT extension functions in Schematron schemas documents

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:

For NVDL schemas annotations for the elements / attributes in the referred schemas (XML Schema, RNG, etc) are presented

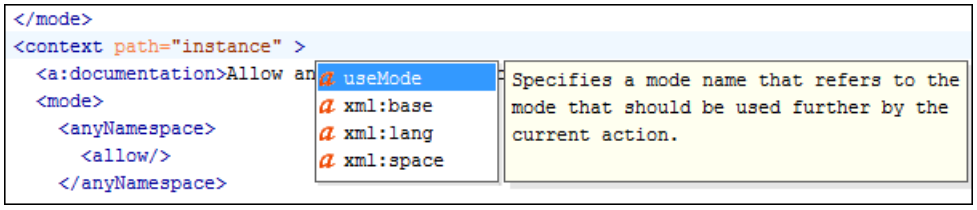


Figure 80: Schema annotations displayed at Content Completion

The following HTML tags are recognized inside the text content of an XML Schema annotation: `p`, `br`, `ul`, `li`. They are rendered as in an HTML document loaded in a web browser: `p` begins a new paragraph, `br` breaks the current line, `ul` encloses a list of items, `li` encloses an item of the list.

For DTD Oxygen XML Author 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. -->
```

Content Completion Helper Views

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

The Model View

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

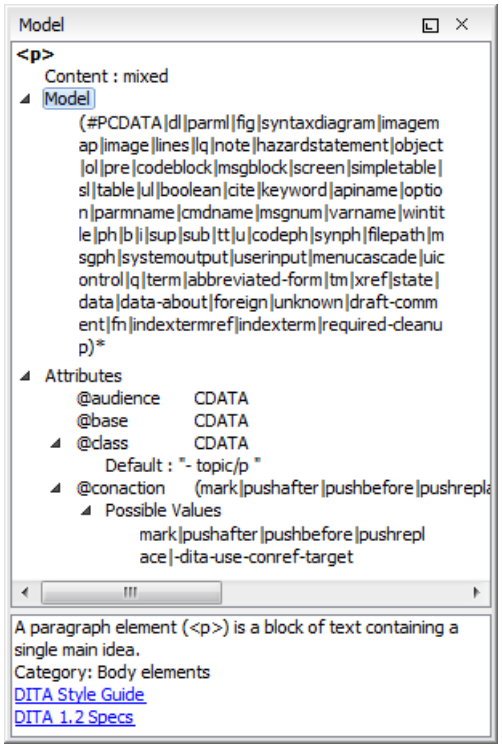


Figure 81: The Model View

The **Model** view 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-like format.

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

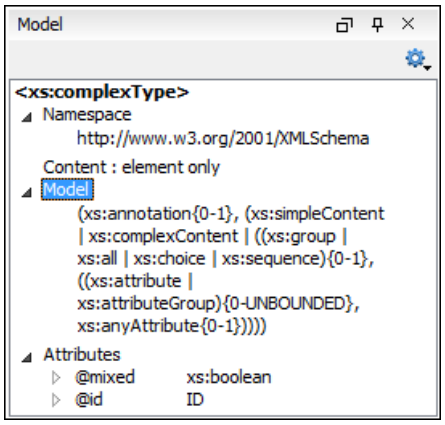


Figure 82: The Element Structure Panel

The Annotation Panel

The **Annotation** panel displays the annotation information for the currently selected element. This information is collected from the XML schema.

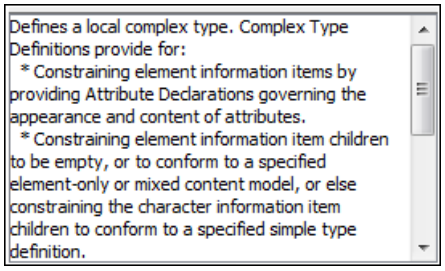


Figure 83: The Annotation panel

The Attributes View

The **Attributes View** presents all possible attributes of the current element.

The view allows you to insert attributes or change the value of the already used attributes for the current editable element. An element is editable if either one of the following is true:

- the CSS stylesheet associated with the document does not specify a **false** value for the *-oxy-editable* property associated with the element.
- the element is entirely included into a deleted *Track Changes* marker.
- the element is part of a content fragment that is referenced in **Author** mode from another document.

The attributes present in the document are rendered bold in the **Attributes View**. You can start editing the value of an attribute by clicking the **Value** cell of a table row. If the possible values of the attribute are specified as list in the schema associated with the edited document, the **Value** cell works as a list box from which you can select one of the possible values to be inserted in the document.

The **Attributes** table is sortable, three sorting modes being available by clicking the **Attribute** column name: alphabetically ascending, alphabetically descending, or custom order. The custom order places the already used attributes 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.

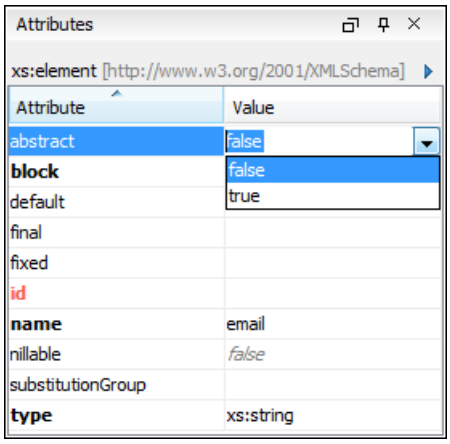


Figure 84: The Attributes View

The Elements View

The Elements view presents a list of all defined elements that you can insert at the current caret position according to the document's schema. Double-clicking any of the listed elements inserts that element in the edited document. All elements from a sequence are presented but the invalid proposals (which cannot be inserted in the current context) are grayed-out.

Figure 85: The Elements View

The Entities View

This view displays a list with all entities declared in the current document as well as built-in ones. Double clicking one of the entities will insert it at the current cursor position. You can also sort entities by name and value.

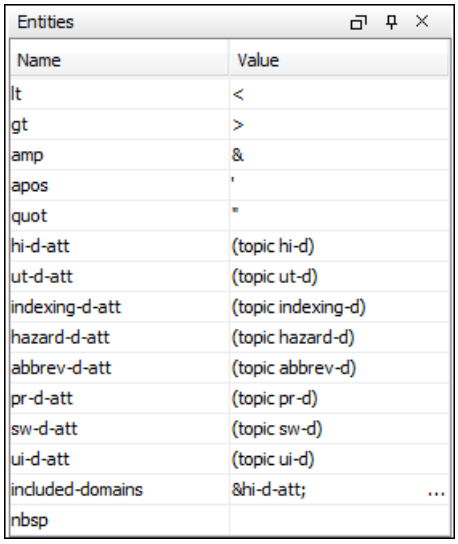


Figure 86: The Entities View

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 when the word at cursor position is a prefix of such a short name. If there is no prefix at cursor position (a whitespace precedes the cursor), all the code templates are listed.

Oxygen XML Author comes with numerous predefined code templates. You can also *define* your own code templates for any type of editor.

To obtain the template list, you use the **Ctrl (Meta on Mac OS) + Space** content completion shortcut key, or the **Ctrl (Meta on Mac OS) + Shift + Space** code templates shortcut key. The first shortcut displays the code templates in the same *content completion list with elements from the schema of the document*. The second shortcut displays only the code templates and is the default shortcut of the action **Document** > **Content Completion** > **Show Code Templates**.

The syntax of the code templates allows you to use the following *editor variables*:

- **${caret}** - The position where the caret is inserted. This variable can be used in a code template, in **Author** operations, or in a selection plugin;
- **${selection}** - The current selected text content in the current edited document. This variable can be used in a code template, in **Author** operations, or in a selection plugin;
- **${ask('message', type, ('real_value1':'rendered_value1'; 'real_value2':'rendered_value2'; ...), 'default_value')}** - To prompt for values at runtime, use the *ask('message', type, ('real_value1':'rendered_value1'; 'real_value2':'rendered_value2'; ...), 'default-value'')* editor variable. You can set the following parameters:
  - `'message'` - the displayed message. Note the quotes that enclose the message;
  - `type` - optional parameter. Can have one of the following values:
    - `url` - input is considered an URL. Oxygen XML Author checks that the URL is valid before passing it to the transformation;
    - `password` - input characters are hidden;
    - `generic` - the input is treated as generic text that requires no special handling;
    - `relative_url` - input is considered an URL. Oxygen XML Author tries to make the URL relative to that of the document you are editing;

      Note: You can use the `$ask` editor variable in file templates. In this case, Oxygen XML Author keeps an absolute URL.

    - `combobox` - displays a dialog that contains a non-editable combo-box;
    - `editable_combobox` - displays a dialog that contains an editable combo-box;

    - `radio` - displays a dialog that contains radio buttons;
  - `'default-value'` - optional parameter. Provides a default value in the input text box;

    Examples:

    - `${ask('message')}` - Only the message displayed for the user is specified.
    - `${ask('message', generic, 'default')}` - `'message'` is displayed, the type is not specified (the default is string), the default value is `'default'`.
    - `${ask('message', password)}` - `'message'` is displayed, the characters typed are masked with a circle symbol.
    - `${ask('message', password, 'default')}` - same as before, the default value is `'default'`.
    - `${ask('message', url)}` - `'message'` is displayed, the parameter type is URL.
    - `${ask('message', url, 'default')}` - same as before, the default value is `'default'`.

- **${timeStamp}** - Time stamp, that is the current time in Unix format. It can be used for example to save transformation results in different output files on each transform;
- **${uuid}** - Universally unique identifier;An unique sequence of 32 hexadecimal digits generated by the Java *UUID* class;
- **${id}** - Application-level unique identifier;A short sequence of 10-12 letters and digits which is not guaranteed to be universally unique;
- **${cfn}** - Current file name without extension and without parent folder. The current file is the one currently opened and selected;
- **${cfne}** - Current file name with extension. The current file is the one currently opened and selected;
- **${cf}** - Current file as file path, that is the absolute file path of the current edited document;
- **${cfd}** - Current file folder as file path, that is the path of the current edited document up to the name of the parent folder;
- **${frameworksDir}** - The path (as file path) of the `frameworks` subfolder of the Oxygen XML Author installation folder;
- **${pd}** - Current project folder as file path. Usually the current folder selected in the Project View;
- **${oxygenInstallDir}** - Oxygen XML Author installation folder as file path;
- **${homeDir}** - The path (as file path) of the user home folder;
- **${pn}** - Current project name;
- **${env(VAR_NAME)}** - Value of the *VAR_NAME* environment variable. The environment variables are managed by the operating system. If you are looking for Java System Properties, use the **${system(var.name)}** editor variable;
- **${system(var.name)}** - Value of the *var.name* Java System Property. The Java system properties can be specified in the command line arguments of the Java runtime as `-Dvar.name=var.value`. If you are looking for operating system environment variables, use the**${env(VAR_NAME)}** editor variable instead;
- **${date(pattern)}** - Current date. The allowed patterns are equivalent to the ones in the *Java SimpleDateFormat class*. Example: yyyy-MM-dd;

  Note: This editor variable supports both the xs:date and xs:datetime parameters. For details about xs:date, go to *http://www.w3.org/TR/xmlschema-2/#date*. For details about xs:datetime, go to *http://www.w3.org/TR/xmlschema-2/#dateTime*.

To watch our video demonstration about code templates, go to *http://oxygenxml.com/demo/Code_Templates.html*.

Validating 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 XML Author provides functions that enable easy error identification and rapid error location.

Checking XML Well-Formedness

A *Well-Formed XML* document is a document that conforms to the XML syntax rules. A *Namespace Well-Formed XML* document is a document that is XML Well-Formed and is also namespace-wellformed and namespace-valid.

The XML Syntax rules for Well-Formed XML are:

- 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.

The namespace-wellformed rules are:

- All element and attribute names contain either zero or one colon.
- No entity names, processing instruction targets, or notation names contain any colons.

The namespace-valid rules are:

- The prefix *xml* is by definition bound to the namespace name *http://www.w3.org/XML/1998/namespace*. It MAY, but need not, be declared, and MUST NOT be undeclared or bound to any other namespace name. Other prefixes MUST NOT be bound to this namespace name.
- The prefix *xmlns* is used only to declare namespace bindings and is by definition bound to the namespace name *http://www.w3.org/2000/xmlns/*. It MUST NOT be declared or undeclared. Other prefixes MUST NOT be bound to this namespace name.
- All other prefixes beginning with the three-letter sequence *x*, *m*, *l*, in any case combination, are reserved. This means that users SHOULD NOT use them except as defined by later specifications and processors MUST NOT treat them as fatal errors.
- The namespace prefix, unless it is *xml* or *xmlns*, MUST have been declared in a namespace declaration attribute in either the start-tag of the element where the prefix is used or in an ancestor element (i.e. an element in whose content the prefixed markup occurs). Furthermore, the attribute value in the innermost such declaration MUST NOT be an empty string.

To check if a document is *Namespace Well-Formed XML*, go to **Document** > **Validate** > **Check Well-Formedness(Ctrl (Meta on Mac OS)+Shift+W)** . You can also open the drop-down menu of the  validate button on the toolbar and select  **Check Well-Formedness**. 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 its approximate location.

A not Well-Formed XML Document

```
<root><tag></root>
```

When **Check Well-Formedness** is performed the following error is raised:

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

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

A not namespace-wellformed document

```
<x::y></x::y>
```

When **Check document form** is performed the following error is raised:

```
Element or attribute do not match QName production: QName::=(NCName':')?NCName.
```

A not namespace-valid document

```
<x:y></x:y>
```

When **Check document form** is performed the following error is raised:

```
The prefix "x" for element "x:y" is not bound.
```

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-Formedness**.

Validating XML Documents Against a Schema

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-based Validation Dispatching Language (NVDL).

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 **Validate** 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 validations you can select the validation phase.

Marking Validation Errors and Warnings

A line with a validation error or warning will be marked in the editor panel by underlining the error region 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 side of the document is designed to display the errors and warnings 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 tooltip of the validation indicator. In case there are errors, only the first three of them will be presented in the tooltip.

- Middle area where the error 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** > **Maximum number of problems reported per document**.

  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 menu **Document** > **Automatic validation** > **Next Error (Ctrl (Meta on Mac OS) + .)** and **Document** > **Automatic validation** > **Previous Error (Ctrl (Meta on Mac OS) + ,)**.

The validation status area is the line at the bottom of the editor panel that presents the message of the current validation error selected on the right side ruler. Clicking on opens the *document checking* page in Oxygen XML Author user preferences.

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

If you want to see all the validation error messages *grouped in a view* you should run the action **Validate** which is available both on the **Validate** toolbar and on the **Document** > **Validate** menu. This action collects all error messages in the **Errors** view.

Customising Assert Error Messages

To customise the error messages that the Xerces or Saxon validation engines display for the `assert` and `assertion` elements, set the `message` attribute on these elements. For Xerces, the `message` attribute has to belong to the *http://xerces.apache.org/* namespace. For Saxon, the `message` attribute has to belong to the *http://saxon.sourceforge.net/* namespace. The value of the `message` attribute is the error message displayed in case the assertion fails.

Validation Example - A DocBook Validation Error

In the following DocBook 4 document the content of the `listitem` element does not match the rules of the DocBook 4 schema, that is `docbookx.dtd`.

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE article PUBLIC "-//OASIS//DTD DocBook XML V4.4//EN"
     "http://www.docbook.org/xml/4.4/docbookx.dtd">
<article>
    <title>Article Title</title>
    <sect1>
      <title>Section1 Title</title>
      <itemizedlist>
        <listitem>
          <link>a link here</link>
        </listitem>
      </itemizedlist>
    </sect1>
</article>
```

The **Validate Document** action will return the following error:

```
Unexpected element "link". The content of the parent element type must match
"(calloutlist|glosslist|bibliolist|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|task|anchor|bridgehead|remark|highlights
|abstract|authorblurb|epigraph|indexterm|beginpage)+".
```

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 recommended. However, the error message does give us a clue as to the source of the problem, indicating that “The content of element type c 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 you should learn about the child elements of `listitem` and their nesting rules. Once you 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.

Automatic Validation

Oxygen XML Author *can be configured* to mark validation errors in the document as you are editing. If you *enable the **Automatic validation** option* any validation errors and warnings will be *highlighted automatically in the editor panel*. The automatic validation starts parsing the document and marking the errors after a *configurable delay* from the last key typed. Errors are highlighted with underline markers in the main 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.*

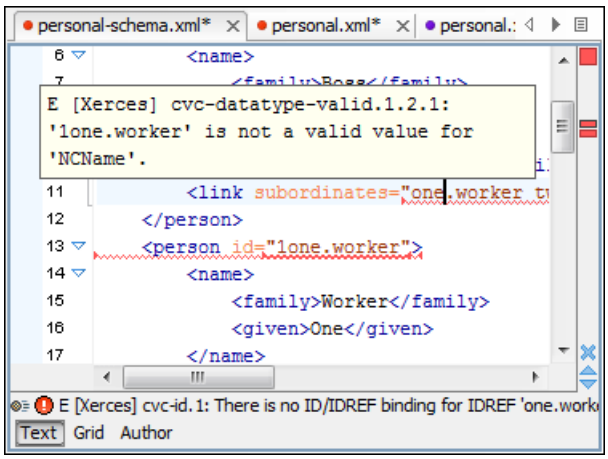


Figure 87: Automatic Validation on the Edited Document

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 Automatic Validation feature.

Custom Validators

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 in the Oxygen XML Author user preferences. After such a custom validator is *properly configured* it can be applied on the current document with just one click on the **Custom Validation Engines** toolbar. The document is validated against the schema declared in the document.

Some validators are configured by default but they are third party processors which do not support the *output message format* of Oxygen XML Author for linked messages:

- **LIBXML** - Included in Oxygen XML Author (Windows edition only). It is associated to XML Editor. It is able to validate the edited document against XML Schema, Relax NG schema full syntax, internal DTD (included in the XML document) or a custom schema type. XML catalogs support (the --catalogs parameter) and XInclude processing (--xinclude) are enabled by default in the preconfigured LIBXML validator. The --postvalid parameter is also set by default which allows LIBXML to validate correctly the main document even if the XInclude fragments contain IDREFS to ID's located in other fragments.

  For validation against an external DTD specified by URI in the XML document, add the --dtdvalid ${ds} parameter manually to the DTD validation command line. ${ds} represents the detected DTD declaration in the XML document.

  Caution: File paths containing spaces are not handled correctly in the LIBXML processor. For example the built-in XML catalog files of the predefined document types (DocBook, TEI, DITA, etc) are not handled by LIBXML if Oxygen XML Author is installed in the default location on Windows (C:\Program Files) because the built-in XML catalog files are stored in the `frameworks` subfolder of the installation folder which in this case contains at least one space character in the file path.

  Attention:

  On Mac OS X if the full path to the LIBXML executable file is not specified in the **Executable path** text field, some errors may occur during validation against a W3C XML Schema like:

  ```
  Unimplemented block at ... xmlschema.c
  ```

  To avoid these errors, specify the full path to the LIBXML executable file.

- **Saxon SA** - Included in Oxygen XML Author. It is associated to XML Editor and XSD Editor. It is able to validate XML Schema schemas and XML documents against XML Schema schemas. The validation is done according to the W3C XML Schema 1.0 or 1.0. This can be *configured in Preferences*.

- **MSXML 4.0** - Included in Oxygen XML Author (Windows edition only). It is associated to XML Editor, XSD Editor and XSL Editor. It is able to validate the edited document against XML Schema, internal DTD (included in the XML document), external DTD or a custom schema type.
- **MSXML.NET** - Included in Oxygen XML Author (Windows edition only). It is associated to XML Editor, XSD Editor and XSL Editor. It is able to validate the edited document against XML Schema, internal DTD (included in the XML document), external DTD or a custom schema type.
- **XSV** - Not included in Oxygen XML Author. Windows and Linux distributions of XSV can be downloaded from *http://www.cogsci.ed.ac.uk/~ht/xsv-status.html*. The executable path is *already configured in Oxygen XML Author* for the `[Oxygen-install-folder]/xsv` installation folder. If it is installed in a different folder 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 XML Author. It can be downloaded *from here* (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 already configured for the SQC installation directory `[Oxygen-install-folder]/sqc`. If it is installed in a different folder the predefined executable path and working directory must be *corrected in the Preferences page.* It is associated to XSD Editor.

A custom validator cannot be applied on files loaded through an *Oxygen XML Author custom protocol plugin* developed independently and added to Oxygen XML Author after installation.

Linked Output Messages of an External Engine

Validation engines display messages in an output view at the bottom of the Oxygen XML Author window. If such an output message (warning, error, fatal error, etc) spans between three to six lines of text and has the following format then the message is linked to a location in the validated document so that a click on the message in the output view highlights the location of the message in an editor panel containing the file referred in the message. This behavior is similar to the linked messages generated by the default built-in validator. The format for linked messages is:

- *Type*:[F|E|W] (the string *Type:* followed by a letter for the type of the message: fatal error, error, warning) - this line is optional in a linked message.
- *SystemID*: a system ID of a file (the string *SystemID:* followed by the system ID of the file that will be opened for highlighting when the message is clicked in the output message - usually the validated file, the schema file or an included file).
- *Line*: a line number (the string *Line:* followed by the number of the line that will be highlighted).
- *Column*: a column number (the string *Column:* followed by the number of the column where the highlight will start on the highlighted line) - this line is optional in a linked message.
- *AdditionalInfoURL*: the URL string pointing to a remote location where additional information about the error can be found - this line is optional in a linked message.
- *Description*: message content (the string *Description:* followed by the content of the message that will be displayed in the output view).

Example of how a custom validation engine can report an error using the format specified above:

```
Type: E
SystemID: file:///c:/path/to/validatedFile.xml
Line: 10
Column: 20
AdditionalInfoURL: http://www.host.com/path/to/errors.html#errorID
Description: custom validator message
```

Validation Scenario

A complex XML document is split in smaller interrelated modules. These modules do not make much sense individually and cannot be validated in isolation due to interdependencies with other modules. Oxygen XML Author validates the main module of the document when an imported module is checked for errors.

A typical example is the chunking DocBook XSL stylesheet which has `chunk.xsl` as the main module and `param.xsl`, `chunk-common.xsl`, and `chunk-code.xsl` as imported modules. `param.xsl` only defines XSLT parameters.

The module `chunk-common.xsl` defines an XSLT template with the name `chunk`. `Chunk-code.xsl` calls this template. The parameters defined in `param.xsl` are used in the other modules without being redefined.

Validating `chunk-code.xsl` as an individual XSLT stylesheet generates misleading errors referring to parameters and templates used but undefined. These errors are only caused by ignoring the context in which this module is used in real XSLT transformations and in which it is validated. To validate such a module, define a validation scenario to set the main module of the stylesheet and the validation engine used to find the errors. Usually this engine applies the transformation during the validation process to detect the errors that the transformation generates.

You can validate a stylesheet with several engines to make sure that you can use it in different environments and have the same results. For example an XSLT stylesheet is applied with Saxon 6.5, Xalan and MSXML 4.0 in different production systems.

Other examples of documents which can benefit of a validation scenario are:

- A complex XQuery with a main module which imports modules developed independently but validated in the context of the main module of the query. In an XQuery validation scenario the default validator of Oxygen XML Author (Saxon 9) or any connection to a database that supports validation (Berkeley DB XML Database, eXist XML Database, Documentum xDb (X-Hive/DB) 10 XML Database, MarkLogic version 5 or newer) can be set as a validation engine.
- An XML document in which the master file includes smaller fragment files using XML entity references.

Note: When you validate a document for which a master file is defined, Oxygen XML Author uses the scenarios defined in *the **Master Files** directory*.

To watch our video demonstration about how to use a validation scenario in Oxygen XML Author, go to *http://oxygenxml.com/demo/Validation_Scenario.html*.

How to Create a Validation Scenario

Follow these steps for creating a validation scenario:

1. To open the **Configure Validation Scenario** dialog box, go to **Document** > **Validate** > **Configure Validation Scenario** . You can also open this dialog from the **Validate** toolbar.
   The following dialog is displayed. It contains the following types of scenarios:
   - **Predefined** scenarios are organized in categories depending on the type of file they apply to. You can identify **Predefined** scenarios by a yellow key icon that marks them as *read-only*. If the predefined scenario is the default scenario of the framework, its name is written in bold font. If you try to edit one of these scenarios, Oxygen XML Author creates a customizable duplicate;
   - **User defined** scenarios are organized under a single category, but you can use the drop-down option box to filter them by the type of file they validate;

     Note: The default validation scenarios are not displayed in the scenarios list. If the current file has no associated scenarios, the preview area displays a message to let you know that you can apply the default validation.

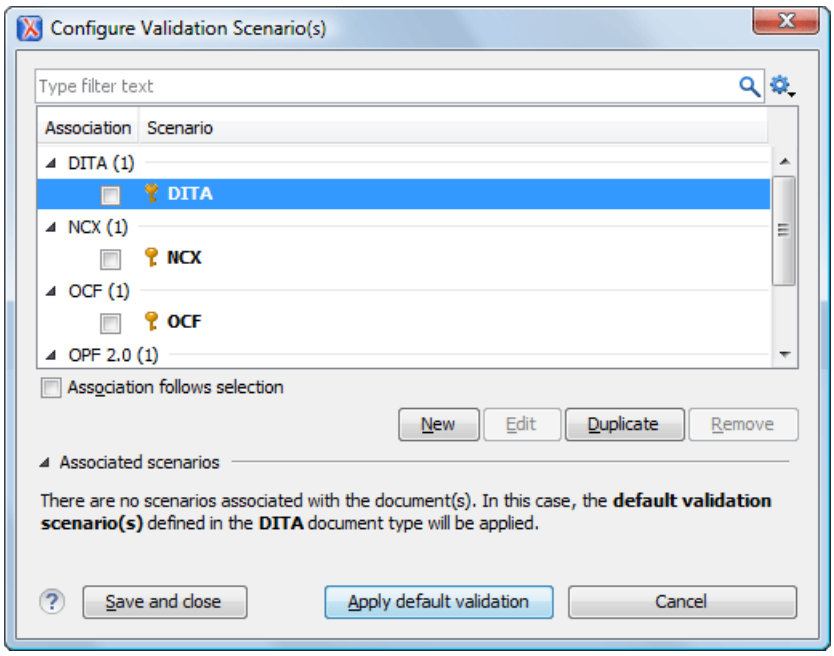


Figure 88: Configure Validation Scenario

2. Press the **New** button to add a new scenario.
3. Press the **Add** button to add a new validation unit with default settings.
   The dialog that lists all validation units of the scenario is opened.

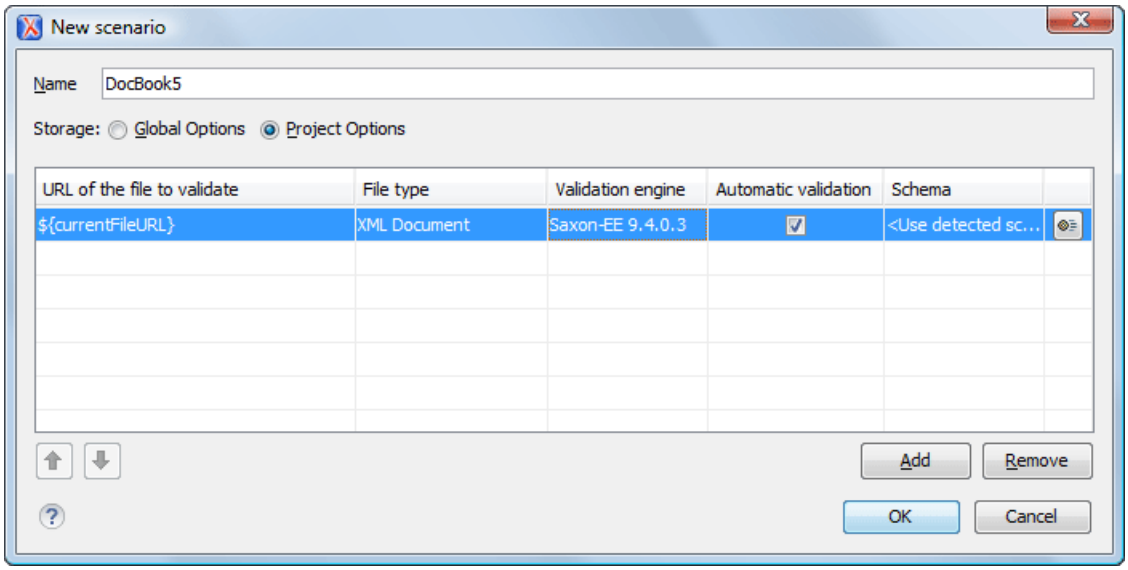


Figure 89: Add / Edit a Validation Unit

The table holds the following information:

- **Storage** - allows you to create a scenario at project level, or as global;
- **URL of the file to validate** - the URL of the main module which includes the current module. It is also the entry module of the validation process when the current one is validated;
- **File type** - the type of the document validated in the current validation unit. Oxygen XML Author automatically selects the file type depending on the value of the **URL of the file to validate** field;
- **Validation engine** - one of the engines available in Oxygen XML Author for validation of the type of document to which the current module belongs. **Default engine** is the default setting and means that the default engine

executes the validation. This engine is set in **Preferences** pages for the type of the current document (XML document, XML Schema, XSLT stylesheet, XQuery file, and others) instead of a validation scenario;

- **Automatic validation** - if this option is checked, then the validation operation defined by this row of the table is applied also by *the automatic validation feature.* If the **Automatic validation** feature is *disabled in Preferences* then this option does not take effect as the Preference setting has higher priority;
- **Schema** - the this option becomes active when you set the **File type** to **XML Document**;
- **Settings** - opens the **Specify Schema** dialog box, allowing you to set a schema for validating XML documents, or a list of extensions for validating XSL or XQuery documents. You can also set a default phase for validation with a Schematron schema.

4. Edit the URL of the main validation module.

   Specify the URL of the main module:

   - browsing for a local, remote, or archived file;
   - using an *editor variable* or a *custom editor variable*, available in the following pop-up menu, opened after pressing the button:

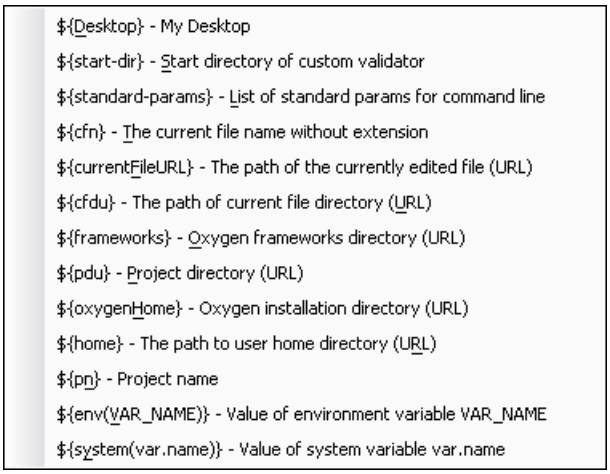


Figure 90: Insert an Editor Variable

5. Select the type of the validated document.

   Note that it determines the list of possible validation engines.

6. Select the validation engine.
7. Select the **Automatic validation** option if you want to validate the current unit when *automatic validation feature is turned on in Preferences.*
8. Choose what schema is used during validation: the one detected after parsing the document or a custom one.

Sharing Validation Scenarios

Sometimes a group of users want to apply the same validation settings, like the main module where the validation starts, the validation engine, the schema, extensions of the engine. In order to apply the same settings consistently it is preferable to share the validation scenario with the settings by storing it at project level and sharing the project file using a source version control system (like CVS, SVN, Source Safe).

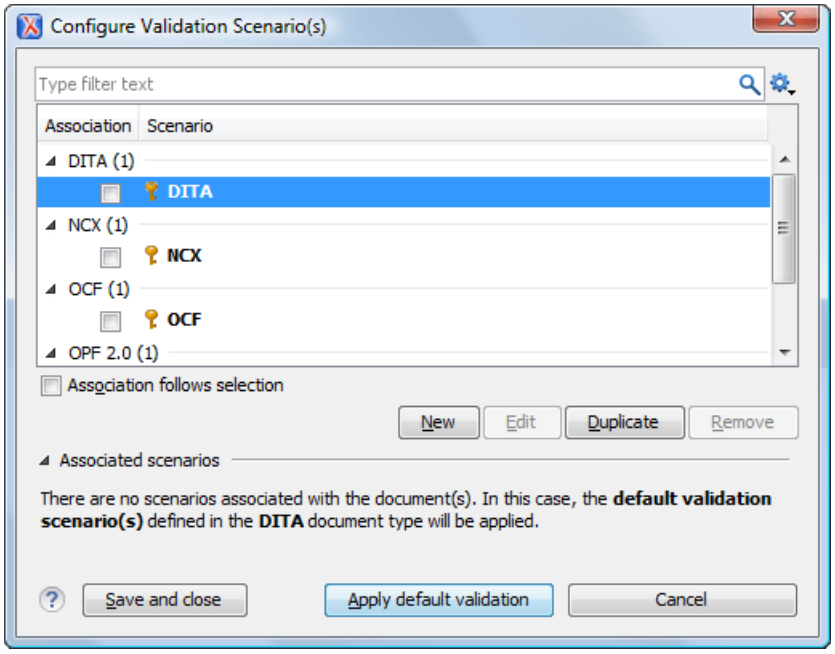


Figure 91: Configure Validation Scenario

You can specify that you want to store a scenario at project level by selecting the **Project Scenarios** option, or you can store them in the user home directory by selecting **Global Scenarios**. When you create a scenario at the project level, the URLs from the scenario become relative to the project URL.

Validation Actions in the User Interface

To validate the currently edited document, use one of the following methods:

- Go to **Document** > **Validate** > **Validate Document (Ctrl+Shift+V)** or click the **Validate** button from the **Validate** toolbar. An error list is presented in the message panel. Mark-up of current document is checked to conform with the specified DTD, XML Schema or Relax NG schema rules. This action also re-parses the XML catalogs and resets the schema used for content completion.
- Go to **Document** > **Validate** > **Validate (cached)** or click the **Validate (cached)** button from the **Validate** toolbar. This action caches the schema, allowing it to be reused for the next validation. Mark-up of the current document is checked to conform with the specified DTD, XML Schema or Relax NG schema rules.

  Note: Automatic validation also caches the associated schema.

- Go to **Document** > **Validate** > **Validate with (Ctrl+Shift+H)** or click the **Validate with** button from the **Validate** toolbar. You can use this action to validate the current document using a schema of your choice (XML Schema, DTD, Relax NG, NVDL, Schematron schema), other than the associated one. An error list is presented in the message panel. Mark-up of current document is checked to conform with the specified schema rules. The **Validate with** action does not work for files loaded through an *Oxygen XML Author custom protocol plugin* developed independently and added to Oxygen XML Author after installation.
- Go to **Document** > **Schema** > **Open External Schema** or click the **Open External Schema** button from the **Document** toolbar to open the schema used for validating the current document in a new editor.
- Select submenu **Validate Selection** > **Validate** in the contextual menu of **Project** panel, to validate all selected files with their declared schemas.
- Select **Validate Selection with Schema ...** > **Validate With ...** from the contextual menu of the **Project** panel, to choose a schema and validate all selected files with it.
- Select the submenu **Validate** > **Configure Validation Scenario ...** of the contextual menu of **Project** panel, to configure and apply a validation scenario in one action to all the selected files in the **Project** panel, .

The **Validation options** button available on the **Validate** toolbar allows quick access to the *validation options* of the built-in validator in the Oxygen XML Author user preferences page.

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

In case too many validation errors are detected and the validation process takes too long, you can *limit the maximum number of reported errors from the **Preferences** page.*

References to XML Schema Specification

If validation is done against XML Schema Oxygen XML Author 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. This allows you to understand the reason for that error.

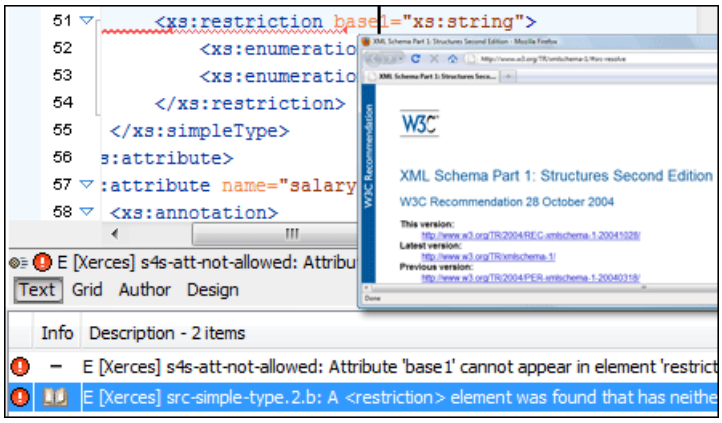


Figure 92: Link to Specification for XML Schema Errors

Resolving References to Remote Schemas with an XML Catalog

When a reference to a remote schema must be used in the validated XML document for interoperability purposes, but a local copy of the schema should be actually used for validation for performance reasons, the reference can be resolved to the local copy of the schema with an *XML catalog*. For example, if the XML document contains a reference to a remote schema `docbook.rng` like this:

```
<?xml-model href="http://www.oasis-open.org/docbook/xml/5.0/rng/docbook.rng" type="application/xml"
schematypens="http://relaxng.org/ns/structure/1.0"?>
```

it can be resolved to a local copy with a catalog entry:

```
<uri name="http://www.oasis-open.org/docbook/xml/5.0/rng/docbook.rng"
    uri="rng/docbook.rng"/>
```

An XML catalog can be used also to map a W3C XML Schema specified with an URN in the xsi:schemaLocation attribute of an XML document to a local copy of the schema. For example, if the XML document specifies the schema with:

```
<topic xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xsi:noNamespaceSchemaLocation="urn:oasis:names:tc:dita:xsd:topic.xsd:1.1">
```

the URN can be resolved to a local schema file with a catalog entry like:

```
<uri name="urn:oasis:names:tc:dita:xsd:topic.xsd:1.1"
    uri="topic.xsd"/>
```

Document Navigation

This section explains various methods for navigating the edited XML document.

Quick Document Browsing Using Bookmarks

Using bookmarks, you are able to mark a position in an edited document so that you can return to it after further editing and browsing through one or more documents opened at the same time. You can place up to nine distinct bookmarks in any opened document. Configurable shortcut key strokes are available to place bookmarks and to return to any of the marked positions. To configure these keys, go to ***Options*** > ***Menu shortcut keys***.

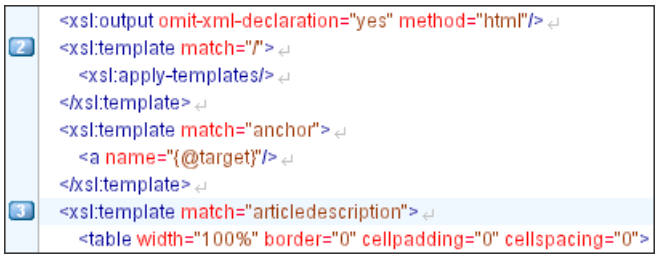


Figure 93: Editor Bookmarks

You can place a bookmark from **Edit** > **Bookmarks**->Create, from **(F9)** > **Edit** > **Bookmarks** > **Bookmarks Quick Creation (F9)**, 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**.

Two contextual menu actions are available:

- **Remove** - removes the current bookmark;
- **Remove all** - removes all bookmarks set in the document.

Folding of the XML Elements

An XML document is 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 94: Folding of the XML Elements

An unique feature of Oxygen XML Author 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 contextual 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 always covers the lines of text comprised between the start tag and end tag of the element where the cursor is positioned.

Other menu actions related to folding of XML elements are available from the contextual menu of the folding stripe of the current editor:

- **Close Other FoldsCtrl (Meta on Mac OS) + NumPad + /** - Folds all the elements except the current element.
- **Collapse Child Folds (Ctrl+Decimal)** - Folds the elements indented with one level inside the current element.
- **Expand Child Folds (Ctrl+Equals)**- Unfolds all child elements of the currently selected element.
- **Expand All (Ctrl+NumPad+*)** - Unfolds all elements in the current document.
- **Toggle Fold** - Toggles the state of the current fold.

To watch our video demonstration about the folding support in Oxygen XML Author, go to *http://oxygenxml.com/demo/FoldingSupport.html*.

Outline View

The Outline view offers the following functionality:

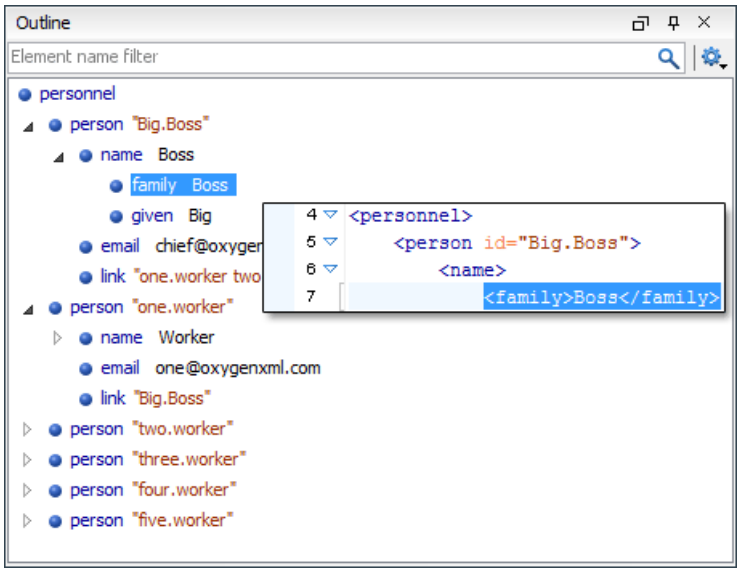


Figure 95: The Outline View

XML Document Overview

The **Outline** view displays a general tag overview of the current edited XML document. It also shows the correct hierarchical dependencies between the tag elements. This functionality makes it easier for the user to be aware of the document structure and the way tags are nested.

The **Outline** view allows you to:

- insert or delete nodes using pop-up menu actions;
- move elements by dragging them to a new position in the tree structure;
- highlight elements in the **Author** editor area.

Note: The **Outline** view is synchronized with the **Author** editor area. When you make a selection in the **Author** editor area, the corresponding elements of the selection are highlighted in the **Outline** view and vice versa. This functionality is available both for single and multiple selection. To deselect one of the elements, use **Ctrl (Meta on Mac OS) + Click**.

Document errors (such as an element inserted in an invalid position, or a wrong attribute name, or a missing required attribute value) are highlighted in the **Outline** tree:

- a red exclamation mark decorates the element icon;
- a dotted red underline decorates the element name and value;
- a tooltip provides more information about the nature of the error, when you hover with the mouse pointer over the faulted element.

Outline Specific Actions

The following actions are available in the **Settings** menu of the Outline view:

- **Filter returns exact matches** - the text filter of the **Outline** view returns only exact matches.
- **Flat presentation mode of the filtered results** - when active, the application flattens the filtered result elements to a single level.
- **Show comments and processing instructions** - show/hide comments and processing instructions in the **Outline** view.
- **Show element name** - show/hide element name.
- **Show text** - show/hide additional text content for the displayed elements.
- **Show attributes** - show/hide attribute values for the displayed elements. The displayed attribute values can be changed from *the Outline preferences panel*.
- **Configure displayed attributes** - displays the *XML Structured Outline preferences page*.

The upper part of the view contains a filter box which allows you to focus on the relevant components. Type a text fragment in the filter box and only the components that match it are presented. For advanced usage you can use wildcard characters (*, ?) and separate multiple patterns with commas.

Modification Follow-up

When you edit a document, the **Outline** view dynamically follows the changes that you make, displaying the node that you modify in the middle of the view. This functionality gives you great insight on the location of your modifications in the document that you edit.

Document Structure Change

Entire XML elements can be moved or copied in the edited document using only the mouse in the **Outline** view in drag-and-drop operations. Several drag and drop actions are possible:

- If you drag an XML element in the **Outline** 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 target element will be expanded first and the dragged element will be moved inside the drop target element after its opening tag.
- You can also drop an element before or after another element if you hold the mouse pointer towards the upper or lower part of the targeted element. A marker will indicate whether the drop will be performed before or after the target element.
- If you hold down the **(Ctrl (Meta on Mac OS))** key after dragging, there will be performed a copy operation instead of a move one.

The drag and drop action in the **Outline** view can be *disabled and enabled from the Preferences dialog.*

Tip: You can select and drag multiple nodes in the Author Outline tree.

The Popup Menu of the Outline Tree

The *Append 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 currently selected in the Outline tree. The *Append 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 *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.

Edit attributes for the selected node. A dialog is presented allowing the user to see and edit the attributes of the selected node.

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 Outline view 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 Outline 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.

You can double click the tag in the Outliner tree to move focus to the editor.

You can also use key search to look for a particular tag name in the Outline tree.

Navigation Buttons

These buttons are available in the editor's main toolbar:

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

Using the Go To Dialog

To navigate precisely to a part of the document you are editing in the **Text** mode, use the **Go to** dialog. To open the **Go to** dialog, go to **Find** > **Go to ... (Ctrl+L (Cmd+L on Mac))**.

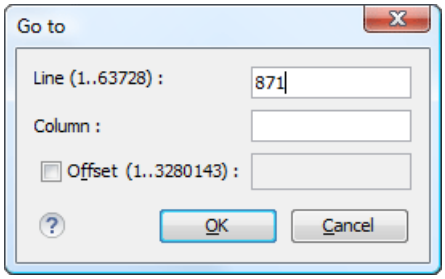


Figure 96: Go to Dialog

Complete the dialog as follows:

- **Line** - destination line in the current document;
- **Column** - destination column in the current document;
- **Offset** - destination offset relative to the beginning of document.

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 two solutions for this: DTD entities and XInclude. 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 an XSLT stylesheet over the master and obtain the result files, let say PDF or HTML.

Including Document Parts with DTD Entities

There are two conditions for including a part using DTD entities:

- The master document should declare the DTD to be used, while the external entities should declare the XML sections to be referred;
- The document containing the section must not define again the DTD.

A master document looks like this:

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

The referred document looks like this:

```
<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.

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

```
... &testing; ...
```

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.

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 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 project.

The main application for XInclude is in the document-oriented 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 Oriented 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 be edited, better version control and distributed authoring.

Include a chapter in an article using XInclude

Create a chapter file and an article file in the `samples` folder of the Oxygen XML Author install folder.

Chapter file (`introduction.xml`) looks like this:

```
<?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 looks like this:

```
<?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.dita">
      <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 parser will use the value of the *xi:fallback* element - a FIXME message.

If you want to include only a fragment of a 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"?>
<?xml-model href="test.rng" type="application/xml" schematypens="http://relaxng.org/ns/structure/1.0"?>
<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"?>
<?xml-model href="test.rng" type="application/xml" schematypens="http://relaxng.org/ns/structure/1.0"?>
<test>
    <a xml:id="a1" xml:base="a.xml">test</a>
</test>
```

The XInclude support in Oxygen XML Author is turned on by default. You can *toggle it* by going to the entry **Enable XInclude processing** in the menu **Options** > **Preferences ...** > **XML** > **XML Parser**. When enabled, Oxygen XML Author will be able to validate and transform documents comprised of parts added using XInclude.

Working with XML Catalogs

An *XML Catalog* maps a system ID or an URI reference pointing to a resource (stored either remotely or locally) to a local copy of the same resource. If XML processing relies on external resources (like referred schemas and stylesheets, for example), the use of an XML Catalog becomes a necessity when Internet access is not available or the Internet connection is slow.

Oxygen XML Author supports any XML Catalog file that conforms to one of:

1. *OASIS XML Catalogs Committee Specification v1.1*
2. *OASIS Technical Resolution 9401:1997* including the plain-text flavor described in that resolution

The version 1.1 of the OASIS XML Catalog specification introduces the possibility to map a system ID, a public ID or a URI to a local copy using only a suffix of the ID or URI used in the actual document. This is done using the new catalog elements *systemSuffix* and *uriSuffix*.

Depending on the resource type, Oxygen XML Author uses different catalog mappings.

Table 6: Catalog Mappings

Document	Referred Resource	Mappings
XML	DTD	*system* or *public* The ***Prefer*** option controls which one of the mappings should be used.
	XML Schema Relax NG Schematron NVDL	The following strategy is used (if one step fails to provide a resource, the next is applied): **1.** resolve the schema using *uri* catalog mappings. **2.** resolve the schema using *system* catalog mappings. This happens only if the ***Resolve schema locations also through system mappings*** option is enabled (it is by default); **3.** resolve the root *namespace* using *uri* catalog mappings.
XSL	XSL/ANY	*uri*
CSS	CSS	*uri*
XML Schema Relax NG	XML Schema Relax NG	The following strategy is used (if one step fails to provide a resource, the next is applied): **1.** resolve schema reference using *uri* catalog mappings. **2.** resolve schema reference using *system* catalog mappings. This happens only if the ***Resolve schema locations also through system mappings*** option is enabled (it is by default); **3.** resolve schema *namespace* using *uri* catalog mappings. This happens only if the ***Process namespaces through URI mappings for XML Schema*** option is enabled (it is not by default);

An XML Catalog file can be created quickly in Oxygen XML Author starting from the two XML Catalog document templates called *OASIS XML Catalog 1.0* and *OASIS XML Catalog 1.1* and available in *the document templates dialog*.

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE catalog
      PUBLIC "-//OASIS//DTD XML Catalogs V1.1//EN"
      "http://www.oasis-open.org/committees/entity/release/1.1/catalog.dtd">

<catalog xmlns="urn:oasis:names:tc:entity:xmlns:xml:catalog">

    <!-- Use "system" and "public" mappings when resolving DTDs -->
```

```
    <system
          systemId="http://www.docbook.org/xml/4.4/docbookx.dtd"
          uri="frameworks/docbook/4.4/dtd/docbookx.dtd"/>
    <!-- The "systemSuffix" matches any system ID ending in a specified string -->
    <systemSuffix
          systemIdSuffix="docbookx.dtd"
          uri="frameworks/docbook/dtd/docbookx.dtd"/>

    <!-- Use "uri" for resolving XML Schema and XSLT stylesheets -->
    <uri
          name="http://www.oasis-open.org/docbook/xml/5.0/rng/docbook.rng"
          uri="frameworks/docbook/5.0/rng/docbookxi.rng"/>

    <!-- The "uriSuffix" matches any URI ending in a specified string -->
    <uriSuffix
          uriSuffix="docbook.xsl"
          uri="frameworks/docbook/xsl/fo/docbook.xsl"/>

</catalog>
```

Oxygen XML Author comes with a built-in catalog set as default, but you can also create your own one. Oxygen XML Author looks for a catalog in the following order:

- user-defined catalog set globally in the *XML Catalog preferences* page;
- user-defined catalog set at document type level, in the *Document Type Association preferences pages*;
- built-in catalogs.

> An XML catalog can be used to map a W3C XML Schema specified with an URN in the `xsi:noNamespaceSchemaLocation` attribute of an XML document to a local copy of the schema.
>
> Considering the following XML document code snippet:
>
> ```
> <topic xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
>                     xsi:noNamespaceSchemaLocation="urn:oasis:names:tc:dita:xsd:topic.xsd:1.1">
> ```
>
> The URN can be resolved to a local schema file with a catalog entry like:
>
> ```
> <uri name="urn:oasis:names:tc:dita:xsd:topic.xsd:1.1"
>     uri="topic.xsd"/>
> ```

Resolve Schemas Through XML Catalogs

Oxygen XML Author resolves the location of a schema in the following order:

- First, the schema location is attempted to be resolved as an URI (*uri*, *uriSuffix*, *rerwriteURI* from the XML catalog). If this succeeds, the process end here.
- In case the **Resolve schema locations also through system mappings** option is selected, the schema location is attempted to be resolved as a systemID (*system*, *systemSuffix*, *rewriteSuffix*, *rerwriteSystem* from the XML catalog). If this succeeds, the process ends here.
- If the **Process namespace through URI mappings for XML Schema** option is selected, the namespace of the schema is attempted to be resolved as an URI (*uri*, *uriSuffix*, *rewriteURI* from the XML catalog). If this succeeds, the process ends here.
- If none of the previous attempts succeeded, the actual schema location is used.

XML Resource Hierarchy/Dependencies View

The **Resource Hierarchy / Dependencies** view allows you to easily see the hierarchy / dependencies for an XML document. The tree structure presented in this view is built based on the *XIinclude* and *External Entity* mechanisms. To define the scope for calculating the dependencies of a resource, click ***Configure dependencies search scope*** on the **Resource Hierarchy/Dependencies** toolbar.

To open this view, go to **Window** > **Show View** > **Resource Hierarchy / Dependencies** . As an alternative, right click the current document and either select **Resource Hierarchy** or **Resource Dependencies**.

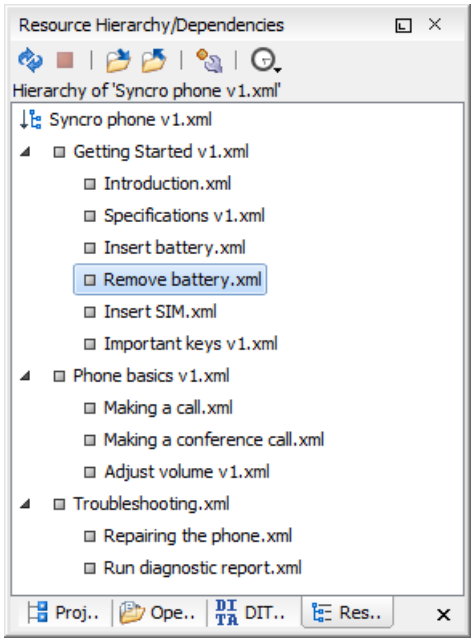


Figure 97: Resource Hierarchy/Dependencies View - Hierarchy for `Syncro phone v1.xml`

The build process for the dependencies view is started with the **Resource Dependencies** action available on the contextual menu.

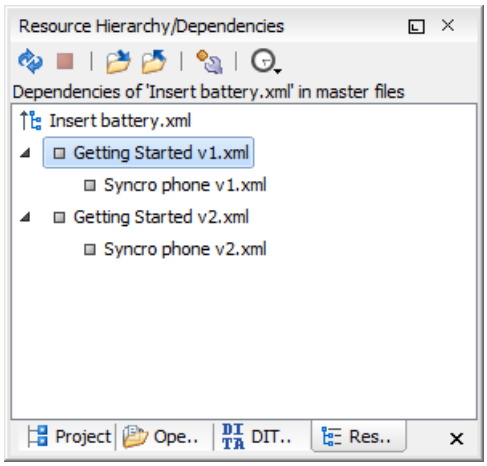


Figure 98: Resource Hierarchy/Dependencies View - Dependencies for `Insert battery.xml`

The following actions are available in the **Resource Hierarchy/Dependencies** view:

- - Refreshes the Hierarchy/Dependencies structure;
- - Stop the hierarchy/dependencies computing;
- - Allows you to choose a resource to compute the hierarchy structure;
- - Allows you to choose a resource to compute the dependencies structure;
- - Allows you to configure a scope to compute the dependencies structure. There is also an option for automatically using the defined scope for future operations;
- - Repeats a previous dependencies computation.

The contextual menu contains the following actions:

- **Open** - Opens the resource. You can also double-click a resource in the Hierarchy/Dependencies structure to open it;

- **Copy location** - Copies the location of the resource;
- **Move resource** - Moves the selected resource;
- **Rename resource** - Renames the selected resource;
- **Show Resource Hierarchy** - Shows the hierarchy for the selected resource;
- **Show Resource Dependencies** - Shows the dependencies for the selected resource;
- **Add to Master Files** - Adds the currently selected resource in *the **Master Files** directory*
- **Expand All** - Expands all the children of the selected resource from the Hierarchy/Dependencies structure;
- **Collapse All** - Collapses all children of the selected resource from the Hierarchy/Dependencies structure.

Tip: When a recursive reference is encountered in the Hierarchy view, the reference is marked with a special icon .

Note: The **Move resource** or **Rename resource** actions give you the option to *update the references to the resource*. Only the references made through the *XIinclude* and *External Entity* mechanisms are handled.

Moving/Renaming XML Resources

When you select the **Rename** action in the contextual menu of the **Resource/Hierarchy Dependencies** view, the **Rename resource** dialog is displayed. The following fields are available:

- **New name** - presents the current name of the edited resource and allows you to modify it;
- **Update references** - enable this option to update the references to the resource you are renaming.

When you select the **Move** action from the contextual menu of the **Resource/Hierarchy Dependencies** view, the **Move resource** dialog is displayed. The following fields are available:

- **Destination** - presents the path to the current location of the resource you want to move and gives you the option to introduce a new location;
- **New name** - presents the current name of the moved resource and gives you the option to change it;
- **Update references of the moved resource(s)** - enable this option to update the references to the resource you are moving, in accordance with the new location and name.

In case the **Update references of the moved resource(s)** option is enabled, a **Preview** option which opens the **Preview** dialog is available for both actions. The **Preview** dialog presents a list with the resources that are updated.

Formatting and Indenting Documents (Pretty Print)

In structured markup languages, the whitespace between elements that is created using the *Space bar*, *Tab* or multiple line breaks 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, that seems to be a single paragraph.

While this is a 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 stylesheet specified at the time of transformation.

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 ***Indent selection*** action.

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 to cover 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 applying 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.

How to use zero size indent

When you use pretty print, or when you save a document from the **Author**, Oxygen XML Author allows you to use zero size indent. To stop indenting text depending on the depth of the nodes in an XML document:

1. Go to **Option** > **Preferences** > **Editor** > **Format**;
2. Disable **Detect indent on option**;
3. Set **Indent size** to zero.

Editing Modular XML Files in the Master Files Context

Smaller interrelated modules that define a complex XML modular structure cannot be correctly edited or validated individually, due to their interdependency with other modules. Oxygen XML Author provides the support for defining the main module (or modules), allowing you to edit any file from the hierarchy in the context of the master XML files.

You cat set a main XML document either using the *master files support from the **Project** view*, or using a validation scenario.

To set a main file using a validation scenario, add validation units that point to the main modules. Oxygen XML Author warns you if the current module is not part of the dependencies graph computed for the main XML document. In this case, it considers the current module as the main XML document.

The advantages of editing in the context of a master file include:

- correct validation of a module in the context of a larger XML structure;
- **Content Completion Assistant** displays all collected entities and IDs starting from the master files;
- Oxygen XML Author uses the schema defined in the master file when you edit a module which is included in the hierarchy through the *External Entity* mechanism;
- the master files defined for the current module determines the *scope of the search and refactory actions* for ID/IDREFS values and for updating references when renaming/moving a resource. Oxygen XML Author performs the search and refactory actions in the context that the master files determine, improving the speed of execution.

To watch our video demonstration about editing modular XML files in the master files context, go to *http://oxygenxml.com/demo/Working_With_XML_Modules.html*.

Managing ID/IDREFS.

Oxygen XML Author allows you to search for ID declarations and references (IDREFS) and to *define the scope of the search and refactor operations*. These operations are available for XML documents that have an associated DTD, XML Schema, or Relax NG schema.

Highlight IDs Occurrences in Text Mode

To see the occurrences of an ID in an XML document in the **Text** mode, place the cursor inside the ID declaration or reference. The occurrences are marked in the vertical side bar at the right of the editor. Click a marker on the side bar to navigate to the occurrence that it corresponds to. The occurrences are also highlighted in the editing area.

Note: Highlighted ID declarations are rendered with a different color than highlighted ID references.

Search and Refactor Actions for ID/IDREFS

Oxygen XML Author offers full support for managing ID/IDREFS through the search and refactor actions available in the contextual menu. In **Text** mode, these actions are available in the ***Quick Assist*** menu as well.

The search and refactor actions from the contextual menu are grouped in the **Manage IDs** section:

- **Rename in** - renames the ID and all its occurrences. Selecting this action opens the **Rename XML ID** dialog. This dialog lets you insert the new ID value and *choose the scope of the rename operation*. For a preview of the changes you are about to make, click **Preview**. This opens the **Preview** dialog, which presents a list with the files that contain changes and a preview zone of these changes;
- **Rename in File** - renames the ID you are editing and all its occurrences from the current file;

  Note: Available in the **Text** mode only.

- **Search References in** - searches for the references of the ID. Selecting this action opens the ***Select the scope for the Search and Refactor operations***;
- **Search References** - searches for the references of the ID. By default, the scope of this action is the current project. In case you configure a scope using the ***Select the scope for the Search and Refactor operations*** dialog, this scope will be used instead;
- **Search Declarations in** - searches for the declaration of the ID reference. Selecting this action opens the ***Select the scope for the Search and Refactor operations***;
- **Search Declarations** - searches for the declaration of the ID reference. By default, the scope of this action is the current project. In case you configure a scope using the ***Select the scope for the Search and Refactor operations*** dialog, this scope will be used instead;
- **Search Occurrences in file** - searches for the declaration an references of the ID in the current document.

Note: A quick way to navigate to the declaration of an ID in **Text** mode is to move the cursor over an ID reference and use the **Ctrl (Meta on Mac OS) + Click** navigation.

Selecting an ID for which you execute search or refactor operations differs from the **Text** mode to the **Author** mode. In the **Text** mode you position the caret inside the declaration or reference of an ID. In the **Author** mode Oxygen XML Author collects all the IDs by analyzing each element from the path to the root. In case more IDs are available, you are prompted to choose one of them.

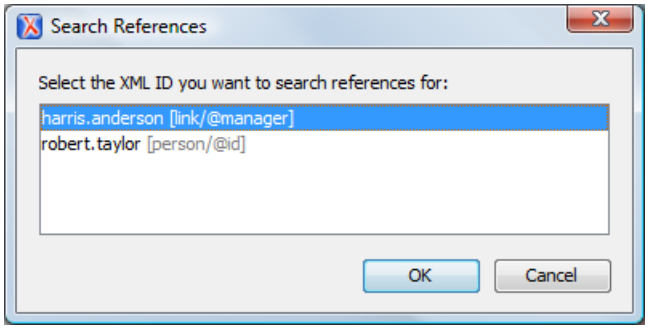


Figure 99: Selecting an ID in the Author Mode

Quick Assist Support for ID/IDREFS in Text Mode

The Quick Assist support is activated automatically when you place the caret inside and ID or an IDREF. To access it, click the yellow bulb help marker placed on the caret line, in the line number stripe of the editor. You can also invoke the quick assist menu if you press (on Mac OS X) on your keyboard.

The following actions are available:

- **Rename in** - renames the ID and all its occurrences. Selecting this action opens the **Rename XML ID** dialog. This dialog lets you insert the new ID value and *choose the scope of the rename operation*. For a preview of the changes you are about to make, click **Preview**. This opens the **Preview** dialog, which presents a list with the files that contain changes and a preview zone of these changes;
- **Search Declarations** - searches for the declaration of the ID reference. By default, the scope of this action is the current project. In case you configure a scope using the ***Select the scope for the Search and Refactor operations*** dialog, this scope will be used instead;
- **Search References** - searches for the references of the ID. By default, the scope of this action is the current project. In case you configure a scope using the ***Select the scope for the Search and Refactor operations*** dialog, this scope will be used instead;
- **Change scope** - opens the ***Select the scope for the Search and Refactor operations*** dialog;
- **Rename in File** - renames the ID you are editing and all its occurrences from the current file;
- **Search Occurrences** - searches for the declaration an references of the ID located at the caret position in the current document.

Search and Refactor Operations Scope

The *scope* is a collection of documents that define the context of a search and refactor operation. To control it you can use the **Change scope** operation, available in the Quick Assist action set or on the **Resource Hierarchy/Dependency View** toolbar. You can restrict the scope to the current project or to one or multiple working sets. The **Use only Master Files, if enabled** check-box allows you to restrict the scope of the search and refactor operations to the resources from the **Master Files** directory. Click **read more** for details about the *Master Files support*.

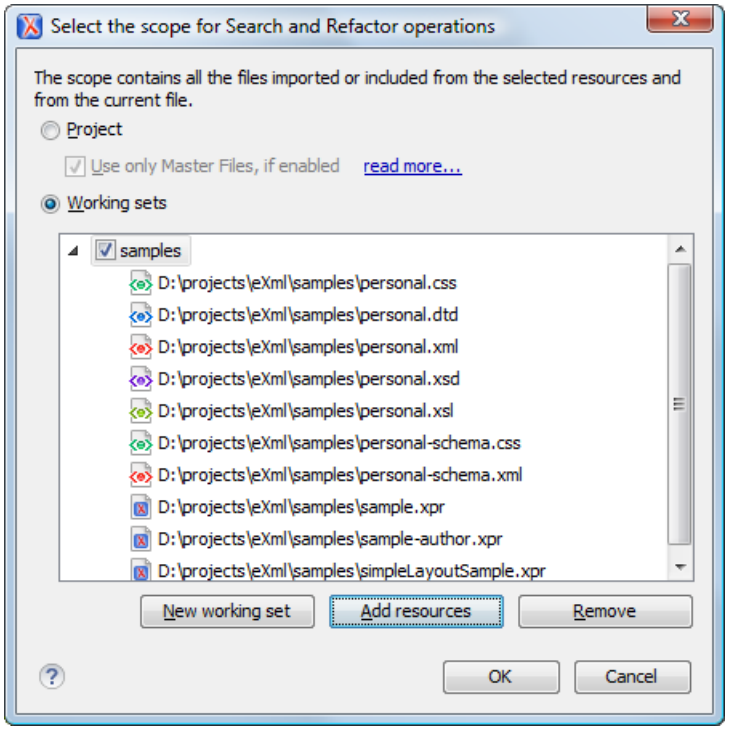


Figure 100: Change Scope Dialog

The scope you define is applied to all future search and refactor operations until you modify it. Contextual menu actions allow you to add or delete files, folders, and other resources to the working set structure.

Viewing Status Information

Status information generated by the **Schema Detection**, **Validation**, **Automatic validation**, and **Transformation** threads are fed into the **Information** view allowing you to monitor how the operation is being executed.

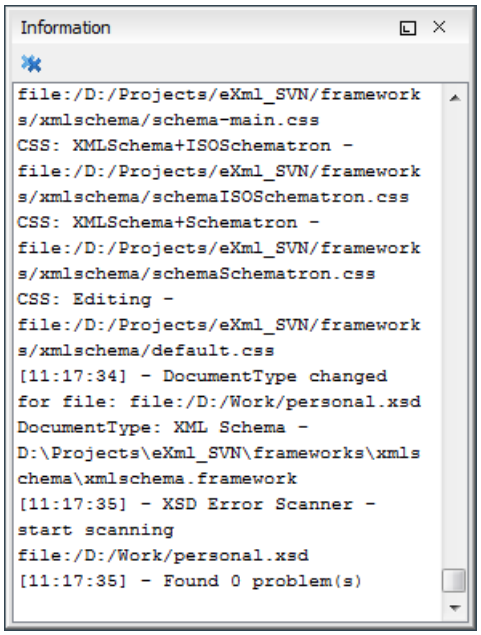


Figure 101: Information view messages

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 menu **Window** > **Show View** > **Information**.

Image Preview

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

To preview an image, either double click the image name or click the **Preview** action from the **Project** view's 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, you can scale the image to its original size (1:1 action) or scale it down to fit in the view's available area (**Scale to fit** action).

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

Note: You can drag an image from the **Image Preview** view and drop it in a DITA, Docbook, or TEI document.

Making a Persistent Copy of Results

The **Results** panel displays the results from the following operations:

- *document validation*
- *checking the form of documents*
- *XSLT or FO transformation*
- *find all occurrences of a string in a file*
- *find all occurrences of a string in multiple files*
- *applying an XPath expression to the current document*

To make a persistent copy of the **Results** panel use one of the actions:

- **File** > **Save Results** - displays the **Save Results** dialog, used to save the result list of the current message tab. The action is also available on the right click menu of the **Results** panel.
- **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 **Results panel**. The action is also available on the right click menu of the **Results** panel.
- **Save Results as XML** on the contextual menu - saves the content of the **Results** panel in an XML file with the format:

```
<Report>
    <Incident>
        <engine>The engine who provide the error.<engine>
        <severity>The severity level<severity>
        <Description>Description of output message.</Description>
        <SystemID>The location of the file linked to the message.</SystemID>
        <Location>
           <start>
                <line>Start line number in file.<line>
                <column>Start column number in file<column>
           </start>
           <end>
                <line>End line number in file.<line>
                <column>End column number in file<column>
           </start>
        </Location>
    </Incident>
</Report>
```

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 the action available from:

- **Document** main menu, **Source** > **Lock / Unlock the XML Tags** action;
- contextual menu, **Source** > **Lock / Unlock the XML Tags** action;
- **Lock / Unlock the XML tags** toolbar action.

You can set the default lock state for all opened editors in the *Preferences XML Editor Format* preferences page.

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 XML Author 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** available on the **Edit** toolbar.

Note: On Windows XP and Windows Vista, depending on antialiasing settings and JVM used, this functionality could have no effect.

XML Editor Specific Actions

Oxygen XML Author 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

The editing area can be divided vertically and horizontally with the split / unsplit actions available in the **Split** toolbar, the **Window** menu and in the contextual menu of the editor panel of XML files:

- **Split Editor Horizontally**
- **Split Editor Vertically**
- **Unsplit Editor**

Edit Actions

The following XML specific editing actions are available in Text mode:

- **Document** > **Edit** > **Toggle Line Wrap** > **Ctrl (Meta on Mac OS) + Shift + Y** Turns on line wrapping in the editor panel if it was off and vice versa. It has the same effect as the *Line wrap* preference.
- **Document** > **Edit** > **Toggle comment** - Comments the current selection of the current editor. If the selection already contains a comment the action removes the comment from around 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

In Text mode of the XML editor these actions are enabled when the caret is positioned inside a tag name:

- **Document** > **Select** > **Element** - Selects the entire current element;

- **Document** > **Select** > **Content** - Selects the content of the current element, excluding the start tag and end tag. If it is applied repeatedly, starts with selecting the XML element from the cursor position and extends the selection to the ancestor XML elements. Each execution of the action extends the current selection to the surrounding element;
- **Document** > **Select** > **Attributes** - Selects all the attributes of the current element;
- **Document** > **Select** > **Parent** - Selects the parent element of the current element;
- Triple click 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;
- Triple click an attribute in **Text** mode - If the triple click is performed before the start tag of an attribute or after its end tag, the entire attribute is selected by the triple click action. If it is performed after the start tag or before the end tag, only the attribute content (without the start tag and end tag) is selected;
- Double click after the opening quote or before the closing quote of an attribute value - Select the whole attribute value.

Source Actions

The following actions can be applied on the text content of the XML editor:

- **Document** > **Source** > **Lock / Unlock the XML Tags** - Disables / Enables editing of XML tags.
- **Document** > **Source** > **To Lower Case** - Converts the selection content to lower case characters.
- **Document** > **Source** > **To Upper Case** - Converts the selection 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 currently selected block to the right.
- **(Shift+Tab)** > **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.
- **Document** > **Source** > **Unescape Selection ...** - Replaces the character entities with the corresponding characters.
- **Document** > **Source** > **Indent selection (Ctrl + I)** - Corrects the indentation of the selected block of lines if it does not follow the current *indenting preferences of the user*.
- **Document** > **Source** > **Format and Indent Element (Ctrl + Shift + I)** - Pretty prints the element that surrounds the caret position.
- **Document** > **Source** > **Insert XInclude** - Shows a dialog that allows you to browse and select the content to be included and generates automatically the corresponding XInclude instruction.

  Note: In the **Author** mode, this dialog presents a preview of the inserted document as an author page in the **preview** tab and as a text page in the **source** tab. In the **Text** mode only the **source** tab is presented.

- **Document** > **Source** > **Import entities list** - Shows a dialog that allows you to select a list of files as sources for external DTD entities. The internal subset of the DOCTYPE declaration 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">
```

- **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.
- **Document** > **Source** > **Insert new line after**: This useful action has the same result with moving the caret to the end of the current line and pressing *ENTER*.

XML Document Actions

The **Text** mode of the XML editor provides the following document level actions:

- **Document** > **Schema** > **Show Definition** (also available on the contextual menu of the editor panel) - Moves the cursor to the definition of the current element or attribute in the schema (DTD, XML Schema, Relax NG schema) associated with the edited XML document. In case the current attribute is "type" belonging to the "*http://www.w3.org/2001/XMLSchema-instance*" namespace, the cursor is moved in the XML schema, to the definition of the type referred in the value of the attribute.

  Note: Alternatively you can use any of the following shortcuts:

  - **Ctrl (Meta on Mac OS) + Shift + ENTER** on your keyboard;
  - **Ctrl (Meta on Mac OS) + Click** an element or attribute name.

- **Document** > **XML Document** > **Copy XPath (Ctrl (Meta on Mac OS)+Alt+.)** - Copies the XPath expression of the current element or attribute from the current editor to the clipboard.
- **Document** > **XML Document** > **Go To** > **Go to Matching Tag (Ctrl (Meta on Mac OS)+Shift+G)** - Moves the cursor to the end tag that matches the start tag, or vice versa.
- **Document** > **XML Document** > **Go to** > **Go after Next Tag (Ctrl (Meta on Mac OS)+])** - Moves the cursor to the end of the next tag.
- **Document** > **XML Document** > **Go to** > **Go after Previous Tag (Ctrl (Meta on Mac OS)+[)** - Moves the cursor to the end of the previous tag.
- **Document** > **XML Document** > **Associate XSLT/CSS Stylesheet** - Inserts an `xml-stylesheet` processing instruction at the beginning of the document referencing either an XSLT or a CSS file depending on the user selection. Either reference is useful for rendering the document in a Web browser when the action **Open in browser** is executed. Referencing the XSLT file is also useful for automatic detection of the XSLT stylesheet when there is no scenario associated with the current document.

  When associating the CSS stylesheet, the user can also specify a title for it if it is an alternate one. Setting a *Title* for the CSS makes it the author's preferred stylesheet. Selecting the **Alternate** checkbox makes the CSS an alternate stylesheet.

  Oxygen XML Author fully implements the W3C recommendation regarding *Associating Style Sheets with XML documents*. See also *Specifying external style sheets* in HTML documents.

You can use the **Ctrl (Meta on Mac OS) + Click** shortcut to open:

- any absolute URLs (URLs that have a protocol) regardless of their location in the document;
- URI attributes such as: *schemaLocation*, *noNamespaceSchemaLocation*, *href* and others;
- processing instructions used for associating resources, xml-models, xml-stylesheets.

XML Refactoring Actions

The following refactoring actions are available while editing an XML document:

- **Document** > **XML Refactoring** > **Surround with tag... (Ctrl+E)** - Allows you to choose a tag that encloses a selected portion of content. If there is no selection, the start and end tags are inserted at the caret position. The caret is placed:
  - between the start and end tag, if the **Cursor position between tags** option is set;
  - at the end of the start tag, in an insert-attribute position, if the **Cursor position between tags** option is not set.
- **Document** > **XML Refactoring** > **Surround with <tag> (Ctrl+/)** - Similar in behavior with the **Surround with tag...** action, except that it inserts the last tag used by the **Surround with tag...** action.
- **Document** > **XML Refactoring** > **Rename element** - 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.

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 XML Author 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 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 and end tag of the current element.

Smart Editing

The following helper actions are available in the XML editor:

- *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-rename matching tag* - When you edit the name of the start tag, Oxygen XML Author will mirror-edit the name of the matching end tag. This feature can be controlled from the *Content Completion option page*.
- *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.*
- *Indent on Enter* - The *Indent on Enter option* indents the new line inserted when Enter is pressed.
- *Smart Enter* - The *Smart Enter option* inserts an empty line between the start and end tags. If Enter is pressed between a start and an end tag the action places the cursor in an indented position on the empty line between the lines that contain the start and end tag.
- *Double click* - A double click selects a different region of text of the current document depending on the position of the click in the document:
  - if the click position is inside a start tag or an end tag then the entire element enclosed by that tag is selected;
  - if the click position is immediately after a start tag or immediately before an end tag then the entire content of the element enclosed by that tag is selected, including all the child elements but excluding the start tag and the end tag of the element;
  - otherwise, the double click selects the entire current line of text.

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.

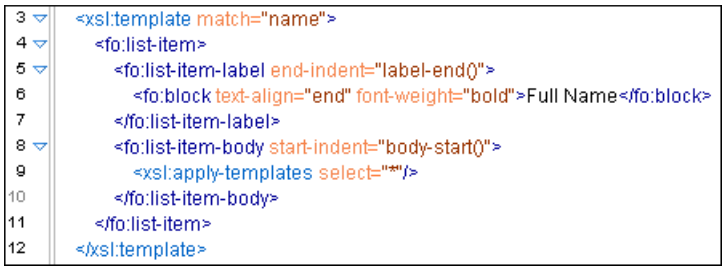


Figure 102: Example of Coloring XML Tags by Prefix

Editor Highlights

An editor highlight is a text fragment emphasized by a colored background. Highlights are generated in both **Editor** and **Author** mode, when the following actions generate results: **XPath**, **Find All**, and **Find in Files**.

By default, Oxygen XML Author uses a different color for each type of highlight: *XPath*, *Find*, *Search References*, and *Search Declarations*. You can customize these colors and the maximum number of highlights displayed in a document from the ***Options*** > ***Preferences*** > ***Editor*** *preferences page*. The default maximum number of highlights is 10000.

You are able to navigate in the current document through the highlights using one of the following methods:

- clicking the markers from the range ruler, located at the right side of the document;
- clicking the **Next** and **Previous** buttons from the bottom of the range ruler;

  Note: When there are multiple types of highlights in the document, the **Next** and **Previous** buttons navigate through highlights of the same type.

- clicking the messages displayed in the ***Results*** *view*.

To remove the highlights, you can:

- click the **Remove all** button from bottom of the range ruler;
- close the results tab which contains the output of the action that generated the highlights;
- click the **Remove all** button from the results panel.

  Note: Use the **Highlight all results in editor** button to either display all the highlights or hide them.

Batch Editing Actions on Highlights

Working with XML documents implies frequent changes to structure and content. You are often faced with a situation where you need to make a slight change in hundreds of places in the same document. Oxygen XML Author introduced a new feature, **Manage Highlighted Content**, designed to help you achieve that.

When you are in **Text** mode and you perform a search operation or apply an XPath that highlights more than one result, you can select the **Manage Highlighted Content** action from the contextual menu of any highlight in the document. In the sub-menu, the following options are available:

- **Modify All** - use this option to modify in-place all the occurrences of the selected content. When you use this option, a thin rectangle replaces the highlights and lets you start editing;

  Note: In case you select a very large number of highlights that you want to modify using this feature, when you select this option a dialog informs you that you may experience performance issues. You have the option to either use the **Find/Replace** dialog box, or continue the operation.

- **Surround All** - use this option to surround the content with a specific tag. This option opens the **Tag** dialog box. The **Specify the tag** drop-down presents all the available elements that you can choose from.

- **Remove All** - removes all the highlighted content.

In case you right click a different part of the document than a highlight, you only have the option to select **Modify All Matches**.

Editing XHTML Documents

XHTML documents with embedded CSS, JS, PHP, and JSP scripts are rendered with dedicated coloring schemes. You can customize them in the **Options** > **Preferences** > **Editor** > **Colors** preferences page.

Editing CSS Stylesheets

This section explains the features of the editor for CSS stylesheets and how these features should be used.

Validating CSS Stylesheets

Oxygen XML Author includes a built-in CSS validator integrated with the general validation support. This makes the *usual validation features* also available for CSS stylesheets.

The CSS properties accepted by the validator are the ones included in the current CSS profile that is selected in *the CSS validation preferences*. The **CSS 3 with Oxygen extensions** profile includes all the CSS 3 standard properties and the *CSS extensions specific for Oxygen* that can be used in *Author mode*. That means all Oxygen specific extensions are accepted in a CSS stylesheet by *the built-in CSS validator* when this profile is selected.

Specify Custom CSS Properties

To specify custom CSS properties, follow these steps:

1. Create a file named `CustomProperties.xml`, that has the following structure:

```
<?xml version="1.0" encoding="UTF-8"?>
<css_keywords
      xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
      xsi:schemaLocation="http://www.oxygenxml.com/ns/css http://www.oxygenxml.com/ns/css/CssProperties.xsd"

      xmlns="http://www.oxygenxml.com/ns/css">
      <property name="custom">
      <summary>Description for custom property.</summary>
        <value name="customValue"/>
        <value name="anotherCustomValue"/>
      </property>
</css_keywords>
```

2. Go to your desktop and create the `builtin/css-validator/` folder structure.
3. Press and hold **Shift** and right click your desktop. From its contextual menu, select **Open Command Window Here**.
4. In the command line, run the `jar cvf custom_props.jar builtin/` command.
   The `custom_props.jar` file is created.
5. Go to `[Oxygen-install-dir]/lib` and create the `endorsed` folder. Copy the `custom_props.jar` file to `[Oxygen-install-dir]/lib/endorsed`.

Content Completion in CSS Stylesheets

A **Content Completion Assistant** like *the one available for XML documents* offers the CSS properties and the values available for each property. It is activated on the **Ctrl (Meta on Mac OS) + Space** shortcut and it is context-sensitive when invoked for the value of a property.

The properties and the values offered as proposals are dependent on the CSS Profile selected in the ***Options*** > ***Preferences*** > ***CSS Validator*** page, **Profile** combo box. The CSS 2.1 set of properties and property values is used for most of the profiles, excepting CSS 1 and CSS 3. For these two, specific proposal sets are used.

The profile **CSS 3 with Oxygen extensions** includes all the CSS 3 standard properties and the *CSS extensions specific for Oxygen* that can be used in *Author mode*.

CSS Outline View

The CSS **Outline** view presents the import declarations for other CSS stylesheet files and all the selectors defined in the current CSS document. The selector entries can be presented as follows:

- in the order they appear in the document;
- sorted by element name used in the selector;
- sorted by the entire selector string representation.

You can synchronize the selection in the **Outline** view with the caret moves or the changes you make in the stylesheet document. When you select an entry from the **Outline** view, Oxygen XML Author highlights the corresponding import or selector in the CSS editor.

The selectors presented in this view can be quickly found using the key search field. When you press a sequence of character keys while the focus is in the view, the first selector that starts with that sequence is selected automatically.

Folding in CSS Stylesheets

In a large CSS stylesheet document, some styles can 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.

Note: To enhance your editing experience, you can select entire blocks (parts of text delimited by brackets) by double-clicking after an opening or in front of a closing bracket.

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*. Only *the folding actions*, *the edit actions* and a part of *the source actions* (only the actions **To lower case**, **To upper case**, **Capitalize lines**) are available.

Editing StratML Documents

Strategy Markup Language (StratML) is an XML vocabulary and schema for strategic plans. Oxygen XML Author supports StratML Part 1 (Strategic Plan) and StratML Part 2 (Performance Plans and Reports) and provides templates for the following documents:

- **Strategic Plan** (StratML Part 1);
- **Performance Plan** (StratML Part 2);
- **Performance Report** - (StratML Part 2);

- **Strategic Plan** - (StratML Part 2).

You can view the components of a StratML document in the **Outline** view. Oxygen XML Author implements a default XML with XSLT transformation scenario for this document type, called StratML to HTML.

Editing JavaScript Documents

This section explains the features of the Oxygen XML Author JavaScript Editor and how you can use them.

JavaScript Editor Text Mode

Oxygen XML Author allows you to create and edit JavaScript files and assists you with useful features such as syntax highlight, content completion, and outline view. To enhance your editing experience, you can select entire blocks (parts of text delimited by brackets) by double-clicking after an opening or in front of a closing bracket.

```
12 function newPage(filename, overlay) {
13     divs = document.getElementsByTagName("div");
14
15     if (divs) {
16   var xdiv = divs[0];
17
18   if (xdiv) {
19       var xid = xdiv.getAttribute("id");
20
21       var mytoc = window.top.frames[0];
22       if (mytoc.lastUnderlined) {
23     mytoc.lastUnderlined.style.textDecoration = "none";
24       }
25
26       var tdiv = xbGetElementById(xid, mytoc);
27
28       if (tdiv) {
29     var ta = tdiv.getElementsByTagName("a").item(0);
30     ta.style.textDecoration = "underline";
31     mytoc.lastUnderlined = ta;
32       }
33   }
34     }
35
36     if (overlay != 0) {
37   overlaySetup('lc');
38     }
```

Figure 103: JavaScript Editor Text Mode

The contextual menu of the **JavaScript** editor offers the following options:

- **Cut** - allows you to cut fragments of text from the editing area;
- **Copy** - allows you to copy fragments of text from the editing area;
- **Paste** - allows you to paste fragments of text in the editing area;
- **Toggle comment** - allows you to comment a line or a fragment of the JavaScript document you are editing. This option inserts a single comment for the entire fragment you want to comment;
- **Toggle line comment** - allows you to comment a line or a fragment of the JavaScript document you are editing. This option inserts a comment for each line of the fragment you want to comment;

- **Go to matching bracket** - use this option to find the closing, or opening bracket, matching the bracket at the caret position. When you select this option, Oxygen XML Author moves the caret to the matching bracket, highlights its row, and decorates the initial bracket with a rectangle;

  Note: A rectangle decorates the opening, or closing bracket which matches the current one at all times.

- **Compare** - select this option to open the **Diff Files** dialog and compare the file you are editing with a file you choose in the dialog.
- **Open** - allows you to select one of the following options:
  - **Open File at Caret** - select this option to open the source of the file located at the caret position;
  - **Open File at Caret in System Application** - select this option to open the source of the file located at the caret position with the application that the system associates with the file;
  - **Open in Browser/System Application** - select this option to open the file in the system application associated with the file type.

    Note: If you already set the **Default Internet browser** option in the **Global** preferences page, it takes precedence over the default system application settings.

- **Folding** - allows you to select one of the following options:
  - **Toggle Fold** - toggles the state of the current fold;
  - **Collapse Other Folds (Ctrl (Meta on Mac OS)+NumPad /)** - folds all the elements except the current element;
  - **Collapse Child Folds (Ctrl (Meta on Mac OS)+NumPad .)** - folds the elements indented with one level inside the current element;
  - **Expand Child Folds**- unfolds all child elements of the currently selected element;
  - **Expand All (Ctrl (Meta on Mac OS)+NumPad *)** - unfolds all elements in the current document.
- **Source** - allows you to select one of the following options:
  - **To Lower Case** - converts the selection content to lower case characters;
  - **To Upper Case** - converts the selection content to upper case characters;
  - **Capitalize Lines** - converts to upper case the first character of every selected line;
  - **Join and Normalize** - joins all the rows you select to one row and normalizes the content;
  - **Insert new line after** - inserts a new line after the line at the caret position.

Content Completion in JavaScript Files

When you edit a JavaScript document, the ***Content Completion Assistant*** presents you a list of the elements you can insert at the caret position. For an enhanced assistance, JQuery methods are also presented. The following icons decorate the elements in the content completion list of proposals depending on their type:

- - function;
- - variable;
- - object;
- - property;
- - method.

  Note: These icons decorate both the elements from the content completion list of proposals and from the **Outline** view.

Figure 104: JavaScript Content Completion Assistant

The **Content Completion Assistant** collects:

- method names from the current file and from the library files;
- functions and variables defined in the current file.

In case you edit the content of a function, the content completion list of proposals contains all the local variables defined in the current function, or in the functions that contain the current one.

JavaScript Outline View

Oxygen XML Author present a list of all the components of the JavaScript document you are editing in the **Outline** view. To open the **Outline** view, go to **Window** > **Show View** > **Outline**.

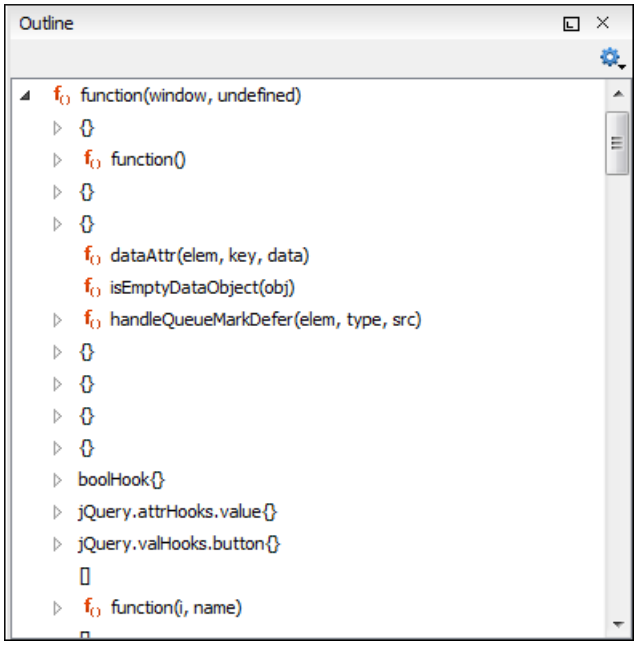


Figure 105: The JavaScript Outline View

The following icons decorate the elements in the **Outline** view depending on their type:

- - function;
- - variable;
- - object;
- - property;
- - method.

Note: These icons decorate both the elements from the content completion list of proposals and from the **Outline** view.

The contextual menu of the JavaScript **Outline** view contains the usual **Cut**, **Copy**, **Paste**, and **Delete** actions. From the settings menu, you can enable the Update selection on caret move option to synchronize the **Outline** view with the editing area.

Validating JavaScript Files

You have the possibility to validate the JavaScript document you are editing. Oxygen XML Author uses the Mozilla Rhino library for validation. For more information about this library, go to *http://www.mozilla.org/rhino/doc.html*. The JavaScript validation process checks for errors in the syntax. Calling a function that is not defined is not treated as an error by the validation process. The interpreter discovers this error when executing the faulted line. Oxygen XML Author can validate a JavaScript document both on-request and automatically.

Editing 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 defining the graphics directly in the document.

Oxygen XML Author adds SVG support by using the *Batik* package, an open source project developed by the Apache Software Foundation. *Oxygen XML Author's default XML catalog* solves the SVG DTD.

Note: Batik partially supports SVG 1.1. Here you can find a detailed list of supported elements, attributes and properties: *Batik implementation status*.

To render SVG images which use Java scripting, copy the `js.jar` library from the Batik distribution into the Oxygen XML Author `lib` folder and restart the application.

There are many navigation shortcuts which can be used for navigation in the SVG Viewer like:

- The arrow keys or **Shift + Left Click** move the image.
- **Ctrl (Meta on Mac OS) + Right Click** rotates the image.
- **Ctrl (Meta on Mac OS) + I** and **Ctrl (Meta on Mac OS) + O** or **Ctrl (Meta on Mac OS) + Left Click** to zoom in or out.
- **Ctrl (Meta on Mac OS) + T** to reset the transform.

The Standalone SVG Viewer

To browse and open any SVG file having the `.svg` or `.svgz` extension, use the **Tools** > **SVG Viewer ...** action. 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**. The following actions are available in a contextual menu:

- **Zoom in** - Zooms in the image by a factor of 2. The action is also available on **Mouse Wheel Up**;
- **Zoom out** - Zooms out the image by a factor of 2. The action is also available on **Mouse Wheel Down**;
- **Rotate** - Rotates the image 90 degrees clockwise;
- **Refresh** - Refreshes the image, by reloading the SVG file.

Note: When you open the SVG viewer, the active SVG is displayed.

Figure 106: SVG Viewer

The Preview Result Panel

This panel can render the result of an *XSL transformation* that generates SVG documents.

Figure 107: Integrated SVG Viewer

The basic use-case of Oxygen XML Author consists in the development of the XSL stylesheets capable of producing rich SVG graphics. For example, you have an XML document describing the evolution of a parameter over time and you create a graphic from it. You can start with a static SVG, written directly in Oxygen XML Author 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. Select the option **Show as SVG** in *the dialog for configuring the XSLT transformation scenario*. When you run the transformation, the SVG result is displayed in the SVG result panel.

Spell Checking

The **Spelling** dialog allows you to check the spelling of the edited document. To open this dialog, click the **Check Spelling** toolbar button.

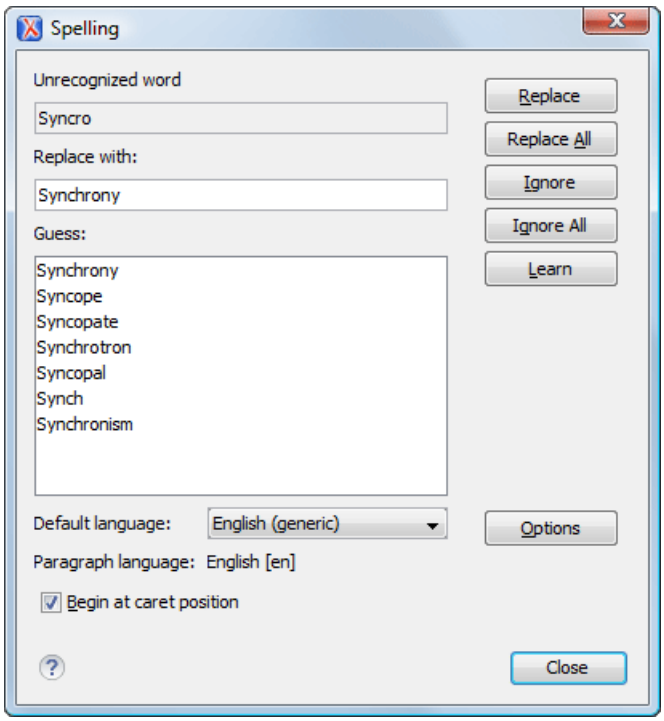


Figure 108: The Check Spelling Dialog

The dialog contains the following fields:

- **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 click a word to automatically insert it in the document and resume the spell checking process;
- **Default language** - allows you to select the default dictionary used by the spelling engine;
- **Paragraph language** - in an XML document you can mix content written in different languages. To tell the spell checker engine what language was used to write a specific section, you need to set the language code in the `lang` or `xml:lang` attribute to that section. Oxygen XML Author automatically detects such sections and instructs the spell checker engine to apply the appropriate dictionary;
- **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** - ignores the first occurrence of the unrecognized word and allows you to continue checking the document. Oxygen XML Author skips the content of the XML elements *marked as ignorable*;
- **Ignore All** - ignores all instances of the unknown word in the current document;
- **Learn** - includes the unrecognized word in the list of valid words;
- **Options** - sets the configuration options of the spell checker;
- **Begin at caret position** - instructs the spell checker to begin checking the document starting from the current cursor position;
- **Close** - closes the dialog.

Spell Checking Dictionaries

There are two spell checking engines available in Oxygen XML Author: **Hunspell** checker (default setting) and **Java** checker. You can set the spell check engine in the ***Spell checking engine*** preferences page. The dictionaries used by

the two engines differ in format, so you need to follow specific procedures in order to add another dictionary to your installation of Oxygen XML Author.

Dictionaries for the Hunspell Checker

The Hunspell spell checker is open source and has LGPL license. The format of the Hunspell spell dictionary is supported by Mozilla, OpenOffice and the Chrome browser. Oxygen XML Author comes with the following built-in dictionaries for the Hunspell checker:

- English (US);
- English (UK);
- French;
- German;
- Spanish.

Each language-country variant combination has its specific dictionary. If you cannot find a Hunspell dictionary that is already built for your language, you can build the dictionary you need. To build a dictionary from this list follow *these instructions*.

Adding a Dictionary and Term Lists for the Hunspell Checker

To add a new spelling dictionary to Oxygen XML Author or to replace an existing one follow these steps:

1. *Download* the files you need for your language dictionary.
2. The downloaded `.oxt` file is a *zip* archive. Copy the `.aff` and `.dic` files from this archive in the `spell` subfolder of the Oxygen XML Author preferences folder, if you are creating a new dictionary.

   The Oxygen XML Author preferences folder is `[APPLICATION-DATA-FOLDER]/com.oxygenxml.author`>, where `[APPLICATION-DATA-FOLDER]` is:

   - C:\Users\[LOGIN-USER-NAME]\AppData\Roaming on Windows Vista and Windows 7;
   - `[USER-HOME-FOLDER]/Library/Preferences` on Mac OS X;
   - `[USER-HOME-FOLDER]` on Linux.
3. Copy the `.aff` and `.dic` files into the folder `[Oxygen-install-folder]/dicts` if you are updating an existing dictionary.
4. Restart the application after copying the dictionary files.

Note: You can setup Oxygen XML Author to use dictionaries and term lists from a custom location configured in *the **Dictionaries** preferences page*.

Dictionaries for the Java Checker

A Java spell checker dictionary has the form of a `.dar` file located in the directory `[Oxygen-install-folder]/dicts`. Oxygen XML Author comes with the following built-in dictionaries for the Java checker:

- English (US)
- English (UK)
- English (Canada)
- French (France)
- French (Belgium)
- French (Canada)
- French (Switzerland)
- German (old orthography)
- German (new orthography)
- Spanish

A pre-built dictionary can be added by copying the corresponding `.dar` file to the folder `[Oxygen-install-folder]/dicts` and restarting Oxygen XML Author. There is one dictionary for each language-country variant combination.

Learned Words

Spell checker engines rely on dictionary to decide that a word is correctly spelled. To tell the spell checker engine that an unknown word is actually correctly spelled, you need to add that word to its dictionary. There are two ways to do so:

- press the **Learn** button from the **Spelling** dialog;
- invoke the contextual menu on an unknown word, then press **Learn word**.

Learned words are stored into a persistent dictionary file. Its name is composed of the currently checked language code and the `.tdi` extension, for example `en_US.tdi`. It is located in the:

- `[user-home-folder]/Application Data/com.oxygenxml.author/spell` folder on Windows XP;
- `[user-home-folder]/AppData/Roaming/com.oxygenxml.author/spell` folder on Windows Vista;
- `[user-home-folder]/Library/Preferences/com.oxygenxml.author/spell` folder on Mac OS X;
- `[user-home-folder]/com.oxygenxml.author/spell` folder on Linux.

Note: To change this folder go to the ***Editor*** > ***Spell Check*** > ***Dictionaries*** *preferences page*.

Note: To delete items from the list of learned words, press **Delete learned words** in the ***Editor*** > ***Spell Check*** > ***Dictionaries*** *preferences page*.

Ignored Words

The content of some XML elements like `programlisting`, `codeblock` or `screen` should always be skipped by the spell checking process. The skipping can be done manually word by word by the user using the **Ignore** button of *the **Spelling** dialog* or, more conveniently, automatically by maintaining a set of known element names that should never be checked. You maintain this set of element names *in the user preferences* as a list of XPath expressions that match the elements.

Only a small subset of XPath expressions is supported, that is only the '/' and '//' separators and the '*' wildcard. Two examples of supported expressions are `/a/*/b` and `//c/d/*`.

Automatic Spell Check

To allow Oxygen XML Author to automatically check the spelling as you write, you need to enable the **Automatic spell check** option from the *Spell Check* preferences page. Unknown words are highlighted and feature a contextual menu which offers the following actions:

- **Delete Repeated Word** - allows you to delete repeated words;
- **Learn Word** - allows you to add the current unknown word to the persistent dictionary;
- **Spell check options** - opens the ***Spell Check*** *preferences page*.

Also, a list of words suggested by the spell checking engine as possible replacements of the unknown word is offered in the contextual menu.

Spell Checking in Multiple Files

The **Check Spelling in Files** action allows you to check the spelling on multiple local or remote documents. This action is available in:

- the **Edit** menu;
- the contextual menu of the **Project** view;
- the contextual menu of the **DITA Maps Manager** view.

The spelling corrections are displayed in *the **Results** view*, that allows you to group the reported errors as a tree with two levels.

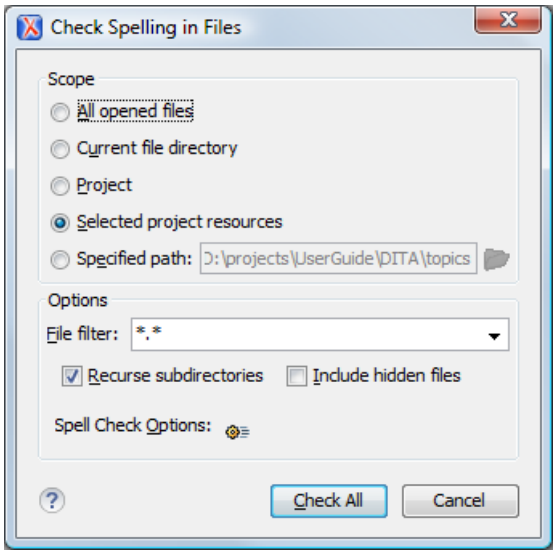


Figure 109: Check Spelling in Files Dialog

The following scopes are available:

- **All opened files** - spell check in all opened files;
- **Directory of the current file** - all the files from the folder of the current edited file;
- **Project files** - all files from the current project;
- **Selected project files** - the selected files from the current project;
- **Specified path** - checks the spelling in the files located at a path that you specify.

When you invoke the **Check Spelling in Files** action in the **DITA Maps Manager** view, a different dialog is displayed:

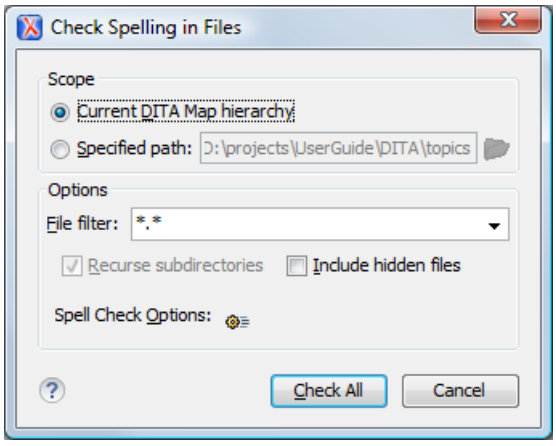


Figure 110: Check Spelling in Files Dialog in The DITA Maps Manager View

The following scopes are available:

- **Current DITA Map hierarchy** - All the files referred in the current DITA map opened in the **DITA Maps Manager** view;
- **Specified path** - checks the spelling in the files located at a path that you specify;

You can also choose a file filter, decide whether to recurse subdirectories or process hidden files.

The spell checker processor uses the options available in the ***Spell Check*** *preferences panel* .

Editing Large Documents

When you open a document with a file size larger than the limit configured in ***Preferences*** > ***Editor*** > ***Open*** > ***Save***, Oxygen XML Author prompts you to choose whether you want to optimize the loading of the document for large files or for huge files.

Depending on the size of the document, a recommend approach is enabled by default. In case your file has a size smaller than 300 MB, the recommended approach is ***Optimize loading for large files***. For documents that exceed 300 MB the recommended approach is ***Optimize loading for huge files***.

File sizes smaller than 300 Megabytes

For editing large documents (file size up to 300 Megabytes), a special memory optimization is implemented on loading such a file so that the total memory allocated for the application is not exceeded.

A temporary buffer file is created on disk so you have to make sure that the available free disk space is at least double the size of the large file that you want to edit. For example, Oxygen XML Author can load a 200-Megabytes file using a minimum memory setting of 512 Megabytes and at least 400-Megabytes free disk space.

The increase of the maximum size of editable files comes with the following restrictions:

- A file larger than the value of the above option is edited only in Text mode.
- The *automatic validation* is not available when editing a very large file.
- The XPath filter is disabled in *the Find/Replace dialog*.
- The bidirectional Unicode support (right-to-left writing) is disabled.
- *The option* ***Format and indent the document on open*** is disabled for non-XML documents. For XML documents, it is done optimizing the memory usage but without respecting the options set in *the* ***Format*** *preferences page*.
- Less precise localizations for the results of an *XPath expression*.

XML file sizes greater than 300 MB

XML files tend to become larger and larger mostly because they are frequently used as a format for database export or for porting between different database formats. Traditional XML text editors simply cannot handle opening these huge export files, some having sizes exceeding one gigabyte, because all the file content must be loaded in memory before the user can actually view it.

The loaded file is split in multiple pages (each having about 1MB in size). Each page is individually loaded (and edited) in the **Text** mode by using the special horizontal slider located at the top of the editing area. The loading operation is very fast and has no upper limit for the size of the loaded file.

The increase of the maximum size of editable files comes with the following restrictions:

- only XML files UTF-8, UTF-16, and ASCII encoded are loaded;
- a file larger than the value of the above option is edited only in Text mode;
- the *automatic validation* is not available when editing a very large file;

- the XPath filter is disabled in *the Find/Replace dialog*;
- the bidirectional Unicode support (right-to-left writing) is disabled;
- *the option* ***Format and indent the document on open*** is disabled for non-XML documents. For XML documents, it is done optimizing the memory usage but without respecting the options set in *the* ***Format*** *preferences page*;
- the **Outline** view is not supported;
- the editor is wrapped by default;
- the **Find/Replace** dialog only supports the **Find** action;
- saving changes is possible if **Safe save** is activated;
- the **undo** operation is not available if you go to other pages and come back to the modified page.

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 and also to drag and drop fragments of text from the scratch buffer to the editor panel. The **Scratch Buffer** is basically a text area offering XML syntax highlight. The view contextual menu contains basic edit actions like **Cut**, **Copy**, and **Paste**.

Handling Read-Only Files

If a file marked as read-only is opened in Oxygen XML Author you can by default perform modifications to it. This behavior is controlled by the ***Can edit read only files*** option. When attempting to save such files you will be prompted to save them to another location.

You can check out the read-only state of the file by looking in the *Properties view*. If you modify the file properties from the operating system and the file becomes writable, you are able to modify it on the spot without having to reopen it.

The read-only state is marked with a lock decoration which appears in the editor tab and specified in the tooltip for a certain tab.

Editing Documents with Long Lines

The documents containing long lines can affect performance when opened in the text editor. If you choose to present the document with line wrap, some features are affected:

- The editor uses the `Monospaced` font.
- You cannot set font styles from **Options** > **Preferences** > **Editor** > **Colors**.
- Automatic validation is disabled.
- Automatic spell checking is disabled.
- **XPath** field is disabled in the **Find/Replace** dialog.
- Less precise localization for executed XPaths. The XPath executions use SAX sources for smaller memory footprint. We recommend using XPath 2.0 instead of XPath 1.0 because it has increased speed and a smaller memory footprint. Running an XPath expression requires additional memory about 2 or 3 times the size of the document on disk.

The last two restrictions are valid only for XML documents.

Associating a File Extension with Oxygen XML Author

To associate a file extension with Oxygen XML Author on Windows:

- go to the **Start** menu and click **Control Panel**;
- go to **Default Programs**;
- click **Associate a file type or protocol with a program**;
- click the file extension you want to associate with Oxygen XML Author, then click **Change program**;
- in the **Open With** dialog click **Browse** and navigate to Oxygen XML Author.

To associate a file extension with Oxygen XML Author on Mac:

- In **Finder**, right click a file and from the contextual menu select **Get Info**;
- In the **Open With** subsection, select **Other** from the application combo and browse to Oxygen XML Author;
- With Oxygen XML Author selected, click **Change All**.

Terms

Active cell	The selected cell in which data is entered when you begin typing. Only one cell is active at a time. The active cell is bounded by a heavy border.
Block	A block is an element that takes up the entire available width. A block is delimited by line breaks before and after it.
Inline	An inline element takes up as much width as necessary, and does not force line breaks.
Inline XML element	Inline elements are elements which appear in a mixed-content context (parents with both non-whitespace text and elements).

Chapter 6

Author for DITA

Topics:

This chapter presents the Author features that are specific for editing DITA XML documents.

Creating DITA Maps and Topics

The basic building block for DITA information is the DITA topic. DITA provides the following topic types:

- *Concept* - For general, conceptual information such as a description of a product or feature;
- *Task* - For procedural information such as how to use a dialog;
- *Reference* - For reference information.

You can organize topics into a DITA map or bookmap. A map is a hierarchy of topics. A bookmap supports also book divisions such as chapters and book lists such as indexes. Maps do not contain the content of topics, but only references to them. These are known as topic references. Usually the maps and bookmaps are saved on disk or in a CMS with the extension '.ditamap'.

Maps can also contain relationship tables that establish relationships between the topics contained within the map. Relationship tables are also used to generate links in your published document.

You can use your map or bookmap to generate a deliverable using an output type such as XHTML, PDF, HTML Help or Eclipse Help.

Editing DITA Maps

Oxygen XML Author provides a special view for editing DITA Maps. The **DITA Maps Manager** view presents a DITA Map in a simplified table-of-contents manner. It allows you to navigate easily to the referred topics and maps, make changes, and apply transformation scenarios to obtain various output formats. The DITA-OT framework that is bundled with Oxygen XML Author is used.

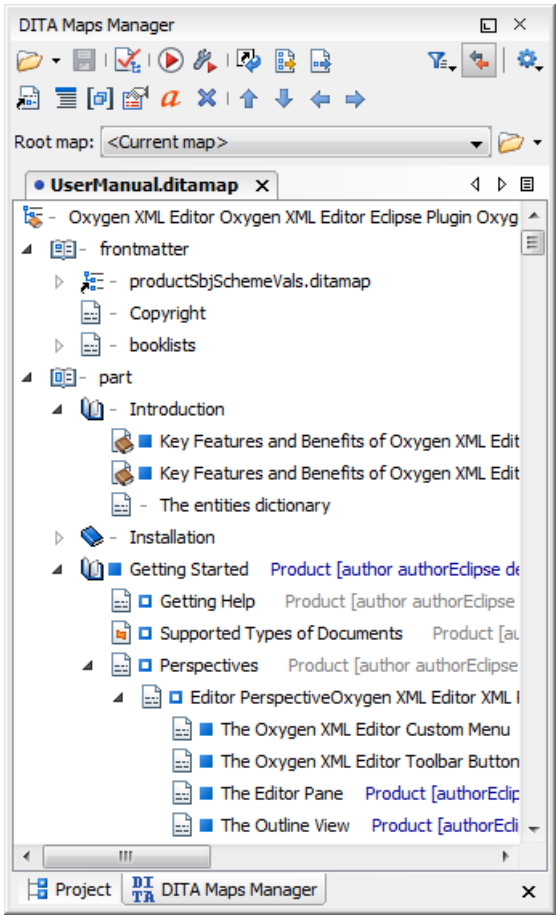


Figure 111: The DITA Maps Manager View

The view supports opening multiple documents at the same time.

All files that have the `.ditamap` or `.bookmap` extension are opened in the **DITA Maps Manager** view. In addition, you can right click the file in the **Project** view and select **Open with**. If you opened the DITA Map file in the editor panel you can open it also in this special DITA Map view by right clicking on the title tab of the editor panel and selecting the **Open in DITA Maps Manager** action from the popup menu.

You can move topics in the same map or between different maps by dragging and dropping them into the desired position. Also, you can copy topics by dragging them while pressing the **Ctrl** (**Meta** on Mac OS) key.

The toolbar includes the actions which are also available on menu **DITA Maps**:

- **Reopen** - You can use this drop-down to reopen recently viewed DITA Maps. Apart from the history of the recently viewed DITA Maps, the drop-down also contains the **Clear history** , **Open**, and **Open URL** actions;
- **Clear history** - Removes the list with the recently viewed DITA Maps;
- **Open** - Allows opening the map in the **DITA Maps Manager** view. You can also open a map by dragging it in the **DITA Maps Manager** view from the file system explorer;
- **Open URL** - Allows opening remote maps in the **DITA Maps Manager** view. See *Open URL* for details;
- **Open from Data Source Explorer** - Allows you to open a DITA Map from a data source explorer;
- **Save (Ctrl (Meta on Mac OS)+S)** - Saves the current DITA Map;
- **Validate and Check for Completeness** - *Checks the validity and integrity* of the map;
- **Apply Transformation Scenario(s)** - *Applies the DITA Map transformation scenario* that is associated with the current map from the view;
- **Configure Transformation Scenario(s)...** - Allows *associating a DITA Map transformation* scenario with the current map;

- **Refresh References** - You can use this action to manually trigger a refresh and update of all titles of referred topics. This action is useful when the referred topics are modified externally. When they are modified and saved from the Oxygen XML Author Author, the DITA Map is updated automatically;
- **Open Map in Editor with Resolved Topics** - Opens the DITA Map in the main editor area with content from all topic references expanded in-place; Content from the referenced topics is presented as read-only and you have to use the contextual menu action **Edit Reference** to open the topic for editing.
- **Open Map in Editor** - For complex operations which cannot be performed in the simplified DITA Maps view (like editing a relationship table) you can open the map in the main editing area;

  Note: You can also use this action to open referenced DITA Maps in the **Editor**.

- **Link with Editor** - Disables/Enables the synchronization between the file path of the current editor and the selected topic reference in the **DITA Maps Manager** view;

  Note: This button is disabled automatically when you move to the **Debugger** perspective.

- **Profiling/Conditional Text** menu with the following actions:
  - **Show Profiling Attributes** - Enables/Disables displaying the values of the profiling attributes at the end of the titles of topic references. When enabled, the values of the profiling attributes are displayed both in the **DITA Maps Manager** view and in the **Author** editor;
  - **Configure Profiling Condition Sets ...** - Opens the preferences page for adding and editing the profiling conditions that you can apply in the **DITA Maps Manager** view and the **Author** editor;

If your map references other DITA Maps they will be shown expanded in the DITA Maps tree and you will also be able to navigate their content. For editing you will have to open each referenced map in a separate editor. You can choose not to expand referenced maps in the **DITA Maps Manager** view or referenced content in the opened editors by unchecking the **Display referred content** checkbox available in the *Author preferences page*.

The following edit actions can be performed on an opened DITA Map:

- **Insert Reference** - Inserts a reference to a topic file. You can find more details about this action in the *Inserting a Reference, a Key Definition, a Topic Set* topic;
- **Insert Topic Heading** - Inserts a topic heading. You can find more details about this action in the *Inserting a Topic Heading* topic;
- **Insert Topic Group** - Inserts a topic group. You can find more details about this action in the *Inserting a Topic Group* on page 222 topic;
- **Edit Properties** - Edit the properties of a selected node. You can find more details about this action in the *Edit Properties* on page 223 topic;
- **Edit Profiling Attributes** - Allows you to select the profiling attributes;
- **Edit Attributes** - Allows you to edit all the attributes of a selected node. You can find more details about this action in the *Attributes View* on page 84 topic;
- **Rename resource** - allows you to *change the name of a resource linked in the edited DITA Map*;
- **Move resource** - allow you to *change the location on disk of a resource linked in the edited DITA Map*;
- **Delete** - Deletes the selected node;
- **Move Up** (**Alt + Up Arrow**) - Moves the selected nodes in front of their respective previous siblings;
- **Move Down** (**Alt + Down Arrow**) - Moves the selected nodes after their next respective siblings;
- **Promote** (**Alt + Left Arrow**) - Moves the selected nodes after their respective parents as siblings;
- **Demote** (**Alt + Right Arrow**) - Moves the selected nodes as children to their respective previous siblings;

  Note: As an alternative to these actions, you can select one or multiple topics, then drag and drop them to the desired position inside the map.

- **Root map** - specifies a master DITA Map that Oxygen XML Author uses to establish a key space which you can use with any other DITA Map that the master one imports.

To watch our video demonstrations about DITA editing and DITA Maps Manager view, go to *http://oxygenxml.com/demo/DITA_Editing.html* and *http://oxygenxml.com/demo/DITA_Maps_Manager.html* respectively.

Editing Actions

Important: References can be made either by using the `href` attribute or by using the new `keyref` attribute to point to a key defined in the map. Oxygen XML Author tries to resolve both cases. `keyref`s are solved relative to the current map.

In additional to being available on the toolbar and on the contextual menu, more navigation actions and all edit actions appear in the **DITA Maps** menu. The menu is only available when the view is active on screen.

In addition to the edit actions described above, the contextual menu contains the following actions:

- **Open** - opens in the editor the resources referred by the nodes you select;
- **Append Child/Insert After** - sub-menus containing the following actions:
  - **Reference** - appends/Inserts a topic reference as a child/sibling of the selected node;
  - **Reference to the current edited file** - appends/Inserts a topic reference to the current edited file as a child/sibling of the selected node;
  - **New topic** - create a new topic from templates, saves it on disk and adds it into the DITA map;
  - **Anchor Reference**, **Key Definition**, **Map Reference**, **Topic Reference**, **Topic Set**, **Topic Set Reference** - allows you to insert a reference to a topic file, a map file, a topic set, or a key definition;
  - **Topic heading** - appends/Inserts a topic heading as a child/sibling of the selected node;
  - **Topic group** - appends/Inserts a topic group as a child/sibling of the selected node;
- **Find/Replace in Files** - find and replace in files using the scope of the current edited map;
- **Check Spelling in Files** - checks the spelling of the files in the scope of the current edited map;
- **Search References** - finds in the current map all references to the selected topic reference (`topicref` or `mapref` element) and to each element with an ID attribute contained in the selected topic. If the current selection in the **DITA Maps Manager** view is a `keydef` element the action will find any element with an attribute `idref`, `keyref`, `conref` or `conkeyref` that points to the selected `keydef`. A shortcut can be set for this action in *the **Menu Shortcut Keys** preferences*.
- **Cut, Copy, Paste, Undo, Redo** - common edit actions with the same functionality as those found in the text editor;
- **Paste Before, Paste After** - pastes the content of the clipboard before, respectively after, the selected node;

You can also arrange the nodes by dragging and dropping one or more nodes at a time. Drop operations can be performed before, after or as child of the targeted node. The relative location of the drop is indicated while hovering the mouse over a node before releasing the mouse button for the drop.

Drag and drop operations allow you to:

- **Copy** - select the nodes you want to copy and start dragging them. Before dropping them in the appropriate place, press and hold the **Ctrl** key (**Meta** key on Mac). The mouse pointer changes to indicate that a copy operation is performed;
- **Move** - select the nodes you want to move and drag and drop them in the appropriate place;
- **Promote** (**Alt + Left Arrow**)/**Demote** (**Alt + Right Arrow**) - you can move nodes between child and parent nodes which ensures both **Promote** (**Alt + Left Arrow**) and **Demote** (**Alt + Right Arrow**) operations.

Apart from the above actions, the contextual menu of the root of the map contains the following two options:

- **Open Map in Editor** - opens the ditamap in the **Editor** view;

Note: The bubble displayed on the **Editor** tab of a ditamap opened in the **Editor** view is rendered blue.

- **Open Map in Editor with resolved topics** - opens the ditamap in the editor view and displays the content referred by the links in the ditamap;
- **Export DITA Maps** - exports all the resources referred in a DITA Map. You can also choose to export the resources as an archive.

Tip:

You can open and edit linked topics easily by double clicking the references or by right-clicking and choosing **Open in editor**. If the referenced file does not exist you are allowed to create it.

By right clicking the map root element you can open and edit it in the main editor area for more complex operations.

You can decide to open the reference directly in the Author mode and keep this setting as a default.

Creating a Map

Here are the steps to create a DITA map are the following:

1. Go to menu **File** > **New** or click on the **New** toolbar button.
2. Select one of the **DITA Map** templates on the tab **From templates** of the **New** dialog.
3. Click the **OK** button.
   A new tab is added in the **DITA Maps Manager** view.
4. Press the **Save** button on the toolbar of the **DITA Maps Manager** view.
5. Select a location and a file name for the map in the **Save As** dialog.

Validating DITA Maps

To validate a DITA map, go to the *the **DITA Maps Manager** view* and click **Validate and Check for Completeness**. You can also find the **Validate and Check for Completeness** action in the **DITA Maps** menu. Invoking this action opens the **DITA Map completeness Check** dialog box, which allows you to configure the DITA Map validation.

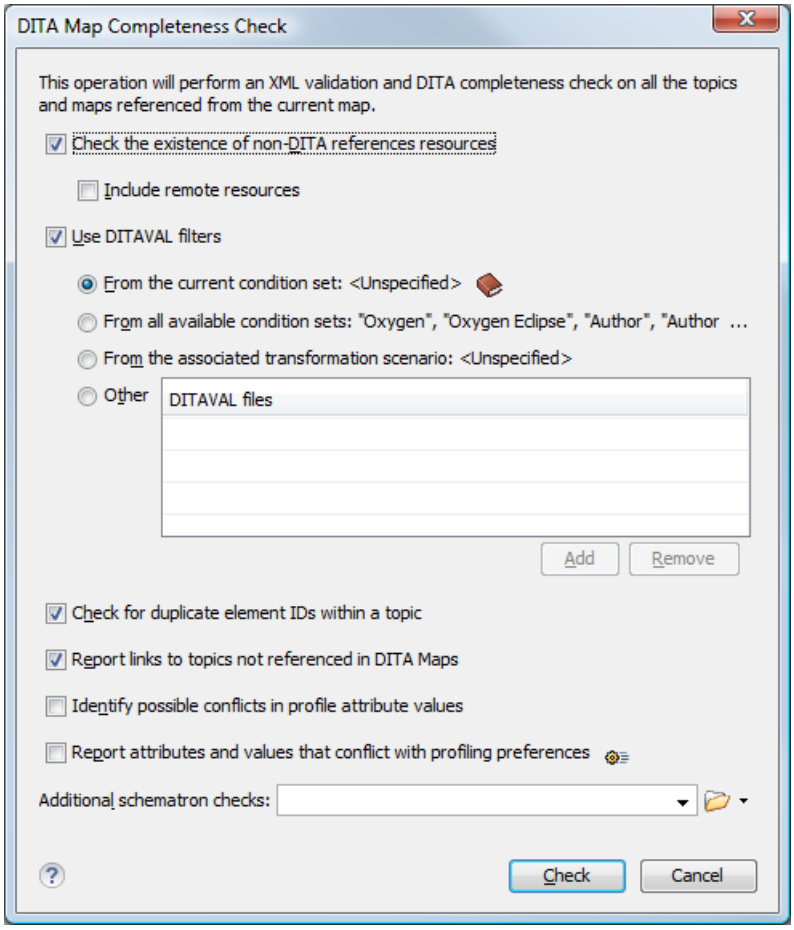


Figure 112: DITA Map Completeness Check

The validation process of a DITA MAP covers the following steps:

- verifies whether the file paths of the topic references are valid. In case an `href` attribute points to an invalid file path it is reported as a separate error in the **Errors** view;
- validates each referred topic and map. Each topic file is opened and validated against the appropriate DITA DTD. In case another DITA map is referred in the main one, the referred DITA Map is verified recursively, applying the same algorithm as for the main map.

The following options are available in the **DITA Map Completeness Check** dialog box:

- **Check the existence of non-DITA references resources** - extends the validation of referred resources to non-DITA files. Enable the **Include remote resources** options if you want to check that remote referenced binary resources (like images, movie clips, ZIP archives) exist at the specified location;
- **Use DITAVAL filters** - the content of the map is filtered by applying a *profiling condition set* before validation:
  - **From the current condition set** - the map is filtered using the condition set applied currently in the DITA Maps Manager view;
  - **From all available condition sets** - for each available condition set, the map content is filtered using the condition set before validation;
  - **From the associated transformation scenario** - the filtering condition set is specified explicitly as a DITAVAL file in the current transformation scenario associated with the DITA map;
  - **Other DITAVAL files** - for each DITAVAL file from this list, the map content is filtered using the DITAVAL file before validation;

Note: A link invalid in the content that resulted from the filtering process is reported as an error.

- **Check for duplicate element IDs within a topic** - if an ID is duplicated after assembling all topics referred in the map, it is reported as error;
- **Report links to topics not referenced in DITA Maps** - checks that all referred topics are linked in the DITA map;
- **Identify possible conflicts in profile attribute values** - when a topic's profiling attributes contain values that are not found in parent topics profiling attributes, the content of the topic is overshadowed when generating profiled output. This option reports such possible conflicts;
- **Report attributes and values that conflict with profiling preferences** - looks for profiling attributes and values not defined in the *Profiling / Conditional Text* preferences page. It also checks if profiling attributes defined as *single-value* have multiple values set in the searched topics;
- **Additional schematron checks** - allows you to select a Schematron schema that Oxygen XML Author uses for the validation of DITA resources.

Using a Root Map

You can set a DITA Map as a key space for all the other DITA Maps and topics that you edit in Oxygen XML Author. This DITA Map is called a *root map*. Specifying the correct root map assures that you encounter no validation problems when you work with keyrefs. All the keys that are defined in a root map are available in the maps that the root map imports.

You can specify the root map from:

- *the **DITA Maps Manager** view*;
- *the **Insert Key Reference Dialog** dialog*;
- *the **Insert Content Key Reference** dialog*.

You can also click one of the key reference errors to select the root map.

To watch our video demonstration about the DITA Root Map support, go to *http://oxygenxml.com/demo/DITA_Root_Map.html*.

Create a Topic in a Map

To add a topic to a DITA map, follow these steps:

1. Run the action **Insert Topic Reference** in the view **DITA Maps Manager**.

   The action **Insert Topic Reference** is available on the toolbar and on the contextual menu of the view. The action is available both on the submenu **Append Child** (when you want to insert a topic reference in a map as a child of the current topic reference) and on the submenu **Insert After** (when you want to insert it as a sibling of the current topic reference). The toolbar action is the same as the action from the submenu **Insert After**.
2. Select a topic file in the file system dialog called **Insert Topic Reference**.
3. Press the **Insert** button or the **Insert and close** button in the dialog.
   A reference to the selected topic is added to the current map in the view.
4. If you clicked the **Insert** button you can continue inserting new topic references using the *Insert* button repeatedly in the same file system dialog.
5. Close the dialog using the **Close** button.

Organize Topics in a Map

You can understand better how to organize topics in a DITA map by working with a populated map. You should open the sample map called `flowers.ditamap`, located in the `samples/dita` folder.

1. Open the file `flowers.ditamap`.

2. Select the topic reference *Summer Flowers* and press the **Move Down** button to change the order of the topic references *Summer Flowers* and *Autumn Flowers*.
3. Make sure that *Summer Flowers* is selected and press the **Demote** button. This topic reference and all the nested ones are moved as a unit inside the *Autumn Flowers* topic reference.
4. Close the map without saving.

Create a Bookmap

The procedure for creating a Bookmap is similar with that for creating a DITA Map.

1. Go to menu **File** > **New** or click on the **New** toolbar button.
   This action will open *the **New** wizard*.
2. Select the **DITA Map - Bookmap** template.
3. Click the **OK** button.
   A new tab with the new bookmap is added in *the **DITA Maps Manager** view*.
4. Press the **Save** button on the toolbar of the **DITA Maps Manager** view.
5. In the **Save As** dialog select a location and a file name for the map.

Create a Subject Scheme

The procedure for creating a DITA subject scheme is similar with that for creating a map.

1. Go to menu **File** > **New** or click on the **New** toolbar button.
   This action will open *the **New** wizard*.
2. Select the **DITA Map - Subject Scheme** template.
3. Click the **OK** button.
   A new tab with the new subject scheme document is added in *the **DITA Maps Manager** view*.
4. Press the **Save** button on the toolbar of the **DITA Maps Manager** view.
5. In the **Save As** dialog select a location and a file name for the map.

Create Relationships Between Topics

The DITA map offers the possibility of grouping different types of links between topics in a relationship table instead of specifying the links of each topic in that topic.

1. Open the DITA map file where you want to create the relationship table.

   Use the action **Open** that is available on the toolbar of the **DITA Maps Manager** view.
2. Place the cursor at the location of the relationship table.
3. Run the action **Insert a DITA reltable**.

   The action is available on the **Author** toolbar, on the menu **DITA** > **Table** and on the **Table** submenu of the contextual menu of the DITA map editor.

   This action displays the **Insert Relationship Table** dialog.
4. Set the parameters of the relationship table that will be created: the number of rows, the number of columns, a table title (optional), a table header (optional).
5. Press **OK** in the **Insert Table** dialog.
6. Set the type of the topics in the header of each column.

The header of the table (the `relheader` element) already contains a `relcolspec` element for each table column. You should set the value of the attribute `type` of each `relcolspec` element to a value like *concept*, *task*, *reference*. When you click in the header cell of a column (that is a `relcolspec` element) you can see all the attributes of that `relcolspec` element including the `type` attribute in the **Attributes** view. You can edit the attribute type in this view.

7. Place the cursor in a table cell and run the action **Insert Topic Reference** for inserting a topic reference in that cell.

   The action is available on the **Author** toolbar, on the menu **DITA** > **Insert** and on the **Insert** submenu of the contextual menu.

8. Optionally for adding a new row to the table / removing an existing row you should run the action **Insert Row**/ **Delete Row.**

   The actions are available on the **Author** toolbar, on the menu **DITA** > **Table** and on the **Table** submenu of the contextual menu.

9. Optionally for adding a new column to the table / removing an existing column you should run the action **Insert Column**/ **Delete Column**.

   The actions are available on the **Author** toolbar, on the menu **DITA** > **Table** and on the **Table** submenu of the contextual menu.

Advanced Operations

This section explains how to insert references like chapter, topic reference, topic group or topic heading in a DITA map.

Inserting a Reference, a Key Definition, a Topic Set

A DITA map can contain various types of references. The targets of the references can be:

- an anchor
- a map
- a topic
- a topic set

The `topicref` element is a reference to a topic (such as a concept, task, or reference) or other resource. A `topicref` can contain other `topicref` elements, and allows you to express navigation or table-of-contents hierarchies, as well as implying relationships between the containing `topicref` and its children. You can set the collection type of a container `topicref` to determine how its children are related to each other. You can also express relationships among `topicref`'s using group and table structures (using `topicgroup` and `reltable`). Relationships end up expressed as links in the output (with each participant in a relationship having links to the other participants by default).

A reference to a topic file, a map file, a topic set, or a key definition may be inserted with the following dialog box which is opened from the actions of the **Append child** and **Insert after** submenus of *the **DITA Maps Manager** view*'s contextual menu. The content of the **Append child** and **Insert after** submenus depend on the selected node of the DITA map tree on which the contextual menu was invoked. For example if the selected node is the `bookmap` root node the possible child nodes are:

- chapter (the `chapter` element),
- part (the `part` element),
- appendix (the `appendix` element),
- appendices (the `appendices` element)

If the selected node is a `topicref` the possible child nodes are:

- anchor reference (the `anchorref` element),
- topic reference (the `topicref` element),

- map reference (the `mapref` element),
- topic set reference (the `topicsetref` element),
- topic set (the `topicset` element),
- key definition (the `keydef` element),
- topic head (the `topichead` element),
- topic group (the `topicgroup` element)

The same dialog box can be used to insert a non-DITA file like a PDF document.

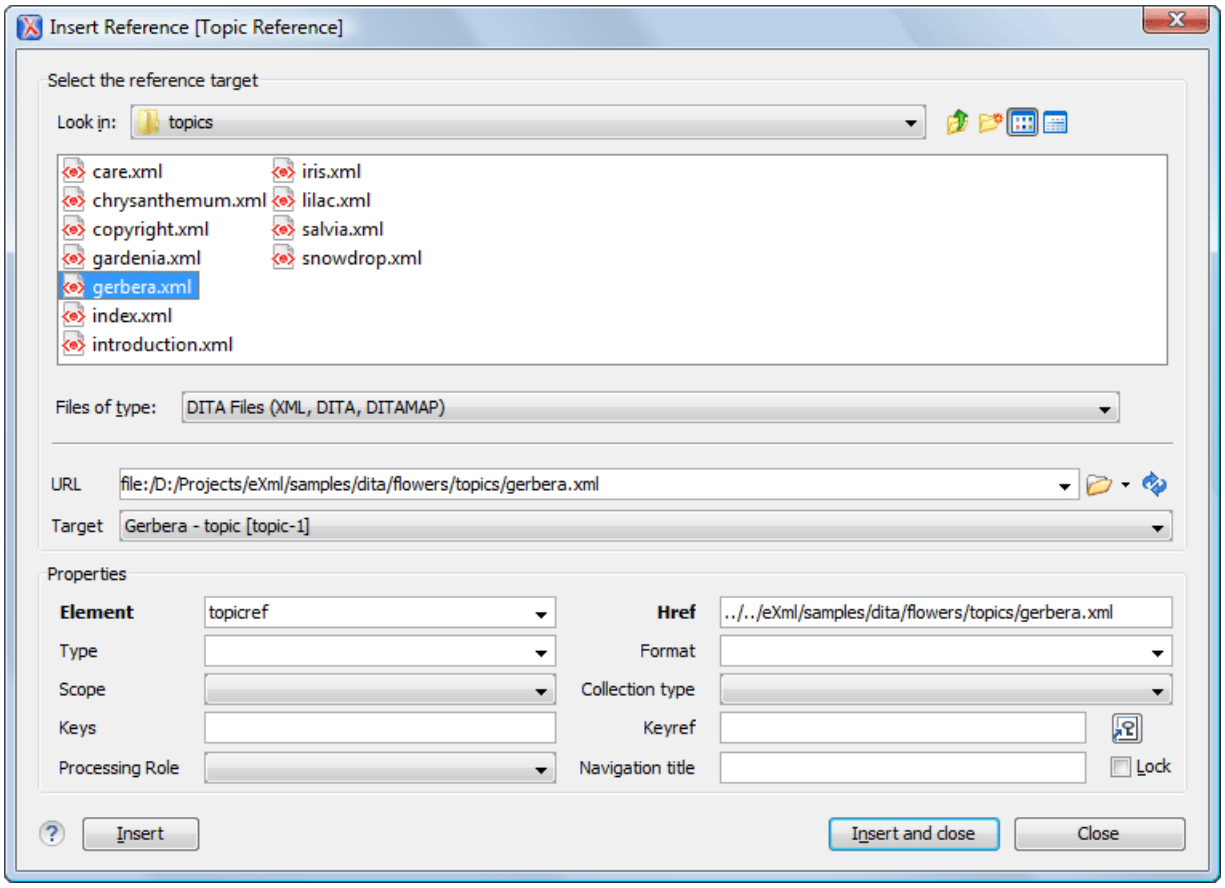


Figure 113: Insert Topic Reference Dialog

By using the **Insert Topic Reference** dialog you can easily browse for and select the source topic file. The **Target** combo box shows all available topics that can be targeted in the file. Selecting a target modifies the **Href** value to point to it which corresponds to the `href` attribute of the inserted `topicref` element. The **Format** and **Scope** combos are automatically filled based on the selected file and correspond to the `format` and `scope` attributes of the inserted `topicref` element. You can specify and enforce a custom navigation title by checking the **Navigation title** checkbox and entering the desired title.

The file chooser located in the dialog allows you to easily select the desired topic. The selected topic file will be added as a child or sibling of the current selected topic reference, depending on the insert action selected from the contextual menu of the **DITA Maps** view, that is an insert action from the **Append child** submenu or from the **Insert after** one. You can easily insert multiple topic references by keeping the dialog opened and changing the selection in the **DITA Maps Manager** tree. You can also select multiple resources in the file explorer and then insert them all as topic references.

Another easy way to insert a topic reference is to drag files from the **Project** view, file system explorer or **Data Source Explorer** view and drop them into the map tree.

You can also define keys using the **Keys** text field on the inserted `topicref` or `keydef` element. Instead of using the **Href** combo box to point to a location you can reference a key definition using the **Keyref** text field. Use the **Choose key reference** to access the list of keys defined in the currently open DITA map.

The **Processing Role** combo box allows setting the `processing-role` attribute to one of the allowed values for DITA reference elements: `resource-only`, `normal`, `-dita-use-conref-target`.

Inserting a Topic Heading

The `topichead` element provides a title-only entry in a navigation map, as an alternative to the fully-linked title provided by the *topicref* element.

A topic heading can be inserted both from the toolbar action and the contextual node actions.

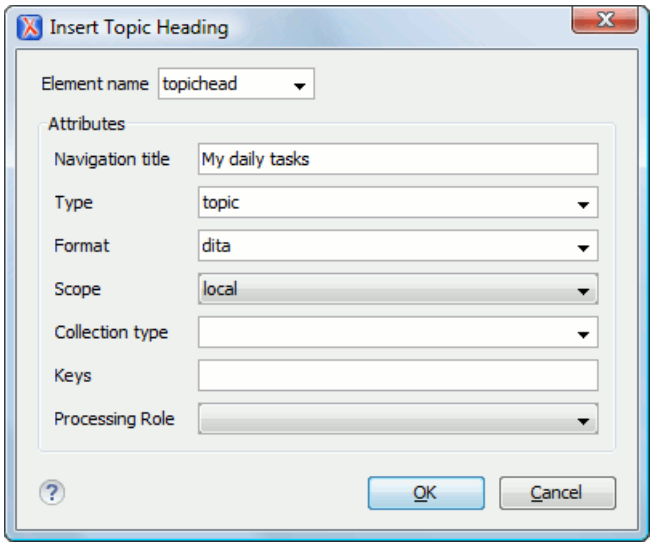


Figure 114: Insert Topic Heading Dialog

By using the **Insert Topic Heading** dialog you can easily insert a *topichead* element. The **Navigation title** is required but other attributes can be specified as well from the dialog.

Inserting a Topic Group

The *topicgroup* element identifies a group of topics (such as a concepts, tasks, or references) or other resources. A *topicgroup* can contain other *topicgroup* elements, allowing you to express navigation or table-of-contents hierarchies, as well as implying relationships between the containing *topicgroup* and its children. You can set the collection-type of a container *topicgroup* to determine how its children are related to each other. Relationships end up expressed as links in the output (with each participant in a relationship having links to the other participants by default).

A topic group may be inserted both from the toolbar action and the contextual node actions.

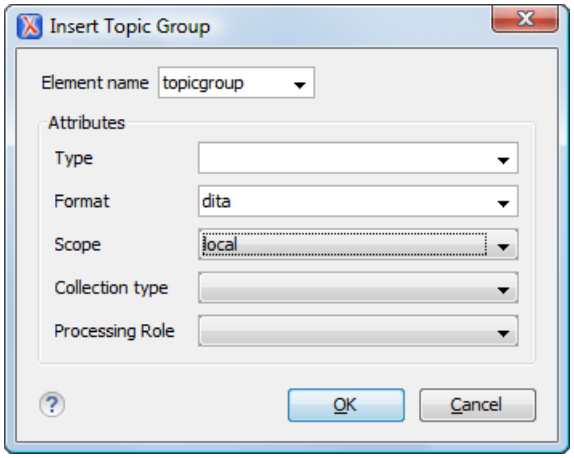


Figure 115: Insert Topic Group Dialog

By using the **Insert Topic Group** dialog you can easily insert a *topicgroup* element. The **Type**, **Format**, **Scope** and **Collection type** attributes can be specified from the dialog.

Edit Properties

The **Edit properties** action, available both on the toolbar and on the contextual menu, is used to edit the properties of the selected node. Depending on the selected node, the action will perform the following tasks:

- If a *topicref* or *chapter* element is selected, the action will show a dialog similar with the ***Insert Topic Reference*** *dialog* allowing the editing of some important attributes.
- If a *topichead* element is selected, the action will show a dialog similar with the ***Insert Topic Heading*** *dialog* allowing the editing of some important attributes.
- If a *topicgroup* element is selected, the action will show a dialog similar with the ***Insert Topic Group*** *dialog* allowing the editing of some important attributes.
- If the map's root element is selected then the user will be able to easily edit the map's title using the **Edit Map title** dialog. By using this dialog you can also specify whether the title will be specified as the *title* attribute to the map or as a *title* element (for DITA-OT 1.1 and 1.2) or specified in both locations.

Transforming DITA Maps and Topics

Oxygen XML Author uses the DITA Open Toolkit (DITA-OT) to transform DITA maps and topics into an output format. For this purpose both the DITA Open Toolkit 1.6.1 and ANT 1.7 come bundled in Oxygen XML Author.

More information about the DITA Open Toolkit are available at *http://dita-ot.sourceforge.net/*.

Creating a DITA Transformation Scenario

To create a **DITA OT Transformation** scenario, use one of the following methods:

- Go to **Window** > **Show View** and select **Transformation Scenarios** to display this view. Click the **New** button and select **DITA OT Transformation**;
- Click the **Configure Transformation Scenario(s)**(**Ctrl (Meta on Mac OS) + Shift + T**) button on the **Transformation** toolbar, then click the **New** button and select **DITA OT Transformation**;
- Select **Ctrl (Meta on Mac OS) + Shift + T** on your keyboard or click the **Apply Transformation Scenario** button on the **Transformation** toolbar to open the **Transform With** dialog. In this dialog click the **New** button and select **DITA OT Transformation**.

  Note: In case a scenario is already associated with the edited document, selecting **Ctrl (Meta on Mac OS) + Shift + T** or **Apply Transformation Scenario** runs the associated scenario automatically. You can check whether transformation scenarios are associated with the edited document by hovering your cursor over the **Apply Transformation Scenario** button.

All three methods open the **DITA transformation type** dialog box. This dialog presents the list of possible outputs that the **DITA OT Transformation** is able to produce. Select the transformation type, click **OK** and move on to configuring the options in the **New Scenario** dialog. This dialog allows you to configure the options that control the transformation.

All three methods open the **DITA transformation type** dialog box. This dialog presents the list of possible outputs that the **DITA OT Transformation** is able to produce:

- PDF;
- WebHelp;
- WebHelp - Mobile;
- WebHelp with Feedback;

- XHTML;
- Electronic Publication (EPUB);
- *Compiled HTML Help (CHM)*;
- JavaHelp;
- Eclipse Help;
- Eclipse Content;
- *Kindle (DITA 4 Publishers)*;
- HTML2 (DITA 4 Publishers);
- InDesign (DITA 4 Publishers);
- Graphical Map Visualizer (DITA 4 Publishers) - experimental;
- *TocJS*;
- Open Document Format;
- DocBook;
- RTF;
- troff;
- Legacy PDF.

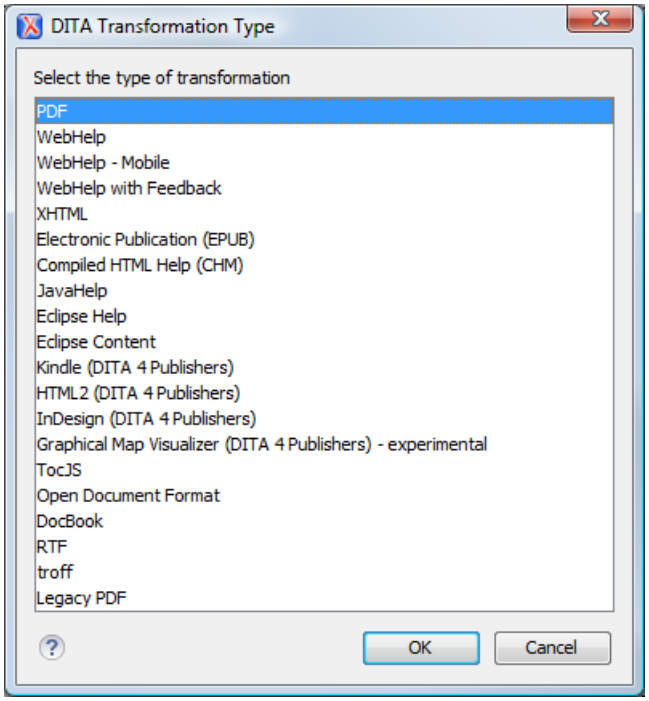


Figure 116: Select DITA Transformation type

Select the transformation type, click **OK** and move on to configuring the options in the **New Scenario** dialog. This dialog allows you to configure the options that control the transformation.

Note: Depending on the type of output you choose, Oxygen XML Author generates values for the default ANT parameters, so you can execute the scenario right away without further customization.

The upper part of the dialog box contains the **Name** field and the **Storage** options:

- **Global Options** - the scenario is saved in the global options stored in the user home directory;
- **Project Options** - the scenario list is stored in the project file. In case your project is saved on a source versioning/sharing system (CVS, SVN, Source Safe, and so on.), your team can use the scenarios you defined.

The lower part of the dialog box allows you to *further customize the DITA OT Transformation scenario* and contains the following tabs:

- ***Parameters***;
- ***Filters***;
- ***Advanced***;
- ***Output***;
- ***FO Processor***.

Compiled HTML Help (CHM) Output Format

To perform a **Compiled HTML Help (CHM)** transformation Oxygen XML Author needs `HTML Help Workshop` to be installed on your computer. Oxygen XML Author automatically detects `HTML Help Workshop` and uses it. When the transformation fails, the *.hhp* (HTML Help Project) file is already generated and it must be compiled to obtain the *.chm* file. Note that `HTML Help Workshop` fails when the files used for transformation contain diacritics in their names, due to different encodings used when writing the *.hhp* and *.hhc* files.

Changing the Output Encoding

Oxygen XML Author uses the `html.locale` parameter to correctly display specific characters of different languages in the output of the **Compiled HTML Help (CHM)** transformation. The **Compiled HTML Help (CHM)** default scenario that comes bundled with Oxygen XML Author has the `html.locale` parameter set to `en-US`. The format of the `html.locale` parameter is `LL-CC`, where `LL` represents the language code (`en` for example) and `CC` represents the country code (`US` for example). The language codes are contained in the `ISO 639-1` standard and the country codes are contained in the `ISO 3166-1` standard. For further details about language tags, go to *http://www.rfc-editor.org/rfc/rfc5646.txt*.

The default value of the `html.locale` is `en-US`. To customize this parameter, go to **Configure Transformation Scenarios** and click the **Edit** button. In the parameter tab search for the `html.locale` parameter and change its value to the desired language tag.

Viewing CHM on a Network Drive

When viewing a CHM on a network drive, if you only see the TOC and an empty page displaying “Navigation to the webpage was canceled” note that this is normal behaviour. The Microsoft viewer for CHM does not display the topics for a CHM opened on a network drive.

As a workaround, copy the CHM file on your local system and view it there.

The *TocJS* Transformation

The *TocJS* transformation of a DITA map does not generate all the files needed to display the tree-like table of contents. To get a complete working set of output files you should follow these steps:

1. Run the *XHTML* transformation on the same DITA map. Make sure the output gets generated in the same output folder as for the *TocJS* transformation.
2. Copy the content of `${frameworks}/dita/DITA-OT/plugins/com.sophos.tocjs/basefiles` folder in the transformation's output folder.
3. Copy the `${frameworks}/dita/DITA-OT/plugins/com.sophos.tocjs/sample/basefiles/frameset.html` file in the transformation's output folder.
4. Edit `frameset.html` file.
5. Locate element `<frame name="contentwin" src="concepts/about.html">`.
6. Replace `"concepts/about.html"` with `"index.html"`.

Kindle Output Format

Enabling Oxygen XML Author to obtain Kindle output from DITA Maps, requires KindleGen. To download KindleGen, go to *www.amazon.com/kindleformat/kindlegen* and select the zip file that matches your operating system. Unzip the

file on your local disk. After you download and unzip KindleGen, open the **Kindle** transformation type, select **Edit**, and go to the **Parameters** tab. Set the **kindlegen.executable** parameter as the path to the KindleGen directory.

Migrating OOXML Documents to DITA

Oxygen XML Author integrates the entire DITA for Publishers plugins suite, enabling you to migrate content from Open Office XML documents to DITA:

- Open an OOXML document in Oxygen XML Author. The document is opened in the **Archive Browser** view;
- From the **Archive Browser**, open `document.xml`;

  Note: `document.xml` holds the content of the document.

- Click **Configure Transformation Scenario(s)** on the toolbar and apply the **DOCX DITA** scenario. In case you encounter any issues with the transformation, click the link below for further details about the Word to DITA Transformation Framework.

Customizing a DITA Scenario

This section explains how to customize the parameters of a DITA transformation scenario.

The Parameters Tab

This dialog allows you to configure the parameters sent to the DITA-OT build file.

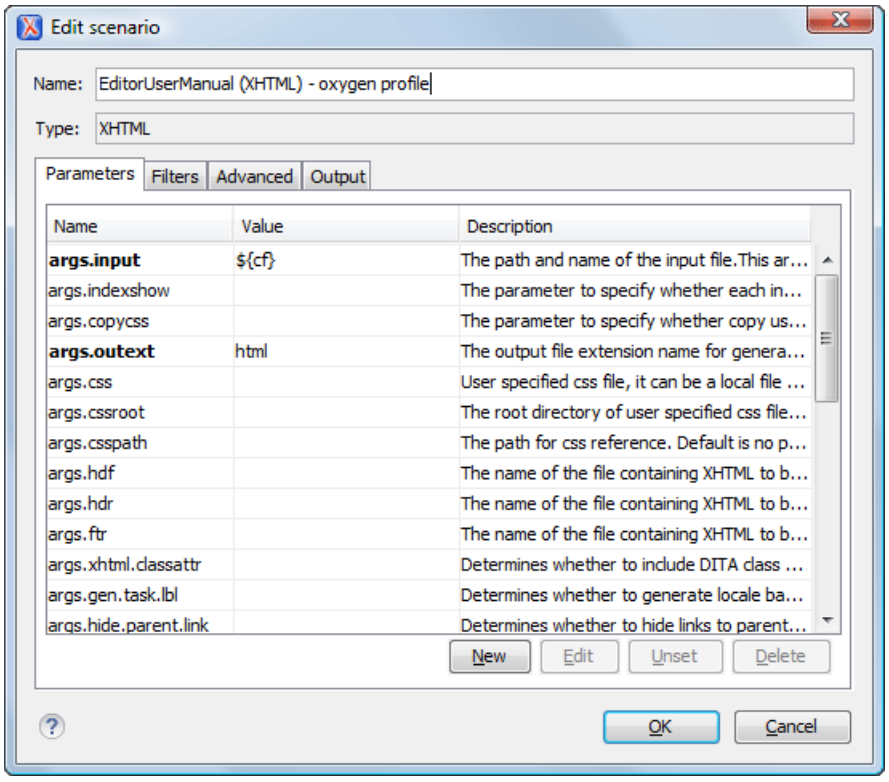


Figure 117: Edit DITA Ant transformation parameters

All the parameters that the DITA-OT documentation specifies as available for each chosen type of transformation (eg: XHTML) are listed along with their description. The values for some important parameters are already filled in. You can find more information about each parameter in the *DITA OT Documentation*. You can also add additional parameters to the list.

Using the toolbar buttons you can add, edit or remove a parameter.

Depending on the type of a parameter, its value can be one of the following:

- a simple text field for simple parameter values;
- a combo box with some predefined values ;
- a file chooser and an editor variables selector to simplify setting a file path as value to a parameter.

The value of a parameter can be entered at runtime if a value *ask('user-message', param-type, 'default-value' ?)* is used as value of parameter in the Configure parameters dialog.

Examples:

- `${ask('message')}` - Only the message displayed for the user is specified.
- `${ask('message', generic, 'default')}` - `'message'` is displayed, the type is not specified (the default is string), the default value is `'default'`.
- `${ask('message', password)}` - `'message'` is displayed, the characters typed are masked with a circle symbol.
- `${ask('message', password, 'default')}` - same as before, the default value is `'default'`.
- `${ask('message', url)}` - `'message'` is displayed, the parameter type is URL.
- `${ask('message', url, 'default')}` - same as before, the default value is `'default'`.

The *Filters* Tab

In the scenario **Filters** tab you can add filters to remove certain content elements from the generated output.

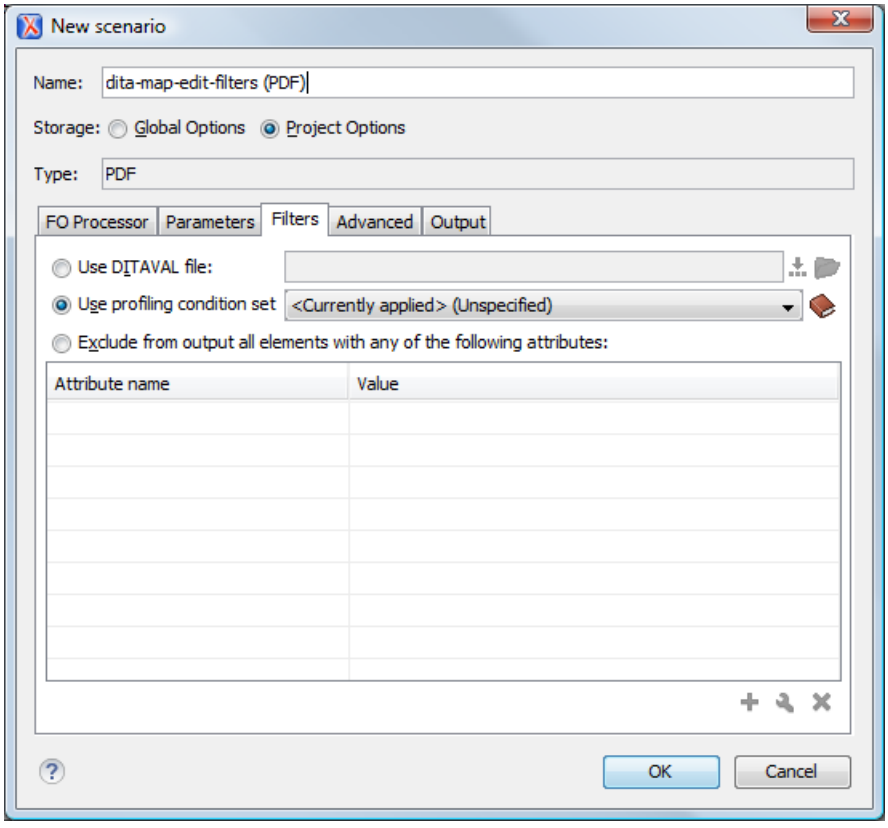


Figure 118: Edit Filters tab

There are three ways to define filters:

- **Use DITAVAL file** - if you already have a DITAVAL file associated with the transformed map you can specify the path to it and it will be used when filtering content. You can find out more about constructing a DITAVAL file in the *DITA OT Documentation* topic;

- **Use profiling condition set** - sets the *profiling condition set* that applies to the document you transform;
- **Exclude from output all elements with any of the following attributes** - you can configure a simple list of attribute (name, value) pairs which when present on an element in the input will remove it from output.

The *Advanced* Tab

In the **Advanced** tab, you can specify advanced options for the transformation.

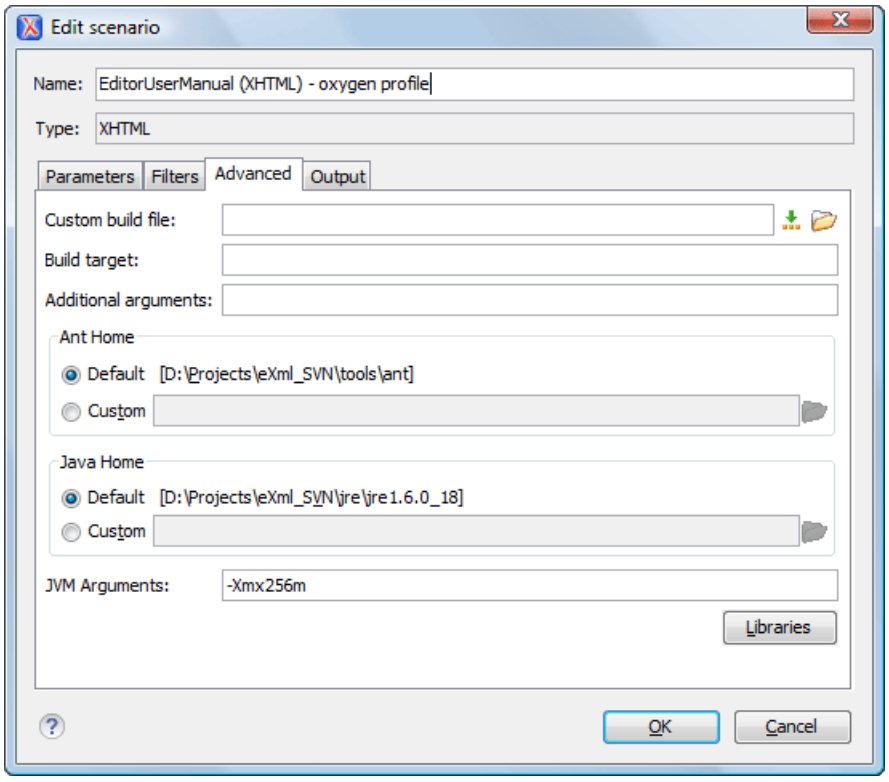


Figure 119: Advanced settings tab

You have several parameters that you can specify here:

- **Custom build file** - If you use a custom DITA-OT build file you can specify the path to the customized build file. If empty, the `build.xml` file from the `dita.dir` directory configured in the **Parameters** tab is used.
- **Build target** - You can specify a build target to the build file. By default no target is necessary and the default `init` target is used.
- **Additional arguments** - You can specify additional command-line arguments to be passed to the ANT transformation like -verbose.
- **Ant Home** - You can specify a custom ANT installation to run the DITA Map transformation. By default it is the ANT installation bundled with Oxygen XML Author.
- **Java Home** - You can specify a custom Java Virtual Machine to run the ANT transformation. By default it is the Java Virtual Machine used by Oxygen XML Author.
- **JVM Arguments** - This parameter allows you to set specific parameters to the Java Virtual Machine used by ANT. By default it is set to -Xmx384m which means the transformation process is allowed to use 384 megabytes of memory. Sometimes, when performing a large DITA map transformation you may want to increase the memory allocated to the Java Virtual Machine from the default value (384 MB) to a higher value, like 512 MB. This way, you can avoid the Out of Memory error messages (**OutOfMemoryError**) received from the ANT process.

  Note: If you are publishing DITA to PDF and still experience problems, you should also increase the amount of memory allocated to the FO transformer. To do this, go to the **Advanced** tab and increase the value of the **Java Arguments** parameter.

- **Libraries** - Oxygen XML Author adds by default as high priority libraries which are not transformation-dependent and also patches for certain DITA Open Toolkit bugs. You can specify all the additional libraries (jar files or additional class paths) which are used by the ANT transformer. You can also decide to control all libraries added to the classpath.

The Output Tab

In the **Output** tab, you can configure options related to the place where the output is generated.

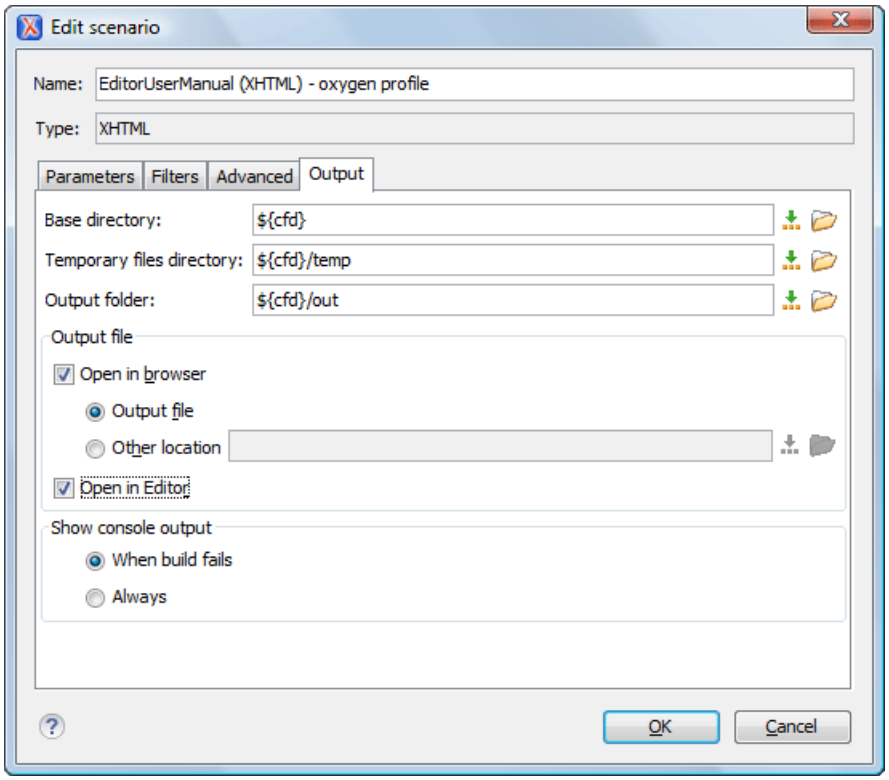


Figure 120: Output settings tab

You have several parameters that you can specify here:

- **Base directory** - all the relative paths which appear as values in parameters are considered relative to the base directory. The default value is the directory where the transformed map is located;
- **Temporary files directory** - this directory is used to store pre-processed temporary files until the final output is obtained;
- **Output folder** - the folder where the final output content is copied;
- **Output file options** - the transformation output can then be opened in a browser or even in the editor, if specified;
- **Show console output** - specifies whether the console is always displayed or only when the build fails.

Note: If the DITA Map or topic is opened from a remote location or from a ZIP file, the scenario must specify absolute output, temporary and base file paths.

The *FO Processor* Tab

This tab allows you to set an FO Processor, when you choose to generate PDF output.

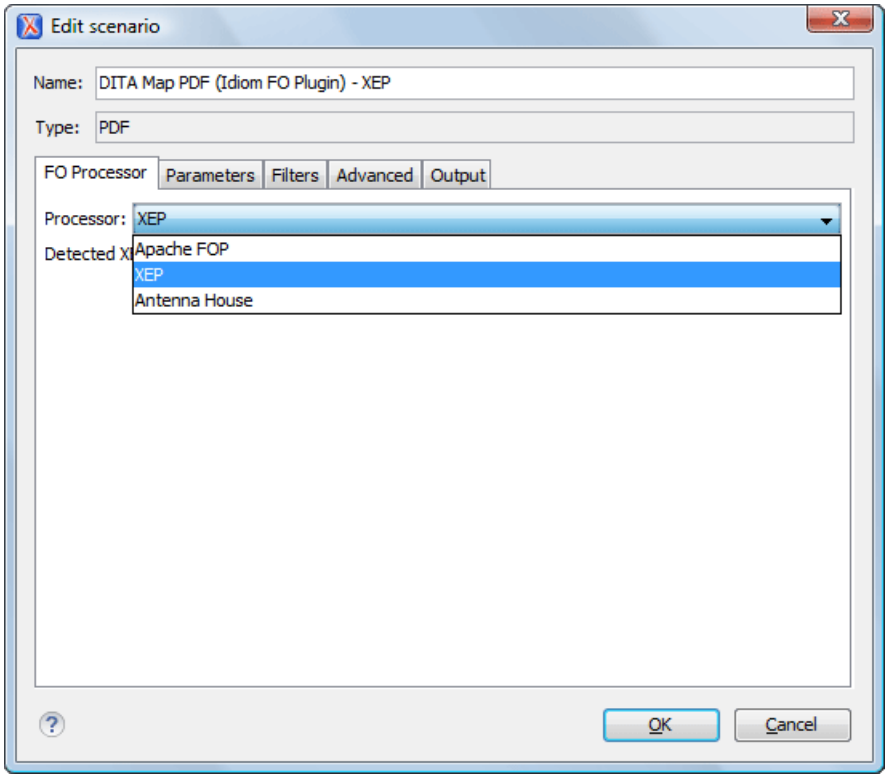


Figure 121: FO Processor configuration tab

You can choose between:

- **Apache FOP** - Default setting. This processor comes bundled with Oxygen XML Author.
- **XEP** - The *RenderX* XEP processor.

  If you select **XEP** in the combo and XEP was already installed in Oxygen XML Author you can see the detected installation path appear under the combo box.

  XEP is considered as installed if it was detected in one of the following sources:

  - XEP was configured as an external FO Processor in the ***FO Processors** option page*;
  - The system property *com.oxygenxml.xep.location* was set to point to the XEP executable file for the platform (eg: `xep.bat` on Windows);
  - XEP was installed in the `frameworks/dita/DITA-OT/plugins/org.dita.pdf2/lib` directory of the Oxygen XML Author installation directory.

- **Antenna House** - The *Antenna House* AH (v5) or XSL (v4) Formatter processor.

  If Antenna House was already installed on your computer and you select **Antenna House** in the combo box, in Oxygen XML Author you can see the detected installation path appear under the combo.

  Antenna House is considered as installed if it was detected in one of the following sources:

  - Environment variable set by Antenna House installation (the newest installation version will be used, *v5* being preferred over *v4*).
  - Antenna House was added as an external FO Processor in the Oxygen XML Author preferences pages.

Running a DITA Map ANT Transformation

The transformation is run as an external ANT process so you can continue using the application as the transformation unfolds. All output from the process appears in the **DITA Transformation** tab.

Tip: The HTTP proxy settings are also used for the ANT transformation so if the transformation fails because it cannot connect to an external location you can check the *the **Proxy** preferences page*

Set a Font for PDF Output Generated with Apache FOP

When a DITA map is transformed to PDF using the Apache FOP processor and it contains some Unicode characters that cannot be rendered by the default PDF fonts then a font that is capable to render these characters must be configured and embedded in the PDF result.

The settings that must be modified for configuring a font for the Apache FOP processor are detailed in *this section*.

How does the DITA Open Toolkit PDF font mapping work?

The DITA OT contains a file `OXYGEN_INSTALL_DIR/frameworks/dita/DITA-OT/plugins/org.dita.pdf2/cfg/fo/font-mappings.xml` which maps logical fonts used in the XSLT stylesheets to physical fonts which will be used by the FO processor to generate the PDF output.

The XSLT stylesheets used to generate the XSL-FO output contain code like:

```
<xsl:attribute name="font-family">monospace</xsl:attribute>
```

The font-family is defined to be *monospace*, but *monospace* is just an alias, it is not a physical font name. So another stage in the PDF generation takes this *monospace* alias and looks in the `font-mappings.xml`.

If it finds a mapping like this:

```
<aliases>
      <alias name="monospace">Monospaced</alias>
 </aliases>
```

then it looks to see if the *Monospaced* has a *logical-font* definition and if so it will use the *physical-font* specified there:

```
<logical-font name="Monospaced">
      <physical-font char-set="default">
        <font-face>Courier New, Courier</font-face>
      </physical-font>
............
</logical-font>
```

Important:

If no alias mapping is found for a font-family specified in the XSLs, the processing defaults to **Helvetica**.

Tips and Tricks

This section contains solutions for common problems encountered when working with the DITA Open Toolkit.

Debugging PDF Transformations

To debug a DITA PDF transformation scenario using the XSLT Debugger follow these steps:

1. Go to **Options** > **Preferences** > **XML** > **XML Catalog**, click **Add** and select the file located at `[Oxygen Install Directory]\frameworks\dita\DITA-OT\plugins\org.dita.pdf2\cfg\catalog.xml`;
2. Open the map in the **DITA Maps Manager** and create a **DITA Map PDF** transformation scenario;
3. Edit the scenario, go to the **Parameters** tab and change the value of the **clean.temp** parameter to **no**;
4. Run the transformation scenario;
5. Open in Oxygen XML the **stage1.xml** file located in the temporary directory and format and indent it;
6. Create a transformation scenario for this XML file by associating the `topic2fo_shell.xsl` stylesheet located at `OXYGEN_INSTALL_DIR/frameworks/dita/DITA-OT/plugins/org.dita.pdf2/xsl/fo/topic2fo_shell_fop.xsl`;

7. In the transformation scenario edit the **Parameters** list and set the parameter *locale* with the value *en_GB* and the parameter *customizationDir.url* to point either to your customization directory or to the default DITA OT customization directory. It's value should have an URL syntax like:`file://c:/path/to/OXYGEN_INSTALL_DIR/frameworks/dita/DITA-OT/plugins/org.dita.pdf2/cfg`.
8. Debug the transformation scenario.

The PDF Processing Fails to Use the DITA OT and Apache FOP

There are cases when publishing DITA content which you consider perfectly valid fails when creating the PDF file. This topic tries to list some of the more usual situations and has fix-up hints for each of these cases.

- The FO processor cannot save the PDF at the specified target. The console output contains messages like:

```
[fop] [ERROR] Anttask - Error rendering fo file: C:\samples\dita\temp\pdf\oxygen_dita_temp\topic.fo <Failed to
 open C:\samples\dita\out\pdf\test.pdf>
Failed to open samples\dita\out\pdf\test.pdf
[fop]  at org.apache.fop.tools.anttasks.FOPTaskStarter.renderInputHandler(Fop.java:647)
[fop]  at org.apache.fop.tools.anttasks.FOPTaskStarter.render(Fop.java:676)
.............
[fop]  at org.apache.tools.ant.launch.Launcher.run(Launcher.java:280)
[fop]  at org.apache.tools.ant.launch.Launcher.main(Launcher.java:109)
[fop] Caused by: java.io.FileNotFoundException: C:\Users\radu_coravu\Desktop\bev\out\pdf\test.pdf
(The process cannot access the file because it is being used by another process)
[fop]  at java.io.FileOutputStream.open(Native Method)
[fop]  at java.io.FileOutputStream.<init>(Unknown Source)
[fop]  at java.io.FileOutputStream.<init>(Unknown Source)
[fop]  at org.apache.fop.tools.anttasks.FOPTaskStarter.renderInputHandler(Fop.java:644)
[fop]  ... 45 more
[fop] C:\samples\dita\temp\pdf\oxygen_dita_temp\topic.fo -> C:\samples\dita\out\pdf\test.pdf
```

  Tip: Such an error message usually means that the PDF file is already opened in a PDF Reader application. The workaround is simple, always close the external PDF reader application before running the transformation.

- One of the DITA tables contains more cells in a table row than the defined number of *colspec* elements. The console output contains messages like:

```
[fop] [ERROR] Anttask - Error rendering fo file:
D:\projects\eXml\samples\dita\flowers\temp\pdf\oxygen_dita_temp\topic.fo
<net.sf.saxon.trans.XPathException: org.apache.fop.fo.ValidationException:
The column-number or number of cells in the row overflows the number of fo:table-columns specified for the
table. (See position 179:-1)>net.sf.saxon.trans.XPathException: org.apache.fop.fo.ValidationException: The
column-number or number of cells in the row overflows the number of fo:table-columns specified for the table.
 (See position 179:-1)
[fop]  at org.apache.fop.tools.anttasks.FOPTaskStarter.renderInputHandler(Fop.java:657)
[fop]  at net.sf.saxon.event.ContentHandlerProxy.startContent(ContentHandlerProxy.java:375)
............
[fop] D:\projects\samples\dita\flowers\temp\pdf\oxygen_dita_temp\topic.fo ->
D:\projects\samples\dita\flowers\out\pdf\flowers.pdf
```

  Tip:

  - Find the DITA topic that contains a DITA CALS table for which one of the table rows has more cells than the number of *colspecs* defined on the table.
  - Edit the transformation scenario you and set the parameter *clean.temp* to *no*.
  - Run the transformation, open the `topic.fo` file in Oxygen XML Author, and look in it at the line specified in the error message `(See position 179:-1)`.
  - Look around that line in the `XSL-FO` file to find relevant text content which you can use, for example, with the **Find/Replace in Files** action in the **DITA Maps Manager** view to find the original DITA topic for which the table was generated.

- There is a broken link in the generated `XSL-FO` file. The PDF is generated but contains a link that is not working. The console output contains messages like:

```
[fop] 1248 WARN [ main ] org.apache.fop.apps.FOUserAgent - Page 6: Unresolved ID reference
"unique_4_Connect_42_wrongID" found.
```

  Tip:

  - Use the **Validate and Check for Completeness** action available in the **DITA Maps Manager** view to find such problems.
  - In case you publish to PDF using a certain `DITAVAL` filter, set the same DITAVAL file in the **DITA Map Completeness Check** dialog.

- In case the **Validate and Check for Completeness** action does not discover any issues, edit the transformation scenario and set the *clean.temp* parameter to *no*.
- Run the transformation, open the `topic.fo` file in Oxygen XML Author, and search in it for the `unique_4_Connect_42_wrongID id`.
- Look around that line in the `XSL-FO` file to find relevant text content which you can use, for example, with the **Find/Replace in Files** action in the **DITA Maps Manager** view to find the original DITA topic for which the table was generated.

Topic References outside the main DITA Map folder

Referencing to a DITA topic, map or to a binary resource (eg: image) which is located outside of the folder where the main DITA Map is located usually leads to problems when publishing the content using the DITA Open Toolkit. The DITA OT does not handle well links to topics which are outside the directory where the published DITA Map is found. By default it does not even copy the referenced topics to the output directory.

You have the following options:

1. Create another DITA Map which is located in a folder path above all referenced folders and reference from it the original DITA Map. Then transform this DITA Map instead.
2. Edit the transformation scenario and in the **Parameters** tab edit the **fix.external.refs.com.oxygenxml** parameter. This parameter is used to specify whether the application tries to fix up such references in a temporary files folder before the DITA Open Toolkit is invoked on the fixed references. The fix up has no impact on your edited DITA content. Only "false" and "true" are valid values. The default value is false.

Embedding videos in the WebHelp output

The DITA *`object`* element maps precisely to an HTML `object` element. So you can try directly to construct a simple HTML page with an `object` element pointing to the video and after you get it working in the browser you can use the same code in the DITA content.

For example, in order to embed a YouTube video in the HTML output the DITA content should contain the following construct:

```
<object width="425" height="349" type="application/x-shockwave-flash" data="http://www.youtube.com/v/hXsgbBwbr7M">
  <param name="movie" value="http://www.youtube.com/watch/v/hXsgbBwbr7M" />
</object>
```

Syntax Highlight Inside Codeblock Sections

`Codeblock` elements can be used in the DITA content to give examples from different programming or scripting languages like XML, CSS, Java and so on.

You can add to the XHTML-based and PDF published outputs syntax highlight inside these codeblock sections, by setting the *outputclass* attribute on the *codeblock* element to a specific value depending on the content type:

- `language-xml`;
- `language-java`;
- `language-css`;
- `language-javascript`;
- `language-sql`;
- `language-c`;
- `language-cpp`;
- `language-csharp`;
- `language-ini`;
- `language-php`;
- `language-python`;
- `language-ruby`;

- `language-perl`;
- `language-bourne`.

To customize different colors for the highlighted tokens you can edit the XSLT stylesheets:

- `OXYGEN_INSTALL_DIR/frameworks/dita/DITA-OT/plugins/com.oxygenxml.highlight/pdfHighlight.xsl`
- `OXYGEN_INSTALL_DIR/frameworks/dita/DITA-OT/plugins/com.oxygenxml.highlight/xhtmlHighlight.xsl`

DITA-OT Customization

This section explains how to customize specific parameters of a DITA transformation scenario like setting a custom DITA Open Toolkit, a custom build file or a separate installation of the Ant tool.

Support for Transformation Customizations

You can change all DITA transformation parameters to customize your needs. In addition, you can specify a custom build file, parameters to the JVM and many more for the transformation.

Using Your Custom Build File

You can specify a custom build file to be used in DITA-OT transformations by editing the transformation scenario that you are using. In the ***Advanced*** tab you should change the **Custom build file** path to point to the custom build file.

As an example, if you want to call a custom script before running the DITA OT, your custom build file would have the following content:

```
<project basedir="." default="dist">
<!--The DITA OT default build file-->
 <import file="build.xml"/>
 <target name="dist">
  <!-- You could run your script here -->
  <!--<exec></exec>-->
   <!--Call the DITA OT default target-->
   <antcall target="init"/>
 </target>
</project>
```

Customizing the Oxygen XML Author Ant Tool

The Ant 1.7 tool which comes with Oxygen XML Author is located in the `[Oxygen-install-folder]/tools/ant` directory. Any additional libraries for Ant must be copied to the Oxygen XML Author Ant `lib` directory.

If you are using Java 1.6 to run Oxygen XML Author the Ant tool should need no additional libraries to process JavaScript in build files.

Increasing the Memory for the Ant Process

For details about setting custom JVM arguments to the ANT process please see *this section*.

Resolving Topic References Through an XML Catalog

There are situations where you want to resolve URIs with an XML catalog:

- you customized your DITA map to refer topics using URI's instead of local paths
- you have URI content references in your DITA topic files and you want to map them to local files when the map is transformed

In such situations you have to *add the catalog to Oxygen XML Author*. The **DITA Maps Manager** view will solve the displayed topic refs through the added XML catalog and also the DITA map transformations (for PDF output, for XHTML output, etc) will solve the URI references through the added XML catalog.

DITA to PDF Output Customization

In this topic you will see how to do a basic customization of the PDF output by setting up a customization directory.

DITA Open Toolkit PDF output customizations can be made in two major ways:

1. Creating a DITA Open Toolkit plugin which adds extensions to the PDF plugin. More details can be found in the *DITA Open Toolkit user manual*.
2. Creating a customization directory and using it from the PDF transformation scenario. A small example of this procedure can be found below.

Let us take for example the common case of embedding a company logo image in the front matter of the book. You can later extend this example to create more complex customizations.

1. Copy the entire directory: `OXYGEN_INSTALL_DIR/frameworks/dita/DITA-OT/plugins/org.dita.pdf2/Customization` to some other place, for instance: C:\Customization.
2. Copy your logo image to: `C:\Customization\common\artwork\logo.png`.
3. Rename `C:\Customization\catalog.xml.orig` to: `C:\Customization\catalog.xml`
4. Open the `catalog.xml` in Oxygen XML Author and uncomment this line:

   ```
   <!--uri name="cfg:fo/xsl/custom.xsl" uri="fo/xsl/custom.xsl"/-->
   ```

   So now it looks like this:

   ```
   <uri name="cfg:fo/xsl/custom.xsl" uri="fo/xsl/custom.xsl"/>
   ```

5. Rename the file: `C:\Customization\fo\xsl\custom.xsl.orig` to: `C:\Customization\fo\xsl\custom.xsl`
6. Open the `custom.xsl` file in Oxygen XML Author and create the template called createFrontMatter_1.0. This will override the same template from the `OXYGEN_INSTALL_DIR/frameworks/dita/DITA-OT/plugins/org.dita.pdf2/xsl/fo/front-matter.xsl`. Now, `custom.xsl` has the content:

```
<?xml version='1.0'?>
<xsl:stylesheet xmlns:xsl="http://www.w3.org/1999/XSL/Transform"
    xmlns:fo="http://www.w3.org/1999/XSL/Format"
    version="1.1">

<xsl:template name="createFrontMatter_1.0">
        <fo:page-sequence master-reference="front-matter" xsl:use-attribute-sets="__force__page__count">
            <xsl:call-template name="insertFrontMatterStaticContents"/>
            <fo:flow flow-name="xsl-region-body">
                <fo:block xsl:use-attribute-sets="__frontmatter">
                    <!-- set the title -->
                    <fo:block xsl:use-attribute-sets="__frontmatter__title">
                        <xsl:choose>
                            <xsl:when test="$map/*[contains(@class,' topic/title ')][1]">
                                <xsl:apply-templates select="$map/*[contains(@class,' topic/title ')][1]"/>
                            </xsl:when>
                            <xsl:when test="$map//*[contains(@class,' bookmap/mainbooktitle ')][1]">
                                <xsl:apply-templates select="$map//*[contains(@class,' bookmap/mainbooktitle
')][1]"/>
                            </xsl:when>
                            <xsl:when test="//*[contains(@class, ' map/map ')]/@title">
                                <xsl:value-of select="//*[contains(@class, ' map/map ')]/@title"/>
                            </xsl:when>
                            <xsl:otherwise>
                                <xsl:value-of select="/descendant::*[contains(@class, ' topic/topic
')][1]/*[contains(@class, ' topic/title ')]"/>
                            </xsl:otherwise>
                        </xsl:choose>
                    </fo:block>

                    <!-- set the subtitle -->
                    <xsl:apply-templates select="$map//*[contains(@class,' bookmap/booktitlealt ')]"/>

                    <fo:block xsl:use-attribute-sets="__frontmatter__owner">
                        <xsl:apply-templates select="$map//*[contains(@class,' bookmap/bookmeta ')]"/>
                    </fo:block>
```

```
                    <fo:block text-align="center" width="100%">
                        <fo:external-graphic src="url({concat($artworkPrefix,
'/Customization/OpenTopic/common/artwork/logo.png')})"/>
                     </fo:block>

                </fo:block>

                <!--<xsl:call-template name="createPreface"/>-->

            </fo:flow>
        </fo:page-sequence>
        <xsl:call-template name="createNotices"/>
    </xsl:template>
</xsl:stylesheet>
```

7. Edit (or duplicate, then edit) the DITA Map to PDF transformation scenario. In the Parameters tab, set the customization.dir parameter to `C:\Customization`.

There are other ways in which you could directly modify the XSL stylesheets from the DITA OT but this customization gives you flexibility to future DITA OT upgrades in Oxygen XML Author.

Header and Footer Customization

The XSLT stylesheet `OXYGEN_INSTALL_DIR/frameworks/dita/DITA-OT/plugins/org.dita.pdf2/xsl/fo/static-content.xsl` contains templates which output the static header and footers for various parts of the PDF like the prolog, table of contents, front matter or body.

> The templates for generating a footer for pages in the body are called `insertBodyOddFooter` or `insertBodyEvenFooter`.

These templates get the static content from resource files which depend on the language used for generating the PDF. The default resource file is `frameworks/dita/DITA-OT/plugins/org.dita.pdf2/cfg/common/vars/en.xml`. These resource files contain variables like *Body odd footer* which can be set to specific user values.

Instead of modifying these resource files directly, they can be overwritten with modified versions of the resources in a PDF customization directory as explained in *DITA to PDF Output Customization* on page 235.

Installing a plugin in the DITA Open Toolkit

The architecture of the DITA Open Toolkit allows additional plugins to be installed.

1. The additional plugin(s) should be copied to the `plugins` directory from the used DITA Open Toolkit installation (by default `OXYGEN_INSTALL_DIR\frameworks\dita\DITA-OT\plugins`.
2. The DITA OT ANT integrator build file needs to be run. In the **Transformation Scenarios** view there is a predefined transformation scenario called **Run DITA OT Integrator** which can be used for this.

   Important: The folder where the DITA OT is located needs to have full write access permissions set to it.

3. If the plugin contributed with a new **transtype** to the publishing stage, the application will not detect it by default. You have to create a new **DITA OT** transformation scenario with a predefined type which is close to the newly added **transtype**, then edit the transformation scenario and in the **Parameters** tab add a parameter called **transtype** with the value of the newly added transformation type.

Creating a Simple DITA OT HTML and PDF Customization Plugin

This example describes a **DITA Open Toolkit** plugin which you can use to provide syntax highlight when publishing DITA **codeblock** elements to **PDF** or **HTML**-based outputs. The plugin is available in the DITA Open Toolkit distribution which comes with the application.

Here are some steps to help anyone wanting to create an **XSLT** customization plugin for the **DITA Open Toolkit** for HTML and PDF based outputs.

1. Create a folder for your plugin in the DITA OT **plugins** folder. The **DITA OT** bundled with Oxygen can be found here:

   `OXYGEN_INSTALL_DIR/frameworks/dita/DITA-OT`

   In my case I created the following folder:

   `OXYGEN_INSTALL_DIR/frameworks/dita/DITA-OT/plugins/com.oxygenxml.highlight`

2. Create a **plugin.xml** file in that folder containing the extension points of the plugin. In my case, the plugin descriptor file contains:

   ```
   <plugin id="com.oxygenxml.highlight">
     <feature extension="package.support.name" value="Oxygen XML Editor Support"/>
     <feature extension="package.support.email" value="support@oxygenxml.com"/>
     <feature extension="package.version" value="1.0.0"/>
     <feature extension="dita.xsl.xhtml" value="xhtmlHighlight.xsl" type="file"/>
     <feature extension="dita.xsl.xslfo" value="pdfHighlight.xsl" type="file"/>
   </plugin>
   ```

   The important extensions in it are the references to the XSLT stylesheets which will be used to style the HTML and the PDF outputs.

   You can find a bunch of other DITA OT plugin extension points here:

   http://dita-ot.sourceforge.net/1.5.3/dev_ref/extension-points.html

3. Create an XSLT stylesheet called **xhtmlHighlight.xsl** located in the same plugin folder.

   As I want to overwrite the creation of the HTML content from a DITA **codeblock** element I will first need to find the XSLT template that I need to overwrite. A DITA **codeblock** element has the **class** attribute value "**+ topic/pre pr-d/codeblock** ". Usually in such cases I take part of the class attribute value and search using the "**Find/Replace in Files**" Oxygen action in all of the DITA OT XSLT resources.

   In this case I searched for **topic/pre** and found this XSLT stylesheet:

   `OXYGEN_INSTALL_DIR/frameworks/dita/DITA-OT/xsl/xslhtml/dita2htmlImpl.xsl`

   containing this XSLT template:

   ```
   <xsl:template match="*[contains(@class,' topic/pre ')]" name="topic.pre">
     <xsl:apply-templates select="."  mode="pre-fmt" />
   </xsl:template>
   ```

   thus my **xhtmlHighlight.xsl** will overwrite the content of the template like:

   ```
   <xsl:template match="*[contains(@class,' topic/pre ')]" name="topic.pre">
       <!-- This template is deprecated in DITA-OT 1.7. Processing will moved into the main element rule. -->
       <xsl:if test="contains(@frame,'top')"><hr /></xsl:if>
       <xsl:apply-templates select="*[contains(@class,' ditaot-d/ditaval-startprop ')]" mode="out-of-line"/>
       <xsl:call-template name="spec-title-nospace"/>
       <pre>
         <xsl:attribute name="class"><xsl:value-of select="name()"/></xsl:attribute>
         <xsl:call-template name="commonattributes"/>
         <xsl:call-template name="setscale"/>
         <xsl:call-template name="setidaname"/>
        <!--Here I'm calling the styler of the content inside the codeblock.-->
        <xsl:call-template name="outputStyling"/>
       </pre>
       <xsl:apply-templates select="*[contains(@class,' ditaot-d/ditaval-endprop ')]" mode="out-of-line"/>
       <xsl:if test="contains(@frame,'bot')"><hr /></xsl:if><xsl:value-of select="$newline"/>
     </xsl:template>
   ```

   and call another XSLT template which applies as a Java extension the XSLTHL library to style the content.

4. Create an XSLT stylesheet called **pdfHighlight.xsl** located in the same plugin folder which will contain the PDF XSLT customization. In this case I will overwrite the XSLT template from:

   `OXYGEN_INSTALL_DIR/frameworks/dita/DITA-OT/plugins/legacypdf/xslfo/dita2fo-elems.xsl`

   which has the content:

   ```
   <xsl:template match="*[contains(@class,' topic/pre ')]">
     <xsl:call-template name="gen-att-label"/>
     <fo:block xsl:use-attribute-sets="pre">
   ```

```
    <!-- setclass -->
    <!-- set id -->
    <xsl:call-template name="setscale"/>
    <xsl:call-template name="setframe"/>
    <xsl:apply-templates/>
  </fo:block>
</xsl:template>
```

5. To install your plugin in the DITA OT, run the integrator. In the application's **Transformation Scenarios** view, enable the **Show all scenarios** action, available in the drop down settings button. Just check that and execute the transformation scenario called **Run DITA OT Integrator**.

   And that's it, your XSLT content will be applied with priority when publishing both to XHTML-based (WebHelp, CHM, EPUB, JavaHelp, Eclipse Help) and to PDF-based outputs.

   Now, let's take a look at what the step (5) - running the integrator to install the plugin - really did:

   1. In the XSLT stylesheet:

      `OXYGEN_INSTALL_DIR/frameworks/dita/DITA-OT/xsl/dita2html-base.xsl`

      a new import automatically appeared:

      ```
      <xsl:import href="../plugins/com.oxygenxml.highlight/xhtmlHighlight.xsl"/>
      ```

      This import is placed after all base imports and because of this it has a higher priority. More about imported template precedence can be found in the XSLT specs:

      http://www.w3.org/TR/xslt#import

   2. Likewise, in the top-level stylesheets related to PDF publishing like:

      `OXYGEN_INSTALL_DIR/frameworks/dita/DITA-OT/plugins/org.dita.pdf2/xsl/fo/topic2fo_shell_fop.xsl`

      a new import statement has appeared:

      ```
      <xsl:import href="../../../com.oxygenxml.highlight/pdfHighlight.xsl"/>
      ```

Now, you can distribute your plugin folder to anyone having a DITA OT installation along with some simple installation notes. Your customization will work as long as the templates you are overwriting have not changed from one DITA OT distribution to the other.

DITA Specialization Support

This section explains how you can integrate and edit a DITA specialization in Oxygen XML Author.

Integration of a DITA Specialization

A DITA specialization usually includes:

- DTD definitions for new elements as extensions of existing DITA elements
- optionally specialized processing, that is new XSLT template rules that match the extension part of the `class` attribute values of the new elements and thus extend the default processing available in DITA Open Toolkit

A specialization can be integrated in the application with minimum effort:

1. If the DITA specialization is available as a DITA Open Toolkit plugin, you should copy the plugin to the place where the DITA OT that you are using is located (by default `OXYGEN_INSTALL_DIR\frameworks\dita\DITA-OT\plugins`). Then you should run the DITA OT integrator to integrate the plugin. In the **Transformation Scenarios** view there is a predefined scenario called **Run DITA OT Integrator** which can be used for this.

   Important: The folder where the DITA OT is located needs to have full write access permissions set to it.

2. If the specialization is not available as a plugin:

   If the DTD's that define the extension elements are located in a folder outside the DITA Open Toolkit folder you should add new rules to the DITA OT catalog file for resolving the DTD references from the DITA files that use the specialized elements to that folder. This allows correct resolution of DTD references to your local DTD files and is needed for both validation and transformation of the DITA maps or topics. The DITA OT catalog file is called `catalog-dita.xml` and is located in the root folder of the DITA Open Toolkit.

   If there is specialized processing provided by XSLT stylesheets that override the default stylesheets from DITA OT these new stylesheets must be called from the Ant build scripts of DITA OT.

Important: If you are using DITA specialization elements in your DITA files it is recommended that you activate the **Enable DTD processing in document type detection** checkbox in the ***Document Type Association** page*.

Editing DITA Map Specializations

In addition to recognizing the default DITA map formats: `map` and `bookmap` the **DITA Maps Manager** view can also be used to open and edit specializations of DITA Maps.

All advanced edit actions available for the map like insertion of topic refs, heads, properties editing, allow the user to specify the element in an editable combo box. Moreover the elements which appear initially in the combo are all the elements which are allowed to appear at the insert position for the given specialization.

The topic titles rendered in the **DITA Maps Manager** view are collected from the target files by matching the `class` attribute and not a specific element name.

When editing DITA specializations of maps in the main editor the insertions of topic reference, topic heading, topic group and conref actions should work without modification. For the table actions you have to modify each action by hand to insert the correct element name at caret position. You can go to the **DITA Map** document type from the ***Document Type Association** page* and edit the table actions to insert the element names as specified in your specialization. See *this section* for more details.

Editing DITA Topic Specializations

In addition to recognizing the default DITA topic formats: `topic`, `task`, `concept`, `reference` and `composite`, topic specializations can also be edited in the Author page.

The content completion should work without additional modifications and you can choose the tags which are allowed at the caret position.

The CSS styles in which the elements are rendered should also work on the specialized topics without additional modifications.

The toolbar/menu actions should be customized to insert the correct element names if this is the case. You can go to the `DITA` document type from the ***Document Type Association** page* and edit the actions to insert the element names as specified in your specialization. See *this section* for more details.

Use a New DITA Open Toolkit in Oxygen XML Author

Oxygen XML Author comes bundled with a DITA Open Toolkit, located in the `[Oxygen-install-folder]/frameworks/dita/DITA-OT` directory. To use a new DITA Open Toolkit, follow these steps:

1. Edit your transformation scenarios and in the **Parameters** tab change the value for the `dita.dir` directory to point to the new directory.

2. To make changes in the libraries that come with the new DITA Open Toolkit and are used by the ANT process, go to the **Advanced** tab, click the **Libraries** button and uncheck **Allow Oxygen to add high priority libraries to classpath**.
3. If there are also changes in the DTD's and you want to use the new versions for content completion and validation, go to the Oxygen XML Author preferences in the **Document Type Association** page, edit the **DITA** and **DITA Map** document types and modify the catalog entry in the **Catalogs** tab to point to the custom catalog file `catalog-dita.xml`.

Reusing Content

The DITA framework allows reusing content from other DITA files with a content reference in the following ways:

- You can select content in a topic, create a reusable component from it and reference the component in other locations using the actions **Create Reusable Component** and **Insert Reusable Component**. A reusable component is a file, usually shorter than a topic. You also have the option of replacing the selection with the component that you are in the process of creating. The created reusable component file is usually self-contained and it's automatically generated content can be fine tuned by modifying the resources located in the folder `OXYGEN_INSTALL_DIR\frameworks\dita\reuse`.
- You can add, edit, and remove a content reference (`conref`) attribute to/from an existing element. The actions **Add/Edit Content Reference** and **Remove Content Reference** are available on the contextual menu of the Author editor and on the DITA menu. When a content reference is added or an existing content reference is edited, you can select any topic ID or interval of topic IDs (set also the `conrefend` field in the dialog for adding/editing the content reference) from a target DITA topic file.
- You can insert an element with a content reference (`conref` or `conkeyref`) attribute using one of the actions **Insert Content Reference** and **Insert Content Key Reference** that are available on the DITA menu, the Author custom actions toolbar and the contextual menu of the Author editor.

DITA makes the distinction between local content, that is the text and graphics that are actually present in the element, and referenced content that is referred by the element but is located in a different file. You have the option of displaying referenced content by setting the option **Display referred content** that is available from menu **Options** > **Preferences** > **Editor** > **Edit modes** > **Author**.

Working with Content References

The `conref` DITA feature (short for *content reference*) lets you include a piece of source content as reference in other contexts. When you need to update that content, you do it in only one place. Typical uses of content references are for product names, warnings, definitions or process steps.

You can use either or both of the following strategies for managing content references:

- *Reusable components* - With this strategy, you create a new file for each piece of content that you want to reuse.
- *Arbitrary content references* - You may prefer to keep many pieces of reusable content in one file. For example, you might want one file to consist of a list of product names, with each product name in a `phrase` (`<ph>` element) within the file. Then, wherever you need to display a product name, you can insert a content reference that points to the appropriate `<ph>` element in this file.

  Note: A reference displays tracked changes and also comments of the source fragment. To edit these comments or accept/reject the changes, right click them and select **Edit Reference**.

  This strategy requires more setup than reusable components, but makes easier centrally managing the reused content.

Oxygen XML Author creates a reference to the external content by adding a `conref` attribute to an element in the local document. The `conref` attribute defines a link to the referenced content, made up of a path to the file and the topic ID within the file. The path may also reference a specific element ID within the topic. Referenced content is not physically

copied to the referencing file, but Oxygen XML Author displays it as if it is there in the referencing file. You can also choose to view local content instead of referenced content, to edit the attributes or contents of the referencing element.

Note: To search for references made through a direct content reference of a topic, paragraph, list item and so on, use the **Search References** action from the contextual menu.

How to Work with Reusable Components

When you need to reuse a part of a DITA topic in different places (in the same topic or in different topics) it is recommended to create a separate component and insert only a reference to the new component in all places. Below are the steps for extracting a reusable component, inserting a reference to the component and quickly editing the content inside the component.

1. Select with the mouse the content that you want to reuse in the DITA file opened in **Author** mode.
2. Start the action **Create Reusable Component** that is available on the DITA menu, the Author framework actions toolbar and the contextual menu of the Author editor.
3. In the combo box **Reuse Content** select the DITA element with the content that you want to extract in a separate component. The combo box contains the current DITA element where the cursor is located (for example a `p` element - a paragraph - or a `step` or a `taskbody` or a `conbody` etc.) and also all the ancestor elements of the current element.
4. In the **Description** area enter a textual description for quick identification by other users of the component.
5. If you want to replace the extracted content with a reference to the new component you should leave the checkbox **Replace selection with content reference** with the default value (selected).
6. Press the **Save** button which will open a file system dialog where you have to select the folder and enter the name of the file that will store the reusable component.
7. Press the **Save** button in the file system dialog to save the reusable component in a file. If the checkbox was selected in the **Create Reusable Component** dialog the `conref` attribute will be added to the element that was extracted as a separate component. In **Author** mode the content that is referenced by the `conref` attribute is displayed with grey background and is read-only because it is stored in other file.
8. Optionally, to insert a reference to the same component in other location just place the cursor at the insert location and run the action **Insert Reusable Component** that is available on the DITA menu, the Author framework actions toolbar and the contextual menu of the Author editor. Just select in the file system dialog the file that stores the component and press the **OK** button. The action will add a `conref` attribute to the DITA element at the insert location. The referenced content will be displayed in **Author** mode with grey background to indicate that it is not editable.
9. Optionally, to edit the content inside the component just click on the open icon  at the start of the grey background area which will open the component in a separate editor.

Insert a Direct Content Reference

You can use the same content in multiple topics by inserting a DITA content reference to that content. The following steps describe the procedure of inserting a DITA content reference:

1. Position your caret inside the element that you want to refer and in the ***Attributes** view* enter a value in the **ID** field.

   In case you want to reuse just a part of the content of an element, select the content with your cursor, press **Enter** and in the proposals list select `ph`. This encapsulates your content inside a `phrase(<ph>)` element, allowing you to set an ID and then refer it.
2. Open the topic where you want to insert the reference to this element.
3. Click  **Insert a DITA Content Reference** on the main toolbar.
   The **Insert Content Reference** dialog is displayed.

4. In the **Insert Content Reference** dialog, from the **URL** field, navigate to the topic that holds the element you want to refer.
   In the **Target ID** section of the **Insert Content Reference** dialog Oxygen XML Author presents the elements that you can refer.
5. Click the ID of the element you want to refer, then click **OK**.

   In case you select an interval of elements, the **Conrefend** field is filled with the `id` value of the element that ends the selected interval.

   A reference to the selected element is inserted at the caret position.

   Note: To search for references made through a direct content reference of a topic, paragraph, list item and so on, use the **Search References** action from the contextual menu.

The Insert Content Reference Dialog

The **Insert Content Reference** dialog lets you reuse content by inserting references to the DITA elements that hold the content you want to reuse.

Note: To refer the content inside a DITA element you first have to set an ID for that element.

The DITA `conref` attribute provides a mechanism for reuse of content fragments. The `conref` attribute stores a reference to another element and is processed to replace the referencing element with the referenced element. The element containing the content reference acts as a placeholder for the referenced element. The identifier for the referenced element must be either absolute or resolvable in the context of the referencing element. For more details, go to *http://docs.oasis-open.org/dita/v1.0/archspec/conref.html*.

Oxygen XML Author *displays the referred content* of a DITA `conref` if it can resolve it to a valid resource. If you have URI's instead of local paths in the XML documents and your DITA OT transformation needs an XML catalog to map the URI's to local paths you have to *add the catalog to Oxygen XML Author*. If the URI's can be resolved, the referred content is displayed in the **Author** mode and in the transformation output.

To open the **Insert Content Reference** dialog, do one of the following:

- go to **DITA** > **Insert a DITA Content Reference**;
- click the **Insert a DITA Content Reference** action on the main toolbar;
- in the contextual menu of the editing area, go to **Reuse** > **Insert a DITA Content Reference**.

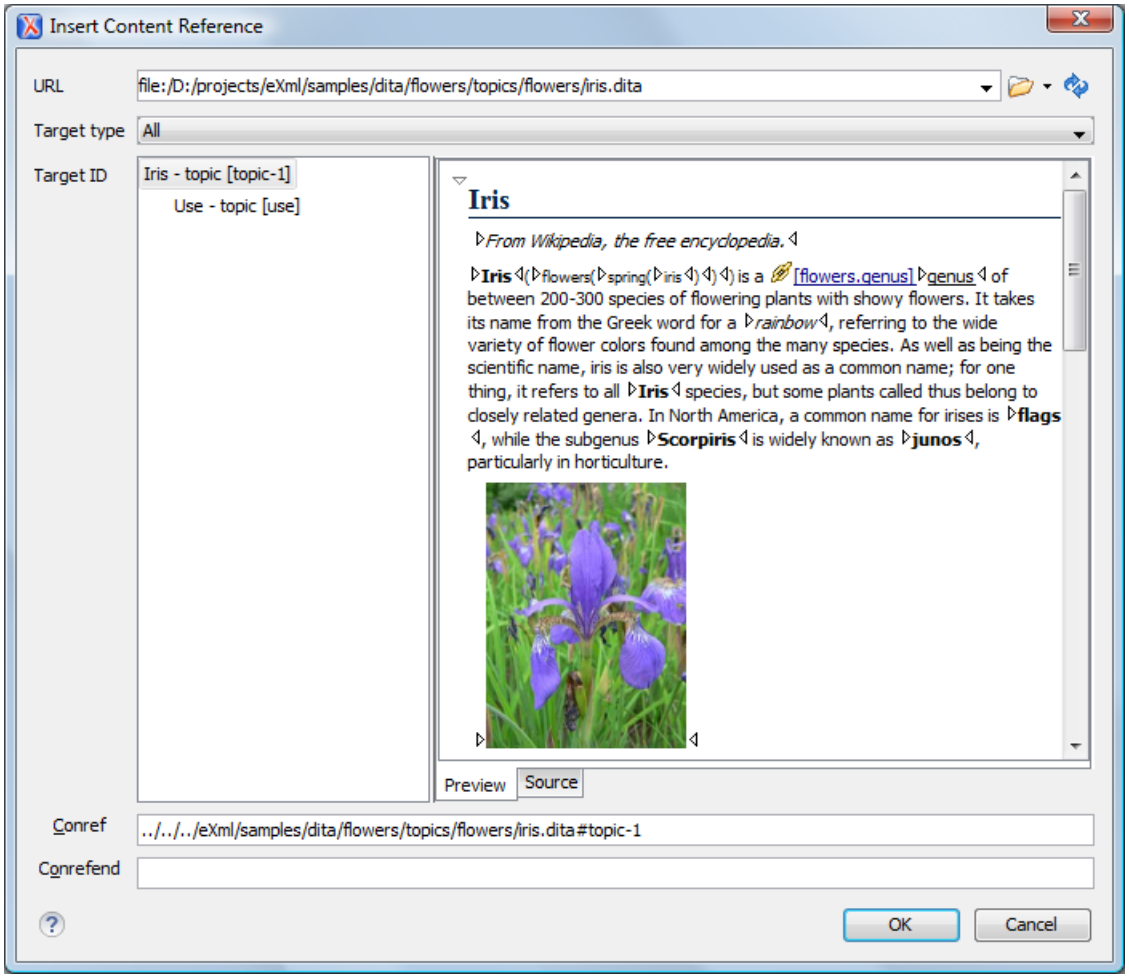


Figure 122: The Insert Content Reference Dialog

Note: The **Insert Content Reference** dialog is not modal. The dialog is closed automatically in case you switch to a different editor.

The following fields are available in this dialog:

- **URL** - specifies the path to the topic that holds the content you want to refer;
- **Target type** - specifies the type of the element to which you are targeting your `conref`;
- **Target ID** - presents all the element IDs defined in the source topic;
- **Preview** - displays a preview of the content in the element that you select in the **Target ID** list;
- **Source** - displays the source of the element your want to refer;
- **Conref** - displays the value of the attribute;
- **Conrefend** - in case you select an interval of elements, this field displays the end value of the `conref` attribute.

Moving and Renaming Resources

You can move or rename resources on disk directly from Oxygen XML Author. To do this, use one of the following actions available in the contextual menu of the **DITA Maps Manager** view:

- **Rename resource**

  This action allows you to change the name of a resource linked in the edited DITA Map, using the **Rename resource** dialog. This dialog contains the following options:

- **Update references** - enable this checkbox to update all references of the file in the edited DITA Map and in the files referred from the DITA Map. This way, the completeness of the DITA Map is preserved;
- **Preview** - select this button to display a preview of the changes Oxygen XML Author is about to make;
- **Rename** - executes the **Rename resource** operation;
- **Cancel** - cancels the **Rename resource** operation. No changes are applied.

- **Move resource**

  This action allows you to change the location of a resource linked in the edited DITA Map, using the **Move resource** dialog. This dialog contains the following options:

  - **Destination** - specifies the target location on disk of the edited resource;
  - **File name** - allows you to change the name of the edited resource;
  - **Update references** - enable this checkbox to update all references of the file in the edited DITA Map and in the files referred from the DITA Map. This way, the completeness of the DITA Map is preserved;
  - **Preview** - select this button to display a preview of the changes Oxygen XML Author is about to make;
  - **Move** - moves the edited resource in the target location on disk;
  - **Cancel** - cancels the **Move resource** operation. No changes are applied.

Note: If a root DITA Map is not defined, the move and rename actions are executed in the context of the current DITA Map.

DITA Profiling / Conditional Text

Conditional text is a way to mark blocks of text meant to appear in some renditions of the document, but not in others. It differs from one variant of the document to another, while unconditional text appear in all document versions.

For instance you can mark a section of a document to be included in the manual designated for the *expert* users, other for the *novice* users manual while unmarked sections are included in any rendition.

You can use conditional text when you develop documentation for:

- a series of similar products
- different releases of a product
- various audiences

The benefits of using conditional text include reduced effort for updating and translating your content and an easy way to customize the output for various audiences.

Oxygen XML Author offers full support for DITA conditional text processing: profiling attributes can be easily managed to filter content in the published output. You can toggle between different profile sets to see how the edited content looks like before publishing.

DITA offers support for profiling/conditional text by using profiling attributes. With Oxygen XML Author you can define values for the DITA profiling attributes. The profiling configuration can be shared between content authors through the project file. There is no need for coding or editing configuration files.

Several profiling attributes can be aggregated into a profiling condition set that allow you to apply more complex filters on the document content. A Profiling Condition Set is a very powerful and convenient tool used to preview the content that goes into the published output. For example, an installation manual available both in Windows and Linux variants can be profiled to highlight only the Linux procedures for more advanced users.

To watch our video demonstration about DITA profiling, go to *http://oxygenxml.com/demo/DITA_Profiling.html*.

Profiling / Conditional Text Markers

If **Show Profiling Attributes** option (available in the ***Profiling / Conditional Text*** *toolbar menu*) is set all profiling attributes set on the current element are listed at the end of the highlighted block. Profiled text is marked in the **Author** mode with a light green border.

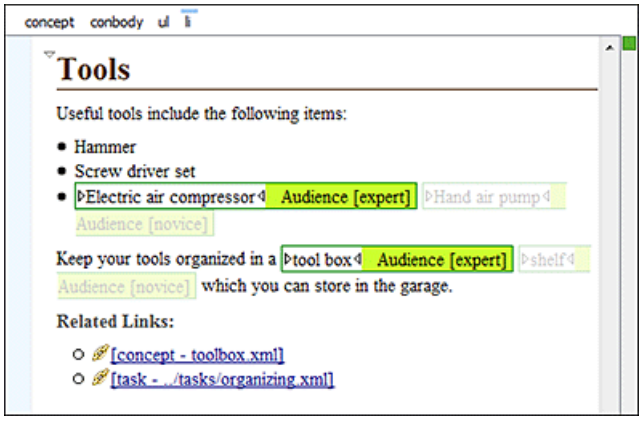


Figure 123: Profiling in Author

In the ***DITA Maps Manager View*** view different decorators are user to mark profiled and non-profiled topics:

- ■ - the topic contains profiling attributes;
- ▣ - the topic inherits profiling attribute from its ancestors;
- ◪ - the topic contains and inherits profiling attributes;
- – (dash) - the topic neither contains, nor inherits profiling attributes.

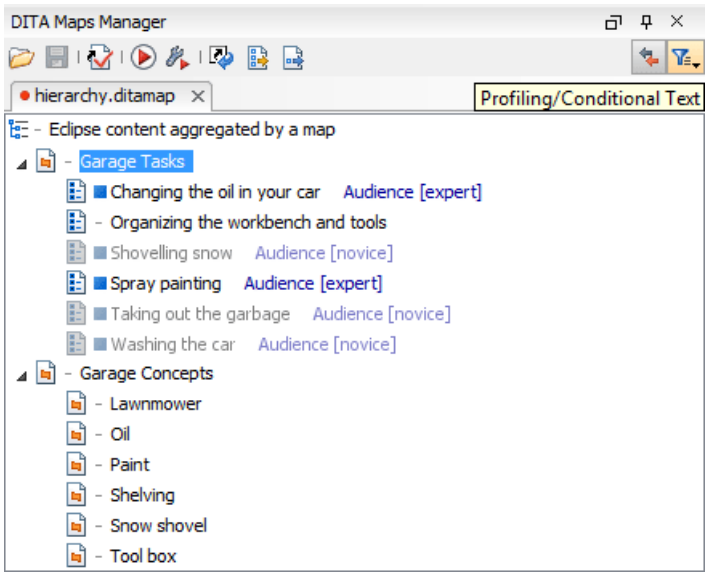


Figure 124: Profiling in DITA Maps Manager

The profiled content that does not match the rules imposed by the current condition sets is grayed-out, meaning that it will not be included in the published output.

Profiling with a Subject Scheme Map

A subject scheme map allows you to create custom profiling values and to manage the profiling attribute values used in the DITA topics without having to write a DITA specialization.

Subject scheme maps use key definitions to define a collection of profiling values instead of a collection of topics. The map that uses the set of profiling values must reference at its highest level the subject scheme map in which the profiling values are defined, for example:

```
<topicref href="test.ditamap" format="ditamap" type="subjectScheme"/>
```

A profiled value is a short and readable keyword that identifies a metadata attribute. For example, the `audience` metadata attribute may take a value that identifies the user group associated with a particular content unit. Typical user values for a medical-equipment product line might include `therapist`, `oncologist`, `physicist`, `radiologist`, `surgeon` and so on. A subject scheme map can define a list of these audience values:

```
<subjectScheme>
  <!-- Pull in a scheme that defines audience user values -->
  <subjectdef keys="users">
    <subjectdef keys="therapist"/>
    <subjectdef keys="oncologist"/>
    <subjectdef keys="physicist"/>
    <subjectdef keys="radiologist"/>
    <subjectdef keys="surgeon">
      <subjectdef keys="neuro-surgeon">
        <subjectdef keys="plastic-surgeon"/>
      </subjectdef>
    </subjectdef>
  </subjectdef>
  <!-- Define an enumeration of the audience attribute, equal to
       each value in the users subject. This makes the following values
       valid for the audience attribute: therapist, oncologist, physicist, radiologist -->
  <enumerationdef>
    <attributedef name="audience"/>
    <subjectdef keyref="users"/>
  </enumerationdef>
</subjectScheme>
```

When you edit a DITA topic in the **Text** mode or in the **Author** mode, Oxygen XML Author collects all the profiling values from the Subject Scheme Map that is referenced in the map currently opened in the *DITA Maps Manager*. The values of profiling attribute defined in a Subject Scheme Map are available in the **Edit Profiling Attribute** dialog regardless of their mapping the **Conditional Text** preferences page.

> In our example the values `therapist`, `oncologist` up to `plastic-surgeon` are displayed in *the content completion window* as values for the `audience` attribute.

Now let us consider we have the following fragment in a topic:

```
<p audience="neuro-surgeon">Some text.. </p>
```

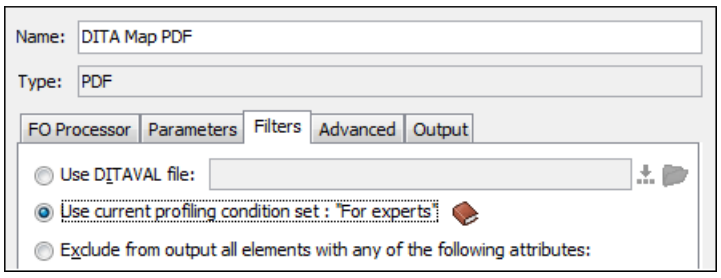
When you define a DITAVAL filter you can exclude for instance anything which is `surgeon`:

```
<val>
     <prop action="exclude" att="audience" val="surgeon"/>
</val>
```

Then if you transform the main DITA Map specifying the DITAVAL filter file in the transformation scenario the `p` element should be excluded from the output. So excluding the `surgeon` audience excludes also the `neuro-surgeon` and `plastic-surgeon` from the output.

Publish Profiled Text

Oxygen XML Author comes with preconfigured transformation scenarios for DITA. All these scenarios take into account the current profiling condition set.



How to Profile DITA Content

1. Go to **Options** > **Preferences** > **Editor** > **Edit modes** > **Author** > **Profiling / Conditional Text** page and edit the **Profiling Attributes** table.
2. For DITA there are already default entries for `audience`, `platform`, `product` and `otherprops`. You can customize the attributes and their values.

   This is a one-time operation. Once you save the customized attributes and values, you can use them to profile any DITA project.
3. To use the profiling attributes set in the previous step, do one of the following:
   a) Right-click (Ctrl (Meta on Mac OS)+ click on MacOS) a topic reference in **DITA Maps Manager** and choose **Edit Profiling Attributes** from the contextual menu.
   b) In the **Author** editing mode, right-click (Ctrl (Meta on Mac OS)+ click on MacOS) an XML element and choose **Edit Profiling Attributes** from the contextual menu.
   c) Use the **Attributes** view to set profiling attributes.

   Turn on the **Show Profiling Attributes** option to display the profiling markup in the **Author** editing mode.

Working with MathML

You can add MathML equations in a DITA document using one of the following methods:

- embed MathML directly into a DITA topic. You can start with the **Framework templates / DITA / topic / Composite with MathML** document template, available in the **New** file action wizard.
- reference an external MathML file as an image, using the **Insert Image Reference** toolbar action.

Note that MathML equations contained in DITA topics can only be published out-of-the-box in PDF using the **DITA PDF** transformation scenario. For other publishing formats users must employ additional customizations for handling MathML content.

MathML Equations in the HTML Output

MathJax is a solution to properly view **MathML** equations embedded in **HTML** content in a variety of browsers.

Without the help of the **MathJax Javascript** code, right now only **Firefox** can render **MathML** equations embedded in the **HTML** code.

Let's say you have **Docbook** or **DITA** content which has embedded **MathML** equations and you want to properly view the equations in the published HTML output types (WebHelp, CHM, EPUB and so on).

You need to add a reference to the MathJax script in the **head** of all HTML files which have the equation embedded in them:

```
<script type="text/javascript"
src="http://cdn.mathjax.org/mathjax/latest/MathJax.js?config=TeX-AMS-MML_HTMLorMML"></script>
```

For DITA you can edit the **DITA Map WebHelp** transformation scenario and set the `args.hdf` parameter to point to the `footer.html` resource. Then transform to WebHelp and the equation should be properly rendered in the browsers like IE, Chrome and Firefox.

Chapter 7

Predefined Document Types

Topics:

The following are the short presentations of some document types that come bundled with Oxygen XML Author. For each document type there are presented built-in transformation scenarios, document templates and Author extension actions.

Document Type

A *document type* or *framework* is associated to an XML file according to a set of rules. It includes also many settings that improve editing in the **Author** mode for the category of XML files it applies for. These settings include:

- a default grammar used for validation and content completion in both **Author** mode and Text mode;
- CSS stylesheet(s) for rendering XML documents in **Author** mode;
- user actions invoked from toolbar or menu in **Author** mode;
- predefined scenarios used for transformation of the class of XML documents defined by the document type;
- XML catalogs;
- directories with file templates;
- user-defined extensions for customizing the interaction with the content author in **Author** mode.

The tagless editor comes with some predefined document types already configured when the application is installed on the computer. These document types describe well-known XML frameworks largely used today for authoring XML documents. Editing a document which conforms to one of these types is as easy as opening it or creating it from one of the predefined document templates which also come with Oxygen XML Author.

To see our video demonstration about configuring a framework in Oxygen XML Author, go to *http://oxygenxml.com/demo/FrameworkConfiguration.html*.

The DocBook 4 Document Type

DocBook is a very popular set of tags for describing books, articles, and other prose documents, particularly technical documentation.

A file is considered to be a *DocBook 4* document when one of the following conditions are true:

- root element name is `book` or `article`;
- the PUBLIC ID of the document contains the string `-//OASIS//DTD DocBook XML`.

The schema of *DocBook 4* documents is `${frameworks}/docbook/dtd/docbookx.dtd`, where `${frameworks}` is a subdirectory of the Oxygen XML Author install directory.

The CSS file used for rendering DocBook content is located in `${frameworks}/docbook/css/docbook.css`.

The XML catalog is stored in `${frameworks}/docbook/catalog.xml`.

To watch our video demonstration about editing DocBook documents, go to *http://oxygenxml.com/demo/DocBook_Editing_in_Author.html*.

DocBook 4 Author Extensions

Specific actions for DocBook documents are:

- **B** **Bold emphasized text** - emphasizes the selected text by surrounding it with `<emphasis role="bold"/>` tag;
- *I* **Italic emphasized text** - emphasizes the selected text by surrounding it with `<emphasis role="italic"/>` tag;
- U **Underline emphasized text** - emphasizes the selected text by surrounding it with `<emphasis role="italic"/>` tag.

Note:

Bold, **Italic**, and **Underline** are toggle actions.

For all of the above actions, if there is no selection, then a new `emphasis` tag with specific role is inserted. These actions are available in any document context and are grouped under the **Emphasize** toolbar actions group.

- **Browse reference manual** - opens in your web browser of choice a reference to the documentation of the XML element closest to the caret position;
- **Cross reference (link)** - inserts a hypertext link;
- **Cross reference (xref)** - inserts a cross reference to another part of the document;

Note: These actions are grouped under the **Link** toolbar actions group.

- **Web Link (ulink)** - inserts a link that addresses its target with an URL (Universal Resource Locator);
- **Insert olink** - inserts a link that addresses its target indirectly, using the `targetdoc` and `targetptr` values which are present in a ***Targetset*** file;

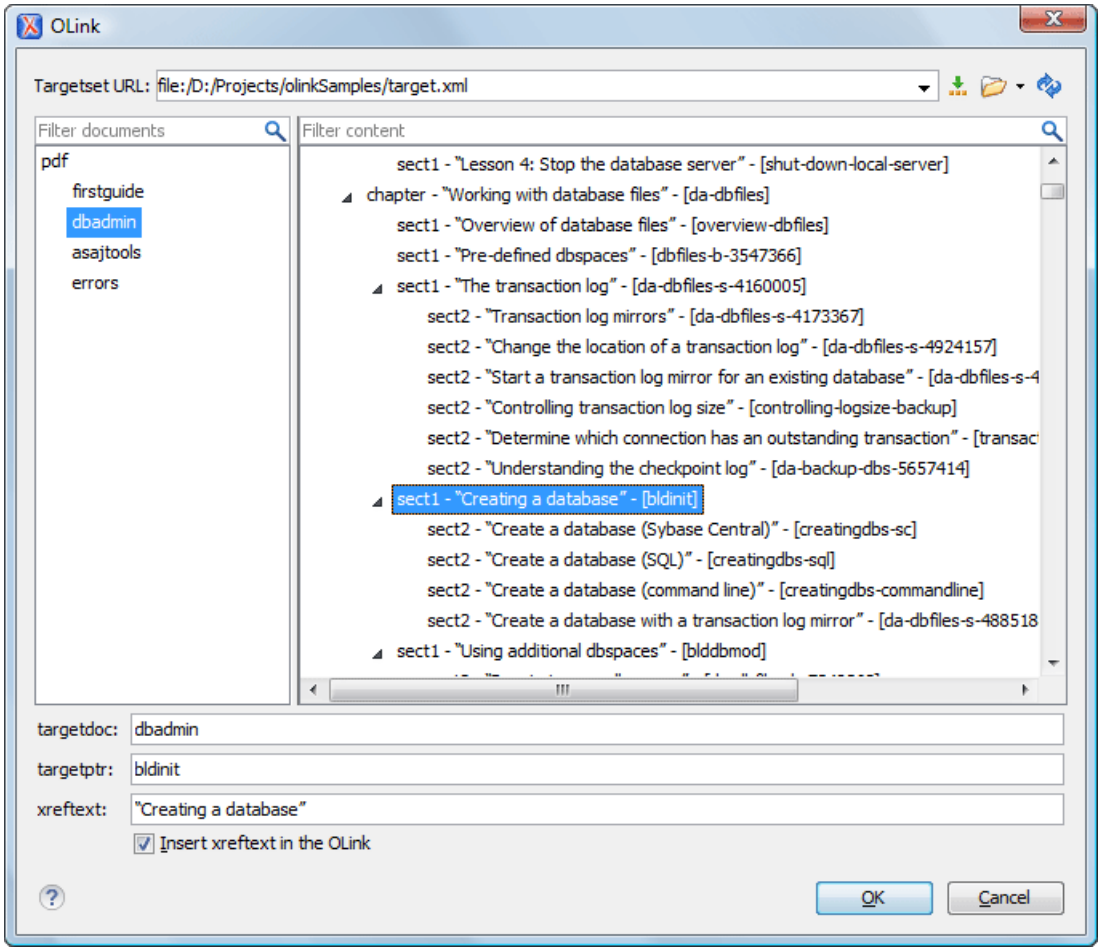


Figure 125: Insert OLink Dialog

After you choose the **Targetset** URL, the structure of the target documents is presented. For each target document (`targetdoc`), the content is displayed allowing for easy identification of the `targetptr` for the `olink` element which will be inserted. You can use the search fields to quickly identify a target. If you already know the values for the `targetdoc` and `targetptr`, you can insert them directly in the corresponding fields. You also have the possibility to edit an `olink` using the action **Edit OLink** available on the contextual menu. The last used **Targetset** URL will be used to identify the edited target.

- **Insert URI** - inserts an URI element. The URI identifies a Uniform Resource Identifier (URI) in content;
- **Insert Section** - inserts a new section / subsection in the document, depending on the current context. For example if the current context is `sect1` then a `sect2` is inserted, and so on;
- **Promote Section** - inserts the current node as a brother of the parent node;
- **Demote Section** - inserts the current node a child of the previous node;
- **Insert image reference** - inserts a graphic object at the caret position. This is done by inserting either `<figure>` or `<inlinegraphic>` element depending on the current context. The following graphical formats are supported: GIF, JPG, JPEG, BMP, PNG, SVG;
  - **Insert an ordered list at the caret position** - inserts an ordered list. A child list item is also inserted automatically by default;
  - **Insert an unordered list at the caret position** - inserts an itemized list. A child list item is also inserted automatically by default;
  - **Insert a step or list Item** - inserts a new list item in any of the above list types.
- **Insert a variable list at the caret position** - inserts a DocBook variable list. A child list item is also inserted automatically by default;
- **Insert a procedure** - inserts a DocBook `procedure` element. A step `child` item is also inserted automatically;
  - **Insert Table** - opens a dialog that allows you to configure and insert a table. You can generate a header and footer, set the number of rows and columns of the table and decide how the table is framed;
  - **Insert Row** - inserts a new table row with empty cells. This action is available when the caret is positioned inside a table;
  - **Insert Column** - inserts a new table column with empty cells after the current column. This action is available when the caret is positioned inside a table;
  - **Insert Cell** - inserts a new empty cell depending on the current context. If the caret is positioned between two cells, Oxygen XML Author a new cell at caret position. If the caret is inside a cell, the new cell is created after the current cell;
  - **Delete Column** - deletes the table column located at caret position;
  - **Delete Row** - deletes the table row located at caret position;
  - **Insert Row Above** - inserts a row above the current one;
  - **Insert Row Below** - inserts a row below the current one;
  - **Insert Column Before** - inserts a column before the current one;
  - **Insert Column After** - inserts a column after the current one;
  - **Join Row Cells** - joins the content of the selected cells. The operation is available if the selected cells are from the same row and they have the same row span. The action is also available when the selection is missing, but the caret is positioned between two cells;
  - **Join Cell Above** - joins the content of the cell from the current caret position with the content of the cell above it. This action works only if both cells have the same column span;
  - **Join Cell Below** - joins the content of the cell from the current caret position with the content of the cell below it. This action works only if both cells have the same column span;

    Note: When you use **Join Cell Above** and **Join Cell Below**, Oxygen XML Author deletes the source row is case it remains empty. The cells that span over multiple rows are also updated.

  - **Split Cell To The Left** - splits the cell from the current caret position in two cells, inserting a new empty table cell to the left. This action works only if the current cell spans over more than one column. Oxygen XML Author decreases the column span of the source cell with one;

- **Split Cell To The Right** - splits the cell from the current caret position in two cells, inserting a new empty table cell to the right. This action works only if the current cell spans over more than one column. Oxygen XML Author decreases the column span of the source cell with one;
- **Split Cell Above** - splits the cell from current caret position in two cells, inserting a new empty table cell above. This action works only if the current cell spans over more than one row. Oxygen XML Author decreases the column span of the source cell with one;
- **Split Cell Below** - splits the cell from current caret position in two, inserting a new empty table cell below. This action works only if the current cell spans over more than one row. Oxygen XML Author decreases the column span of the source cell with one.

Caution: Column specifications are required for table actions to work properly.

- **Generate IDs** - Available in the contextual menu, this action allows you to generate an unique ID for the element at caret position. If the element already has an ID set, it is preserved.

  Further options are offered in the **ID Options** dialog, available in the document type specific main menu. The configurable ID value pattern can accept most of the application supported *editor variables*. You can also specify the elements for which Oxygen XML Author generates an ID if the **Auto generate ID's for elements** is enabled.

  If you want to keep an already set element ID's when copying content in the same document, make sure the **Remove ID's when copying content in the same document** option is not checked.

All actions described above are available in the contextual menu, the **DocBook4** submenu of the main menu or in the **Author custom actions** toolbar.

Dragging a file from *the **Project** view* or from *the **DITA Maps Manager** view* and dropping it into a DocBook 4 document that is edited in Author mode creates a link to the dragged file (the `ulink` DocBook element) at the drop location. Dragging an image file from the default file system application (Windows Explorer on Windows or Finder on Mac OS X, for example) and dropping it into a DocBook 4 document inserts an image element (the `inlinegraphic` DocBook element with the `fileref` attribute) with the location of the dragged file at the drop location (similar with the **Insert Graphic** toolbar action).

DocBook 4 Transformation Scenarios

Default transformation scenarios allow you to convert DocBook 4 to DocBook 5 documents and transform DocBook documents to HTML, HTML Chunk, PDF, XHTML, XHTML Chunk, WebHelp, EPUB and EPUB 3.

WebHelp Output Format

WebHelp is a form of online help consisting of a series of web pages (XHTML format). Its advantages include platform independence and continuous content update, since it can be viewed using a regular web browser.

Oxygen XML Author allows you to publish DocBook 4 documents into a WebHelp format which provides both table of contents and advanced search capabilities.

The layout is composed of two frames:

- the left frame, containing separate tabs for **Content**, **Search**, and **Index**;

  Note: In case your documents contain no *indexterm* elements, the **Index** tab is not generated.

  Note: You can choose to enhance the appearance of the selected item in the table of contents. The *WebHelp customization* topic contains more details about this.

- the right frame where help pages are displayed.

You can navigate through the content of your output using the arrows in the upper right part of the page. These arrows allow you to move to the parent, previous, and next topic. The parents of the currently opened topic are also presented at the top of the page.

You can use this button, displayed in the **Content** tab, to collapse all the topics presented the table of contents.

The top right corner of the page contains the following options:

- **With frames** - displays the output using HTML frames to render two separate sections: a section that presents the table o contents in the left side and a section that presents the content of a topic in the right side;

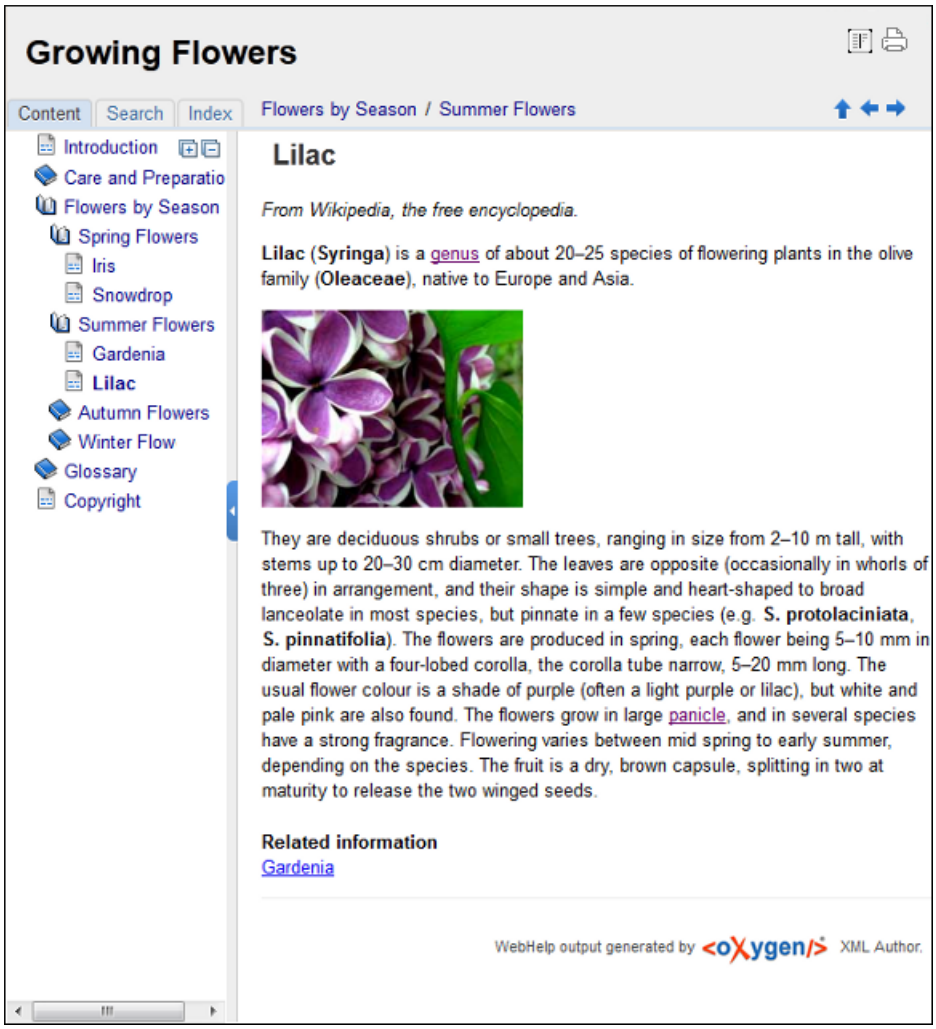


Figure 126: WebHelp Output

To publish DocBook 4 to WebHelp, use the **DocBook WebHelp** transformation. To further customize the out-of-the-box transformation, you can edit some of its parameters:

- `use.stemming` - controls whether you want to include stemming search algorithms into the published output. Stemming is the process for reducing inflected (or sometimes derived) words to their `stem`, `base` or `root` form – generally a written word form. Default setting is `false`;
- `root.filename` - identifies the root of the HTML file when chunking. The `root.filename` is the base filename for the chunk created for the root of each processed document;
- `webhelp.copyright` - this parameter specifies the copyright note that is added in the footer of the Table of Contents frame (the left side frame of the WebHelp output);

- `webhelp.indexer.language` - this parameter is used to identify the correct stemmer, and punctuation that differs from language to language. For example, for English the value of this parameter is `en`, for French it is `fr`, and so on;
- `xml.file` - this parameter specifies the path to the DocBook XML file.

The **Search** tab is enhanced with a rating mechanism that computes scores for every page that matches the search criteria. These scores are then translated into a 5-star rating scheme. The search results are sorted depending on:

- number of keywords found in a single page. The higher the number, the better;
- context - if a word is found in a title or emphasized section of text it scores better than a word found in an unformatted text.

Rules applied during search:

- the space character separates keywords. An expression like *grow flowers* counts as two separate keywords: *grow* and *flowers*;
- do not use quotes to perform exact search for multiple-word expressions. An expression like *"grow flowers"*, returns no results in our case, because it searches for two separate words: *"grow* and *flowers"* (note the quote signs attached to each word);
- *indexterm* and *keywords* DITA elements are an effective way to increase the ranking of a page. For example, content inside *keywords* elements weighs twice as much as content inside a *H1* HTML element;
- words composed by merging two or more words with colon (":"), minus ("-"), underline ("_"), or dot (".") characters, count as a single word;
- search for words containing three or more characters. Shorter words, like *to*, or *of* are ignored. This rule does not apply to CJK (Chinese, Japanese, Korean) languages.

Note: This output format is compatible with the following browsers:

- Internet Explorer 8 or newer;
- Chrome;
- Firefox;
- Safari;
- Opera.

WebHelp with Feedback Output Format

This section presents the Feedback-Enabled WebHelp systems support.

Oxygen XML Author has the ability to transform DocBook documents into Feedback-Enabled WebHelp systems. WebHelp is a form of online help consisting of a series of web pages (XHTML format). Its advantages include platform independence and continuous content update, since it can be viewed using a regular web browser. The Feedback system allows you to view discussion threads in a tree-like representation, reply to already posted comments and use stylized comments.

Oxygen XML Author allows you to publish DocBook 4 documents into a WebHelp with Feedback format which provides both Table of Contents and advanced search capabilities.

The layout is composed of two frames:

- the left frame, containing separate tabs for **Content**, **Search**, and **Index**;

  Note: In case your documents contain no *indexterm* elements, the **Index** tab is not generated.

  Note: You can choose to enhance the appearance of the selected item in the table of contents. The *WebHelp customization* topic contains more details about this.

- the right frame where help pages are displayed.

You can navigate through the content of your output using the arrows in the upper right part of the page. These arrows allow you to move to the parent, previous, and next topic. The parents of the currently opened topic are also presented at the top of the page.

To publish DocBook 4 to WebHelp with Feedback, use the **DocBook WebHelp with Feedback** transformation scenario. To further customize the out-of-the-box transformation, you can edit some of its parameters such as:

- `root.filename` - identifies the root of the HTML file when chunking. The `root.filename` is the base filename for the chunk created for the root of each processed document;
- `use.stemming` - controls whether you want to include stemming search algorithms into the published output. Stemming is the process for reducing inflected (or sometimes derived) words to their `stem`, `base` or `root` form – generally a written word form. Default setting is `false`;
- `webhelp.copyright` - this parameter specifies the copyright note that is added in the footer of the Table of Contents frame (the left side frame of the WebHelp output);
- `webhelp.indexer.language` - this parameter is used to identify the correct stemmer, and punctuation that differs from language to language. For example, for English the value of this parameter is `en`, for French it is `fr`, and so on;
- `webhelp.product.id` - this parameter specifies a short name for the documentation target (product), for example `mobile-phone-user-guide`, `hvac-installation-guide`. You can deploy documentation for multiple products on the same server.

For further information about all the DocBook transformation parameters, go to *http://docbook.sourceforge.net/release/xsl/current/doc/fo/index.html*.

The **Search** tab is enhanced with a rating mechanism that computes scores for every page that matches the search criteria. These scores are then translated into a 5-star rating scheme. The search results are sorted depending on:

- number of keywords found in a single page. The higher the number, the better;
- context - if a word is found in a title or emphasized section of text it scores better than a word found in an unformatted text.

Rules applied during search:

- the space character separates keywords. An expression like *grow flowers* counts as two separate keywords: *grow* and *flowers*;
- do not use quotes to perform exact search for multiple-word expressions. An expression like *"grow flowers"*, returns no results in our case, because it searches for two separate words: *"grow* and *flowers"* (note the quote signs attached to each word);
- *indexterm* and *keywords* DITA elements are an effective way to increase the ranking of a page. For example, content inside *keywords* elements weighs twice as much as content inside a *H1* HTML element;
- words composed by merging two or more words with colon (":"), minus ("-"), underline ("_"), or dot (".") characters, count as a single word;
- search for words containing three or more characters. Shorter words, like *to*, or *of* are ignored. This rule does not apply to CJK (Chinese, Japanese, Korean) languages.

To watch our video demonstration about the feedback-enabled WebHelp system, go to *http://oxygenxml.com/demo/Feedback_Enabled_WebHelp.html*.

Note: This output format is compatible with the following browsers:

- Internet Explorer 8 or newer;
- Chrome;
- Firefox;
- Safari;
- Opera.

Important: Due to some security restrictions in Google Chrome, WebHelp pages loaded from the local system (through URLs of the `file:///...` format) may not work properly. We recommend you to load WebHelp pages in Google Chrome only from a web server.

Note: In case you need to automate the transformation process and use it outside of Oxygen XML Author, you can use *the Oxygen WebHelp plugin*.

Introduction

Oxygen XML Author has the ability to transform DocBook 4 documents into feedback-enabled WebHelp systems.

WebHelp is a form of online help consisting of a series of web pages (XHTML format). Its advantages include platform independence and continuous content update, since it can be viewed using a regular web browser. It also provides table of contents and advanced search capabilities. The feedback system allows you to view discussion threads in a tree-like representation, post comments, reply to already posted comments, use stylized comments, and define administrators and moderators.

The DocBook 4 WebHelp with Feedback transformation

To publish DocBook 4 documents to WebHelp with Feedback, use the **DocBook WebHelp with Feedback** transformation. You can customize the out-of-the-box transformation by editing some of its parameters:

- `root.filename` - identifies the root of the HTML file when chunking. The `root.filename` is the base filename for the chunk created for the root of each processed document;
- `use.stemming` - controls whether you want to include stemming search algorithms into the published output. Stemming is the process for reducing inflected (or sometimes derived) words to their `stem`, `base` or `root` form – generally a written word form. Default setting is `false`;
- `webhelp.copyright` - this parameter specifies the copyright note that is added in the footer of the Table of Contents frame (the left side frame of the WebHelp output);
- `webhelp.indexer.language` - this parameter is used to identify the correct stemmer, and punctuation that differs from language to language. For example, for English the value of this parameter is `en`, for French it is `fr`, and so on;
- `webhelp.product.id` - this parameter specifies a short name for the documentation target (product), for example `mobile-phone-user-guide`, `hvac-installation-guide`. You can deploy documentation for multiple products on the same server.

Before the transformation starts, enter the documentation product ID and the documentation version. After you run a **DocBook WebHelp with Feedback** transformation, your default browser opens the `instalation.html` file. This file contains information about the output location, system requirements, installation instructions and deployment of the output.

To watch our video demonstration about the feedback-enabled WebHelp system, go to *http://oxygenxml.com/demo/Feedback_Enabled_WebHelp.html*.

Installation

System Requirements

The feedback-enabled WebHelp system of Oxygen XML Author demands the following system requirements:

- Apache Web Server running;
- MySQL server running;
- PHP Version>= 5.1.6;
- PHP MySQL Support;
- oXygen WebHelp system supports the following browsers:IE7+, Chrome 19+, Firefox 11+, Safari 5+, Opera 11+.

Installation Instructions

Note: These instructions were written for XAMPP 1.7.7 with PHP 5.3.8 and for *phpMyAdmin* 3.4.5. Later versions of these packages may change the location or name of some options, however the following installation steps should remain valid and basically the same.

In case you have a web server configured with PHP, MySQL, you can deploy the WebHelp output directly. Otherwise, install XAMPP. XAMPP is a free and open source cross-platform web server solution stack package. It consists mainly of the Apache HTTP Server, MySQL database, and interpreters for scripts written in the PHP.

Install XAMPP:

- Go to *http://www.apachefriends.org/en/xampp-windows.html* and download XAMPP, for instance for a Windows system;
- Install it in C:\xampp;
- From the XAMPP control panel, start "MySQL", and then "Apache";
- Open `http://localhost/xampp/index.php` in your browser to check whether the HTTP server is working.

Create a database for the feedback system and a MySQL user with privileges on that database. The feedback system uses the MySQL user to connect to the database. The username and password for the database administrator are pre-required. For XAMPP, the defaults are `root` for the username and the password is empty.

Use *phpMyAdmin* to create a database:

- Type *localhost* in your browser;
- In the left area, select: *phpMyAdmin*;
- Click *Databases* (in the right frame) and then create a *database*. You can give any name you want to your database, for example *comments*;
- Create a user with connection privileges for this database. In the **SQL** tab, paste the following text:

```
  INSERT INTO `mysql`.`user`
(`Host`,`User`,`Password`,`Select_priv`,`Insert_priv`,`Update_priv`,`Delete_priv`,`Create_priv`,

`Drop_priv`,`Reload_priv`,`Shutdown_priv`,`Process_priv`,`File_priv`,`Grant_priv`,`References_priv`,`Index_priv`,`Alter_priv`,


`Show_db_priv`,`Super_priv`,`Create_tmp_table_priv`,`Lock_tables_priv`,`Execute_priv`,`Repl_slave_priv`,`Repl_client_priv`,

      `Create_view_priv`,
`Show_view_priv`,`Create_routine_priv`,`Alter_routine_priv`,`Create_user_priv`,`Event_priv`,`Trigger_priv`,

`Create_tablespace_priv`,`ssl_type`,`max_questions`,`max_updates`,`max_connections`,`max_user_connections`,`plugin`,

      `authentication_string`) VALUES ('localhost', 'user_name', PASSWORD('user_password'),
'Y','Y','Y','Y','Y','Y','Y','Y','Y','Y','N','N','N','N',
      'N','Y','Y','Y','Y','N','Y','Y','Y', 'Y', 'Y', 'Y', 'Y', 'Y', 'Y', 'N', 'Y', 'Y', 'Y','', '0', '0', '0',
 '0', '', '');
```

- Change the *user_name* and the *user_password* values;
- Under *localhost* in the right frame click *Privileges* and then at the bottom of the page click the *reload the privileges* link.

Deploying the WebHelp output

To deploy the WebHelp output, follow these steps:

- Locate the directory of the HTML documents. Open `http://localhost/xampp/phpinfo.php` in your browser and see the value of the DOCUMENT_ROOT variable. In case you installed XAMPP in C:\xampp, the value of DOCUMENT_ROOT is `C:/xampp/htdocs`;
- Copy the transformation output folder in the DOCUMENT_ROOT;
- Rename it to a relevant name, for example, webhelp_1;
- Open `http://localhost/webhelp_1/`. You are redirected to `http://localhost/webhelp_1/install/`;
  - Verify that the prerequisites are fulfilled;
  - Press **Start Installation**;
  - Configure the e-mail addresses, username, and password. Enter the WebHelp system administrator password. This special user is able to moderate new posts and manage WebHelp users;

    The address and port of the SMTP mail server that will send the email notifications for the user registration and for the user comments are displayed in the WebHelp installation wizard. They can be modified later in the PHP Runtime Configuration which is usually stored in the `php.ini` file in the XAMPP installation.

You can choose to share comments with other products using the same database. After configuring the database connection, enable the **Display comments from other products** option. In the **Display comments from** section a list with the products sharing the same database is displayed. You can choose one or more products from this list to share comments with.

Note: You can restrict the displayed comments of a product depending on its version. In case you have two products that use the same database and you restrict one of them to display comments starting from a certain version, the comments of the other product are also displayed from the specified version onwards.

- Press Next Step;
- Remove the installation folder from your web server;
- Click the link pointing to the index of the documentation, or visit: `http://localhost/webhelp_1/`.

To test your system, create a user or post as anonymous. Check that the notification emails are delivered to your inbox.

Note: To read debug messages, do one of the following:

- open the `log.js` file, locate the `var log= new Log(Level.NONE);` line, and change the logging level to: `Level.INFO`, `Level.DEBUG`, `Level.WARN`, or `Level.ERROR`;
- append `?log=true` to the WebHelp URL.

Layout of the Feedback-Enabled WebHelp System

The layout of the feedback-enabled WebHelp system resembles the layout of the basic WebHelp, the left frame remaining the same. However, the bottom of the right frame contains a **comments** bar. Select **Log in** from this bar to authenticate as a user of the WebHelp system. In case you do not have a user name, complete the fields in the dialog box that opens to create a user. Under the **comments** bar, you can click the **Add New Comment** button to add a comment whether you are logged in or not. The tabs in the left frame have the same functionality as the Content, Search, and Index tab of the basic WebHelp.

Note: You can choose to enhance the appearance of the selected item in the table of contents. The *WebHelp customization* topic contains more details about this.

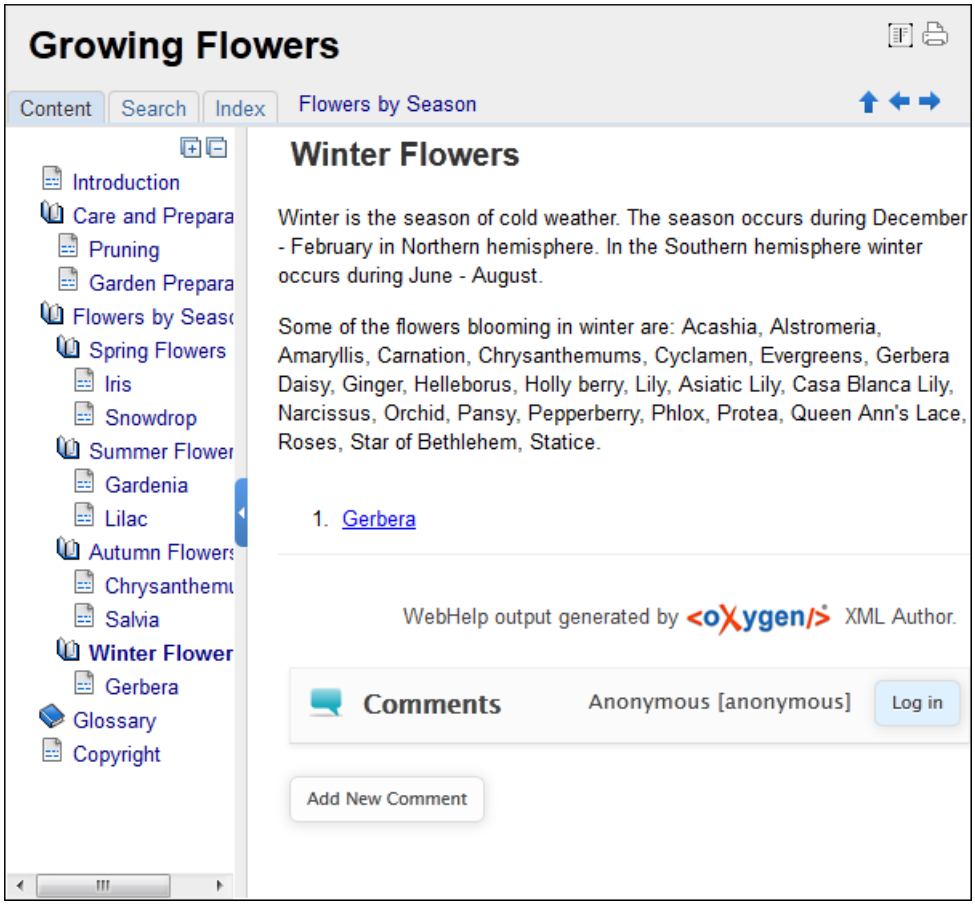


Figure 127: The layout of the Feedback-Enabled WebHelp System

After you log in, your name and user name are displayed in the **Comments** bar together with the **Log of** and **Edit** buttons. Click the **Edit** button to open the **User Profile** dialog. In this dialog you can customize the following options:

- **Your Name** - you can use this field to edit the initial name that you used to create your user profile;
- **Your e-mail address** - you can use this field to edit the initial e-mail address that you used to create your profile;
- When to receive an e-mail:
  - when a comment is left on a page that you commented on;
  - when a comment is left on any topic in the Help system ;
  - when a reply is left to one of my comments.
- **New Password** - allows you to enter a new password for your user account.

Note: The **Current Password** field from the top of the **User Profile** is mandatory in case you want to save the changes you make.

Advanced Customization and Management

As an administrator, you have full access to all the features of the feedback-enabled WebHelp system. Apart from the options available for a regular user, you can also use the administrative page for advanced customization and management. To access the administrative page, select **Admin Panel** from the **Comments** bar.

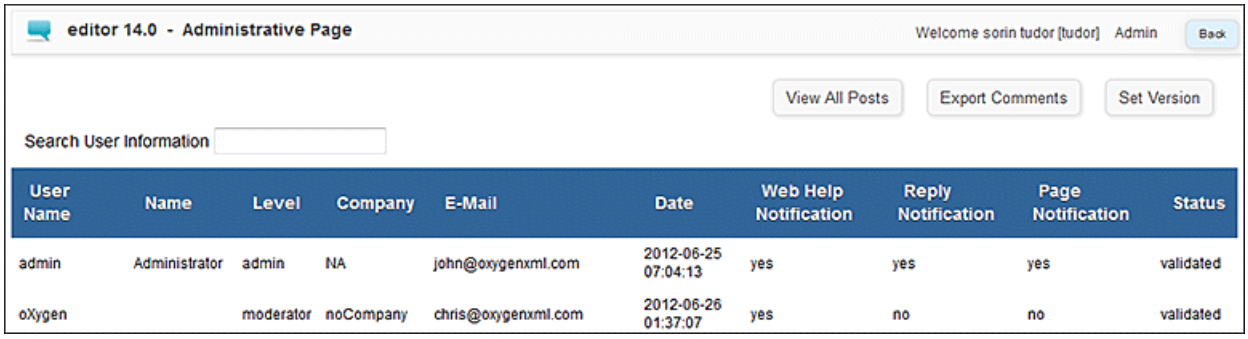


Figure 128: The Administrative Page

This page allows you to view all posts, export comments and set the version of the WebHelp. You can also view the details of each user and search through these details using the **Search User Information** filter.

Note: When you delete a comment, all the replies to that comment are deleted.

To edit the details of a user, click its row and use the **Edit User admin** dialog. In this dialog, you can customize all the information of an user, including is **Status** and **Level**. The following options are available:

- **User Name** - specifies the User Name of the currently edited user;
- **Name** - specifies the name of the currently edited user;
- **Level** - use this field to modify the level of the currently edited user. You can choose from **Admin**, **User**, and **Moderator**;
- **Company** - specifies the company of the selected user;
- **E-mail** - specifies the e-mail address that the currently edited user used ti create his account. This is also the address where notifications are sent;
- **Date** - specifies the date when the currently edited user created his account;
- **Web Help Notification** - specifies whether the currently edited user receives notifications when comments are posted anywhere in the feedback-enabled WebHelp system;
- **Reply Notification** - specifies whether the currently edited user receives notifications when comments are posted as a reply to a comment left by the user itself;
- **Page Notification** - specifies whether the currently edited user receives notifications when comments are posted on a page where the user posted a comment.;
- **Status** - specifies the status of an user:
  - **created** - the currently edited user is created but does not have any rights over the feedback-enabled WebHelp system;
  - **validated** - the currently edited user is able to use the feedback-enabled WebHelp system;
  - **suspended** - the currently edited user has no rights over the feedback-enabled WebHelp system.

The rights of the users depend on their level as follows:

- **user** - this type of user is able to post comments and receive e-mails when comments are posted anywhere in the documentation, on a single page where he posted a comment, or when a reply to one of his comments is posted;
- **moderator** - apart from the rights of a normal user, this type of user has access to the **Admin Panel**. On the administrative page a moderator can view, delete, export comments and set the version of the feedback-enabled WebHelp system;

  Note: Comments of version newer than the current version are not displayed.

- **admin** - the administrator has full access to all features of the feedback enabled WebHelp system.

WebHelp Mobile Output Format

To further improve its ability to create online documentation, Oxygen XML Author offers support to transform DocBook documents into mobile WebHelp systems. This feature generates an output that works on multiple platforms (Android, iOS, BlackBerry, Windows Mobile) and is specially designed for mobile devices. All the specific touch screen gestures are supported. The functionality of the desktop WebHelp layout is preserved, offering table of contents, search capabilities, and index navigation, organized in an intuitive layout.

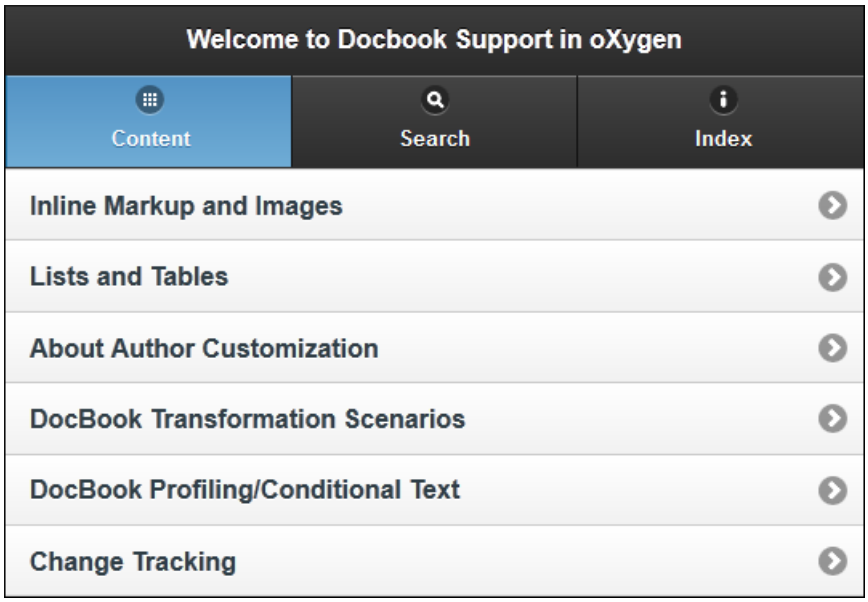


Figure 129: Mobile WebHelp

To generate a mobile WebHelp system from your DocBook 4 document, go to the **DITA Maps Manager** view, click **Configure Transformation Scenarios()** and select the **DocBook WebHelp - Mobile** transformation scenario from the **DocBook 5** section. Click **Apply associated**. Once Oxygen XML Author finishes the transformation process, the output is opened in your default browser automatically.

DocBook 4 Templates

Default templates are available in the *New File* wizard. You and can use them to create a skeletal form of a DocBook 4 book or article. These templates are stored in the `${frameworks}/docbook/templates/DocBook 4` folder.

Here are some of the DocBook 4 templates available when creating *new documents from templates*.

- **Article**;
- **Article with MathML**;
- **Article with SVG**;
- **Article with XInclude**;
- **Book**;
- **Book with XInclude**;
- **Chapter**;
- **Section**;
- **Set of Books**.

Inserting olink Links in DocBook 5 Documents

An `olink` is a type of link between two DocBook XML documents.

The `olink` element is the equivalent for linking outside the current DocBook document. It has the attribute `targetdoc` for the document ID that contains the target element and the attribute `targetptr` for the ID (the value of an `id` or `xml:id` attribute) of the target element. The combination of those two attributes provides a unique identifier to locate cross references.

For example, the *Administrator Guide* is a book with the document ID `MailAdminGuide` and it contains a chapter about user accounts like the following:

```
<chapter id="user_accounts">
<title>Administering User Accounts</title>
<para>blah blah</para>
...
```

You can form a cross reference to that chapter by adding an `olink` in the *User Guide* like the following:

```
You may need to update your
<olink targetdoc="MailAdminGuide" targetptr="user_accounts">user accounts
</olink>
when you get a new machine.
```

1. Decide what documents are included in the domain for cross referencing.

   An ID should be assigned to each document that will be referenced with an `olink`. Usually it is added as an `id` or `xml:id` attribute to the root element of the document. A document ID is a string that is unique for each document in your collection. For example the documentation may include a user's guide, an administrator's guide, and a reference document. These could have simple IDs like `ug`, `ag`, and `ref` or more specific IDs like `MailUserGuide`, `MailAdminGuide`, and `MailReference`.

2. Decide the output hierarchy.

   For creating links between documents, the relative locations of the output documents must be known. Generally the HTML files for multiple documents are output to different directories if chunking is used. Before going further you must decide the names and locations of the HTML output directories for all the documents from the domain. Each directory will be represented by an element `<dir name="directory_name">` in the target database document. In the example from the next step the hierarchy is `documentation/guides/mailuser`, `documentation/guides/mailadmin`, `documentation/guides/reference`.

3. Create the target database document.

   Each collection of documents has a master target database document that is used to resolve all `olinks` from that collection. The target database document is an XML file that is created once. It provides a framework that pulls in the target data for each document. The database document is static and all the document data is pulled in dynamically. An example is the following:

```
<?xml version="1.0" encoding="utf-8"?>
<!DOCTYPE targetset
       SYSTEM "file:///tools/docbook-xsl/common/targetdatabase.dtd" [
<!ENTITY ugtargets SYSTEM "file:///doc/userguide/target.db">
<!ENTITY agtargets SYSTEM "file:///doc/adminguide/target.db">
<!ENTITY reftargets SYSTEM "file:///doc/man/target.db">
]>
<targetset>
  <targetsetinfo>
    Description of this target database document,
    which is for the examples in olink doc.
  </targetsetinfo>

  <!-- Site map for generating relative paths between documents -->
  <sitemap>
    <dir name="documentation">
      <dir name="guides">
        <dir name="mailuser">
          <document targetdoc="MailUserGuide"
                    baseuri="userguide.html">
            &ugtargets;
          </document>
        </dir>
        <dir name="mailadmin">
          <document targetdoc="MailAdminGuide">
            &agtargets;
          </document>
        </dir>
      </dir>
      <dir name="reference">
        <dir name="mailref">
          <document targetdoc="MailReference">
            &reftargets;
```

```
          </document>
        </dir>
      </dir>
    </dir>
  </sitemap>
</targetset>
```

An example of a `target.db` file:

```
<!DOCTYPE div
  PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<div element="book" href="#MailAdminGuide" number="1" targetptr="user_accounts">
  <ttl>Administering User Accounts</ttl>
  <xreftext>How to administer user accounts</xreftext>
  <div element="part" href="#d5e4" number="I">
    <ttl>First Part</ttl>
    <xreftext>Part I, “First Part”</xreftext>
    <div element="chapter" href="#d5e6" number="1">
      <ttl>Chapter Title</ttl>
      <xreftext>Chapter 1, Chapter Title</xreftext>
      <div element="sect1" href="#src_chapter" number="1" targetptr="src_chapter">
        <ttl>Section1 Title</ttl>
        <xreftext>xreflabel_here</xreftext>
      </div>
    </div>
  </div>
</div>
```

4. Generate the target data files.

   These files are the `target.db` files from the above example of target database document. They are created with the same DocBook transformation scenario as the HTML or XHTML output. The XSLT parameter called `collect.xref.targets` must be set to the value `yes`. The default name of a target data file is `target.db` but it can be changed by setting an absolute file path in the XSLT parameter `targets.filename`.

5. Insert `olink` elements in the DocBook XML documents.

   When a DocBook XML document is edited in Author mode Oxygen provides the **Insert OLink** action on the toolbar. This action allows selecting the target of an `olink` from the list of all possible targets from a specified target database document. In the following image the target database document is called `target.xml`.

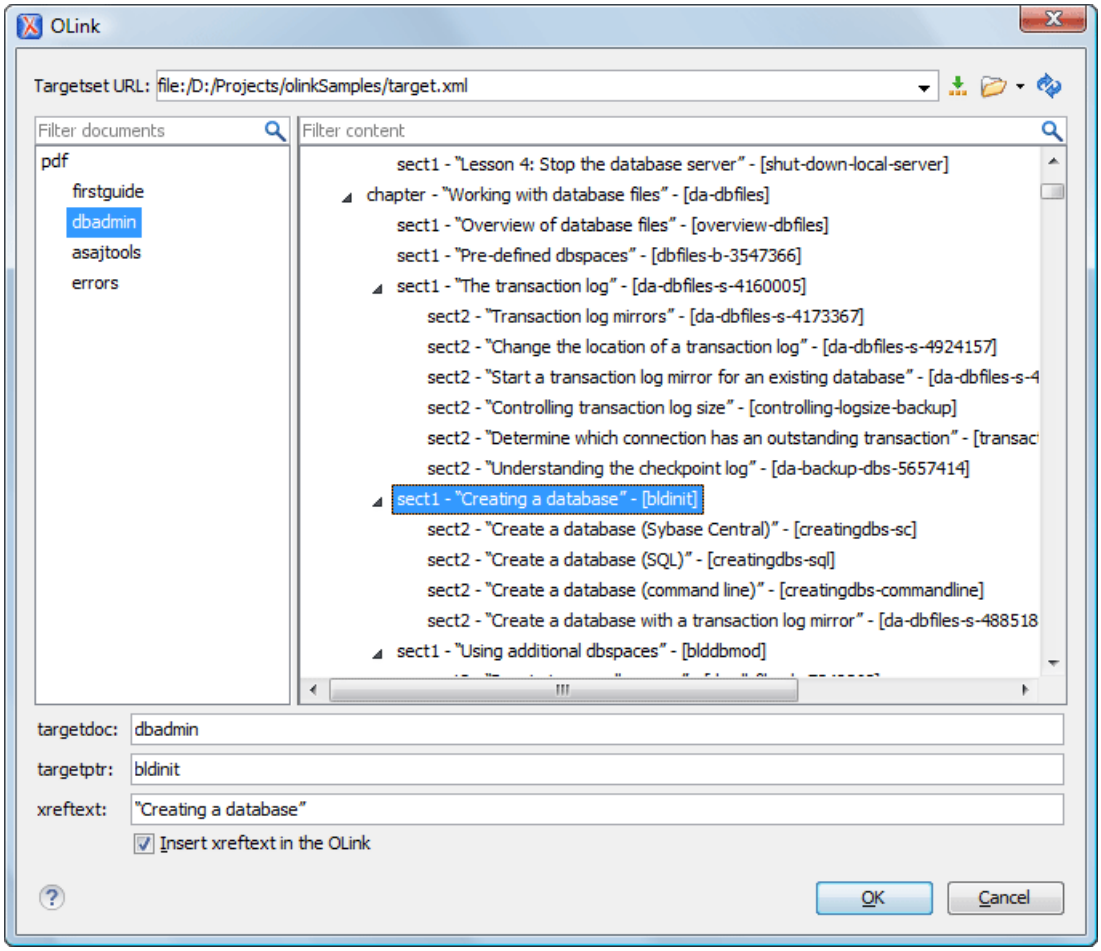


Figure 130: Insert OLink Dialog

6. Process each document for output.

   That is done using a DocBook transformation scenario in which the URL of the target database document is set in the `target.database.document` parameter. The DocBook XSL stylesheets know how to resolve `olinks` in the output files using the value of this parameter.

The DocBook 5 Document Type

A file is considered to be a DocBook 5 document when the namespace is *http://docbook.org/ns/docbook*.

DocBook 5 documents use a Relax NG and Schematron schema located in `${frameworks}/docbook/5.0/rng/docbookxi.rng`, where *${frameworks}* is a subdirectory of the Oxygen XML Author install directory.

The CSS file used for rendering DocBook content is located in `${frameworks}/docbook/css/docbook.css`.

The XML catalog is stored in `${frameworks}/docbook/5.0/catalog.xml`.

To watch our video demonstration about editing DocBook documents, go to *http://oxygenxml.com/demo/DocBook_Editing_in_Author.html*.

DocBook 5 Author Extensions

The DocBook 5 extensions are the same as the *DocBook 4 extensions*.

A drag and drop with a file from *the **Project** view* or from *the **DITA Maps Manager** view* to a DocBook 5 document that is edited in **Author** mode will create a link to the dragged file (the `link` DocBook element) at the drop location. A drag and drop with an image file from the default file system application (Windows Explorer on Windows, Finder on Mac OS X, etc) will insert an image element (the `inlinemediaobject` DocBook element with an `imagedata` child element) with the location of the dragged file at the drop location, like the **Insert Graphic** toolbar action.

DocBook 5 Transformation Scenarios

Default transformation scenarios allow you to transform DocBook 5 documents to HTML, HTML Chunk, PDF, XHTML, XHTML Chunk, WebHelp, EPUB, and EPUB 3.

DocBook to EPUB Transformation

The EPUB specification recommends the use of *OpenType* fonts (recognized by their `.otf` file extension) when possible. To use a specific font:

- first you need to declare it in your CSS file, like:

```
@font-face {
font-family: "MyFont";
font-weight: bold;
font-style: normal;
src: url(fonts/MyFont.otf);
}
```

- tell the CSS where this font is used. To set it as default for `h1` elements, use the `font-family` rule as in the following example:

```
h1 {
font-size:20pt;
margin-bottom:20px;
font-weight: bold;
font-family: "MyFont";
text-align: center;
}
```

- in your DocBook to EPUB transformation, set the `epub.embedded.fonts` parameter to `fonts/MyFont.otf`. If you need to provide more files, use comma to separate their file paths.

Note: The `html.stylesheet` parameter allows you to include a custom CSS in the output EPUB.

WebHelp Output Format

WebHelp is a form of online help consisting of a series of web pages (XHTML format). Its advantages include platform independence and continuous content update, since it can be viewed using a regular web browser.

Oxygen XML Author allows you to publish DocBook5 documents into a WebHelp format which provides both Table of Contents and advanced search capabilities.

The layout is composed of two frames:

- the left frame, containing separate tabs for **Content**, **Search**, and **Index**;

  Note: In case your documents contain no *indexterm* elements, the **Index** tab is not generated.

  Note: You can choose to enhance the appearance of the selected item in the table of contents. The *WebHelp customization* topic contains more details about this.

- the right frame where help pages are displayed.

You can navigate through the content of your output using the arrows in the upper right part of the page. These arrows allow you to move to the parent, previous, and next topic. The parents of the currently opened topic are also presented at the top of the page.

You can use this button , displayed in the **Content** tab, to collapse all the topics presented the table of contents.

The top right corner of the page contains the following options:

- **With frames** - displays the output using HTML frames to render two separate sections: a section that presents the table o contents in the left side and a section that presents the content of a topic in the right side;

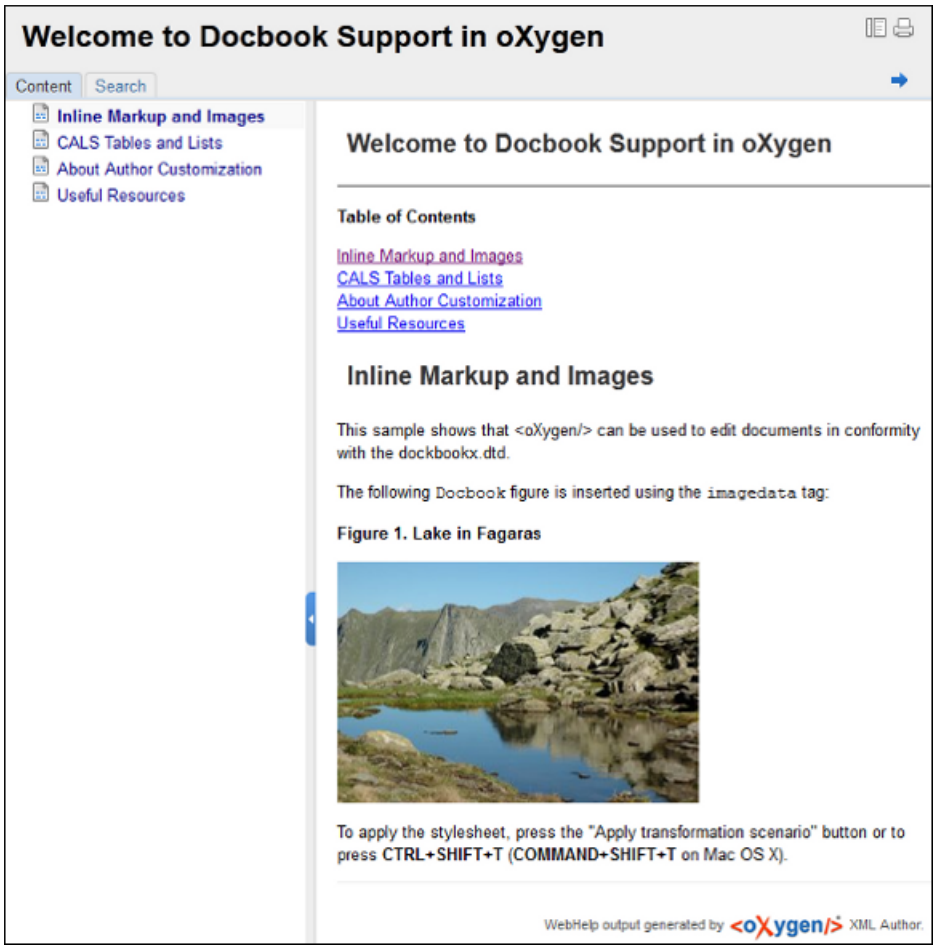


Figure 131: DocBook WebHelp

To publish DocBook 5 to WebHelp, use the **DocBook WebHelp** transformation. To further customize the out-of-the-box transformation, you can edit some of its parameters:

- `root.filename` - identifies the root of the HTML file when chunking. The `root.filename` is the base filename for the chunk created for the root of each processed document;
- `use.stemming` - controls whether you want to include stemming search algorithms into the published output. Stemming is the process for reducing inflected (or sometimes derived) words to their `stem`, `base` or `root` form – generally a written word form. Default setting is `false`;
- `webhelp.copyright` - this parameter specifies the copyright note that is added in the footer of the Table of Contents frame (the left side frame of the WebHelp output);
- `webhelp.indexer.language` - this parameter is used to identify the correct stemmer, and punctuation that differs from language to language. For example, for English the value of this parameter is `en`, for French it is `fr`, and so on
- `xml.file` - this parameter specifies the path to the DocBook XML file.

The **Search** tab is enhanced with a rating mechanism that computes scores for every page that matches the search criteria. These scores are then translated into a 5-star rating scheme. The search results are sorted depending on:

- number of keywords found in a single page. The higher the number, the better;
- context - if a word is found in a title or emphasized section of text it scores better than a word found in an unformatted text.

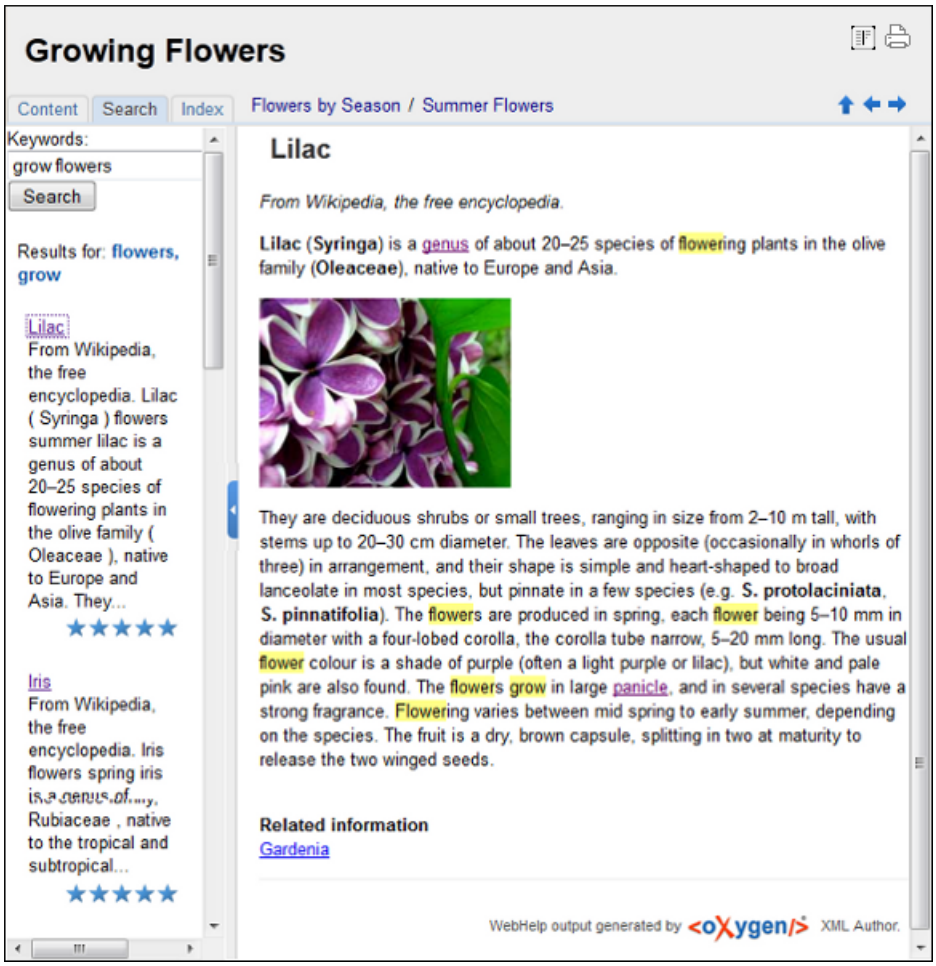


Figure 132: WebHelp Search with Stemming Enabled

Note: This output format is compatible with the following browsers:

- Internet Explorer 8 or newer;
- Chrome;
- Firefox;
- Safari;
- Opera.

WebHelp with Feedback Output Format

WebHelp is a form of online help consisting of a series of web pages (XHTML format). Its advantages include platform independence and continuous content update, since it can be viewed using a regular web browser.

Oxygen XML Author allows you to publish DocBook5 with Feedback documents into a WebHelp format which provides both Table of Contents and advanced search capabilities.

The layout is composed of two frames:

- the left frame, containing separate tabs for **Content**, **Search**, and **Index**;

Note: In case your documents contain no *indexterm* elements, the **Index** tab is not generated.

Note: You can choose to enhance the appearance of the selected item in the table of contents. The *WebHelp customization* topic contains more details about this.

- the right frame where help pages are displayed.

You can navigate through the content of your output using the arrows in the upper right part of the page. These arrows allow you to move to the parent, previous, and next topic. The parents of the currently opened topic are also presented at the top of the page.

To publish DocBook 5 to WebHelp with Feedback, use the **DocBook WebHelp with Feedback** transformation. To further customize the out-of-the-box transformation, you can edit some of its parameters:

- `root.filename` - identifies the root of the HTML file when chunking. The `root.filename` is the base filename for the chunk created for the root of each processed document;
- `use.stemming` - controls whether you want to include stemming search algorithms into the published output. Stemming is the process for reducing inflected (or sometimes derived) words to their `stem`, `base` or `root` form – generally a written word form. Default setting is `false`;
- `webhelp.copyright` - this parameter specifies the copyright note that is added in the footer of the Table of Contents frame (the left side frame of the WebHelp output);
- `webhelp.indexer.language` - this parameter is used to identify the correct stemmer, and punctuation that differs from language to language. For example, for English the value of this parameter is `en`, for French it is `fr`, and so on
- `webhelp.product.id` - this parameter specifies a short name for the documentation target (product), for example `mobile-phone-user-guide`, `hvac-installation-guide`. You can deploy documentation for multiple products on the same server;
- `webhelp.product.version` - this parameter specifies the documentation version. New comments are bound to this version. Multiple documentation versions can be deployed on the same server;
- `xml.file` - this parameter specifies the path to the DocBook XML file.

The **Search** tab is enhanced with a rating mechanism that computes scores for every page that matches the search criteria. These scores are then translated into a 5-star rating scheme. The search results are sorted depending on:

- number of keywords found in a single page. The higher the number, the better;
- context - if a word is found in a title or emphasized section of text it scores better than a word found in an unformatted text.

Rules applied during search:

- the space character separates keywords. An expression like *grow flowers* counts as two separate keywords: *grow* and *flowers*;
- do not use quotes to perform exact search for multiple-word expressions. An expression like *"grow flowers"*, returns no results in our case, because it searches for two separate words: *"grow* and *flowers"* (note the quote signs attached to each word);
- *indexterm* and *keywords* DITA elements are an effective way to increase the ranking of a page. For example, content inside *keywords* elements weighs twice as much as content inside a *H1* HTML element;
- words composed by merging two or more words with colon (":"), minus ("-"), underline ("_"), or dot (".") characters, count as a single word;
- search for words containing three or more characters. Shorter words, like *to*, or *of* are ignored. This rule does not apply to CJK (Chinese, Japanese, Korean) languages.

To watch our video demonstration about the feedback-enabled WebHelp system, go to *http://oxygenxml.com/demo/Feedback_Enabled_WebHelp.html*.

Note: This output format is compatible with the following browsers:

- Internet Explorer 8 or newer;
- Chrome;

- Firefox;
- Safari;
- Opera.

Important: Due to some security restrictions in Google Chrome, WebHelp pages loaded from the local system (through URLs of the `file:///...` format) may not work properly. We recommend you to load WebHelp pages in Google Chrome only from a web server.

Note: In case you need to automate the transformation process and use it outside of Oxygen XML Author, you can use *the Oxygen WebHelp plugin*.

Introduction

Oxygen XML Author has the ability to transform DocBook 5 documents into feedback-enabled WebHelp systems.

WebHelp is a form of online help consisting of a series of web pages (XHTML format). Its advantages include platform independence and continuous content update, since it can be viewed using a regular web browser. It also provides table of contents and advanced search capabilities. The feedback system allows you to view discussion threads in a tree-like representation, post comments, reply to already posted comments, use stylized comments, and define administrators and moderators.

The DocBook 5 WebHelp with Feedback transformation

To publish DocBook 5 documents to WebHelp with Feedback, use the **DocBook WebHelp with Feedback** transformation scenario. You can customize the out-of-the-box transformation by editing some of its parameters:

- `root.filename` - identifies the root of the HTML file when chunking. The `root.filename` is the base filename for the chunk created for the root of each processed document;
- `use.stemming` - controls whether you want to include stemming search algorithms into the published output. Stemming is the process for reducing inflected (or sometimes derived) words to their `stem`, `base` or `root` form – generally a written word form. Default setting is `false`;
- `webhelp.copyright` - this parameter specifies the copyright note that is added in the footer of the Table of Contents frame (the left side frame of the WebHelp output);
- `webhelp.indexer.language` - this parameter is used to identify the correct stemmer, and punctuation that differs from language to language. For example, for English the value of this parameter is `en`, for French it is `fr`, and so on
- `webhelp.product.id` - this parameter specifies a short name for the documentation target (product), for example `mobile-phone-user-guide`, `hvac-installation-guide`. You can deploy documentation for multiple products on the same server;
- `webhelp.product.version` - this parameter specifies the documentation version. New comments are bound to this version. Multiple documentation versions can be deployed on the same server;
- `xml.file` - this parameter specifies the path to the DocBook XML file.

For further information about all the DocBook transformation parameters, go to *http://docbook.sourceforge.net/release/xsl/current/doc/fo/index.html*.

Before the transformation starts, enter the documentation product ID and the documentation version. After you run a **DocBook WebHelp with Feedback** transformation, your default browser opens the `instalation.html` file. This file contains information about the output location, system requirements, installation instructions, and deployment of the output.

To watch our video demonstration about the feedback-enabled WebHelp system, go to *http://oxygenxml.com/demo/Feedback_Enabled_WebHelp.html*.

Installation

System Requirements

The feedback-enabled WebHelp system of Oxygen XML Author demands the following system requirements:

- Apache Web Server running;
- MySQL server running;
- PHP Version>= 5.1.6;
- PHP MySQL Support;
- oXygen WebHelp system supports the following browsers:IE7+, Chrome 19+, Firefox 11+, Safari 5+, Opera 11+.

Installation Instructions

Note: These instructions were written for XAMPP 1.7.7 with PHP 5.3.8 and for *phpMyAdmin* 3.4.5. Later versions of these packages may change the location or name of some options, however the following installation steps should remain valid and basically the same.

In case you have a web server configured with PHP, MySQL, you can deploy the WebHelp output directly. Otherwise, install XAMPP. XAMPP is a free and open source cross-platform web server solution stack package. It consists mainly of the Apache HTTP Server, MySQL database, and interpreters for scripts written in the PHP.

Install XAMPP:

- Go to *http://www.apachefriends.org/en/xampp-windows.html* and download XAMPP, for instance for a Windows system;
- Install it in C:\xampp;
- From the XAMPP control panel, start "MySQL", and then "Apache";
- Open `http://localhost/xampp/index.php` in your browser to check whether the HTTP server is working.

Create a database for the feedback system and a MySQL user with privileges on that database. The feedback system uses the MySQL user to connect to the database. The username and password for the database administrator are pre-required. For XAMPP, the defaults are `root` for the username and the password is empty.

Use *phpMyAdmin* to create a database:

- Type *localhost* in your browser;
- In the left area, select: *phpMyAdmin*;
- Click *Databases* (in the right frame) and then create a *database*. You can give any name you want to your database, for example *comments*;
- Create a user with connection privileges for this database. In the **SQL** tab, paste the following text:

```
  INSERT INTO `mysql`.`user`
(`Host`,`User`,`Password`,`Select_priv`,`Insert_priv`,`Update_priv`,`Delete_priv`,`Create_priv`,

`Drop_priv`,`Reload_priv`,`Shutdown_priv`,`Process_priv`,`File_priv`,`Grant_priv`,`References_priv`,`Index_priv`,`Alter_priv`,


`Show_db_priv`,`Super_priv`,`Create_tmp_table_priv`,`Lock_tables_priv`,`Execute_priv`,`Repl_slave_priv`,`Repl_client_priv`,

      `Create_view_priv`,
`Show_view_priv`,`Create_routine_priv`,`Alter_routine_priv`,`Create_user_priv`,`Event_priv`,`Trigger_priv`,

`Create_tablespace_priv`,`ssl_type`,`max_questions`,`max_updates`,`max_connections`,`max_user_connections`,`plugin`,

      `authentication_string`) VALUES ('localhost', 'user_name', PASSWORD('user_password'),
'Y','Y','Y','Y','Y','Y','Y','Y','N','N','N',
      'N','Y','Y','Y','Y','Y','N','Y','Y','Y','Y','Y','Y','Y','Y','Y','N','Y','Y','Y','','0','0','0',
 '0', '', '');
```

- Change the *user_name* and the *user_password* values;
- Under *localhost* in the right frame click *Privileges* and then at the bottom of the page click the *reload the privileges* link.

Deploying the WebHelp output

To deploy the WebHelp output, follow these steps:

- Locate the directory of the HTML documents. Open `http://localhost/xampp/phpinfo.php` in your browser and see the value of the DOCUMENT_ROOT variable. In case you installed XAMPP in C:\xampp, the value of DOCUMENT_ROOT is `C:/xampp/htdocs`;
- Copy the transformation output folder in the DOCUMENT_ROOT;
- Rename it to a relevant name, for example, webhelp_1;
- Open `http://localhost/webhelp_1/`. You are redirected to `http://localhost/webhelp_1/install/`;
  - Verify that the prerequisites are fulfilled;
  - Press **Start Installation**;
  - Configure the e-mail addresses, username, and password. Enter the WebHelp system administrator password. This special user is able to moderate new posts and manage WebHelp users;

    The address and port of the SMTP mail server that will send the email notifications for the user registration and for the user comments are displayed in the WebHelp installation wizard. They can be modified later in the PHP Runtime Configuration which is usually stored in the `php.ini` file in the XAMPP installation.

    You can choose to share comments with other products using the same database. After configuring the database connection, enable the **Display comments from other products** option. In the **Display comments from** section a list with the products sharing the same database is displayed. You can choose one or more products from this list to share comments with.

    Note: You can restrict the displayed comments of a product depending on its version. In case you have two products that use the same database and you restrict one of them to display comments starting from a certain version, the comments of the other product are also displayed from the specified version onwards.

  - Press Next Step;
  - Remove the installation folder from your web server;
  - Click the link pointing to the index of the documentation, or visit: `http://localhost/webhelp_1/`.

To test your system, create a user or post as anonymous. Check that the notification emails are delivered to your inbox.

Note: To read debug messages, do one of the following:

- open the `log.js` file, locate the `var log= new Log(Level.NONE);` line, and change the logging level to: `Level.INFO`, `Level.DEBUG`, `Level.WARN`, or `Level.ERROR`;
- append `?log=true` to the WebHelp URL.

Layout of the Feedback-Enabled WebHelp System

The layout of the feedback-enabled WebHelp system resembles the layout of the basic WebHelp, the left frame remaining the same. However, the bottom of the right frame contains a **comments** bar. Select **Log in** from this bar to authenticate as a user of the WebHelp system. In case you do not have a user name, complete the fields in the dialog box that opens to create a user. Under the **comments** bar, you can click the **Add New Comment** button to add a comment whether you are logged in or not. The tabs in the left frame have the same functionality as the Content, Search, and Index tab of the basic WebHelp.

Note: You can choose to enhance the appearance of the selected item in the table of contents. The *WebHelp customization* topic contains more details about this.

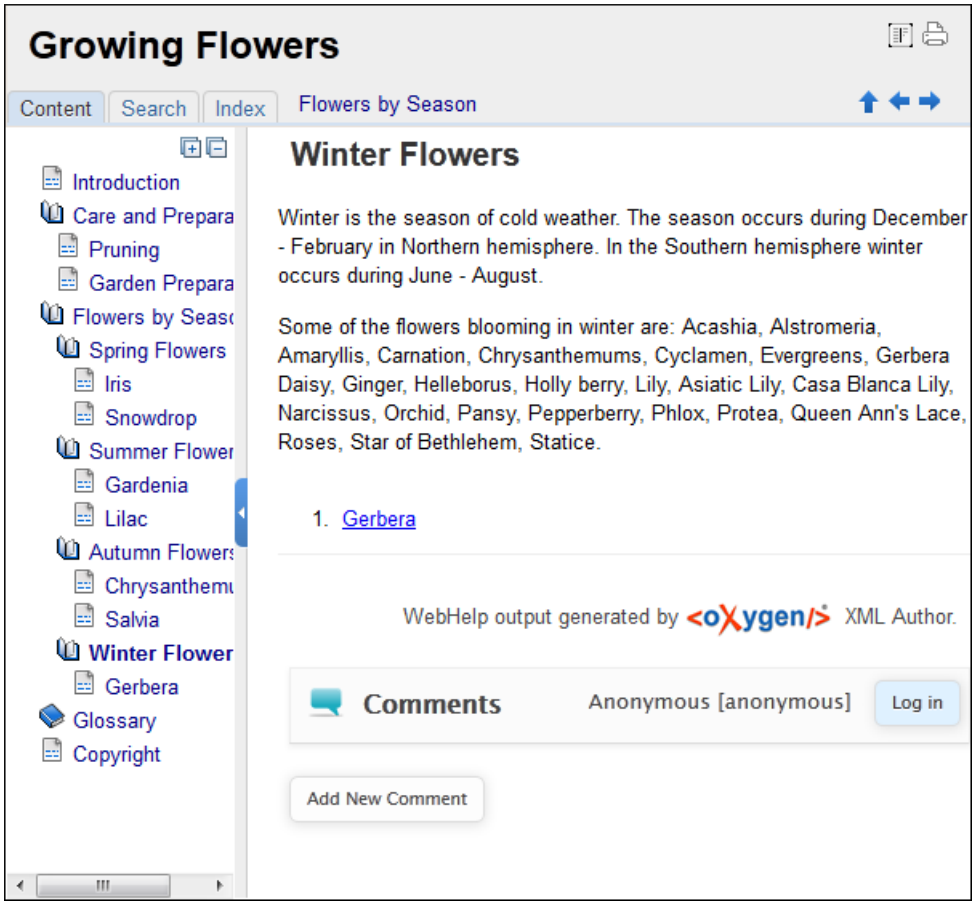


Figure 133: The layout of the Feedback-Enabled WebHelp System

After you log in, your name and user name are displayed in the **Comments** bar together with the **Log of** and **Edit** buttons. Click the **Edit** button to open the **User Profile** dialog. In this dialog you can customize the following options:

- **Your Name** - you can use this field to edit the initial name that you used to create your user profile;
- **Your e-mail address** - you can use this field to edit the initial e-mail address that you used to create your profile;
- When to receive an e-mail:
  - when a comment is left on a page that you commented on;
  - when a comment is left on any topic in the Help system ;
  - when a reply is left to one of my comments.
- **New Password** - allows you to enter a new password for your user account.

Note: The **Current Password** field from the top of the **User Profile** is mandatory in case you want to save the changes you make.

Advanced Customization and Management

As an administrator, you have full access to all the features of the feedback-enabled WebHelp system. Apart from the options available for a regular user, you can also use the administrative page for advanced customization and management. To access the administrative page, select **Admin Panel** from the **Comments** bar.

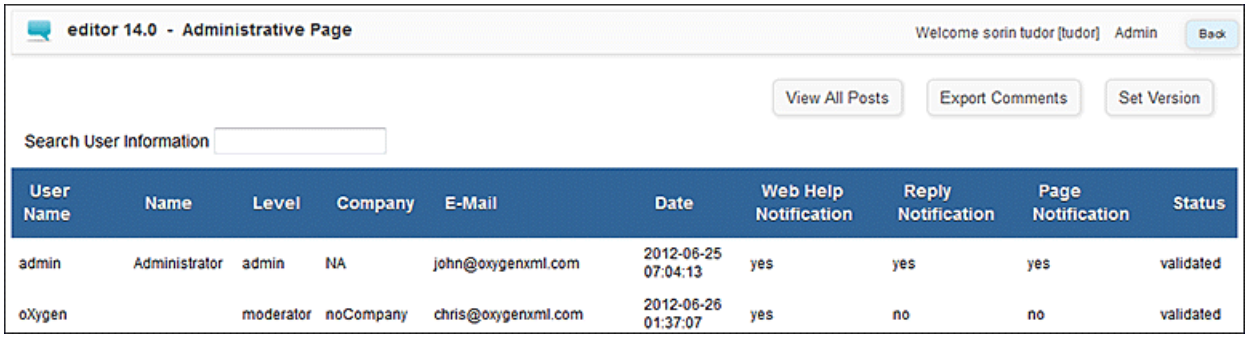


Figure 134: The Administrative Page

This page allows you to view all posts, export comments and set the version of the WebHelp. You can also view the details of each user and search through these details using the **Search User Information** filter.

Note: When you delete a comment, all the replies to that comment are deleted.

To edit the details of a user, click its row and use the **Edit User admin** dialog. In this dialog, you can customize all the information of an user, including is **Status** and **Level**. The following options are available:

- **User Name** - specifies the User Name of the currently edited user;
- **Name** - specifies the name of the currently edited user;
- **Level** - use this field to modify the level of the currently edited user. You can choose from **Admin**, **User**, and **Moderator**;
- **Company** - specifies the company of the selected user;
- **E-mail** - specifies the e-mail address that the currently edited user used ti create his account. This is also the address where notifications are sent;
- **Date** - specifies the date when the currently edited user created his account;
- **Web Help Notification** - specifies whether the currently edited user receives notifications when comments are posted anywhere in the feedback-enabled WebHelp system;
- **Reply Notification** - specifies whether the currently edited user receives notifications when comments are posted as a reply to a comment left by the user itself;
- **Page Notification** - specifies whether the currently edited user receives notifications when comments are posted on a page where the user posted a comment.;
- **Status** - specifies the status of an user:
  - **created** - the currently edited user is created but does not have any rights over the feedback-enabled WebHelp system;
  - **validated** - the currently edited user is able to use the feedback-enabled WebHelp system;
  - **suspended** - the currently edited user has no rights over the feedback-enabled WebHelp system.

The rights of the users depend on their level as follows:

- **user** - this type of user is able to post comments and receive e-mails when comments are posted anywhere in the documentation, on a single page where he posted a comment, or when a reply to one of his comments is posted;
- **moderator** - apart from the rights of a normal user, this type of user has access to the **Admin Panel**. On the administrative page a moderator can view, delete, export comments and set the version of the feedback-enabled WebHelp system;

  Note: Comments of version newer than the current version are not displayed.

- **admin** - the administrator has full access to all features of the feedback enabled WebHelp system.

WebHelp Mobile Output format

To further improve its ability to create online documentation, Oxygen XML Author offers support to transform DocBook documents into mobile WebHelp systems. This feature generates an output that works on multiple platforms (Android, iOS, BlackBerry, Windows Mobile) and is specially designed for mobile devices. All the specific touch screen gestures are supported. The functionality of the desktop WebHelp layout is preserved, offering table of contents, search capabilities, and index navigation, organized in an intuitive layout.

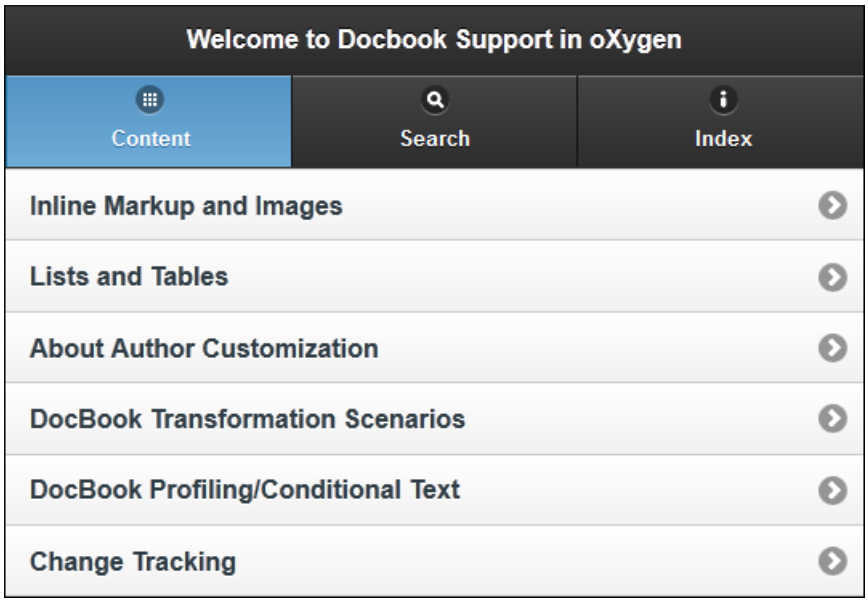


Figure 135: Mobile WebHelp

To generate a mobile WebHelp system from your DocBook 5 document, go to the **DITA Maps Manager** view, click **Configure Transformation Scenarios()** and select the **DocBook WebHelp - Mobile** transformation scenario from the **DocBook 5** section. Click **Apply associated**. Once Oxygen XML Author finishes the transformation process, the output is opened in your default browser automatically.

DocBook to PDF Output Customization

Main steps for customization of PDF output generated from DocBook XML documents.

When the default layout and output look of the DocBook to PDF transformation need to be customized, the following main steps should be followed. In this example a company logo image is added to the front matter of a book. Other types of customizations should follow some similar steps.

1. Create a custom version of the DocBook title spec file.

   You should start from a copy of the file `[Oxygen-install-dir]/frameworks/docbook/xsl/fo/titlepage.templates.xml` and customize it. The instructions for the spec file can be found *here.*

   An example of spec file:

```
<t:titlepage-content t:side="recto">
    <mediaobject/>
    <title
        t:named-template="book.verso.title"
        font-size="&hsize2;"
        font-weight="bold"
        font-family="{$title.font.family}"/>
    <corpauthor/>
      ...
</t:titlepage-content>
```

2. Generate a new XSLT stylesheet from the title spec file from the previous step.

Apply `[Oxygen-install-dir]/frameworks/docbook/xsl/template/titlepage.xsl` to the title spec file. The result is an XSLT stylesheet, let's call it `mytitlepages.xsl`.

3. Import `mytitlepages.xsl` in a *DocBook customization layer*.

   The customization layer is the stylesheet that will be applied to the XML document. The `mytitlepages.xsl` should be imported with an element like:

   ```
   <xsl:import href="dir-name/mytitlepages.xsl"/>
   ```

4. Insert logo image in the XML document.

   The path to the logo image must be inserted in the `book/info/mediaobject` element of the XML document.

5. Apply the customization layer to the XML document.

   A quick way is duplicating the transformation scenario **DocBook PDF** that comes with Oxygen and set the customization layer in *the **XSL URL** property of the scenario*.

DocBook 5 Templates

Default templates are available in the *New File wizard* and can be used for easily creating a skeletal form of a DocBook 5 book or article. These templates are stored in the `${frameworks}/docbook/templates/DocBook 5` folder.

Here are some of the DocBook 5 templates available when creating *new documents from templates*.

- **Article**;
- **Article with MathML**;
- **Article with SVG**;
- **Article with XInclude**;
- **Book**;
- **Book with XInclude**;
- **Chapter**;
- **Section**;
- **Set of Books**.

Inserting olink Links in DocBook 5 Documents

An `olink` is a type of link between two DocBook XML documents.

The `olink` element is the equivalent for linking outside the current DocBook document. It has the attribute `targetdoc` for the document ID that contains the target element and the attribute `targetptr` for the ID (the value of an `id` or `xml:id` attribute) of the target element. The combination of those two attributes provides a unique identifier to locate cross references.

For example, the *Administrator Guide* is a book with the document ID `MailAdminGuide` and it contains a chapter about user accounts like the following:

```
<chapter id="user_accounts">
<title>Administering User Accounts</title>
<para>blah blah</para>
...
```

You can form a cross reference to that chapter by adding an `olink` in the *User Guide* like the following:

```
You may need to update your
<olink targetdoc="MailAdminGuide" targetptr="user_accounts">user accounts
</olink>
when you get a new machine.
```

1. Decide what documents are included in the domain for cross referencing.

   An ID should be assigned to each document that will be referenced with an `olink`. Usually it is added as an `id` or `xml:id` attribute to the root element of the document. A document ID is a string that is unique for each document in your collection. For example the documentation may include a user's guide, an administrator's guide, and a reference

document. These could have simple IDs like `ug`, `ag`, and `ref` or more specific IDs like `MailUserGuide`, `MailAdminGuide`, and `MailReference`.

2. Decide the output hierarchy.

   For creating links between documents, the relative locations of the output documents must be known. Generally the HTML files for multiple documents are output to different directories if chunking is used. Before going further you must decide the names and locations of the HTML output directories for all the documents from the domain. Each directory will be represented by an element `<dir name="directory_name">` in the target database document. In the example from the next step the hierarchy is `documentation/guides/mailuser`, `documentation/guides/mailadmin`, `documentation/guides/reference`.

3. Create the target database document.

   Each collection of documents has a master target database document that is used to resolve all `olinks` from that collection. The target database document is an XML file that is created once. It provides a framework that pulls in the target data for each document. The database document is static and all the document data is pulled in dynamically. An example is the following:

```
<?xml version="1.0" encoding="utf-8"?>
<!DOCTYPE targetset
       SYSTEM "file:///tools/docbook-xsl/common/targetdatabase.dtd" [
<!ENTITY ugtargets SYSTEM "file:///doc/userguide/target.db">
<!ENTITY agtargets SYSTEM "file:///doc/adminguide/target.db">
<!ENTITY reftargets SYSTEM "file:///doc/man/target.db">
]>
<targetset>
  <targetsetinfo>
    Description of this target database document,
    which is for the examples in olink doc.
  </targetsetinfo>

  <!-- Site map for generating relative paths between documents -->
  <sitemap>
    <dir name="documentation">
      <dir name="guides">
        <dir name="mailuser">
          <document targetdoc="MailUserGuide"
                    baseuri="userguide.html">
            &ugtargets;
          </document>
        </dir>
        <dir name="mailadmin">
          <document targetdoc="MailAdminGuide">
            &agtargets;
          </document>
        </dir>
      </dir>
      <dir name="reference">
        <dir name="mailref">
          <document targetdoc="MailReference">
            &reftargets;
          </document>
        </dir>
      </dir>
    </dir>
  </sitemap>
</targetset>
```

   An example of a `target.db` file:

```
<!DOCTYPE div
  PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<div element="book" href="#MailAdminGuide" number="1" targetptr="user_accounts">
  <ttl>Administering User Accounts</ttl>
  <xreftext>How to administer user accounts</xreftext>
  <div element="part" href="#d5e4" number="I">
    <ttl>First Part</ttl>
    <xreftext>Part I, “First Part”</xreftext>
    <div element="chapter" href="#d5e6" number="1">
      <ttl>Chapter Title</ttl>
      <xreftext>Chapter 1, Chapter Title</xreftext>
      <div element="sect1" href="#src_chapter" number="1" targetptr="src_chapter">
        <ttl>Section1 Title</ttl>
        <xreftext>xreflabel_here</xreftext>
      </div>
    </div>
  </div>
</div>
```

4. Generate the target data files.

These files are the `target.db` files from the above example of target database document. They are created with the same DocBook transformation scenario as the HTML or XHTML output. The XSLT parameter called `collect.xref.targets` must be set to the value `yes`. The default name of a target data file is `target.db` but it can be changed by setting an absolute file path in the XSLT parameter `targets.filename`.

5. Insert `olink` elements in the DocBook XML documents.

   When a DocBook XML document is edited in Author mode Oxygen provides the **Insert OLink** action on the toolbar. This action allows selecting the target of an `olink` from the list of all possible targets from a specified target database document. In the following image the target database document is called `target.xml`.

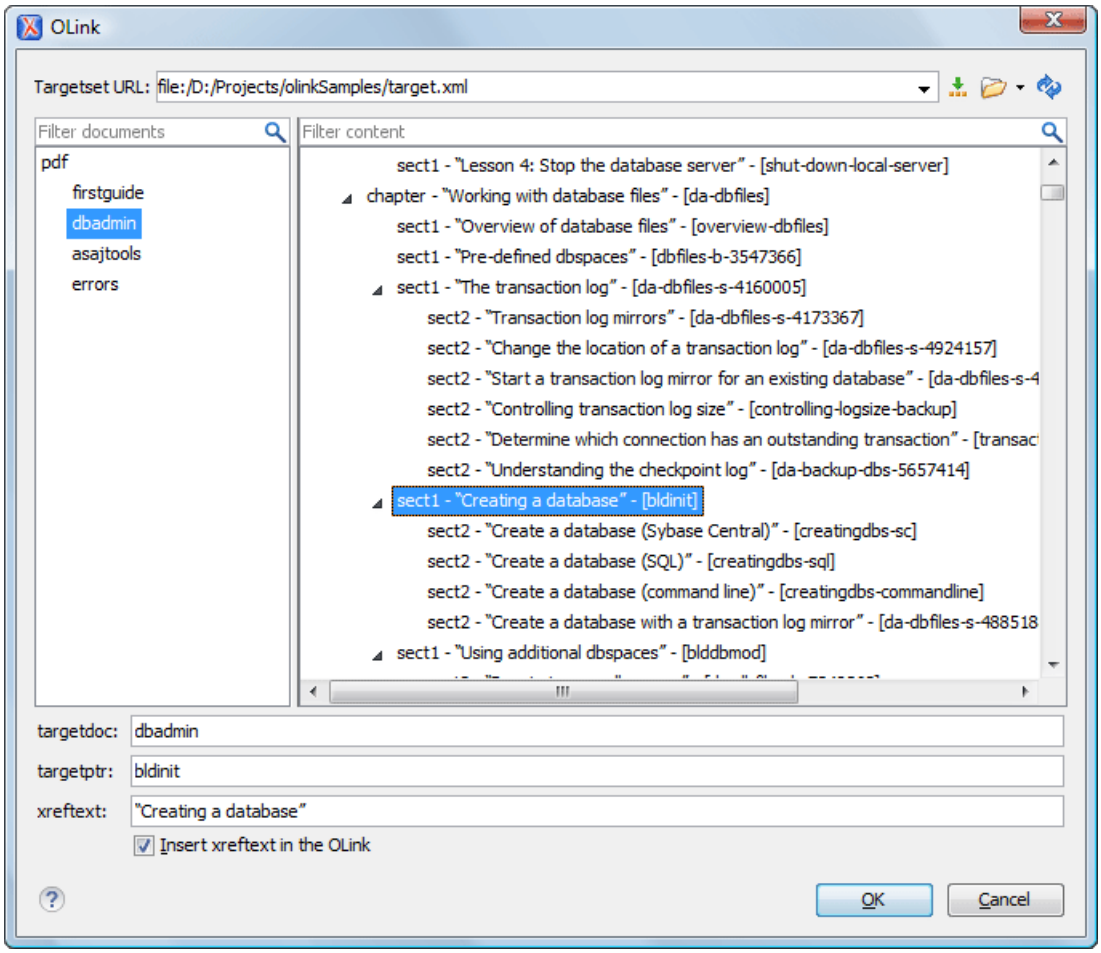


Figure 136: Insert OLink Dialog

6. Process each document for output.

   That is done using a DocBook transformation scenario in which the URL of the target database document is set in the `target.database.document` parameter. The DocBook XSL stylesheets know how to resolve `olinks` in the output files using the value of this parameter.

The DocBook Targetset Document Type

DocBook *Targetset* documents are used to resolve cross references with DocBook `olink`'s.

A file is considered to be a *Targetset* when the root name is `targetset`.

This type of documents use a DTD and schema located in `${frameworks}/docbook/xsl/common/targetdatabase.dtd`, where `${frameworks}` is a subdirectory of the Oxygen XML Author install directory.

DocBook Targetset Templates

There is a default template for *Targetset* documents in the `${frameworks}/docbook/templates/Targetset` folder. It is available when creating *new documents from templates*.

- **Docbook Targetset - Map** - New Targetset Map.

The DITA Topics Document Type

The Darwin Information Typing Architecture (DITA) is an XML-based architecture oriented to authoring, producing, and delivering technical information. It divides content into small, self-contained topics that you can reuse in different deliverables. The extensibility of DITA permits organizations to define specific information structures and still use standard tools to work with them. Oxygen XML Author provides schema driven (DTD, RNG, XSD) templates for DITA documents.

A file is considered to be a DITA topic document when either of the following occurs:

- the root element name is one of the following: `concept`, `task`, `reference`, `dita`, `topic`;
- PUBLIC ID of the document is one of the PUBLIC ID's for the elements above;
- the root element of the file has an attribute named `DITAArchVersion` attribute from the "http://dita.oasis-open.org/architecture/2005/" namespace. This enhanced case of matching is only applied when the **Enable DTD processing** option from the *Document Type Association preferences page.* is enabled.

The default schema used for DITA topic documents is located in `${frameworks}/dita/dtd/ditabase.dtd`, where *${frameworks}* is a subdirectory of the Oxygen XML Author install directory.

The CSS file used for rendering DITA content in Author mode is `${frameworks}/dita/css/dita.css`.

The default XML catalog is `${frameworks}/dita/catalog.xml`.

DITA Author Extensions

The specific actions for a DITA topic are:

- **Bold** - surrounds the selected text with a `b` tag;
- **Italic** - surrounds the selected text with an `i` tag;
- **Underline** - surrounds the selected text with a `u` tag;

  Note:

  Bold, **Italic**, and **Underline** are toggle actions.

  For all of the above actions, if there is no selection in the document, then a new specific tag is inserted. These actions are available in any document context.

- **Style Guide** - opens the **DITA Style Guide Best Practices for Authors** in your browser and presents the description of the element at the caret position. This action is available in the contextual menu of the editing area (when editing DITA documents), in the **DITA** menu, and in the documentation tip displayed by the **Content Completion Assistant**;
- **Browse reference manual** - opens in your web browser of choice a reference to the documentation of the XML element closest to the caret position;

- **Cross Reference** - inserts an `xref` element with the value of the `format` attribute set to `dita`. The target of the `xref` element is selected in a dialog box that lists all the IDs extracted from the selected file. When you select an ID, you can preview the content in the **Preview** tab or the XML source in the **Source** tab. In case you have a large number of IDs in the target document, use the **Filter** field to search through the IDs.

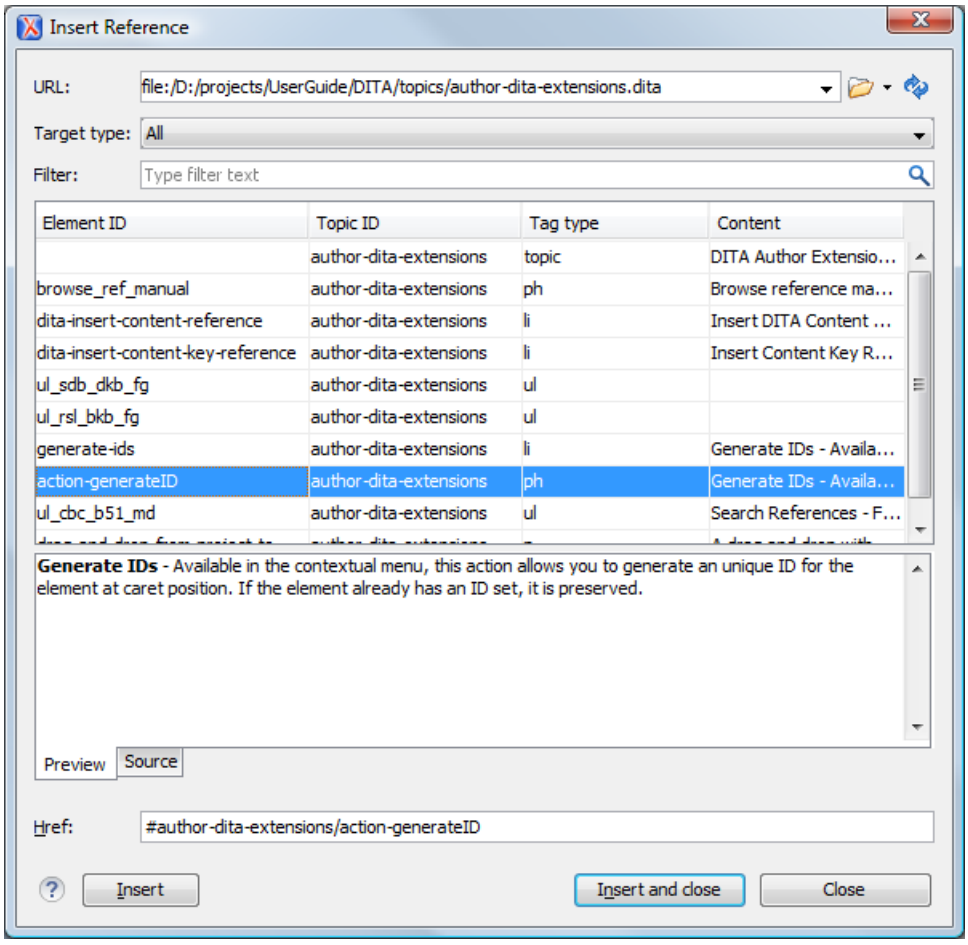


Figure 137: Insert a Cross Reference in a DITA Document

Note: The **Insert Reference** dialog is not modal. The dialog is closed automatically in case you switch to a different editor.

- **Key Reference** - inserts a user specified element with the value of the `keyref` attribute set to a specific key name. As stated in the DITA 1.2 specification, keys are defined at map level and referenced afterwards. You are able to select the target of the `keyref` element in the **Insert Key Reference** dialog box;

Note: The **Insert Key Reference** dialog box presents the list of keys available in the current DITA Map. If the DITA Map is not opened in the **DITA Maps Manager** view, the **Insert Key Reference** dialog does not display any keys.

You can also reference elements at sub-topic level by pressing the **Sub-topic** button and choosing the target.

All keys which are presented in the dialog are gathered from the current opened DITA map. Elements which have the `keyref` attribute set are displayed as links. The current opened DITA map is also used to resolve references when navigating `keyref` links in the Author mode. Image elements which use key references are rendered as images.

- **File Reference** - inserts an `xref` element with the value of attribute `format` set to `xml`;
- **Web Link** - inserts an `xref` element with the value of attribute `format` set to `html`, and `scope` set to `external`;
- **Related Link to Topic** - inserts a `link` element inside a `related-links` parent;

- **Related Link to File** - inserts a `link` element with the `format` attribute set to `xml` inside a `related-links` parent;
- **Related Link to Web Page** - inserts a `link` element with the attribute `format` set to `html` and `scope` set to `external` inside a `related-links` parent;

Note: The actions for inserting references described above are grouped in the **DITA** > **Link** menu.

- **Paste as content reference** (available on the contextual menu of Author editor for any topic file) - inserts a content reference (a DITA element with a `conref` attribute) to the DITA XML element from the clipboard. An entire DITA XML element with an ID attribute must be present in the clipboard when the action is invoked. The `conref` attribute will point to this ID value;
- **Paste as content key reference** - allows you to indirectly refer content using the `conkeyref` attribute. When the DITA content is processed, the key references are resolved using key definitions from DITA maps. To use this action, do the following:
  - set the `id` attribute of the element holding the content you want to refer;
  - open the DITA Map in the **DITA Maps Manager** view;
  - right click the topic that holds the content you want to refer, select **Edit Properties**, and enter a value in the **Keys** field;
  - make sure the DITA Map remains open in the DITA MAPS Manger View.
- **paste as link** (available on the contextual menu of Author editor for any topic file) - inserts a `link` element or an `xref` one (depending on the location of the paste) that points to the DITA XML element from the clipboard. An entire DITA XML element with an ID attribute must be present in the clipboard when the action is invoked. The `href` attribute of `link`/`href` will point to this ID value;
- **Paste as link (keyref)** - inserts a link to the element that you want to refer. To use this action, do the following:
  - set the `id` attribute of the element that you want to refer;
  - open the DITA Map in the **DITA Maps Manager** view;
  - right click the topic that holds the content you want to refer, select **Edit Properties**, and enter a value in the **Keys** field;
  - make sure the DITA Map remains open in the DITA MAPS Manger View.
- **Insert Section / Step** - inserts a new section / step in the document, depending on the current context. A new section will be inserted in either one of the following contexts:
  - section context, when the value of `class` attribute of the current element or one of its ancestors contains `topic` or `section`.
  - topic's body context, when the value of `class` attribute of the current element contains `topic/body`.

  A new step will be inserted in either one of the following contexts:
  - task step context, when the value of `class` attribute of the current element or one of its ancestors contains `task/step`.
  - task steps context, when the value of `class` attribute of the current element contains `task/steps`.
- **Insert Concept** - inserts a new concept. Concepts provide background information that users must know before they can successfully work with a product or interface. This action is available in one of the following contexts:
  - concept context, one of the current element ancestors is a `concept`. In this case an empty `concept` will be inserted after the current `concept`.
  - concept or DITA context, current element is a `concept` or `dita`. In this case an empty `concept` will be inserted at current caret position.
  - DITA topic context, current element is a `topic` child of a `dita` element. In this case an empty `concept` will be inserted at current caret position.
  - DITA topic context, one of the current element ancestors is a DITA `topic`. In this case an empty `concept` will be inserted after the first `topic` ancestor.

- **Insert Task** - inserts a new task. Tasks are the main building blocks for task-oriented user assistance. They generally provide step-by-step instructions that will enable a user to perform a task. This action is available in one of the following contexts:
  - task context, one of the current element ancestors is a `task`. In this case an empty `task` will be inserted after the last child of the first `concept`'s ancestor.
  - task context, the current element is a `task`. In this case an empty `task` will be inserted at current caret position.
  - topic context, the current element is a `dita topic`. An empty `task` will be inserted at current caret position.
  - topic context, one of the current element ancestors is a `dita topic`. An empty `task` will be inserted after the last child of the first ancestor that is a `topic`.
- **Insert Reference** - inserts a new reference in the document. A reference is a top-level container for a reference topic. This action is available in one of the following contexts:
  - reference context - one of the current element ancestors is a `reference`. In this case an empty `reference` will be inserted after the last child of the first ancestor that is a `reference`.
  - `reference` or `dita` context - the current element is either a `dita` or a `reference`. An empty `reference` will be inserted at caret position.
  - topic context - the current element is `topic` descendant of `dita` element. An empty `reference` will be inserted at caret position.
  - topic context - the current element is descendant of `dita` element and descendant of `topic` element. An empty `reference` will be inserted after the last child of the first ancestor that is a `topic`.
- **Insert image reference** - *inserts an image reference* at the caret position. Depending on the current context, an image-type DITA element is inserted. Also you can use this action to *refer MathML files*;
- **Insert DITA Content Reference** - inserts a content reference at the caret position.

  The DITA `conref` attribute provides a mechanism for reuse of content fragments. The `conref` attribute stores a reference to another element and is processed to replace the referencing element with the referenced element. The element containing the content reference acts as a placeholder for the referenced element. The identifier for the referenced element must be either absolute or resolvable in the context of the referencing element. See *here* for more details.

  Oxygen XML Author *displays the referred content* of a DITA `conref` if it can resolve it to a valid resource. If you have URI's instead of local paths in the XML documents and your DITA OT transformation needs an XML catalog to map the URI's to local paths you have to *add the catalog to Oxygen XML Author*. If the URI's can be resolved the referred content will be displayed in Author mode and in the transformation output.

  A content reference is inserted with the action **Insert a DITA Content Reference** available on the toolbar **Author custom actions** and on the menu **DITA** > **Insert**.

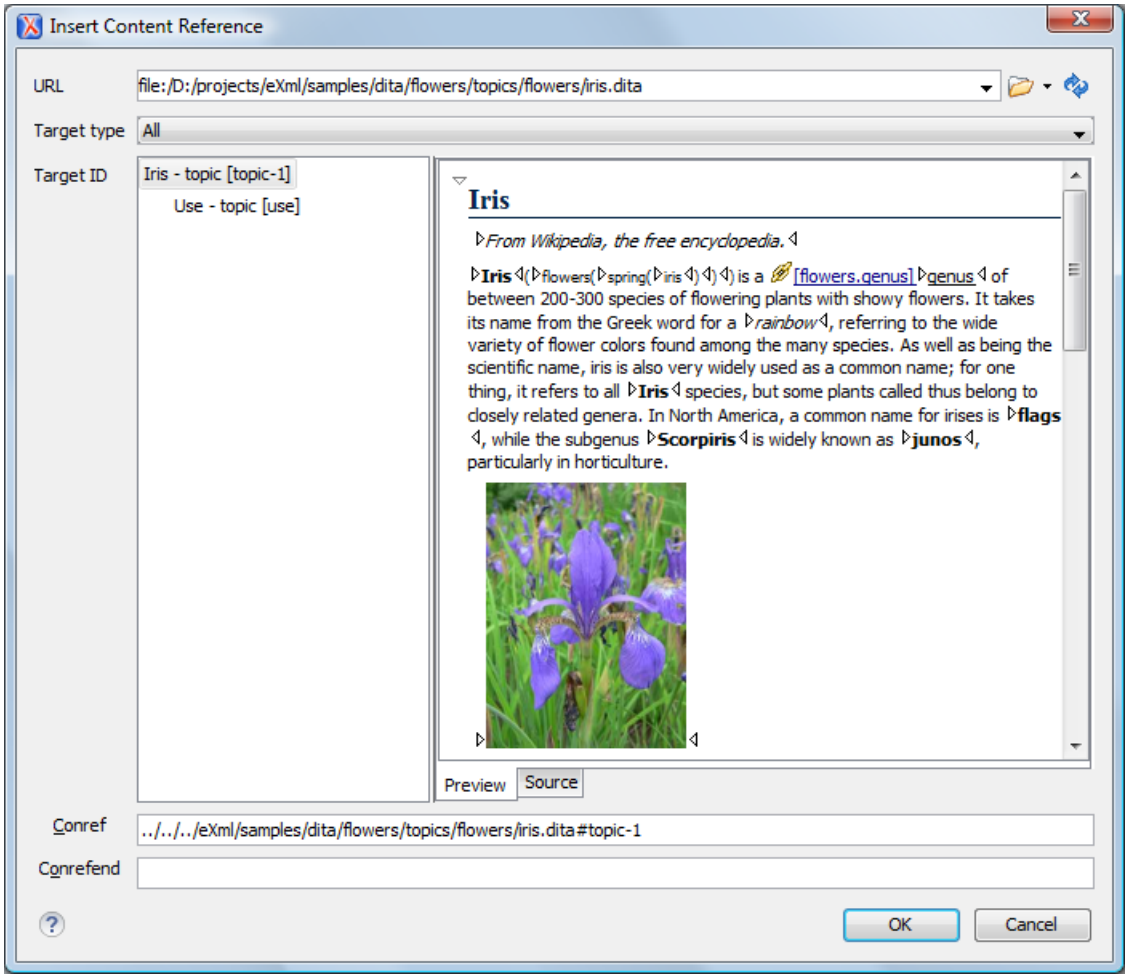


Figure 138: Insert Content Reference Dialog

Note: The **Insert Content Reference** dialog is not modal. The dialog is closed automatically in case you switch to a different editor.

In the URL chooser you set the URL of the file from which you want to reuse content. Depending on the **Target type** filter you will see a tree of elements which can be referred (which have ID's). For each element the XML content is shown in the preview area. The **Conref** value is computed automatically for the selected tree element. After pressing **OK** an element with the same name as the target element and having the attribute `conref` with the value specified in the **Conref** value field will be inserted at caret position.

According to the DITA 1.2 specification the `conrefend` attribute can be used to specify content reference ranges. This is a very useful feature when referencing multiple consecutive steps or list items. If you use multiple contiguous sibling selection the `conrefend` value will also be set to the value of the last selected ID path. Oxygen XML Author will present the entire referenced range as read-only content.

- **Insert Content Key Reference** - inserts a content key reference at the caret position;

  As stated in the DITA 1.2 specification the `conkeyref` attribute provides a mechanism for reuse of content fragments similar with the `conref` mechanism. Keys are defined at map level which can be referenced using `conkeyref`. The `conkeyref` attribute contains a key reference to another element and is processed to replace the referencing element with the referenced element. The element containing the content key reference acts as a placeholder for the referenced element. The identifier for the referenced element must be either absolute or resolvable in the context of the referencing element.

  Oxygen XML Author *displays the key referred content* of a DITA `conkeyref` if it can resolve it to a valid resource in the context of the current opened DITA map.

A content key reference is inserted with the action **Insert a DITA Content Key Reference** available on the toolbar **Author custom actions** and on the menu **DITA** > **Insert**.

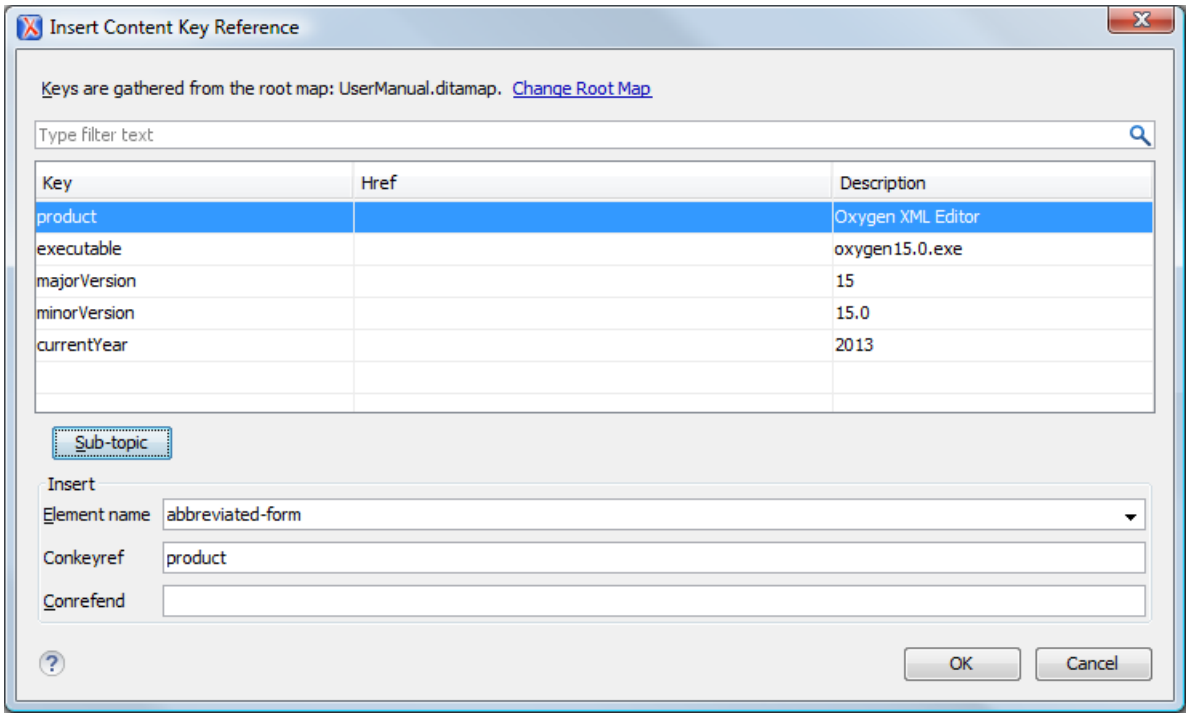


Figure 139: Insert Content Key Reference Dialog

Note: The **Insert Content Key Reference** dialog is not modal. The dialog is closed automatically in case you switch to a different editor.

To reference target elements at sub-topic level just press the **Sub-topic** button and choose the target.

According to the DITA 1.2 specification the `conrefend` attribute can be used to specify content reference ranges. This is a very useful feature when referencing multiple consecutive steps or list items. If you use multiple contiguous sibling selection for IDs at sub-topic level the `conrefend` value will also be set to the value of the last selected ID path. Oxygen XML Author will present the entire referenced range as read-only content.

Important: All keys which are presented in the dialog are gathered from the current opened DITA map. Elements which have the `conkeyref` attribute set are displayed by default with the target content expanded. The current opened DITA map is also used to resolve references when navigating `conkeyref` links in the Author mode.

- **Replace conref / conkeyref reference with content** - replaces the content reference fragment or the `conkeyref` at caret position with the referenced content. This action is useful when you want to make changes to the content but decide to keep the referenced fragment unchanged;
- **Insert Equation** - allows you to insert an MathML equation. For more information, see section *Editing MathML Notations*;
- **Create Reusable Component** - creates a reusable component from a selected fragment of text. For more information, see *Reusing Content*;
- **Insert Reusable Component** - inserts a reusable component at cursor location. For more information, see *Reusing Content*;
- **Remove Content Reference** - removes the `conref` attribute of an element. For more information, see *Reusing Content*;
- **Add/Edit Content Reference** - add or edit the `conref` attribute of an element. For more information, see *Reusing Content*;

- **Paste as Content Reference** - pastes the content of the clipboard as a content reference. Note that the copied element must have the `id` attribute set;
- **Paste as Link** - pastes the content of the clipboard as a link. Note that the copied element must have the `id` attribute set;
  - **Insert an ordered list at the caret position** - inserts an ordered list. A child list item is also inserted automatically by default;
  - **Insert an unordered list at the caret position** - inserts an itemized list. A child list item is also inserted automatically by default;
  - **Insert a step or list Item** - inserts a new list item in any of the above list types.
- - **Insert Table** - opens a dialog that allows you to configure and insert a table. You can generate a header and footer, set the number of rows and columns of the table and decide how the table is framed;
  - **Insert Row** - inserts a new table row with empty cells. This action is available when the caret is positioned inside a table;
  - **Insert Column** - inserts a new table column with empty cells after the current column. This action is available when the caret is positioned inside a table;
  - **Insert Cell** - inserts a new empty cell depending on the current context. If the caret is positioned between two cells, Oxygen XML Author a new cell at caret position. If the caret is inside a cell, the new cell is created after the current cell;
  - **Delete Column** - deletes the table column located at caret position;
  - **Delete Row** - deletes the table row located at caret position;
  - **Insert Row Above** - inserts a row above the current one;
  - **Insert Row Below** - inserts a row below the current one;
  - **Insert Column Before** - inserts a column before the current one;
  - **Insert Column After** - inserts a column after the current one;
  - **Join Row Cells** - joins the content of the selected cells. The operation is available if the selected cells are from the same row and they have the same row span. The action is also available when the selection is missing, but the caret is positioned between two cells;
  - **Join Cell Above** - joins the content of the cell from the current caret position with the content of the cell above it. This action works only if both cells have the same column span;
  - **Join Cell Below** - joins the content of the cell from the current caret position with the content of the cell below it. This action works only if both cells have the same column span;

    Note: When you use **Join Cell Above** and **Join Cell Below**, Oxygen XML Author deletes the source row is case it remains empty. The cells that span over multiple rows are also updated.

  - **Split Cell To The Left** - splits the cell from the current caret position in two cells, inserting a new empty table cell to the left. This action works only if the current cell spans over more than one column. Oxygen XML Author decreases the column span of the source cell with one;
  - **Split Cell To The Right** - splits the cell from the current caret position in two cells, inserting a new empty table cell to the right. This action works only if the current cell spans over more than one column. Oxygen XML Author decreases the column span of the source cell with one;
  - **Split Cell Above** - splits the cell from current caret position in two cells, inserting a new empty table cell above. This action works only if the current cell spans over more than one row. Oxygen XML Author decreases the column span of the source cell with one;

- **Split Cell Below** - splits the cell from current caret position in two, inserting a new empty table cell below. This action works only if the current cell spans over more than one row. Oxygen XML Author decreases the column span of the source cell with one.

- The following options are available for customizing the frame of a table:
  - `none` - the table has no frame;
  - `all` - the table has top, bottom and side borders;
  - `top` - the table has a top border;
  - `topbot` - the table top and bottom borders;
  - `bottom` - the table has a bottom border;
  - `sides` - the table has side border;
  - `-dita-use-conref-target` - it indicates that when the element uses *conref* to pull in content, the attribute with a value of **-dita-use-conref-target** should also be pulled in from the target;
  - `unspecified` - if you select this option, when you insert the table, the frame attribute is not inserted.

Note: DITA supports the CALS table model similar with DocBook document type in addition to the `simpletable` element specific for DITA.

Caution: Column specifications are required for table actions to work properly.

- **Generate IDs** - Available in the contextual menu, this action allows you to generate an unique ID for the element at caret position. If the element already has an ID set, it is preserved.

  Further options are offered in the **ID Options** dialog, available in the document type specific main menu. The configurable ID value pattern can accept most of the application supported *editor variables*. You can also specify the elements for which Oxygen XML Author generates an ID if the **Auto generate ID's for elements** is enabled.

  If you want to keep an already set element ID's when copying content in the same document, make sure the **Remove ID's when copying content in the same document** option is not checked.

- **Search References** - Finds the references to the `id` attribute value of the selected element in all the topics from the current DITA map (opened in the **DITA Maps Manager** view). The default shortcut of the action is **Ctrl (Meta on Mac OS) +Shift + G** and can be changed in the **DITA Topic** document type.

All actions described above are available in the contextual menu, the **DITA** submenu of the main menu or in the **Author custom actions** toolbar.

A drag and drop with a file from *the **Project** view* or from *the **DITA Maps Manager** view* to a DITA topic document that is edited in Author mode will create a link to the dragged file (the `xref` DITA element with the **href** attribute) at the drop location. A drag and drop with an image file from the default file system application (Windows Explorer on Windows, Finder on Mac OS X, etc) will insert an image element (the `image` DITA element with the `href` attribute) with the location of the dragged file at the drop location, like the **Insert Graphic** toolbar action.

DITA Transformation Scenarios

The following default transformation scenarios are available for DITA Topics:

- **DITA XHTML** - Transforms a DITA topic to XHTML using DITA Open Toolkit 1.6.1;
- **DITA PDF** - Transforms a DITA topic to PDF using the DITA Open Toolkit 1.6.1 and the Apache FOP engine.

DITA Templates

The default templates available for DITA topics are stored in `${frameworks}/dita/templates/topic` folder. They can be used for easily creating a DITA `concept`, `reference`, `task` or `topic`.

Here are some of the DITA templates available when creating *new documents from templates*:

- **Composite** - New DITA Composite;
- **Composite with MathML** - New DITA Composite with MathML;
- **Concept** - New DITA Concept;
- **General Task** - New DITA Task;
- **Glossentry** - New DITA Glossentry;
- **Glossgroup** - New DITA Glossgroup;
- **Machinery Task** - New DITA Machinery Task;
- **Reference** - New DITA Reference;
- **Task** - New DITA Task;
- **Topic** - New DITA Topic;
- **Learning Assessment** - New DITA Learning Assessment (learning specialization in DITA 1.2);
- **Learning Content** - New DITA Learning Content (learning specialization in DITA 1.2);
- **Learning Summary** - New DITA Learning Summary (learning specialization in DITA 1.2);
- **Learning Overview** - New DITA Learning Overview (learning specialization in DITA 1.2);
- **Learning Plan** - New DITA Learning Plan (learning specialization in DITA 1.2);
- **Troubleshooting** - Experimental DITA 1.3 troubleshooting specialization.

DITA for Publishers topic specialization templates:

- **D4P Article** - New DITA for Publishers article;
- **D4P Chapter** - New DITA for Publishers chapter;
- **D4P Concept** - New DITA for Publishers concept;
- **D4P Conversion Configuration** - New DITA for Publishers conversion configuration;
- **D4P Cover** - New DITA for Publishers cover;
- **D4P Part** - New DITA for Publishers part;
- **D4P Sidebar** - New DITA for Publishers sidebar;
- **D4P Subsection** - New DITA for Publishers subsection;
- **D4P Topic** - New DITA for Publishers topic.

The DITA Map Document Type

DITA maps are documents that collect and organize references to DITA topics to indicate the relationships among the topics. They can also serve as outlines or tables of contents for DITA deliverables and as build manifests for DITA projects.

Maps allow scalable reuse of content across multiple contexts. They can be used by information architects, writers, and publishers to plan, develop, and deliver content.

A file is considered to be a DITA map document when either of the following occurs:

- root element name is one of the following: `map`, `bookmap`;
- public id of the document is *-//OASIS//DTD DITA Map* or *-//OASIS//DTD DITA BookMap*;
- the root element of the file has an attribute named `class` which contains the value `map/map` and a `DITAArchVersion` attribute from the *http://dita.oasis-open.org/architecture/2005/* namespace. This enhanced case of matching is only applied when the **Enable DTD processing** option from the ***Document Type Detection** option page* is enabled.

The default schema used for DITA map documents is located in `${frameworks}/dita/DITA-OT/dtd/map.dtd`, where `${frameworks}` is a subdirectory of the Oxygen XML Author install directory.

The CSS file used for rendering DITA content is located in `${frameworks}/dita/css/dita.css`.

The default XML catalog is stored in `${frameworks}/dita/catalog.xml`.

DITA Map Author Extensions

Specific actions for DITA map documents are:

- **Insert Topic Reference** - Inserts a reference to a topic.
- **Insert Content Reference** - Inserts a content reference at the caret position.
- **Insert Content Key Reference** - Inserts a content reference at the caret position.
- **Insert Table** - Opens a dialog that allows you to configure the relationship table to be inserted. The dialog allows the user to configure the number of rows and columns of the relationship table, if the header will be generated and if the title will be added.
- **Insert Row** - Inserts a new table row with empty cells. The action is available when the caret position is inside a table.
- **Insert Column** - Inserts a new table column with empty cells after the current column. The action is available when the caret position is inside a table.
- **Delete Column** - Deletes the table column where the caret is located.
- **Delete Row** - Deletes the table row where the caret is located.

All actions described above are available in the contextual menu, the **DITA** submenu of the main menu and in the **Author custom actions** toolbar.

A drag and drop with a file from *the **Project** view* or from *the **DITA Maps Manager** view* to a DITA map document that is edited in Author mode will create a link to the dragged file (a `topicref` element, a `chapter` one, a `part` one, etc.) at the drop location.

DITA Map Transformation Scenarios

The following default transformations are available:

- Predefined transformation scenarios allow you to transform a DITA Map to PDF, ODF, XHTML, WebHelp, EPUB and CHM files.
- **Run DITA OT Integrator** - Use this transformation scenario if you want to integrate a DITA OT plugin. This scenario runs an ANT task that integrates all the plug-ins from DITA-OT/plugins directory.
- **DITA Map Metrics Report** - Use this transformation scenario if you want to generate a DITA Map statistics report containing information like:
  - the number of processed maps and topics;
  - content reuse percentage;
  - number of elements, attributes, words, and characters used in the entire DITA Map structure;
  - DITA conditional processing attributes used in the DITA Maps;
  - words count;
  - information types like number of containing maps, bookmaps, or topics.

Many more output formats are available by clicking the **New** button. The transformation process relies on DITA Open Toolkit 1.6.1.

WebHelp Output Format

WebHelp is a form of online help consisting of a series of web pages (XHTML format). Its advantages include platform independence and continuous content update, since it can be viewed using a regular web browser.

Oxygen XML Author allows you to publish a DITA Map into a WebHelp format that provides both Table of Contents and advanced search capabilities.

The layout is composed of two frames:

- the left frame, containing separate tabs for **Content**, **Search**, and **Index**;

  Note: In case your documents contain no *indexterm* elements, the **Index** tab is not generated.

  Note: You can choose to enhance the appearance of the selected item in the table of contents. The *WebHelp customization* topic contains more details about this.

- the right frame where help pages are displayed.

You can navigate through the content of your output using the arrows in the upper right part of the page. These arrows allow you to move to the parent, previous, and next topic. The parents of the currently opened topic are also presented at the top of the page.

Note: You can edit the `args.hide.parent.link` parameter to hide the **Parent**, **Next**, and **Previous** links.

You can use this button , displayed in the **Content** tab, to collapse all the topics presented the table of contents.

The top right corner of the page contains the following options:

- **With frames** - displays the output using HTML frames to render two separate sections: a section that presents the table o contents in the left side and a section that presents the content of a topic in the right side;

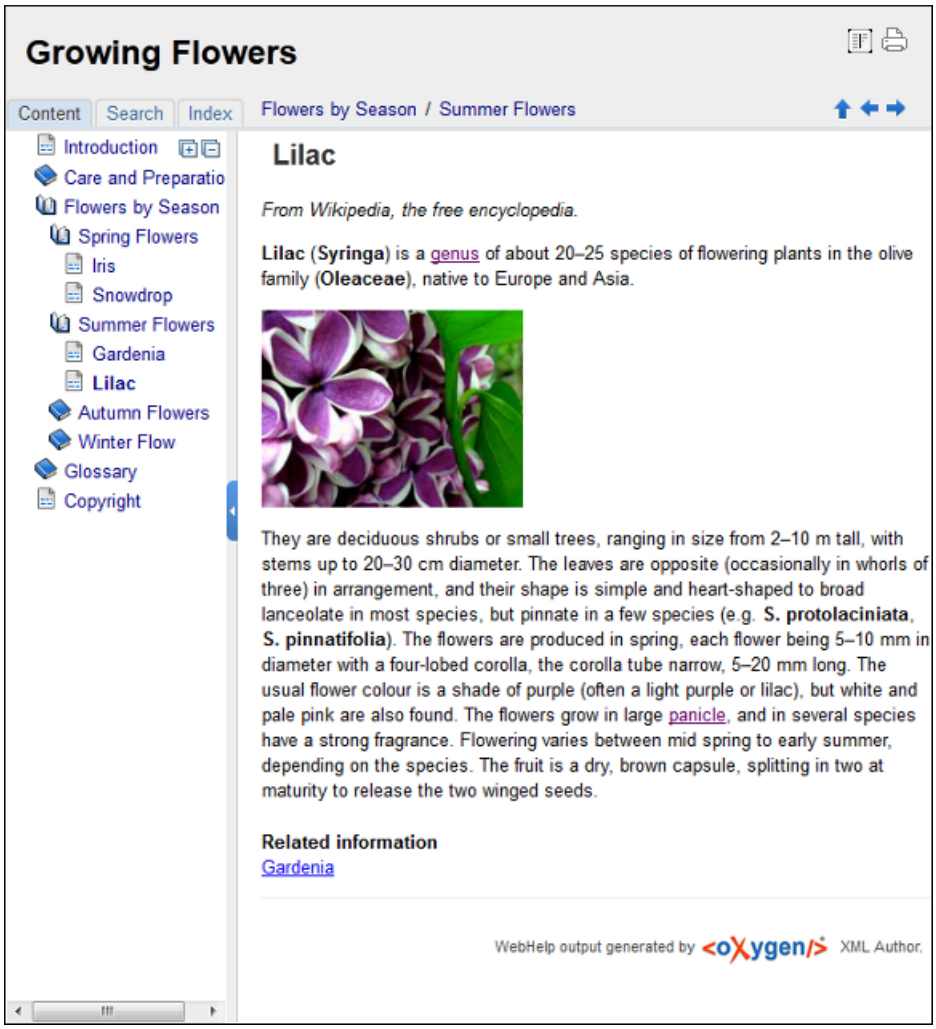


Figure 140: WebHelp Output

To publish the DITA map to WebHelp, you can use the **DITA Map WebHelp** transformation. The *WebHelp Customization* topic describes each parameter which can be configured in order to customize the output.

The **Search** tab is enhanced with a rating mechanism that computes scores for every page that matches the search criteria. These scores are then translated into a 5-star rating scheme. The search results are sorted depending on:

- number of keywords found in a single page. The higher the number, the better;
- context - if a word is found in a title or emphasized section of text it scores better than a word found in an unformatted text.

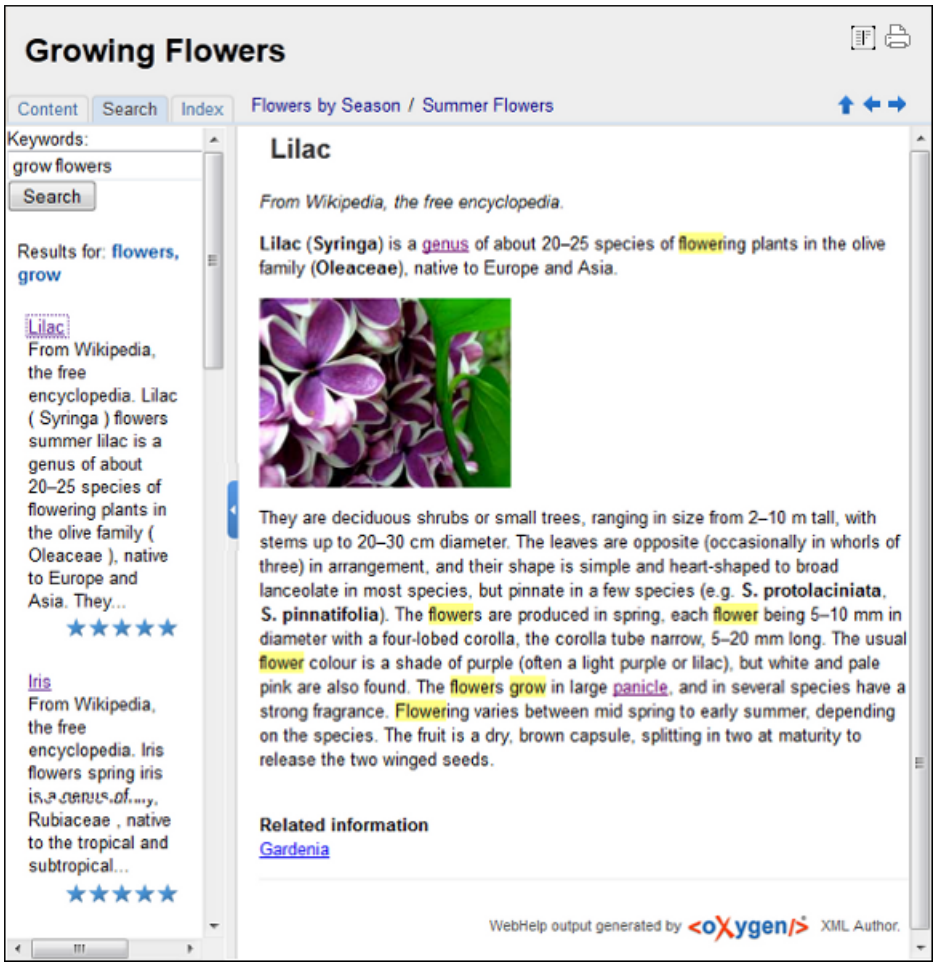


Figure 141: WebHelp Search with Stemming Enabled

Rules applied during search:

- the space character separates keywords. An expression like *grow flowers* counts as two separate keywords: *grow* and *flowers*;
- do not use quotes to perform exact search for multiple-word expressions. An expression like *"grow flowers"*, returns no results in our case, because it searches for two separate words: *"grow* and *flowers"* (note the quote signs attached to each word);
- *indexterm* and *keywords* DITA elements are an effective way to increase the ranking of a page. For example, content inside *keywords* elements weighs twice as much as content inside a *H1* HTML element;
- words composed by merging two or more words with colon (":"), minus ("-"), underline ("_"), or dot (".") characters, count as a single word;
- search for words containing three or more characters. Shorter words, like *to*, or *of* are ignored. This rule does not apply to CJK (Chinese, Japanese, Korean) languages.

Note: This output format is compatible with the following browsers:

- Internet Explorer 8 or newer;
- Chrome;
- Firefox;
- Safari;
- Opera.

Important: Due to some security restrictions in Google Chrome, WebHelp pages loaded from the local system (through URLs of the `file:///...` format) may not work properly. We recommend you to load WebHelp pages in Google Chrome only from a web server.

WebHelp Customizations

This section takes you through the customizations that you can make to the output of your WebHelp transformation. You are able to improve the appearance of the table of contents, add logo images in the title area, remove the navigation buttons, and add custom headers and footers, Also, an additional list of WebHelp related parameters is presented.

CSS Customizations

Adding your own CSS stylesheet, enables you to customize the WebHelp output. To do this, edit the transformation scenario and set the `args.css` parameter to point to your custom CSS document. Also, set the `args.copycss` parameter to `yes` to automatically copy your custom CSS in the output folder when the transformation scenario runs.

Table of Contents Customization

The appearance of the selected item in the table of contest can be enhanced. To highlight the background of the selected item, go to the output folder of the WebHelp transformation, and locate the `toc.css` file. You can find this file at **oxygen-webhelp** > **resources** > **skins** > **desktop**. Open the `toc.css` file, find the `menuItemSelected` class and change the value of the `background` property.

Note: Also, you can overwrite the same value from your own CSS.

Adding a Logo Image in the Title Area

You are able to customize the title of your WebHelp output, using a custom CSS.

For example, to add a logo image before the title, use the following code:

```
h1:before {
    display:inline;
    content:url('../img/myLogoImage.gif');
}
```

In the example above, **myLogoImage.gif** is an image file which you place in the `[Oxygen-install-dir]\frameworks\dita\DITA-OT\plugins\com.oxygenxml.webhelp\oxygen-webhelp\resources\img` directory so it is copied automatically by the WebHelp transformation to the output directory.

Removing the *Previous*/*Next* Links from Each WebHelp Page

The **Previous** and **Next** links, that are created at the top area of each WebHelp page, can be hidden with the following CSS code:

```
.navparent, .navprev, .navnext {
    visibility:hidden;
}
```

Tip: Add the above code in a custom CSS stylesheet, set in the WebHelp transformation scenario using the **args.css** parameter.

Adding Custom Headers and Footers

In the transformation scenario, you can use the `args.hdr` and `args.ftr` parameters to point to resources which contain your custom HTML `<div>` blocks. These are included in the header and footer of each generated topic.

WebHelp Additional Parameters

The following additional WebHelp related parameters can be configured in the transformation scenario:

- `webhelp.copyright` - add a small copyright text which appears at the end of the table of contents;
- You can edit the `args.hide.parent.link` parameter to hide the **Parent**, **Next**, and **Previous** links;
- `args.xhtml.toc` - name of the table of contents file. Default setting is `toc.html`;
- `use.stemming` - controls whether you want to include stemming search algorithms into the published output. Stemming is the process for reducing inflected (or sometimes derived) words to their `stem`, `base` or `root` form – generally a written word form. Default setting is `false`;
- `clean.output` - deletes all files from the output folder before the transformation is performed. Only the `no` and `yes` values are valid. The default value is `no`.

How to Localize WebHelp Output

Static labels used in the WebHelp output are kept in translation files in the `DITA-OT\plugins\com.oxygenxml.webhelp\oxygen-webhelp\resources\localization` folder. The DITA-OT folder is by default `[oXygen installation folder]/frameworks/dita/DITA-OT`, or elsewhere if you are using a different DITA-OT distribution. Translation files have the *strings-lang1-lang2.xml* name format, where *lang1* and *lang2* are ISO language codes. For example, the US English text is kept in the *strings-en-us.xml* file.

Follow these steps to localize the interface of the WebHelp output (for simplicity sake, let us suppose you want to localize the WebHelp interface into Canadian French.):

1. Look for the *strings-fr-ca.xml* file in `DITA-OT\plugins\com.oxygenxml.webhelp\oxygen-webhelp\resources\localization`. If it does not exist, create one starting from *strings-en-us.xml*.
2. Translate all the labels from the above language file. Labels are stored in XML elements that have the following format: *<str name="Label name">Caption</str>*.
3. Edit the **DITA Map WebHelp**/**DITA Map WebHelp with Feedback** transformation scenario and set the *args.default.language* parameter to the code of the language you want to localize the interface into (in our case, it is *fr-ca*).
4. Run the transformation scenario to produce the WebHelp output.

WebHelp with Feedback Output Format

This section presents the Feedback-Enabled WebHelp systems support.

Introduction

Oxygen XML Author offers support to transform DITA documents into feedback-enabled WebHelp systems.

WebHelp is a form of online help consisting of a series of web pages (XHTML format). Its advantages include platform independence and continuous content update, since it can be viewed using a regular web browser. It also provides table of contents and advanced search capabilities. The feedback system allows you to view discussion threads in a tree-like representation, post comments, reply to already posted comments, use stylized comments, and define administrators and moderators.

Note: This output format is compatible with the following browsers:

- Internet Explorer 8 or newer;
- Chrome;
- Firefox;
- Safari;
- Opera.

The DITA map WebHelp with Feedback transformation

To publish a DITA map to WebHelp with Feedback, use the **DITA Map WebHelp with Feedback** transformation. You can customize the out-of-the-box transformation by editing some of its parameters:

- `args.xhtml.toc` - name of the table of contents file. Default setting is `toc.html`;
- `use.stemming` - controls whether you want to include stemming search algorithms into the published output. Stemming is the process for reducing inflected (or sometimes derived) words to their `stem`, `base` or `root` form – generally a written word form. Default setting is `false`;
- `clean.output` - deletes all files from the output folder before the transformation is performed. Only the `no` and `yes` values are valid. The default value is `no`.

Before the transformation starts, enter the documentation product ID and the documentation version. After you run a **DITA Map WebHelp with Feedback** transformation, your default browser opens the `instalation.html` file. This file contains information about the output location, system requirements, installation instructions and deployment of the output.

To watch our video demonstration about the feedback-enabled WebHelp system, go to *http://oxygenxml.com/demo/Feedback_Enabled_WebHelp.html*.

Note: This output format is compatible with the following browsers:

- Internet Explorer 8 or newer;
- Chrome;
- Firefox;
- Safari;
- Opera.

Note: In case you need to automate the transformation process and use it outside of Oxygen XML Author, you can use *the Oxygen WebHelp plugin*.

Installation

System Requirements

The feedback-enabled WebHelp system of Oxygen XML Author demands the following system requirements:

- Apache Web Server running;
- MySQL server running;
- PHP Version>= 5.1.6;
- PHP MySQL Support;
- oXygen WebHelp system supports the following browsers:IE7+, Chrome 19+, Firefox 11+, Safari 5+, Opera 11+.

Installation Instructions

Note: These instructions were written for XAMPP 1.7.7 with PHP 5.3.8 and for *phpMyAdmin* 3.4.5. Later versions of these packages may change the location or name of some options, however the following installation steps should remain valid and basically the same.

In case you have a web server configured with PHP, MySQL, you can deploy the WebHelp output directly. Otherwise, install XAMPP. XAMPP is a free and open source cross-platform web server solution stack package. It consists mainly of the Apache HTTP Server, MySQL database, and interpreters for scripts written in the PHP.

Install XAMPP:

- Go to *http://www.apachefriends.org/en/xampp-windows.html* and download XAMPP, for instance for a Windows system;

- Install it in C:\xampp;
- From the XAMPP control panel, start "MySQL", and then "Apache";
- Open `http://localhost/xampp/index.php` in your browser to check whether the HTTP server is working.

Create a database for the feedback system and a MySQL user with privileges on that database. The feedback system uses the MySQL user to connect to the database. The username and password for the database administrator are pre-required. For XAMPP, the defaults are `root` for the username and the password is empty.

Use *phpMyAdmin* to create a database:

- Type *localhost* in your browser;
- In the left area, select: *phpMyAdmin*;
- Click *Databases* (in the right frame) and then create a *database*. You can give any name you want to your database, for example *comments*;
- Create a user with connection privileges for this database. In the **SQL** tab, paste the following text:

```
  INSERT INTO `mysql`.`user`
(`Host`,`User`,`Password`,`Select_priv`,`Insert_priv`,`Update_priv`,`Delete_priv`,`Create_priv`,

`Drop_priv`,`Reload_priv`,`Shutdown_priv`,`Process_priv`,`File_priv`,`Grant_priv`,`References_priv`,`Index_priv`,`Alter_priv`,


`Show_db_priv`,`Super_priv`,`Create_tmp_table_priv`,`Lock_tables_priv`,`Execute_priv`,`Repl_slave_priv`,`Repl_client_priv`,

      `Create_view_priv`,
`Show_view_priv`,`Create_routine_priv`,`Alter_routine_priv`,`Create_user_priv`,`Event_priv`,`Trigger_priv`,

`Create_tablespace_priv`,`ssl_type`,`max_questions`,`max_updates`,`max_connections`,`max_user_connections`,`plugin`,

      `authentication_string`) VALUES ('localhost', 'user_name', PASSWORD('user_password'),
'Y','Y','Y','Y','Y','Y','Y','Y','N','N','N',
      'N','Y','Y','Y','Y','N','Y','Y','Y','Y', 'Y', 'Y', 'Y', 'Y', 'Y', 'Y', 'N', 'Y', 'Y', 'Y','', '0', '0', '0',
 '0', '', '');
```

- Change the *user_name* and the *user_password* values;
- Under *localhost* in the right frame click *Privileges* and then at the bottom of the page click the *reload the privileges* link.

Deploying the WebHelp output

To deploy the WebHelp output, follow these steps:

- Locate the directory of the HTML documents. Open `http://localhost/xampp/phpinfo.php` in your browser and see the value of the DOCUMENT_ROOT variable. In case you installed XAMPP in C:\xampp, the value of DOCUMENT_ROOT is `C:/xampp/htdocs`;
- Copy the transformation output folder in the DOCUMENT_ROOT;
- Rename it to a relevant name, for example, webhelp_1;
- Open `http://localhost/webhelp_1/`. You are redirected to `http://localhost/webhelp_1/install/`;
  - Verify that the prerequisites are fulfilled;
  - Press **Start Installation**;
  - Configure the e-mail addresses, username, and password. Enter the WebHelp system administrator password. This special user is able to moderate new posts and manage WebHelp users;

    The address and port of the SMTP mail server that will send the email notifications for the user registration and for the user comments are displayed in the WebHelp installation wizard. They can be modified later in the PHP Runtime Configuration which is usually stored in the `php.ini` file in the XAMPP installation.

    You can choose to share comments with other products using the same database. After configuring the database connection, enable the **Display comments from other products** option. In the **Display comments from** section a list with the products sharing the same database is displayed. You can choose one or more products from this list to share comments with.

    Note: You can restrict the displayed comments of a product depending on its version. In case you have two products that use the same database and you restrict one of them to display comments starting from a certain version, the comments of the other product are also displayed from the specified version onwards.

- Press Next Step;
- Remove the installation folder from your web server;
- Click the link pointing to the index of the documentation, or visit: `http://localhost/webhelp_1/`.

To test your system, create a user or post as anonymous. Check that the notification emails are delivered to your inbox.

Note: To read debug messages, do one of the following:

- open the `log.js` file, locate the `var log= new Log(Level.NONE);` line, and change the logging level to: `Level.INFO`, `Level.DEBUG`, `Level.WARN`, or `Level.ERROR`;
- append `?log=true` to the WebHelp URL.

Layout of the Feedback-Enabled WebHelp System

The layout of the feedback-enabled WebHelp system resembles the layout of the basic WebHelp, the left frame remaining the same. However, the bottom of the right frame contains a **comments** bar. Select **Log in** from this bar to authenticate as a user of the WebHelp system. In case you do not have a user name, complete the fields in the dialog box that opens to create a user. Under the **comments** bar, you can click the **Add New Comment** button to add a comment whether you are logged in or not. The tabs in the left frame have the same functionality as the Content, Search, and Index tab of the basic WebHelp.

Note: You can choose to enhance the appearance of the selected item in the table of contents. The *WebHelp customization* topic contains more details about this.

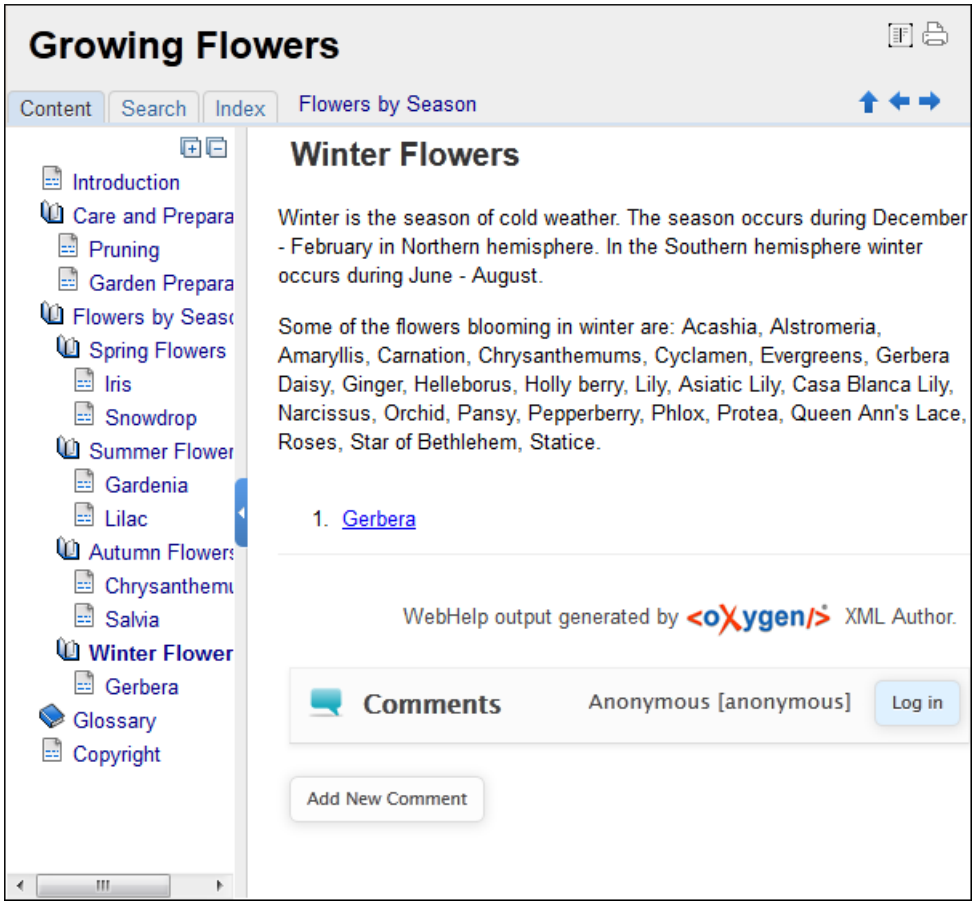


Figure 142: The layout of the Feedback-Enabled WebHelp System

After you log in, your name and user name are displayed in the **Comments** bar together with the **Log of** and **Edit** buttons. Click the **Edit** button to open the **User Profile** dialog. In this dialog you can customize the following options:

- **Your Name** - you can use this field to edit the initial name that you used to create your user profile;
- **Your e-mail address** - you can use this field to edit the initial e-mail address that you used to create your profile;
- When to receive an e-mail:
  - when a comment is left on a page that you commented on;
  - when a comment is left on any topic in the Help system ;
  - when a reply is left to one of my comments.
- **New Password** - allows you to enter a new password for your user account.

Note: The **Current Password** field from the top of the **User Profile** is mandatory in case you want to save the changes you make.

Advanced Customization and Management

As an administrator, you have full access to all the features of the feedback-enabled WebHelp system. Apart from the options available for a regular user, you can also use the administrative page for advanced customization and management. To access the administrative page, select **Admin Panel** from the **Comments** bar.

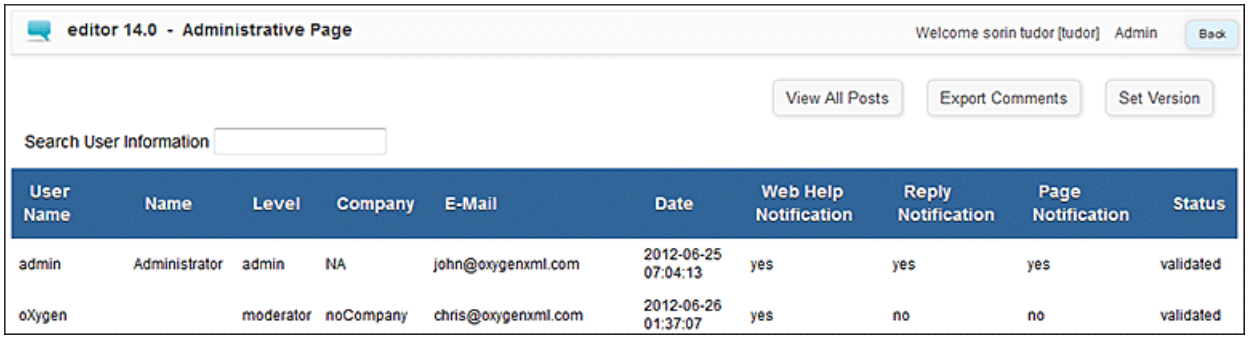


Figure 143: The Administrative Page

This page allows you to view all posts, export comments and set the version of the WebHelp. You can also view the details of each user and search through these details using the **Search User Information** filter.

Note: When you delete a comment, all the replies to that comment are deleted.

To edit the details of a user, click its row and use the **Edit User admin** dialog. In this dialog, you can customize all the information of an user, including is **Status** and **Level**. The following options are available:

- **User Name** - specifies the User Name of the currently edited user;
- **Name** - specifies the name of the currently edited user;
- **Level** - use this field to modify the level of the currently edited user. You can choose from **Admin**, **User**, and **Moderator**;
- **Company** - specifies the company of the selected user;
- **E-mail** - specifies the e-mail address that the currently edited user used ti create his account. This is also the address where notifications are sent;
- **Date** - specifies the date when the currently edited user created his account;
- **Web Help Notification** - specifies whether the currently edited user receives notifications when comments are posted anywhere in the feedback-enabled WebHelp system;
- **Reply Notification** - specifies whether the currently edited user receives notifications when comments are posted as a reply to a comment left by the user itself;
- **Page Notification** - specifies whether the currently edited user receives notifications when comments are posted on a page where the user posted a comment.;
- **Status** - specifies the status of an user:

- **created** - the currently edited user is created but does not have any rights over the feedback-enabled WebHelp system;
- **validated** - the currently edited user is able to use the feedback-enabled WebHelp system;
- **suspended** - the currently edited user has no rights over the feedback-enabled WebHelp system.

The rights of the users depend on their level as follows:

- **user** - this type of user is able to post comments and receive e-mails when comments are posted anywhere in the documentation, on a single page where he posted a comment, or when a reply to one of his comments is posted;
- **moderator** - apart from the rights of a normal user, this type of user has access to the **Admin Panel**. On the administrative page a moderator can view, delete, export comments and set the version of the feedback-enabled WebHelp system;

  Note: Comments of version newer than the current version are not displayed.

- **admin** - the administrator has full access to all features of the feedback enabled WebHelp system.

Mobile WebHelp Output Format

To further improve its ability to create online documentation, Oxygen XML Author offers support to transform DITA documents into mobile WebHelp systems. This feature generates an output that works on multiple platforms (Android, iOS, BlackBerry, Windows Mobile) and is specially designed for mobile devices. All the specific touch screen gestures are supported. The functionality of the desktop WebHelp layout is preserved, offering table of contents, search capabilities, and index navigation, organized in an intuitive layout.

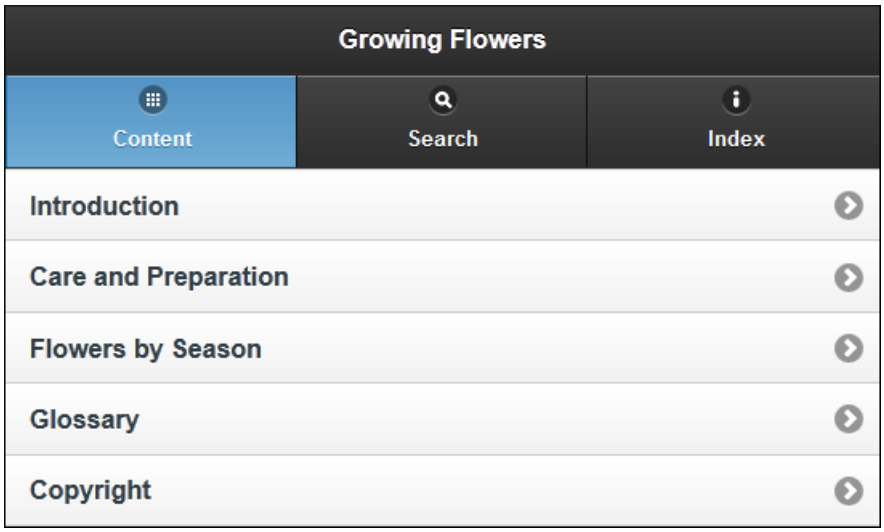


Figure 144: Mobile WebHelp

To generate a mobile WebHelp system from your DITA MAP, go to the **DITA Maps Manager** view, click **Configure Transformation Scenarios()** and select the **DITA Map WebHelp - Mobile** transformation scenario. Click **Apply associated**. Once Oxygen XML Author finishes the transformation process, the output is opened in your default browser automatically.

DITA Map Templates

The default templates available for DITA maps are stored in `${frameworks}/dita/templates/map` folder. They can be used for easily creating DITA `map` and `bookmap` files.

Here are some of the DITA Map templates available when creating *new documents from templates*:

- **DITA Map - Bookmap** - New DITA Bookmap;

- **DITA Map - Map** - New DITA Map;
- **DITA Map - Learning Map** - New DITA learning and training content specialization map;
- **DITA Map - Learning Bookmap** - New DITA learning and training content specialization bookmap;
- **DITA Map - Eclipse Map** - New DITA learning and training content specialization bookmap.

DITA for Publishers Map specialization templates:

- **D4P Map** - New DITA for Publishers Map;
- **D4P Pub-component-map** - New DITA for Publishers pub-component-map;
- **D4P Pubmap** - New DITA for Publishers pubmap.

The XHTML Document Type

The Extensible HyperText Markup Language, or XHTML, is a markup language that has the same depth of expression as HTML, but also conforms to XML syntax.

A file is considered to be a XHTML document when the root element name is a `html`.

The schema used for these documents is located in `${frameworks}/xhtml/dtd/xhtml1-strict.dtd`, where *${frameworks}* is a subdirectory of the Oxygen XML Author install directory.

The default CSS options for the XHTML document type are set to merge the CSSs specified in the document with the CSSs defined in the XHTML document type.

The CSS file used for rendering XHTML content is located in `${frameworks}/xhtml/css/xhtml.css`.

There are three default catalogs for XHTML document type:

- `${frameworks}/xhtml/dtd/xhtmlcatalog.xml`;
- `${frameworks}/xhtml11/dtd/xhtmlcatalog.xml`;
- `${frameworks}/xhtml11/schema/xhtmlcatalog.xml`.

XHTML Author Extensions

Specific actions are:

- **Bold** - changes the style of the selected text to `bold` by surrounding it with `b` tag;
- **Italic** - changes the style of the selected text to `italic` by surrounding it with `i` tag;
- **Underline** - changes the style of the selected text to `underline` by surrounding it with `u` tag.

  Note:

  Bold, **Italic**, and **Underline** are toggle actions.

  For all of the above actions, if there is no selection, then a new specific tag will be inserted. These actions are available in any document context.

- **Headings** - groups actions for inserting `h1`, `h2`, `h3`, `h4`, `h5`, `h6` elements;
- **Insert image reference** - inserts a graphic object at the caret position. This is done by inserting an `img` element regardless of the current context. The following graphical formats are supported: GIF, JPG, JPEG, BMP, PNG, SVG;
  - **Insert an ordered list at the caret position** - inserts an ordered list. A child list item is also inserted automatically by default;
  - **Insert an unordered list at the caret position** - inserts an itemized list. A child list item is also inserted automatically by default;

- **Insert a step or list Item** - inserts a new list item in any of the above list types.

- **Insert Definition List** - inserts a definition list (`dl` element) with one list item (a `dt` child element and a `dd` child element);

- **Insert Table** - opens a dialog that allows you to configure and insert a table. You can generate a header and footer, set the number of rows and columns of the table and decide how the table is framed;
- **Insert Row** - inserts a new table row with empty cells. This action is available when the caret is positioned inside a table;
- **Insert Column** - inserts a new table column with empty cells after the current column. This action is available when the caret is positioned inside a table;
- **Insert Cell** - inserts a new empty cell depending on the current context. If the caret is positioned between two cells, Oxygen XML Author a new cell at caret position. If the caret is inside a cell, the new cell is created after the current cell;
- **Delete Column** - deletes the table column located at caret position;
- **Delete Row** - deletes the table row located at caret position;
- **Insert Row Above** - inserts a row above the current one;
- **Insert Row Below** - inserts a row below the current one;
- **Insert Column Before** - inserts a column before the current one;
- **Insert Column After** - inserts a column after the current one;
- **Join Row Cells** - joins the content of the selected cells. The operation is available if the selected cells are from the same row and they have the same row span. The action is also available when the selection is missing, but the caret is positioned between two cells;
- **Join Cell Above** - joins the content of the cell from the current caret position with the content of the cell above it. This action works only if both cells have the same column span;
- **Join Cell Below** - joins the content of the cell from the current caret position with the content of the cell below it. This action works only if both cells have the same column span;

  Note: When you use **Join Cell Above** and **Join Cell Below**, Oxygen XML Author deletes the source row is case it remains empty. The cells that span over multiple rows are also updated.

- **Split Cell To The Left** - splits the cell from the current caret position in two cells, inserting a new empty table cell to the left. This action works only if the current cell spans over more than one column. Oxygen XML Author decreases the column span of the source cell with one;
- **Split Cell To The Right** - splits the cell from the current caret position in two cells, inserting a new empty table cell to the right. This action works only if the current cell spans over more than one column. Oxygen XML Author decreases the column span of the source cell with one;
- **Split Cell Above** - splits the cell from current caret position in two cells, inserting a new empty table cell above. This action works only if the current cell spans over more than one row. Oxygen XML Author decreases the column span of the source cell with one;
- **Split Cell Below** - splits the cell from current caret position in two, inserting a new empty table cell below. This action works only if the current cell spans over more than one row. Oxygen XML Author decreases the column span of the source cell with one.

All actions described above are available in the contextual menu, the **XHTML** submenu of the main menu and in the **Author custom actions** toolbar.

A drag and drop with a file from *the **Project** view* or from *the **DITA Maps Manager** view* to a DITA topic document that is edited in Author mode will create a link to the dragged file (the `xref` DITA element with the **href** attribute) at the drop location. A drag and drop with an image file from the default file system application (Windows Explorer on

Windows, Finder on Mac OS X, etc) will insert an image element (the `image` DITA element with the `href` attribute) with the location of the dragged file at the drop location, like the **Insert Graphic** toolbar action.

XHTML Transformation Scenarios

The following default transformation scenarios are available for XHTML:

- **XHTML to DITA concept** - Converts an XHTML document to a DITA concept document
- **XHTML to DITA reference** - Converts an XHTML document to a DITA reference document
- **XHTML to DITA task** - Converts an XHTML document to a DITA task document
- **XHTML to DITA topic** - Converts an XHTML document to a DITA topic document

XHTML Templates

Default templates are available for XHTML. They are stored in `${frameworksDir}/xhtml/templates` folder and they can be used for easily creating basic XHTML documents.

Here are some of the XHTML templates available when creating *new documents from templates*.

- **XHTML - 1.0 Strict** - New Strict XHTML 1.0
- **XHTML - 1.0 Transitional** - New Transitional XHTML 1.0
- **XHTML - 1.1 DTD Based** - New DTD based XHTML 1.1
- **XHTML - 1.1 DTD Based + MathML 2.0 + SVG 1.1** - New XHTML 1.1 with MathML and SVG insertions
- **XHTML - 1.1 Schema based** - New XHTML 1.1 XML Schema based

The TEI ODD Document Type

The **Text Encoding Initiative - One Document Does it all (*TEI ODD*)** is a TEI XML-conformant specification format that allows creating a custom TEI P5 schema in a literate programming fashion. A system of XSLT stylesheets called *Roma* was created by the TEI Consortium for manipulating the ODD files.

A file is considered to be a TEI ODD document when either of the following occurs:

- the file extension is `.odd`
- the document's namespace is *http://www.tei-c.org/ns/1.0*

The schema used for these documents is located in `${frameworks}/tei/xml/tei/custom/schema/relaxng/brown_odds.rng`, where `${frameworks}` is a subdirectory of the Oxygen XML Author installation directory.

The CSS file used for rendering TEI ODD content is located in `${frameworks}/tei/xml/tei/css/tei_oxygen_odd.css`.

There are two default catalogs for TEI ODD document type:

- `${frameworks}/tei/xml/tei/custom/schema/catalog.xml`
- `${frameworks}/tei/xml/tei/schema/catalog.xml`

To watch our video demonstration about TEI editing, go to *http://oxygenxml.com/demo/WYSIWYG_TEI_Editing.html*.

TEI ODD Author Extensions

The specific actions for TEI ODD documents are:

- **Bold** - changes the style of the selected text to `bold` by surrounding it with `hi` tag and setting the `rend` attribute to `bold`;
- **Italic** - changes the style of the selected text to `italic` by surrounding it with `hi` tag and setting the `rend` attribute to `italic`;
- **Underline** - changes the style of the selected text to `underline` by surrounding it with `hi` tag and setting the `rend` attribute to `ul`;

  Note:

  Bold, **Italic**, and **Underline** are toggle actions.

  For all of the above actions, if there is no selection, then a new specific tag will be inserted. These actions are available in any document context.

- **Insert Section** - inserts a new section / subsection, depending on the current context. For example if the current context is `div1` then a `div2` will be inserted and so on;
- **Insert image reference** - *inserts an image reference* at the caret position;
- **Insert an ordered list at the caret position** - inserts an ordered list. A child list item is also inserted automatically by default;
- **Insert an unordered list at the caret position** - inserts an itemized list. A child list item is also inserted automatically by default;
- **Insert a step or list Item** - inserts a new list item in any of the above list types.
- **Insert Table** - opens a dialog that allows you to configure and insert a table. You can generate a header and footer, set the number of rows and columns of the table and decide how the table is framed;
- **Insert Row** - inserts a new table row with empty cells. This action is available when the caret is positioned inside a table;
- **Insert Column** - inserts a new table column with empty cells after the current column. This action is available when the caret is positioned inside a table;
- **Insert Cell** - inserts a new empty cell depending on the current context. If the caret is positioned between two cells, Oxygen XML Author a new cell at caret position. If the caret is inside a cell, the new cell is created after the current cell;
- **Delete Column** - deletes the table column located at caret position;
- **Delete Row** - deletes the table row located at caret position;
- **Insert Row Above** - inserts a row above the current one;
- **Insert Row Below** - inserts a row below the current one;
- **Insert Column Before** - inserts a column before the current one;
- **Insert Column After** - inserts a column after the current one;
- **Join Row Cells** - joins the content of the selected cells. The operation is available if the selected cells are from the same row and they have the same row span. The action is also available when the selection is missing, but the caret is positioned between two cells;
- **Join Cell Above** - joins the content of the cell from the current caret position with the content of the cell above it. This action works only if both cells have the same column span;
- **Join Cell Below** - joins the content of the cell from the current caret position with the content of the cell below it. This action works only if both cells have the same column span;

  Note: When you use **Join Cell Above** and **Join Cell Below**, Oxygen XML Author deletes the source row is case it remains empty. The cells that span over multiple rows are also updated.

- **Split Cell To The Left** - splits the cell from the current caret position in two cells, inserting a new empty table cell to the left. This action works only if the current cell spans over more than one column. Oxygen XML Author decreases the column span of the source cell with one;
- **Split Cell To The Right** - splits the cell from the current caret position in two cells, inserting a new empty table cell to the right. This action works only if the current cell spans over more than one column. Oxygen XML Author decreases the column span of the source cell with one;
- **Split Cell Above** - splits the cell from current caret position in two cells, inserting a new empty table cell above. This action works only if the current cell spans over more than one row. Oxygen XML Author decreases the column span of the source cell with one;
- **Split Cell Below** - splits the cell from current caret position in two, inserting a new empty table cell below. This action works only if the current cell spans over more than one row. Oxygen XML Author decreases the column span of the source cell with one.

- **Generate IDs** - Available in the contextual menu, this action allows you to generate an unique ID for the element at caret position. If the element already has an ID set, it is preserved. Further options are offered in the **ID Options** dialog, available in the **TEI ODD** main menu. Here you can specify the elements for which Oxygen XML Author generates an ID if the **Auto generate ID's for elements** is enabled. If you want to keep already set element id's when copying content in the same document, make sure the **Remove ID's when copying content in the same document** option is not checked.

All actions described above are available in the contextual menu, the **TEI ODD** submenu of the main menu or in the **Author custom actions** toolbar.

A drag and drop with a file from *the **Project** view* or from *the **DITA Maps Manager** view* to a **TEI ODD** document that is edited in Author mode will create a link to the dragged file (the `ptr` element with the `target` attribute) at the drop location.

TEI ODD Transformation Scenarios

The following default transformations are available:

- **TEI ODD XHTML** - Transforms a TEI ODD document into an XHTML document
- **TEI ODD PDF** - Transforms a TEI ODD document into a PDF document using the Apache FOP engine
- **TEI ODD EPUB** - Transforms a TEI ODD document into an EPUB document
- **TEI ODD DOCX** - Transforms a TEI ODD document into a DOCX document
- **TEI ODD ODT** - Transforms a TEI ODD document into an ODT document
- **TEI ODD RelaxNG XML** - Transforms a TEI ODD document into a RelaxNG XML document
- **TEI ODD to DTD** - Transforms a TEI ODD document into a DTD document
- **TEI ODD to XML Schema** - Transforms a TEI ODD document into an XML Schema document
- **TEI ODD to RelaxNG Compact** - Transforms a TEI ODD document into an RelaxNG Compact document

TEI ODD Templates

There is only one default template which is stored in the `${frameworks}/tei/templates/TEI ODD` folder and can be used for easily creating a basic TEI ODD document. This template is available when creating *new documents from templates*.

- **TEI ODD** - New TEI ODD document

The TEI P4 Document Type

The **Text Encoding Initiative (TEI) Guidelines** is an international and interdisciplinary standard that enables libraries, museums, publishers, and individual scholars to represent a variety of literary and linguistic texts for online research, teaching, and preservation.

A file is considered to be a TEI P4 document when either of the following occurs:

- the root's local name is `TEI.2`
- the document's public id is *-//TEI P4*

The DTD schema used for these documents is located in `${frameworks}/tei/tei2xml.dtd`, where `${frameworks}` is a subdirectory of the Oxygen XML Author install directory.

The CSS file used for rendering TEI P4 content is located in `${frameworks}/tei/xml/tei/css/tei_oxygen.css`.

There are two default catalogs for TEI P4 document type:

- `${frameworks}/tei/xml/teip4/schema/dtd/catalog.xml`
- `${frameworks}/tei/xml/teip4/custom/schema/dtd/catalog.xml`

To watch our video demonstration about TEI editing, go to *http://oxygenxml.com/demo/WYSIWYG_TEI_Editing.html*.

TEI P4 Author Extensions

The specific actions for TEI P4 documents are:

- **Bold** - changes the style of the selected text to `bold` by surrounding it with `hi` tag and setting the `rend` attribute to `bold`;
- **Italic** - changes the style of the selected text to `italic` by surrounding it with `hi` tag and setting the `rend` attribute to `italic`;
- **Underline** - changes the style of the selected text to `underline` by surrounding it with `hi` tag and setting the `rend` attribute to `ul`;

  Note:

  Bold, **Italic**, and **Underline** are toggle actions.

  For all of the above actions, if there is no selection, then a new specific tag will be inserted. These actions are available in any document context.

- **Browse reference manual** - opens in your web browser of choice a reference to the documentation of the XML element closest to the caret position;
- **Insert Section** - inserts a new section / subsection, depending on the current context. For example if the current context is `div1` then a `div2` will be inserted and so on;
- **Insert image reference** - *inserts an image reference* at the caret position;
  - **Insert an ordered list at the caret position** - inserts an ordered list. A child list item is also inserted automatically by default;
  - **Insert an unordered list at the caret position** - inserts an itemized list. A child list item is also inserted automatically by default;
  - **Insert a step or list Item** - inserts a new list item in any of the above list types.

- **Insert Table** - opens a dialog that allows you to configure and insert a table. You can generate a header and footer, set the number of rows and columns of the table and decide how the table is framed;
- **Insert Row** - inserts a new table row with empty cells. This action is available when the caret is positioned inside a table;
- **Insert Column** - inserts a new table column with empty cells after the current column. This action is available when the caret is positioned inside a table;
- **Insert Cell** - inserts a new empty cell depending on the current context. If the caret is positioned between two cells, Oxygen XML Author a new cell at caret position. If the caret is inside a cell, the new cell is created after the current cell;
- **Delete Column** - deletes the table column located at caret position;
- **Delete Row** - deletes the table row located at caret position;
- **Insert Row Above** - inserts a row above the current one;
- **Insert Row Below** - inserts a row below the current one;
- **Insert Column Before** - inserts a column before the current one;
- **Insert Column After** - inserts a column after the current one;
- **Join Row Cells** - joins the content of the selected cells. The operation is available if the selected cells are from the same row and they have the same row span. The action is also available when the selection is missing, but the caret is positioned between two cells;
- **Join Cell Above** - joins the content of the cell from the current caret position with the content of the cell above it. This action works only if both cells have the same column span;
- **Join Cell Below** - joins the content of the cell from the current caret position with the content of the cell below it. This action works only if both cells have the same column span;

  Note: When you use **Join Cell Above** and **Join Cell Below**, Oxygen XML Author deletes the source row is case it remains empty. The cells that span over multiple rows are also updated.

- **Split Cell To The Left** - splits the cell from the current caret position in two cells, inserting a new empty table cell to the left. This action works only if the current cell spans over more than one column. Oxygen XML Author decreases the column span of the source cell with one;
- **Split Cell To The Right** - splits the cell from the current caret position in two cells, inserting a new empty table cell to the right. This action works only if the current cell spans over more than one column. Oxygen XML Author decreases the column span of the source cell with one;
- **Split Cell Above** - splits the cell from current caret position in two cells, inserting a new empty table cell above. This action works only if the current cell spans over more than one row. Oxygen XML Author decreases the column span of the source cell with one;
- **Split Cell Below** - splits the cell from current caret position in two, inserting a new empty table cell below. This action works only if the current cell spans over more than one row. Oxygen XML Author decreases the column span of the source cell with one.

- **Generate IDs** - Available in the contextual menu, this action allows you to generate an unique ID for the element at caret position. If the element already has an ID set, it is preserved.

  Further options are offered in the **ID Options** dialog, available in the document type specific main menu. The configurable ID value pattern can accept most of the application supported *editor variables*. You can also specify the elements for which Oxygen XML Author generates an ID if the **Auto generate ID's for elements** is enabled.

  If you want to keep an already set element ID's when copying content in the same document, make sure the **Remove ID's when copying content in the same document** option is not checked.

All actions described above are available in the contextual menu, the **TEI P4** submenu of the main menu or in the **Author custom actions** toolbar.

A drag and drop with a file from *the **Project** view* or from *the **DITA Maps Manager** view* to a TEI P4 document that is edited in Author mode will create a link to the dragged file (the `ptr` element with the `target` attribute) at the drop location.

TEI P4 Transformation Scenarios

The following default transformations are available:

- **TEI HTML** - Transforms a TEI document into a HTML document;
- **TEI P4 -> TEI P5 Conversion** - Convert a TEI P4 document into a TEI P5 document;
- **TEI PDF** - Transforms a TEI document into a PDF document using the Apache FOP engine.

TEI P4 Templates

The default templates are stored in `${frameworks}/tei/templates/TEI P4` folder and they can be used for easily creating basic TEI P4 documents. These templates are available when creating *new documents from templates*.

- **TEI P4 - Lite** - New TEI P4 Lite
- **TEI P4 - New Document** - New TEI P4 standard document

Customization of TEI Frameworks Using the Latest Sources

The *TEI P4* and *TEI P5* frameworks are available as a public project at the following SVN repository:

```
https://oxygen-tei.googlecode.com/svn/trunk/
```

This project is the base for customizing a TEI framework.

1. Check out the project on a local computer from the SVN repository.

   This action is done with an SVN client application that creates a working copy of the SVN repository on a local computer.

2. Customize the TEI framework in Oxygen.

   a) Set the Oxygen `frameworks` folder to the `oxygen/frameworks` subfolder of the folder of the SVN working copy.

   Go to menu **Options** > **Preferences** > **Global** and set the path of the SVN working copy in the option **Use custom frameworks**.

   b) Edit the TEI framework in the **Preferences** dialog.

   Go to **Options** > **Preferences** > **Document Type Association/Locations** and select **Custom**.

   c) Close the **Preferences** dialog with the **OK** button.

   If the dialog is closed with the **Cancel** button, the modifications are not saved on disk.

3. Build a jar file with the TEI framework.

   The SVN project includes a `build.xml` file that can be used for building a jar file using the Ant tool. The command that should be used:

   ```
   ant -f build.xml
   ```

4. Distribute the jar file to the users that need the customized TEI framework.

   The command from the above step creates a file `tei.zip` in the `dist` subfolder of the SVN project. Each user that needs the customized TEI framework will receive the `tei.zip` file and will unzip it in the `frameworks` folder of the Oxygen install folder. After restarting the Oxygen application the new TEI framework will appear in the **Options** > **Preferences** > **Document Type Association**.

The TEI P5 Document Type

The TEI P5 document type is similar with the TEI P4 one, with the following exceptions:

- A file is considered to be a TEI P5 document when the namespace is *http://www.tei-c.org/ns/1.0*.
- The schema is located in `${frameworks}/tei/xml/tei/custom/schema/relaxng/tei_allPlus.rng`, where *${frameworks}* is a subdirectory of the Oxygen XML Author install directory.
- A drag and drop with an image file from the default file system application (Windows Explorer on Windows, Finder on Mac OS X, etc) will insert an image element (the `graphic` DITA element with the `url` attribute) with the location of the dragged file at the drop location, like the **Insert Graphic** toolbar action.

To watch our video demonstration about TEI editing, go to *http://oxygenxml.com/demo/WYSIWYG_TEI_Editing.html*.

TEI P5 Transformation Scenarios

The following default transformations are available:

- **TEI P5 XHTML** - transforms a TEI P5 document into a XHTML document;
- **TEI P5 PDF** - transforms a TEI P5 document into a PDF document using the Apache FOP engine;
- **TEI EPUB** - transforms a TEI P5 document into an EPUB output. The EPUB output will contain any images referenced in the TEI XML document;
- **TEI DOCX** - transforms a TEI P5 document into a DOCX (OOXML) document. The DOCX document will contain any images referenced in the TEI XML document;
- **TEI ODT** - transforms a TEI P5 document into an ODT (ODF) document. The ODT document will contain any images referenced in the TEI XML document.

TEI P5 Templates

The default templates are stored in `${frameworks}/tei/templates/TEI P5` folder and they can be used for easily creating basic TEI P5 documents. These templates are available when creating *new documents from templates*:

- **TEI P5 - All** - New TEI P5 All;
- **TEI P5 - Bare** - New TEI P5 Bare;
- **TEI P5 - Lite** - New TEI P5 Lite;
- **TEI P5 - Math** - New TEI P5 Math;
- **TEI P5 - Speech** - New TEI P5 Speech;
- **TEI P5 - SVG** - New TEI P5 with SVG extensions;
- **TEI P5 - XInclude** - New TEI P5 XInclude aware.

Customization of TEI Frameworks Using the Latest Sources

The *TEI P4* and *TEI P5* frameworks are available as a public project at the following SVN repository:

```
https://oxygen-tei.googlecode.com/svn/trunk/
```

This project is the base for customizing a TEI framework.

1. Check out the project on a local computer from the SVN repository.

   This action is done with an SVN client application that creates a working copy of the SVN repository on a local computer.

2. Customize the TEI framework in Oxygen.

a) Set the Oxygen `frameworks` folder to the `oxygen/frameworks` subfolder of the folder of the SVN working copy.

   Go to menu **Options** > **Preferences** > **Global** and set the path of the SVN working copy in the option **Use custom frameworks**.

b) Edit the TEI framework in the **Preferences** dialog.

   Go to **Options** > **Preferences** > **Document Type Association/Locations** and select **Custom**.

c) Close the **Preferences** dialog with the **OK** button.

   If the dialog is closed with the **Cancel** button, the modifications are not saved on disk.

3. Build a jar file with the TEI framework.

   The SVN project includes a `build.xml` file that can be used for building a jar file using the Ant tool. The command that should be used:

   ```
   ant -f build.xml
   ```

4. Distribute the jar file to the users that need the customized TEI framework.

   The command from the above step creates a file `tei.zip` in the `dist` subfolder of the SVN project. Each user that needs the customized TEI framework will receive the `tei.zip` file and will unzip it in the `frameworks` folder of the Oxygen install folder. After restarting the Oxygen application the new TEI framework will appear in the **Options** > **Preferences** > **Document Type Association**.

Customization of TEI Frameworks Using the Compiled Sources

The following procedure describes how to update to the latest stable version of TEI Schema and TEI XSL, already integrated in the TEI framework for Oxygen XML Author.

1. Go to *https://code.google.com/p/oxygen-tei/*;
2. Go to **Downloads**;
3. Download the latest uploaded `.zip` file;
4. Unpack the `.zip` file and copy its content in the Oxygen XML Author `frameworks` folder.

The EPUB Document Type

Three distinct frameworks support the EPUB document type:

- **NCX** - A declarative global navigation definition.
- **OCF** - The Open Container Format(OCF) defines a mechanism by which all components of an Open Publication Structure(OPS) can be combined into a single file-system entity.
- **OPF**: - The Open Packaging Format(OPF) defines the mechanism by which all components of a published work conforming to the Open Publication Structure(OPS) standard including metadata, reading order and navigational information are packaged into an OPS Publication.

Note: Oxygen XML Author supports both OPF 2.0 and OPF 3.0.

Chapter 8

Author Developer Guide

Topics:

The Author editor of Oxygen XML Author was designed to bridge the gap between the XML source editing and a friendly user interface. The main achievement is the fact that the Author combines the power of source editing with the intuitive interface of a text editor.

This guide is targeted at advanced authors who want to customize the Author editing environment and is included both as a chapter in the Oxygen XML Author user manual and as a separate document in *the Author SDK*.

Figure 145: Oxygen XML Author Author Visual Editor

Although Oxygen XML Author comes with already configured frameworks for DocBook, DITA, TEI, XHTML, you might need to create a customization of the editor to handle other types of documents. The common use case is when your organization holds a collection of XML document types used to define the structure of internal documents and they need to be visually edited by people with no experience in working with XML files.

There are several ways to customize the editor:

1. Create a CSS file defining styles for the XML elements the user will work with, and create XML files that refer the CSS through an `xml-stylesheet` processing instruction.
2. Fully configure a document type association. This involves putting together the CSSs, the XML schemes, actions, menus, etc, bundling them and distributing an archive. The CSS and the GUI elements are settings of the Oxygen XML Author Author. The other settings like the templates, catalogs, transformation scenarios are general settings and are enabled whenever the association is active, no matter the editing mode (Text, Grid or Author).

Both approaches will be discussed in the following sections.

Simple Customization Tutorial

The most important elements of a document type customization are represented by an XML Schema to define the XML structure, the CSS to render the information and the XML instance template which links the first two together.

XML Schema

Let's consider the following XML Schema, `test_report.xsd` defining a report with results of a testing session. The report consists of a title, few lines describing the test suite that was run and a list of test results, each with a name and a boolean value indicating if the test passed or failed.

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">
    <xs:element name="report">
        <xs:complexType>
            <xs:sequence>
                <xs:element ref="title"/>
                <xs:element ref="description"/>
                <xs:element ref="results"/>
            </xs:sequence>
        </xs:complexType>
    </xs:element>
    <xs:element name="title" type="xs:string"/>
    <xs:element name="description">
        <xs:complexType>
            <xs:sequence maxOccurs="unbounded">
                <xs:element name="line">
                    <xs:complexType mixed="true">
                        <xs:sequence minOccurs="0"
                            maxOccurs="unbounded">
                            <xs:element name="important"
                              type="xs:string"/>
                        </xs:sequence>
                    </xs:complexType>
                </xs:element>
            </xs:sequence>
        </xs:complexType>
    </xs:element>

    <xs:element name="results">
        <xs:complexType>
            <xs:sequence maxOccurs="unbounded">
                <xs:element name="entry">
                    <xs:complexType>
                        <xs:sequence>
                            <xs:element name="test_name"
                              type="xs:string"/>
                            <xs:element name="passed"
                               type="xs:boolean"/>
                        </xs:sequence>
                    </xs:complexType>
                </xs:element>
            </xs:sequence>
        </xs:complexType>
    </xs:element>
</xs:schema>
```

The use-case is that several users are testing a system and must send report results to a content management system. The Author customization should provide a visual editor for this kind of documents.

CSS Stylesheet

A set of rules must be defined for describing how the XML document is to be rendered into the Author. This is done using Cascading Style Sheets or CSS on short. CSS is a language used to describe how an HTML or XML document should be formatted by a browser. CSS is widely used in the majority of websites.

The elements from an XML document are displayed in the layout as a series of boxes. Some of the boxes contain text and may flow one after the other, from left to right. These are called in-line boxes. There are also other type of boxes that flow one below the other, like paragraphs. These are called block boxes.

For example consider the way a traditional text editor arranges the text. A paragraph is a block, because it contains a vertical list of lines. The lines are also blocks. But any block that contains inline boxes is arranging its children in a horizontal flow. That is why the paragraph lines are also blocks, but the traditional "bold" and "italic" sections are represented as inline boxes.

The CSS allows us to specify that some elements are displayed as tables. In CSS a table is a complex structure and consists of rows and cells. The "table" element must have children that have "table-row" style. Similarly, the "row" elements must contain elements with "table-cell" style.

To make it easy to understand, the following section describes the way each element from the above schema is formatted using a CSS file. Please note that this is just one from an infinite number of possibilities of formatting the content.

report This element is the root element of the report document. It should be rendered as a box that contains all other elements. To achieve this the display type is set to **block**. Additionally some margins are set for it. The CSS rule that matches this element is:

```
report{
    display:block;
    margin:1em;
}
```

title The title of the report. Usually titles have a larger font. The **block** display should also be used - the next elements will be placed below it, and change its font to double the size of the normal text.

```
title {
    display:block;
    font-size:2em;
}
```

description This element contains several lines of text describing the report. The lines of text are displayed one below the other, so the description will have the same **block** display. To make it standout the background color is changed.

```
description {
    display:block;
    background-color:#EEEEFF;
    color:black;
}
```

line A line of text in the description. A specific aspect is not defined for it, just indicate that the display should be **block**.

```
line {
    display:block;
}
```

important The `important` element defines important text from the description. Because it can be mixed with text, its display property must be set to **inline**. To make it easier to spot, the text will be emphasized.

```
important {
    display:inline;
    font-weight:bold;
}
```

results The `results` element shows the list of test_names and the result for each one. To make it easier to read, it is displayed as a **table** with a green border and margins.

```
results{
    display:table;
    margin:2em;
    border:1px solid green;
}
```

entry An item in the results element. The results are displayed as a table so the entry is a row in the table. Thus, the display is **table-row**.

```
entry {
    display:table-row;
}
```

test_name, passed The name of the individual test, and its result. They are cells in the results table with display set to **table-cell**. Padding and a border are added to emphasize the table grid.

```
test_name, passed{
```

```
    display:table-cell;
    border:1px solid green;
    padding:20px;
}

passed{
    font-weight:bold;
}
```

The full content of the CSS file `test_report.css` is:

```
report {
    display:block;
    margin:1em;
}

description {
    display:block;
    background-color:#EEEEFF;
    color:black;
}

line {
    display:block;
}

important {
    display:inline;
    font-weight:bold;
}

title {
    display:block;
    font-size:2em;
}

results{
    display:table;
    margin:2em;
    border:1px solid green;
}

entry {
    display:table-row;
}

test_name, passed{
    display:table-cell;
    border:1px solid green;
    padding:20px;
}

passed{
    font-weight:bold;
}
```

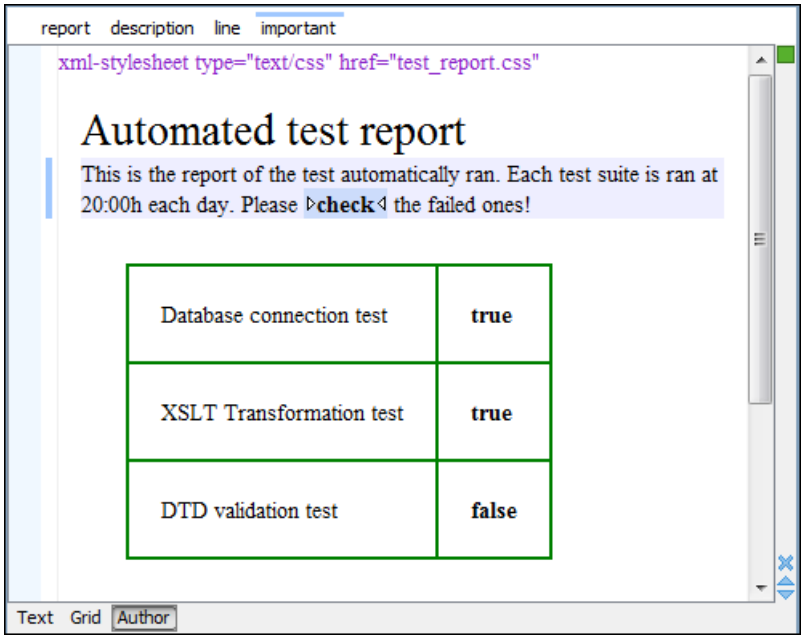


Figure 146: A report opened in the Author

Note:

You can edit attributes in-place in the Author mode using *form-based controls*.

The XML Instance Template

Based on the XML Schema and the CSS file the Author can help the content author in loading, editing and validating the test reports. An XML file template must be created, a kind of skeleton, that the users can use as a starting point for creating new test reports. The template must be generic enough and refer the XML Schema file and the CSS stylesheet.

This is an example:

```
<?xml version="1.0" encoding="UTF-8"?>
<?xml-stylesheet type="text/css" href="test_report.css"?>
<report xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="test_report.xsd">
  <title>Automated test report</title>
  <description>
    <line>This is the report of the test automatically ran. Each test suite is ran at 20:00h each
      day. Please <important>check</important> the failed ones!</line>
  </description>
  <results>
    <entry>
      <test_name>Database connection test</test_name>
      <passed>true</passed>
    </entry>
    <entry>
      <test_name>XSLT Transformation test</test_name>
      <passed>true</passed>
    </entry>
    <entry>
      <test_name>DTD validation test</test_name>
      <passed>false</passed>
    </entry>
  </results>
</report>
```

The processing instruction `xml-stylesheet` associates the CSS stylesheet to the XML file. The href pseudo attribute contains the URI reference to the stylesheet file. In our case the CSS is in the same directory as the XML file.

The next step is to place the XSD file and the CSS file on a web server and modify the template to use the HTTP URLs, like this:

```
<?xml version="1.0" encoding="UTF-8"?>
<?xml-stylesheet type="text/css"
```

```
       href="http://www.mysite.com/reports/test_report.css"?>
<report xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
       xsi:noNamespaceSchemaLocation=
       "http://www.mysite.com/reports/test_report.xsd">
   <title>Test report title</title>
   <description>
.......
```

The alternative is to create an archive containing the `test_report.xml`, `test_report.css` and `test_report.xsd` and send it to the content authors.

Advanced Customization Tutorial - Document Type Associations

Oxygen XML Author is highly customizable. Practically you can associate an entire class of documents (grouped logically by some common features like namespace, root element name or filename) to a bundle consisting of CSS stylesheets, validation schemas, catalog files, new files templates, transformation scenarios and even custom actions. The bundle is called *document type* and the association is called *Document Type Association* or, more generically, *framework*.

In this tutorial, we create a **Document Type Association** for a set of documents. As an example, we create a light documentation framework (similar to DocBook), then we set up a complete customization of the **Author** mode.

You can find the samples used in this tutorial in the *Example Files Listings* and the complete source code in the Simple Documentation Framework project. This project is included in the *Oxygen Author SDK zip*, available for download at *http://www.oxygenxml.com/oxygen_sdk.html*.

Note: The Javadoc documentation of the Author API used in the example files is *available on the Oxygen XML Author website*. Also it can be downloaded as a *zip archive from the website*.

Document Type

A *document type* or *framework* is associated to an XML file according to a set of rules. It includes also many settings that improve editing in the **Author** mode for the category of XML files it applies for. These settings include:

- a default grammar used for validation and content completion in both **Author** mode and Text mode;
- CSS stylesheet(s) for rendering XML documents in **Author** mode;
- user actions invoked from toolbar or menu in **Author** mode;
- predefined scenarios used for transformation of the class of XML documents defined by the document type;
- XML catalogs;
- directories with file templates;
- user-defined extensions for customizing the interaction with the content author in **Author** mode.

The tagless editor comes with some predefined document types already configured when the application is installed on the computer. These document types describe well-known XML frameworks largely used today for authoring XML documents. Editing a document which conforms to one of these types is as easy as opening it or creating it from one of the predefined document templates which also come with Oxygen XML Author.

To see our video demonstration about configuring a framework in Oxygen XML Author, go to *http://oxygenxml.com/demo/FrameworkConfiguration.html*.

Document Type Settings

You can add a new *Document Type Association* or edit the properties of an existing one from the **Options** > **Preferences** > **Document Type Association** option pane. All the changes can be made into the *Document type* edit dialog.

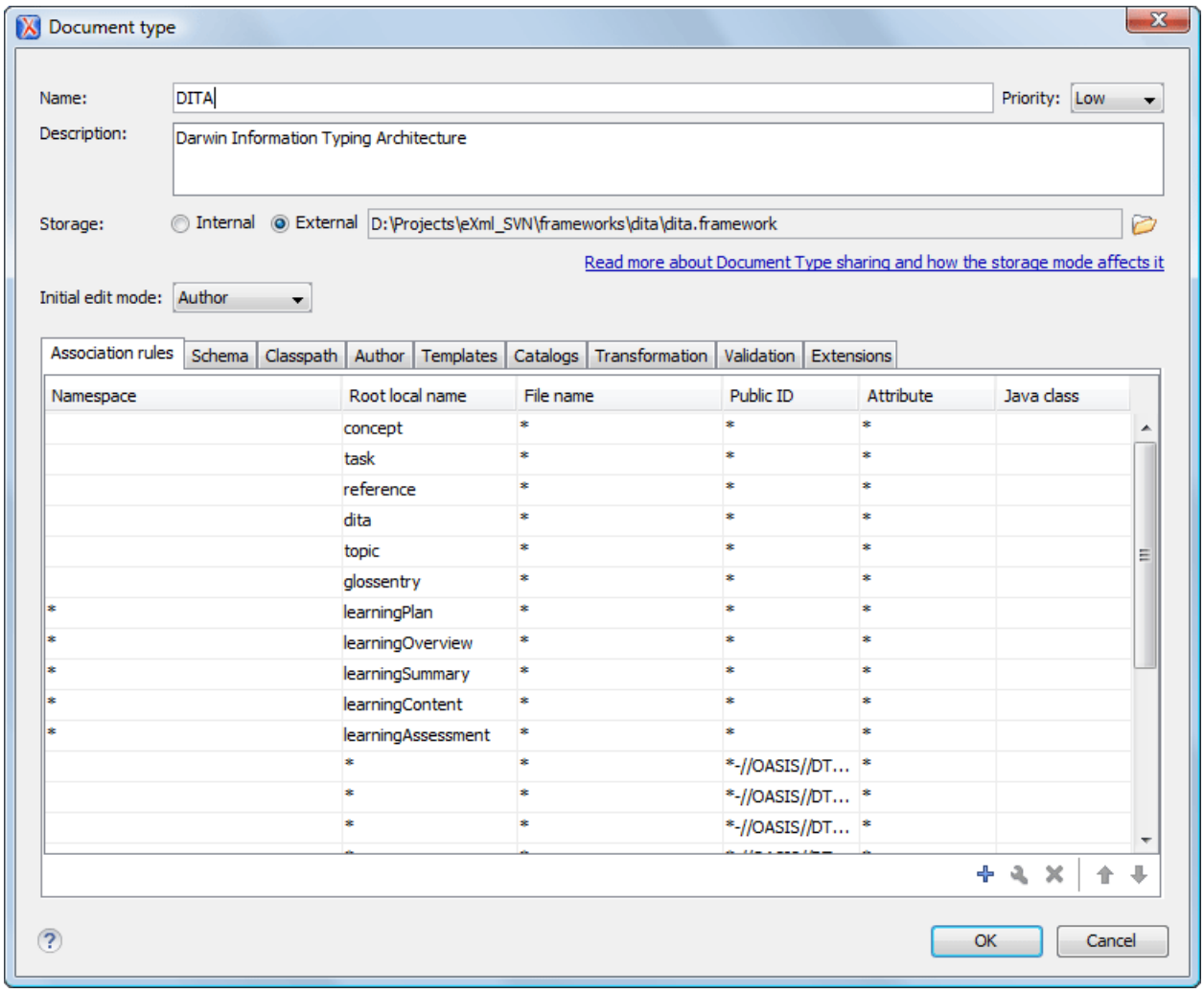


Figure 147: The Document Type

You can specify the following properties for a document type:

- **Name** - The name of the document type.
- **Priority** - When multiple document types match the same document, the priority determines the order in which they are applied. It can be one of: Lowest, Low, Normal, High, Highest. The predefined document types that are already configured when the application is installed on the computer have the default Low priority.

  Note: The frameworks having the same priority are alphabetically sorted.

- **Description** - The document type description displayed as a tooltip in the *Document Type Association table.*
- **Storage** - The location where the document type is saved. If you select the **External** storage, the document type is saved in the specified file with a mandatory `framework` extension, located in a subfolder of the current `frameworks` directory. If you select the **Internal** storage option, the document type data is saved in the current `.xpr` Oxygen XML Author project file (for Project-level Document Type Association Options) or in the Oxygen XML Author internal options (for Global-level Document Type Association Options). You can change the Document Type Association Options level in the *Document Type Association panel.*
- **Initial edit mode** - Allows you to select the initial editing mode (**Editor specific**, **Text**, **Author, Grid** and **Design** (available only for the W3C XML Schema editor)) for this document type. If the **Editor specific** option is selected, the initial edit mode is determined depending on the editor type. You can find the mapping between editors and edit modes in the ***Edit modes*** *preferences page.* You can decide to impose an initial mode for opening files which match the association rules of the document type. For example if the files are usually edited in the *Author* mode you can set it in the **Initial edit mode** combo box.

Note: You can also customize the initial mode for a document type in the **Edit modes** preferences page. To open this page, go to **Options** > **Preferences** > **Editor** > **Edit modes** .

You can specify the association rules used for determining a document type for an opened XML document. A rule can define one or more conditions. All conditions need to be fulfilled in order for a specific rule to be chosen. Conditions can specify:

- **Namespace** - The namespace of the document that matches the document type.
- **Root local name of document** - The local name of the document that matches the document type.
- **File name** - The file name (including the extension) of the document that matches the document type.
- **Public ID** (for DTDs) - The PUBLIC identifier of the document that matches the document type.
- **Attribute** - This field allows you to associate a document type depending on a certain value of the attribute in the root.
- **Java class** - Name of Java class that is called for finding if the document type should be used for an XML document. Java class must implement `ro.sync.ecss.extensions.api.DocumentTypeCustomRuleMatcher` interface from *Author API*.

In the **Schema** tab, you can specify the type and URI of schema used for validation and content completion of all documents from the document type, when there is no schema detected in the document.

You can choose one of the following schema types:

- DTD;
- Relax NG schema (XML syntax);
- Relax NG schema (XML syntax) + Schematron;
- Relax NG schema (compact syntax);
- XML Schema;
- XML Schema + Schematron rules;
- NVDL schema.

Configuring Actions, Menus and Toolbars

You can change the Author toolbars and menus to gain a productive editing experience. You can create a set of actions that are specific to a document type, using the **Document Type** dialog.

In the example with the `sdf` framework, you created the stylesheet and the validation schema. Now let's add some actions to insert a `section` and a `table`. To add a new action, follow the procedure:

1. Go to **Options** > **Preferences** > **Document Types Association** and click the framework for which you want to create an action.
2. Click **Edit** and in the **Document Type** dialog go to the **Author** tab, then go to **Actions**.
3. Click the + **New** and use the ***Action** dialog* to create an action.

Creating the Insert Section Action

This section presents all the steps that you need to follow, to define the **Insert Section** action. We assume the icon files § (`Section16.png`) for the menu item and § (`Section20.png`) for the toolbar, are already available. Although you could use the same icon size for both menu and toolbar, usually the icons from the toolbars are larger than the ones found in the menus. These files should be placed in the `frameworks / sdf` directory.

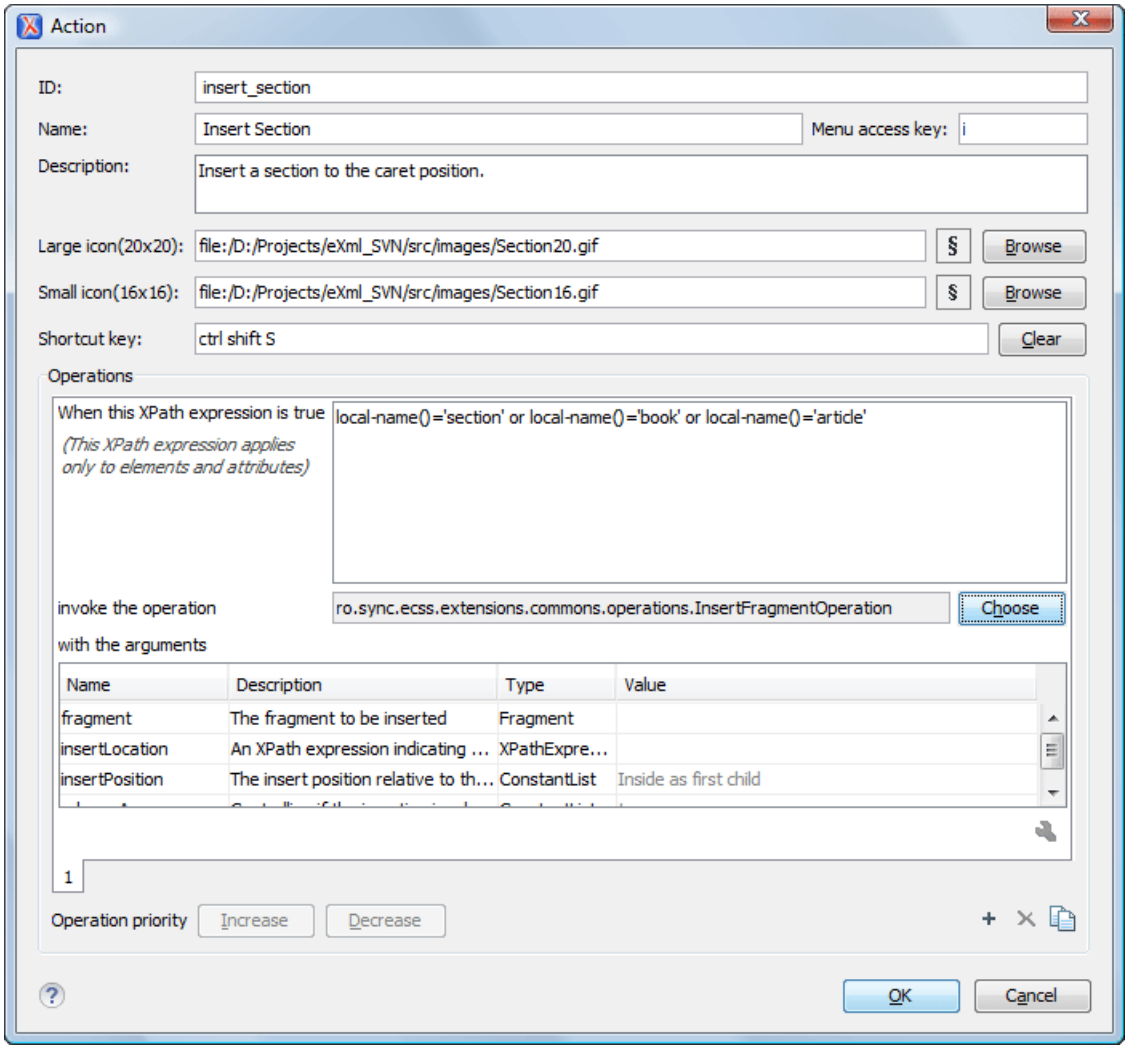


Figure 148: The Action Dialog

1. Set the **ID** field to **insert_section**. This is an unique action identifier.
2. Set the **Name** field to **Insert Section**. This will be the action's name, displayed as a tooltip when the action is placed in the toolbar, or as the menu item name.
3. Set the **Menu access key** to **i**. On Windows, the menu items can be accessed using (ALT + letter) combination, when the menu is visible. The letter is visually represented by underlining the first letter from the menu item name having the same value.
4. Set the **Description** field to **Insert a section at caret position**.
5. Set the **Large icon (20x20)** field to **${frameworks} / sdf / Section20.png**. A good practice is to store the image files inside the framework directory and use *editor variable* `${frameworks}` to make the image relative to the framework location.

   If the images are bundled in a jar archive together with some Java operations implementation for instance, it might be convenient for you to refer the images not by the file name, but by their relative path location in the class-path.

   If the image file `Section20.png` is located in the **images** directory inside the jar archive, you can refer to it by using **/images/Section20.png**. The jar file must be added into the **Classpath** list.
6. Set the **Small icon (16x16)** field to **${frameworks} / sdf / Section16.png**.
7. Click the text field next to **Shortcut key** and set it to **Ctrl (Meta on Mac OS)+Shift+S**. This will be the key combination to trigger the action using the keyboard only.

The shortcut is enabled only by *adding the action to the main menu of the Author mode* which contains all the actions that the author will have in a menu for the current document type.

8. At this time the action has no functionality added to it. Next you must define how this action operates. An action can have multiple operation modes, each of them activated by the evaluation of an XPath version 2.0 expression. The first enabled action mode will be executed when the action is triggered by the user. The scope of the XPath expression must be only element nodes and attribute nodes of the edited document, otherwise the expression will not return a match and will not fire the action. For this example we'll suppose you want allow the action to add a section only if the current element is either a `book`, `article` or another `section`.
   a) Set the XPath expression field to:
   ```
   local-name()='section' or local-name()='book' or
    local-name()='article'
   ```
   b) Set the **invoke operation** field to `InsertFragmentOperation` built-in operation, designed to insert an XML fragment at caret position. This belongs to a set of built-in operations, a complete list of which can be found in the *Author Default Operations* section. This set can be expanded with your own Java operation implementations.
   c) Configure the arguments section as follows:
   ```
   <section xmlns=
   "http://www.oxygenxml.com/sample/documentation">
        <title/>
   </section>
   ```
   `insertLocation` - leave it empty. This means the location will be at the caret position.

   `insertPosition` - select "**Inside**".

The Insert Table Action

You will create an action that inserts into the document a table with three rows and three columns. The first row is the table header. Similarly to the insert section action, you will use the `InsertFragmentOperation`.

Place the icon files for the menu item and for the toolbar in the `frameworks / sdf` directory.

1. Set **ID** field to **insert_table**.
2. Set **Name** field to **Insert table**.
3. Set **Menu access key** field to **t**.
4. Set **Description** field to **Adds a section element**.
5. Set **Toolbar icon** to **${frameworks} / sdf / toolbarIcon.png**.
6. Set **Menu icon** to **${frameworks} / sdf / menuIcon.png**.
7. Set **Shortcut key** to **Ctrl (Meta on Mac OS)+Shift+T**.
8. Set up the action's functionality:
   a) Set **XPath expression** field to `true()`.

   `true()` is equivalent with leaving this field empty.
   b) Set **Invoke operation** to use **InvokeFragmentOperation** built-in operation that inserts an XML fragment to the caret position.
   c) Configure operation's arguments as follows:

   fragment - set it to:
   ```
   <table xmlns=
   "http://www.oxygenxml.com/sample/documentation">
     <header><td/><td/><td/></header>
     <tr><td/><td/><td/></tr>
     <tr><td/><td/><td/></tr>
   </table>
   ```
   `insertLocation` - to add tables at the end of the section use the following code:
   ```
   ancestor::section/*[last()]
   ```
   `insertPosition` - Select **After**.

Configuring the Toolbars

Now that you have defined the ***Insert Section*** action and the ***Insert Table*** action, you can add them to the toolbar. You can configure additional toolbars on which to add your custom actions.

1. Open the Document Type edit dialog for the **SDF** framework and select on the **Author** tab. Next click on the **Toolbar** label.

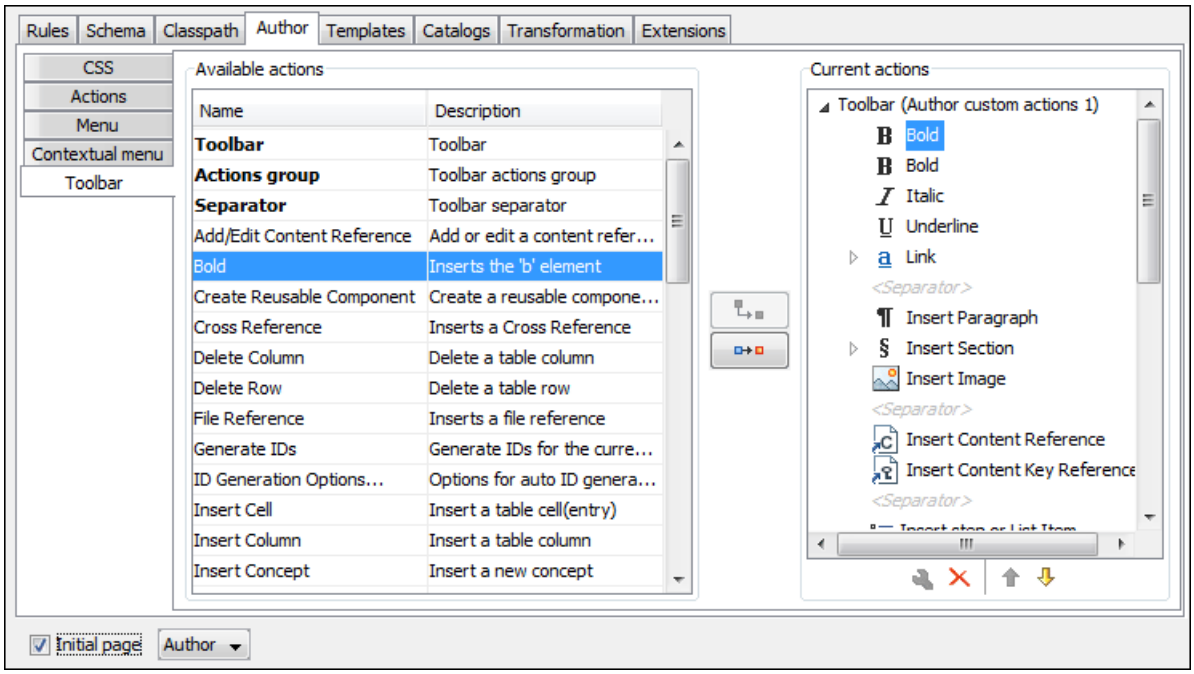


Figure 149: Configuring the Toolbar

The panel is divided in two sections: the left side contains a list of actions, while the right one contains an action tree, displaying the list of actions added in the toolbar. The special entry called *Separator* allows you to visually separate the actions in the toolbar.

2. Select the **Insert section** action in the left panel section and the **Toolbar** label in the right panel section, then press the **Add as child** button.
3. Select the **Insert table** action in the left panel section and the **Insert section** in the right panel section. Press the **Add as sibling** button.
4. When opening a **Simple Documentation Framework** test document in **Author** mode, the toolbar below will be displayed at the top of the editor.

Figure 150: Author Custom Actions Toolbar

Tip: If you have many custom toolbar actions, or want to group actions according to their category, add additional toolbars with custom names and split the actions to better suit your purpose. In case your toolbar is not displayed when switching to the **Author** mode, right click the main toolbar and make sure the entry labeled **Author custom actions 1** is enabled.

Configuring the Main Menu

Defined actions can be grouped into customized menus in the Oxygen XML Author menu bar.

1. Open the Document Type dialog for the **SDF** framework and click on the **Author** tab.
2. Click on the **Menu** label. In the left side you have the list of actions and some special entries:

- **Submenu** - Creates a submenu. You can nest an unlimited number of menus.
- **Separator** - Creates a separator into a menu. This way you can logically separate the menu entries.

3. The right side of the panel displays the menu tree with **Menu** entry as root. To change its name click on this label to select it, then press the **Edit** button. Enter **SD Framework** as name, and **D** as menu access key.
4. Select the **Submenu** label in the left panel section and the **SD Framework** label in the right panel section, then press the **Add as child** button. Change the submenu name to **Table**, using the **Edit** button.
5. Select the **Insert section** action in the left panel section and the **Table** label in the right panel section, then press the **Add as sibling** button.
6. Now select the **Insert table** action in the left panel section and the **Table** in the right panel section. Press the **Add as child** button.

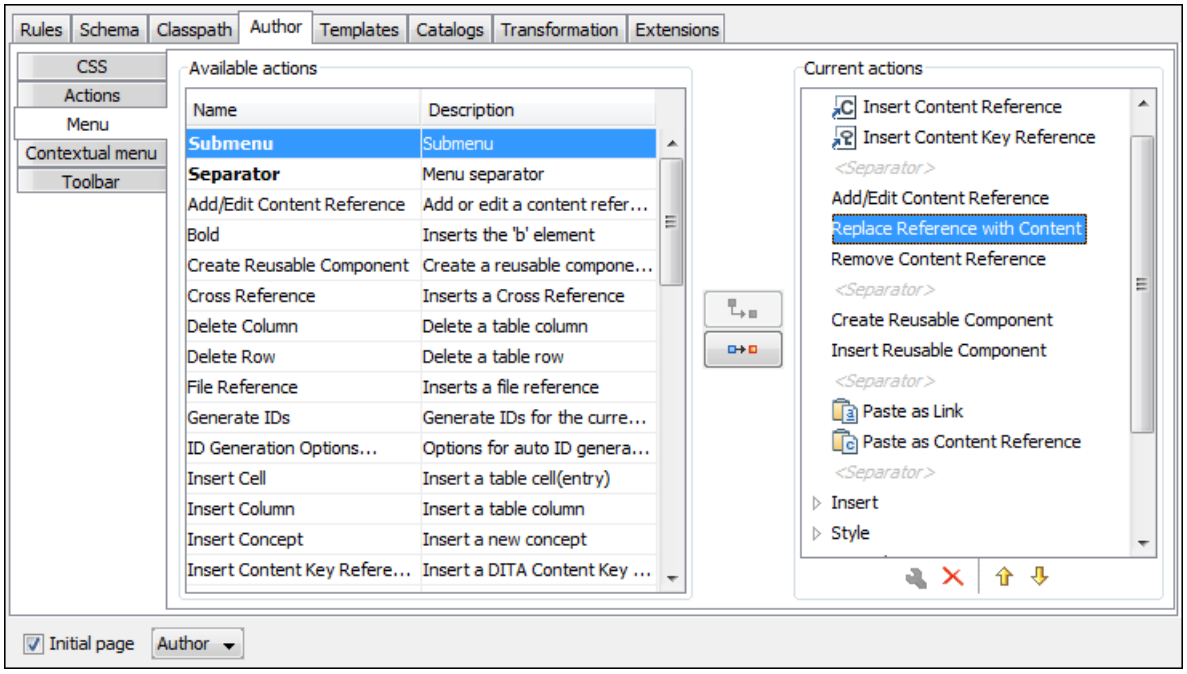


Figure 151: Configuring the Menu

When opening a **Simple Documentation Framework** test document in Author mode, the menu you created is displayed in the editor menu bar, between the **Tools** and the **Document** menus. The upper part of the menu contains generic Author actions (common to all document types) and the two actions created previously (with **Insert table** under the **Table** submenu).

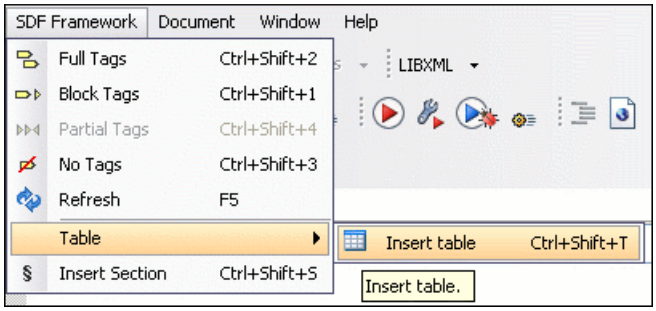


Figure 152: Author Menu

Configuring the Contextual Menu

The contextual menu is shown when you right click (**Ctrl (Meta on Mac OS) + mouse click** on Mac) in the Author editing area. In fact you are configuring the bottom part of the menu, since the top part is reserved for a list of generic actions like Copy, Paste, Undo, etc.

1. Open the Document Type dialog for the **SDF** framework and click on the **Author** tab. Next click on the **Contextual Menu** label.
2. Follow the same steps as explained in the *Configuring the Main Menu*, except changing the menu name because the contextual menu does not have a name.

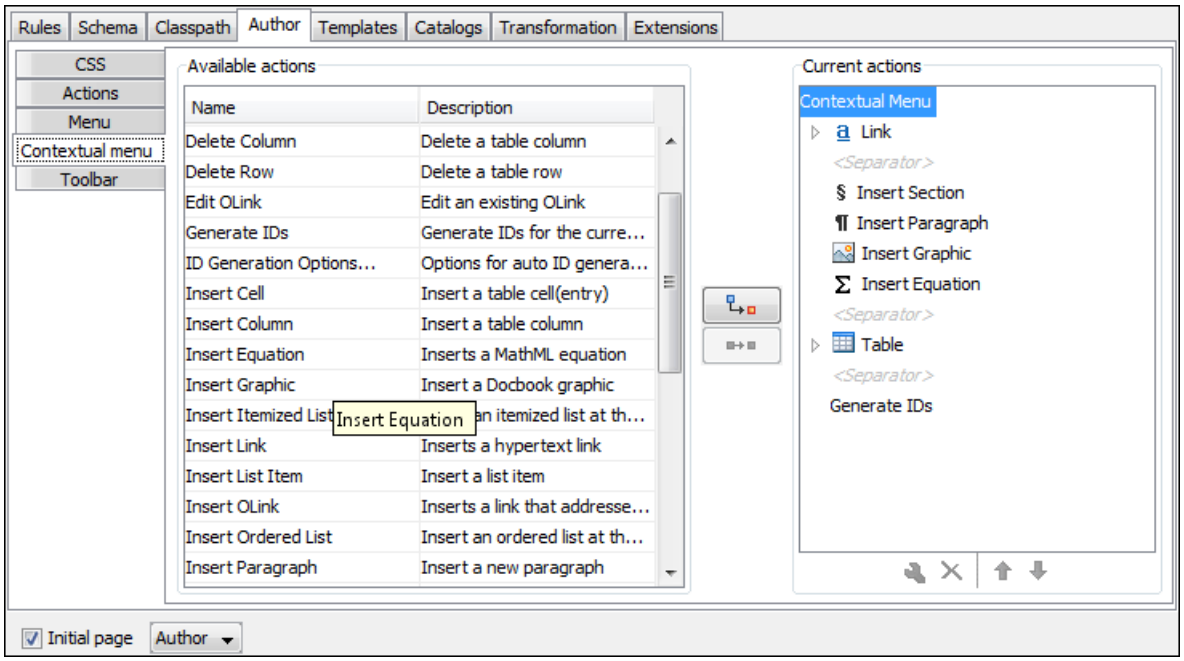


Figure 153: Configuring the Contextual Menu

To test it, open the test file, and open the contextual menu. In the lower part there is shown the **Table** sub-menu and the **Insert section** action.

Customize Content Completion

You can customize the content of the following **Author** controls, adding items (which, when invoked, perform custom actions) or filtering the default contributed ones:

- **Content Completion** window;
- **Elements** view;
- **Element Insert** menus (from the **Outline** view or breadcrumb contextual menus).

You can use the content completion customization support in the *Simple Documentation Framework* following the next steps:

1. Open the **Document type** edit dialog for the **SDF** framework and select the **Author** tab. Next click on the **Content Completion** tab.

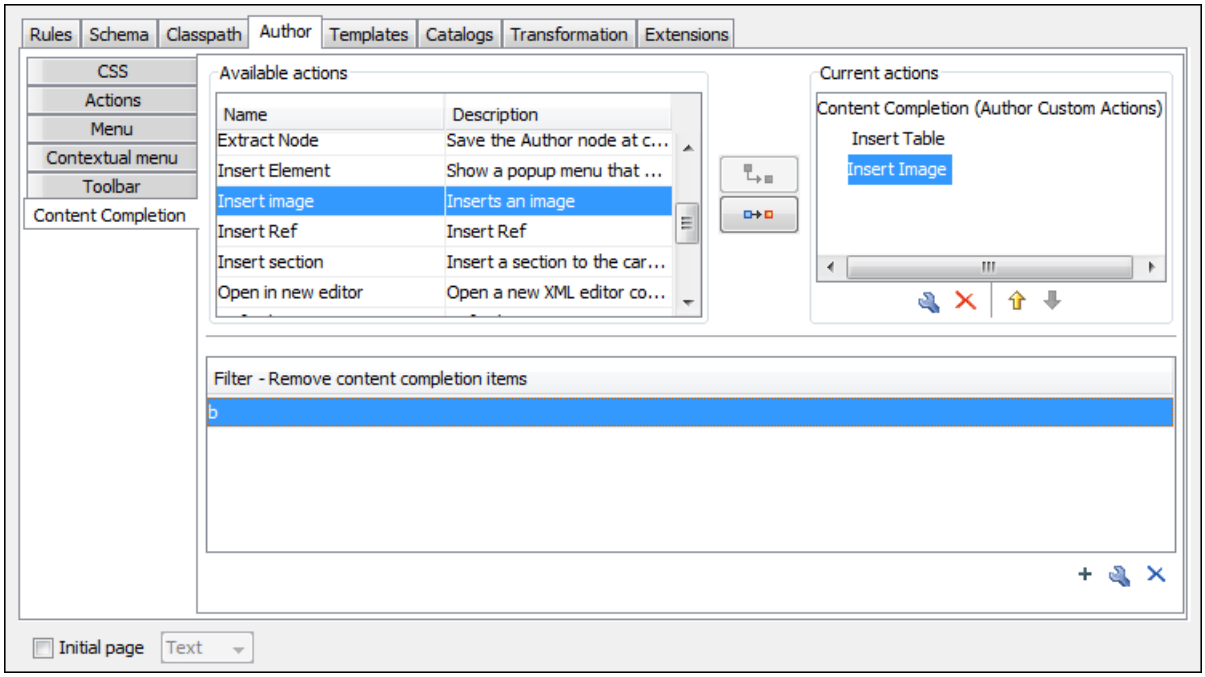


Figure 154: Customize Content Completion

The top side of the **Content Completion** section contains the list with all the actions defined within the simple documentation framework and the list of actions that you decided to include in the **Content Completion Assistant** list of proposals. The bottom side contains the list with all the items that you decided to remove from the **Content Completion Assistant** list of proposals.

2. If you want to add a custom action to the list of current **Content Completion** items, select the action item from the **Available actions** list and press the **Add as child** or **Add as sibling** button to include it in the **Current actions** list. The following dialog appears, giving you the possibility to select where to provide the selected action:

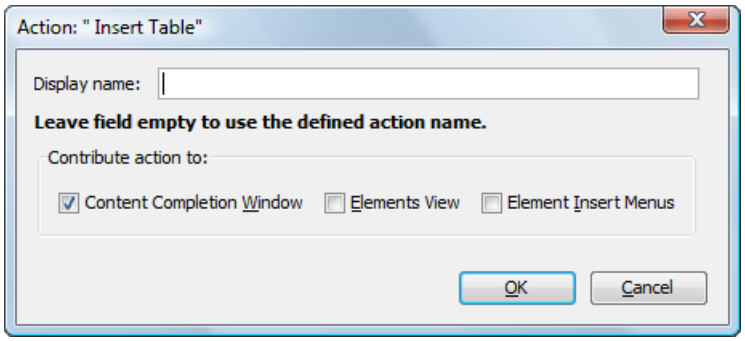


Figure 155: Insert action dialog

3. If you want to exclude a certain item from the **Content Completion** items list, you can use the **Add** button from the **Filter - Remove content completion items** list. The following dialog is displayed, allowing you to input the item name and to choose the controls that filter it.

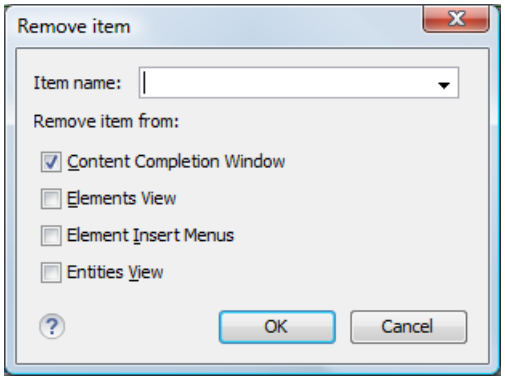


Figure 156: Remove item dialog

Author Default Operations

Below are listed all the operations and their arguments:

- **`InsertFragmentOperation`**

  Inserts an XML fragment at the current cursor position. The selection - if there is one, remains unchanged. The fragment will be inserted in the current context of the cursor position meaning that if the current XML document uses some namespace declarations then the inserted fragment must use the same declarations. The inserted fragment will not be copied and pasted to the cursor position, but the namespace declarations of the fragment will be adapted if needed to the existing namespace declarations of the XML document. For more details about the list of parameters go to *The arguments of InsertFragmentOperation operation* on page 328.

- **`InsertOrReplaceFragmentOperation`**

  Similar to **`InsertFragmentOperation`**, except it removes the selected content before inserting the fragment.

- **`InsertOrReplaceTextOperation`**

  Inserts a text at current position removing the selected content, if any. The argument of this operation is:

  - **`text`** - the text section to insert.

- **`SurroundWithFragmentOperation`**

  Surrounds the selected content with a text fragment. Since the fragment can have multiple nodes, the surrounded content will be always placed in the first leaf element. If there is no selection, the operation will simply insert the fragment at the caret position. For more details about the list of parameters go to *The arguments of SurroundWithFragmentOperation* on page 328.

- **`SurroundWithTextOperation`**

  This operation has two arguments (two text values) that will be inserted before and after the selected content. If there is no selected content, the two sections will be inserted at the caret position. The arguments of the operation are:

  - **`header`** - the text that is placed before the selection;
  - **`footer`** - the text that is placed after the selection.

- **`InsertEquationOperation`**

  Inserts a fragment containing a MathML equation at caret offset. The argument of this operation is:

  - **`fragment`** - the XML fragment containing the MathML content which should be inserted.

- **`InsertXIncludeOperation`**

  Insert an **`XInclude`** element at caret offset.

- **`ChangeAttributeOperation`**

This operation allows adding/modifying/removing an attribute. You can use this operation in your own Author action to modify the value for a certain attribute on a specific XML element. The arguments of the operation are:

- **`name`** - the attribute local name;
- **`namespace`** - the attribute namespace;
- **`elementLocation`** - the XPath location that identifies the element;
- **`value`** - the new value for the attribute. If empty or null the attribute will be removed;
- **`editAttribute`** - if an in-place editor exists for this attribute, it will automatically activate the in-pace editor and start editing;
- **`removeIfEmpty`** - the possible values are `true` and `false`. True means that the attribute should be removed if an empty value is provided. The default behavior is to remove it.

- **`UnwrapTagsOperation`**

  This operation allows removing the element tags either from the current element or for an element identified with an XPath location. The argument of the operation is

  - **`unwrapElementLocation`** - an XPath expression indicating the element to unwrap. If it is not defined, the element at caret is unwrapped.

- **`ToggleSurroundWithElementOperation`**

  This operation allows wrapping and unwrapping content in a specific element with specific attributes. It is useful to implement toggle actions like highlighting text as bold, italic, or underline. The arguments of the operation are:

  - **`element`** - the element to wrap or unwrap content;
  - **`schemaAware`** - this argument applies only on the surround with element operation and controls if the insertion is schema aware or not.

- **`ExecuteTransformationScenariosOperation`**

  This operation allows running one or more transformation scenarios defined in the current document type association. It is useful to add to the toolbar buttons that trigger publishing to various output formats. The argument of the operation is:

  - **`scenarioNames`** - the list of scenario names that will be executed, separated by new lines.

- **`XSLTOperation`** and **`XQueryOperation`**

  Applies an XSLT or XQuery script on a source element and then replaces or inserts the result in a specified target element.

  This operation has the following parameters:

  - **`sourceLocation`**

    An XPath expression indicating the element that the script will be applied on. If it is not defined then the element at the caret position will be used.

    There may be situations in which you want to look at an ancestor of the current element and take decisions in the script based on this. In order to do this you can set the `sourceLocation` to point to an ancestor node (for example /) then declare a parameter called `currentElementLocation` in your script and use it to re-position in the current element like:

```
<xsl:stylesheet xmlns:xsl="http://www.w3.org/1999/XSL/Transform" version="2.0"
  xpath-default-namespace="http://docbook.org/ns/docbook"
  xmlns:saxon="http://saxon.sf.net/" exclude-result-prefixes="saxon">
    <!-- This is an XPath location which will be sent by the operation to the script -->
    <xsl:param name="currentElementLocation"/>

    <xsl:template match="/">
        <!-- Evaluate the XPath of the current element location -->
        <xsl:apply-templates
        select="saxon:eval(saxon:expression($currentElementLocation))"/>
    </xsl:template>

    <xsl:template match="para">
        <!-- And the context is again inside the current element,
        but we can use information from the entire XML -->
        <xsl:variable
```

```
            name="keyImage" select="//imagedata[@fileref='images/lake.jpeg']
              /ancestor::inlinemediaobject/@xml:id/string()"/>
                <xref linkend="{$keyImage}" role="key_include"
                  xmlns="http://docbook.org/ns/docbook">
                    <xsl:value-of
                          select="$currentElementLocation"></xsl:value-of>
        </xref>
    </xsl:template>
</xsl:stylesheet>
```

- **`targetLocation`**

  An XPath expression indicating the insert location for the result of the transformation. If it is not defined then the insert location will be at the caret.

- **`script`**

  The script content (XSLT or XQuery). The base system ID for this will be the framework file, so any include/import reference will be resolved relative to the `.framework` file that contains this action definition.

  For example, for the following script, the imported `xslt_operation.xsl` needs to be located in the current framework's directory.

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

- **`action`**

  The insert action relative to the node determined by the target XPath expression. It can be: Replace, At caret position, Before, After, Inside as first child or Inside as last child.

- **`caretPosition`**

  The position of the caret after the action is executed. It can be: Preserve, Before, Start, First editable position, End or After. If not specified the caret position ca be specified by outputting in the XSLT script a **${caret}** editor variable.

- **`expandEditorVariables`**

  Parameter controlling the expansion of editor variables returned by the script processing. Expansion is enabled by default.

- **`ExecuteMultipleActionsOperation`**

  This operation allows the execution of a sequence of actions, defined as a list of action IDs. The actions must be defined by the corresponding framework, or one of the common actions for all frameworks supplied by Oxygen.

  - **`actionIDs`** - the action IDs list which will be executed in sequence, the list must be a string sequence containing the IDs separated by new lines.

Author operations can take parameters that might contain the following editor variables:

- **${caret}** - The position where the caret is inserted. This variable can be used in a code template, in **Author** operations, or in a selection plugin;
- **${selection}** - The current selected text content in the current edited document. This variable can be used in a code template, in **Author** operations, or in a selection plugin;
- **${ask('message', type, ('real_value1':'rendered_value1'; 'real_value2':'rendered_value2'; ...), 'default_value')}** - To prompt for values at runtime, use the *ask('message', type, ('real_value1':'rendered_value1'; 'real_value2':'rendered_value2'; ...), 'default-value'')* editor variable. You can set the following parameters:
  - `'message'` - the displayed message. Note the quotes that enclose the message;
  - `type` - optional parameter. Can have one of the following values:
    - `url` - input is considered an URL. Oxygen XML Author checks that the URL is valid before passing it to the transformation;
    - `password` - input characters are hidden;

- `generic` - the input is treated as generic text that requires no special handling;
- `relative_url` - input is considered an URL. Oxygen XML Author tries to make the URL relative to that of the document you are editing;

  Note: You can use the `$ask` editor variable in file templates. In this case, Oxygen XML Author keeps an absolute URL.

- `combobox` - displays a dialog that contains a non-editable combo-box;
- `editable_combobox` - displays a dialog that contains an editable combo-box;
- `radio` - displays a dialog that contains radio buttons;

- `'default-value'` - optional parameter. Provides a default value in the input text box;

  Examples:

  - `${ask('message')}` - Only the message displayed for the user is specified.
  - `${ask('message', generic, 'default')}` - `'message'` is displayed, the type is not specified (the default is string), the default value is `'default'`.
  - `${ask('message', password)}` - `'message'` is displayed, the characters typed are masked with a circle symbol.
  - `${ask('message', password, 'default')}` - same as before, the default value is `'default'`.
  - `${ask('message', url)}` - `'message'` is displayed, the parameter type is URL.
  - `${ask('message', url, 'default')}` - same as before, the default value is `'default'`.

- **${timeStamp}** - Time stamp, that is the current time in Unix format. It can be used for example to save transformation results in different output files on each transform;
- **${uuid}** - Universally unique identifier;An unique sequence of 32 hexadecimal digits generated by the Java *UUID* class;
- **${id}** - Application-level unique identifier;A short sequence of 10-12 letters and digits which is not guaranteed to be universally unique;
- **${cfn}** - Current file name without extension and without parent folder. The current file is the one currently opened and selected;
- **${cfne}** - Current file name with extension. The current file is the one currently opened and selected;
- **${cf}** - Current file as file path, that is the absolute file path of the current edited document;
- **${cfd}** - Current file folder as file path, that is the path of the current edited document up to the name of the parent folder;
- **${frameworksDir}** - The path (as file path) of the `frameworks` subfolder of the Oxygen XML Author installation folder;
- **${pd}** - Current project folder as file path. Usually the current folder selected in the Project View;
- **${oxygenInstallDir}** - Oxygen XML Author installation folder as file path;
- **${homeDir}** - The path (as file path) of the user home folder;
- **${pn}** - Current project name;
- **${env(VAR_NAME)}** - Value of the *VAR_NAME* environment variable. The environment variables are managed by the operating system. If you are looking for Java System Properties, use the **${system(var.name)}** editor variable;
- **${system(var.name)}** - Value of the *var.name* Java System Property. The Java system properties can be specified in the command line arguments of the Java runtime as `-Dvar.name=var.value`. If you are looking for operating system environment variables, use the**${env(VAR_NAME)}** editor variable instead;
- **${date(pattern)}** - Current date. The allowed patterns are equivalent to the ones in the *Java SimpleDateFormat class*. Example: yyyy-MM-dd;

  Note: This editor variable supports both the xs:date and xs:datetime parameters. For details about xs:date, go to *http://www.w3.org/TR/xmlschema-2/#date*. For details about xs:datetime, go to *http://www.w3.org/TR/xmlschema-2/#dateTime*.

The arguments of `InsertFragmentOperation` operation

fragment

This argument has a textual value. This value is parsed by Oxygen XML Author as it was already in the document at the caret position. You can use entity references declared in the document and it is namespace aware. The fragment may have multiple roots.

You can even use namespace prefixes that are not declared in the inserted fragment, if they are declared in the document where the insertion is done. For the sake of clarity, you should always prefix and declare namespaces in the inserted fragment!

If the fragment contains namespace declarations that are identical to those found in the document, the namespace declaration attributes will be removed from elements contained by the inserted fragment.

There are two possible scenarios:

1. **Prefixes that are not bound explicitly**

   For instance, the fragment:

   ```
   <x:item id="dty2"/>
   &ent;
   <x:item id="dty3"/>
   ```

   Can be correctly inserted in the document: ('|' marks the insertion point):

   Result:

2. **Default namespaces**

If there is a default namespace declared in the document and the document fragment does not declare a namespace, the elements from the fragment are considered to be in **no namespace**.

For instance the fragment:

```
<item id="dty2"/>
<item id="dty3"/>
```

Inserted in the document:

Gives the result document:

`insertLocation`

An XPath expression that is relative to the current node. It selects the reference node for the fragment insertion.

`insertPosition`

One of the three constants: "**Inside**", "**After**", or "**Before**" , showing where the insertion is made relative to the reference node selected by the `insertLocation`. "**Inside**" has the meaning of the first child of the reference node.

`goToNextEditablePosition`

After inserting the fragment, the first editable position is detected and the caret is placed at that location. It handles any in-place editors used to edit attributes. It will be ignored if the fragment specifies a caret position using the caret editor variable. The possible values of this action are **true** and **false**.

The arguments of `SurroundWithFragmentOperation`

The Author operation `SurroundWithFragmentOperation` has only one argument:

- fragment -

  The XML fragment that will surround the selection. For example let's consider the fragment:

  ```
  <F>
     <A></A>
     <B>
       <C></C>
     </B>
  </F>
  ```

and the document:

```
<doc>
  <X></X>
  <Y></Y>
  <Z></Z>
<doc>
```

Considering the selected content to be surrounded is the sequence of elements `X` and `Y`, then the result is:

```
<doc>
   <F>
      <A>
         <X></X>
         <Y></Y>
      </A>
      <B>
        <C></C>
      </B>
   </F>
  <Z></Z>
<doc>
```

Because the element `A` was the first leaf in the fragment, it received the selected content. The fragment was then inserted in the place of the selection.

How to Add a Custom Operation to an Existing Document Type

This task explains how to add a custom Author operation to an existing document type.

1. Download the Author SDK toolkit:*http://www.oxygenxml.com/developer.html#XML_Editor_Authoring_SDK*
2. Create a Java project with a custom implementation of *ro.sync.ecss.extensions.api.AuthorOperation* which performs your custom operation and updates the **Author** mode using our API like: `AuthorAccess.getDocumentController().insertXMLFragment`.
3. Pack the operation class inside a Java *jar* library.
4. Copy the *jar* library to the `OXYGEN_INSTALL_DIR/frameworks/framework_dir` directory.
5. Go to Oxygen **Preferences** > **Document Type Association** page and edit the document type (you need write access to the `OXYGEN_INSTALLATION_DIR`).
   a) In the **Classpath** tab, add a new entry like: `${frameworks}/docbook/customAction.jar`.
   b) In the **Author** tab, add a new action which uses your custom operation.
   c) Mount the action to the toolbars or menus.
6. Share the modifications with your colleagues. The files which should be shared are your `customAction.jar` library and the `.framework` configuration file from the `OXYGEN_INSTALL_DIR/frameworks/framework_dir` directory.

Java API - Extending Author Functionality through Java

Oxygen XML Author Author has a built-in set of operations covering the insertion of text and XML fragments (see the *Author Default Operations*) and the execution of XPath expressions on the current document edited in Author mode. However, there are situations in which you need to extend this set. For instance if you need to enter an element whose attributes should be edited by the user through a graphical user interface. Or the users must send the selected element content or even the whole document to a server, for some kind of processing or the content authors must extract pieces of information from a server and insert it directly into the edited XML document. Or you need to apply an XPath expression on the current Author document and process the nodes of the result nodeset.

The following sections contain the Java programming interface (API) available to the developers. You will need the *Oxygen Author SDK* available *on the Oxygen XML Author website* which includes the source code of the Author operations in the predefined document types and the full documentation in Javadoc format of the public API available for the developer of Author custom actions.

The next Java examples are making use of AWT classes. If you are developing extensions for the Oxygen XML Author XML Editor plugin for Eclipse you will have to use their SWT counterparts.

It is assumed you already read the *Configuring Actions, Menus, Toolbar* section and you are familiar with the Oxygen XML Author Author customization. You can find the XML schema, CSS and XML sample in the *Example Files Listings*.

Attention:

Make sure the Java classes of your custom Author operations are compiled with the same Java version used by Oxygen XML Author. Otherwise the classes may not be loaded by the Java virtual machine. For example if you run Oxygen XML Author XML Author with a Java 1.6 virtual machine but the Java classes of your custom Author operations are compiled with a Java 1.7 virtual machine then the custom operations cannot be loaded and used by the Java 1.6 virtual machine.

Example 1. Step by Step Example. Simple Use of a Dialog from an Author Operation.

Let's start adding functionality for inserting images in the **Simple Documentation Framework** (shortly SDF). The images are represented by the `image` element. The location of the image file is represented by the value of the `href` attribute. In the Java implementation you will show a dialog with a text field, in which the user can enter a full URL, or he can browse for a local file.

1. Create a new Java project, in your IDE of choice. Create the `lib` folder in the project folder. Copy the `oxygen.jar` file from the `{oXygen_installation_directory}/lib` folder into the newly created `lib` folder. `oxygen.jar` contains the Java interfaces you have to implement and the API needed to access the Author features.
2. Create the `simple.documentation.framework.InsertImageOperation` class that implements the *`ro.sync.ecss.extensions.api.AuthorOperation`* interface. This interface defines three methods: `doOperation`, `getArguments` and `getDescription`

   A short description of these methods follows:

   - The `doOperation` method is invoked when the action is performed either by pressing the toolbar button, by selecting the menu item or by pressing the shortcut key. The arguments taken by this methods can be one of the following combinations:
     - an object of type *`ro.sync.ecss.extensions.api.AuthorAccess`* and a map
     - argument names and values
   - The `getArguments` method is used by Oxygen XML Author when the action is configured. It returns the list of arguments (name and type) that are accepted by the operation.
   - The `getDescription` method is used by Oxygen XML Author when the operation is configured. It returns a description of the operation.

   Here is the implementation of these three methods:

```
/**
 * Performs the operation.
 */
public void doOperation(
               AuthorAccess authorAccess,
               ArgumentsMap arguments)
 throws IllegalArgumentException,
                 AuthorOperationException {

 JFrame oxygenFrame = (JFrame) authorAccess.getParentFrame();
 String href = displayURLDialog(oxygenFrame);
 if (href.length() != 0) {
     // Creates the image XML fragment.
     String imageFragment =
        "<image xmlns='http://www.oxygenxml.com/sample/documentation' href='"
        + href + "'/>";

     // Inserts this fragment at the caret position.
     int caretPosition = authorAccess.getCaretOffset();
     authorAccess.insertXMLFragment(imageFragment, caretPosition);
 }
}

/**
 * Has no arguments.
 *
 * @return null.
 */
public ArgumentDescriptor[] getArguments() {
 return null;
}

/**
 * @return A description of the operation.
 */
public String getDescription() {
```

```
 return "Inserts an image element. Asks the user for a URL reference.";
}
```

Note: The complete source code can be found in the Simple Documentation Framework project, included in the *Oxygen Author SDK zip* available for download *on the Oxygen XML Author website*.

Important:

Make sure you always specify the namespace of the inserted fragments.

```
<image xmlns='http://www.oxygenxml.com/sample/documentation'
  href='path/to/image.png'/>
```

3. Package the compiled class into a jar file. An example of an ANT script that packages the `classes` folder content into a jar archive named `sdf.jar` is listed below:

```
<?xml version="1.0" encoding="UTF-8"?>
<project name="project" default="dist">
    <target name="dist">
   <jar destfile="sdf.jar" basedir="classes">
    <fileset dir="classes">
     <include name="**/*"/>
     </fileset>
   </jar>
    </target>
</project>
```

4. Copy the `sdf.jar` file into the `frameworks / sdf` folder.
5. Add the `sdf.jar` to the Author class path. To do this, open the **Options** > **Preferences** > **Document Type Association** dialog, select **SDF** and press the **Edit** button.
6. Select the **Classpath** tab in the lower part of the dialog and press the + **Add** button . In the displayed dialog enter the location of the jar file, relative to the Oxygen XML Author `frameworks` folder.
7. Let's create now the action which will use the defined operation. Click on the **Actions** label. Copy the icon files for the menu item and for the toolbar in the `frameworks / sdf` folder.
8. Define the action's properties:
   - Set **ID** to **insert_image**.
   - Set **Name** to **Insert image**.
   - Set **Menu access key** to letter **i**.
   - Set **Toolbar action** to **${frameworks}/sdf/toolbarImage.png**.
   - Set **Menu icon** to **${frameworks}/sdf/menuImage.png**.
   - Set **Shortcut key** to **Ctrl (Meta on Mac OS)+Shift+i**.
9. Now let's set up the operation. You want to add images only if the current element is a `section`, `book` or `article`.
   - Set the value of **XPath expression** to

     ```
     local-name()='section' or local-name()='book'
      or local-name()='article'
     ```

   - Set the **Invoke operation** field to `simple.documentation.framework.InsertImageOperation`.

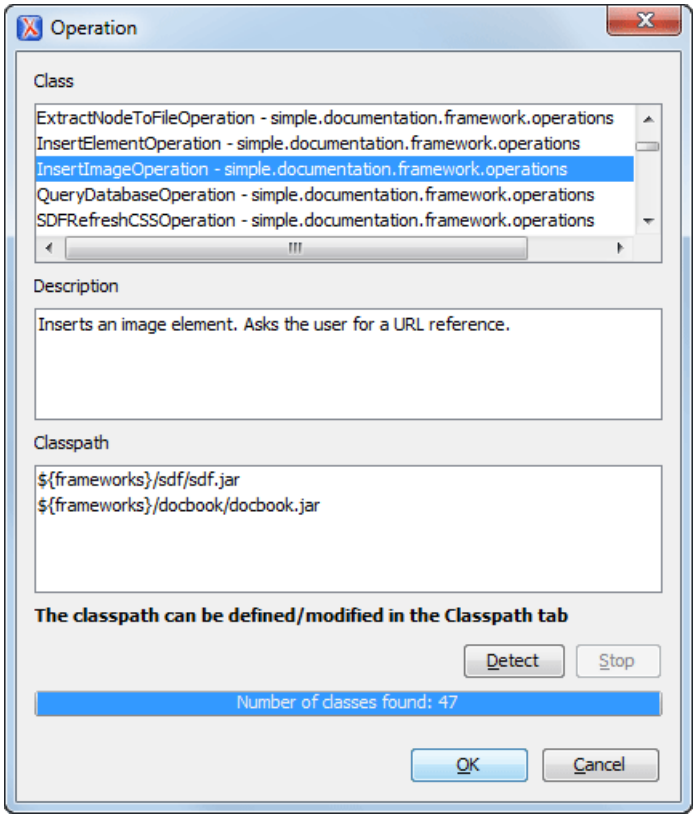


Figure 157: Selecting the Operation

10. Add the action to the toolbar, using the **Toolbar** panel.

To test the action, you can open the *sdf_sample.xml* sample, then place the caret inside a `section` between two para elements for instance. Press the button associated with the action from the toolbar. In the dialog select an image URL and press **OK**. The image is inserted into the document.

Example 2. Operations with Arguments. Report from Database Operation.

In this example you will create an operation that connects to a relational database and executes an SQL statement. The result should be inserted in the edited XML document as a `table`. To make the operation fully configurable, it will have arguments for the *database connection string*, the *user name*, the *password* and the *SQL expression*.

1. Create a new Java project in your preferred IDE. Create the `lib` folder in the Java project directory and copy the `oxygen.jar` file from the `{oXygen_installation_directory}/lib` directory.
2. Create the class `simple.documentation.framework.QueryDatabaseOperation`. This class must implements the *ro.sync.ecss.extensions.api.AuthorOperation* interface.

```
import ro.sync.ecss.extensions.api.ArgumentDescriptor;
import ro.sync.ecss.extensions.api.ArgumentsMap;
import ro.sync.ecss.extensions.api.AuthorAccess;
import ro.sync.ecss.extensions.api.AuthorOperation;
import ro.sync.ecss.extensions.api.AuthorOperationException;

public class QueryDatabaseOperation implements AuthorOperation{
```

3. Now define the operation's arguments. For each of them you will use a `String` constant representing the argument name:

```
private static final String ARG_JDBC_DRIVER ="jdbc_driver";
private static final String ARG_USER ="user";
private static final String ARG_PASSWORD ="password";
private static final String ARG_SQL ="sql";
private static final String ARG_CONNECTION ="connection";
```

4. You must describe each of the argument name and type. To do this implement the `getArguments` method which will return an array of argument descriptors:

```
public ArgumentDescriptor[] getArguments() {
  ArgumentDescriptor args[] = new ArgumentDescriptor[] {
    new ArgumentDescriptor(
      ARG_JDBC_DRIVER,
      ArgumentDescriptor.TYPE_STRING,
      "The name of the Java class that is the JDBC driver."),
    new ArgumentDescriptor(
      ARG_CONNECTION,
      ArgumentDescriptor.TYPE_STRING,
      "The database URL connection string."),
    new ArgumentDescriptor(
      ARG_USER,
      ArgumentDescriptor.TYPE_STRING,
      "The name of the database user."),
    new ArgumentDescriptor(
      ARG_PASSWORD,
      ArgumentDescriptor.TYPE_STRING,
      "The database password."),
    new ArgumentDescriptor(
      ARG_SQL,
      ArgumentDescriptor.TYPE_STRING,
      "The SQL statement to be executed.")
  };
  return args;
 }
```

These names, types and descriptions will be listed in the **Arguments** table when the operation is configured.

5. When the operation is invoked, the implementation of the `doOperation` method extracts the arguments, forwards them to the method that connects to the database and generates the XML fragment. The XML fragment is then inserted at the caret position.

```
public void doOperation(AuthorAccess authorAccess, ArgumentsMap map)
   throws IllegalArgumentException, AuthorOperationException {

  // Collects the arguments.
  String jdbcDriver =
   (String)map.getArgumentValue(ARG_JDBC_DRIVER);
  String connection =
   (String)map.getArgumentValue(ARG_CONNECTION);
  String user =
   (String)map.getArgumentValue(ARG_USER);
  String password =
   (String)map.getArgumentValue(ARG_PASSWORD);
  String sql =
   (String)map.getArgumentValue(ARG_SQL);

  int caretPosition = authorAccess.getCaretOffset();
  try {
   authorAccess.insertXMLFragment(
     getFragment(jdbcDriver, connection, user, password, sql),
     caretPosition);
  } catch (SQLException e) {
   throw new AuthorOperationException(
     "The operation failed due to the following database error: "
     + e.getMessage(), e);
  } catch (ClassNotFoundException e) {
   throw new AuthorOperationException(
     "The JDBC database driver was not found. Tried to load ' "
     + jdbcDriver + "'", e);
  }
 }
```

6. The `getFragment` method loads the JDBC driver, connects to the database and extracts the data. The result is a `table` element from the `http://www.oxygenxml.com/sample/documentation` namespace. The `header` element contains the names of the SQL columns. All the text from the XML fragment is escaped. This means that the '<' and '&' characters are replaced with the '<' and '&' character entities to ensure the fragment is well-formed.

```
private String getFragment(
  String jdbcDriver,
  String connectionURL,
  String user,
  String password,
  String sql) throws
   SQLException,
   ClassNotFoundException {

      Properties pr = new Properties();
      pr.put("characterEncoding", "UTF8");
      pr.put("useUnicode", "TRUE");
      pr.put("user", user);
      pr.put("password", password);

      // Loads the database driver.
      Class.forName(jdbcDriver);
```

```
      // Opens the connection
      Connection connection =
         DriverManager.getConnection(connectionURL, pr);
      java.sql.Statement statement =
         connection.createStatement();
      ResultSet resultSet =
         statement.executeQuery(sql);

      StringBuffer fragmentBuffer = new StringBuffer();
      fragmentBuffer.append(
        "<table xmlns=" +
        "'http://www.oxygenxml.com/sample/documentation'>");

      //
      // Creates the table header.
      //
      fragmentBuffer.append("<header>");
      ResultSetMetaData metaData = resultSet.getMetaData();
      int columnCount = metaData.getColumnCount();
      for (int i = 1; i <= columnCount; i++) {
          fragmentBuffer.append("<td>");
          fragmentBuffer.append(
            xmlEscape(metaData.getColumnName(i)));
          fragmentBuffer.append("</td>");
      }
      fragmentBuffer.append("</header>");

      //
      // Creates the table content.
      //
      while (resultSet.next()) {
          fragmentBuffer.append("<tr>");
          for (int i = 1; i <= columnCount; i++) {
              fragmentBuffer.append("<td>");
              fragmentBuffer.append(
                xmlEscape(resultSet.getObject(i)));
              fragmentBuffer.append("</td>");
          }
          fragmentBuffer.append("</tr>");
      }

      fragmentBuffer.append("</table>");

      // Cleanup
      resultSet.close();
      statement.close();
      connection.close();
      return fragmentBuffer.toString();
}
```

Note: The complete source code can be found in the Simple Documentation Framework project, included in the *Oxygen Author SDK zip* available for download *on the Oxygen XML Author website*.

7. Package the compiled class into a jar file.
8. Copy the jar file and the JDBC driver files into the `frameworks / sdf` directory.
9. Add the jars to the Author class path. For this, Open the options Document Type Dialog, select **SDF** and press the **Edit** button. Select the **Classpath** tab in the lower part of the dialog.
10. Click on the **Actions** label. The action properties are:
    - Set **ID** to **clients_report**.
    - Set **Name** to **Clients Report**.
    - Set **Menu access key** to letter **r**.
    - Set **Description** to **Connects to the database and collects the list of clients**.
    - Set **Toolbar icon** to **${frameworks}/sdf/TableDB20.png** (image  `TableDB20.png` is already stored in the `frameworks / sdf` folder).
    - Leave empty the **Menu icon**.
    - Set **shortcut key** to **Ctrl (Meta on Mac OS)+Shift+C**.
11. The action will work only if the current element is a **section**. Set up the operation as follows:
    - Set **XPath expression** to:

      ```
      local-name()='section'
      ```

    - Use the Java operation defined earlier to set the **Invoke operation** field. Press the **Choose** button, then select `simple.documentation.framework.QueryDatabaseOperation`. Once selected, the list of arguments

is displayed. In the figure below the first argument, *jdbc_driver*, represents the class name of the MySQL JDBC driver. The connection string has the URL syntax : *jdbc://<database_host>:<database_port>/<database_name>*.

The SQL expression used in the example follows, but it can be any valid SELECT expression which can be applied to the database:

```
SELECT userID, email FROM users
```

12. Add the action to the toolbar, using the **Toolbar** panel.

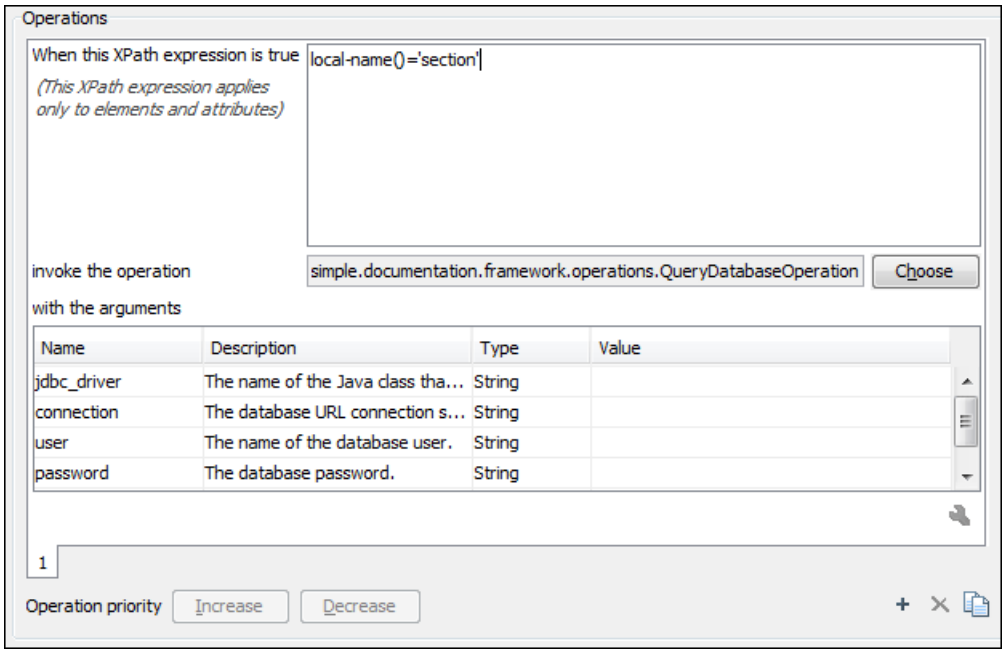


Figure 158: Java Operation Arguments Setup

To test the action you can open the *sdf_sample.xml* sample place the caret inside a `section` between two para elements for instance. Press the **Create Report** button from the toolbar. You can see below the toolbar with the action button and sample table inserted by the **Clients Report** action.

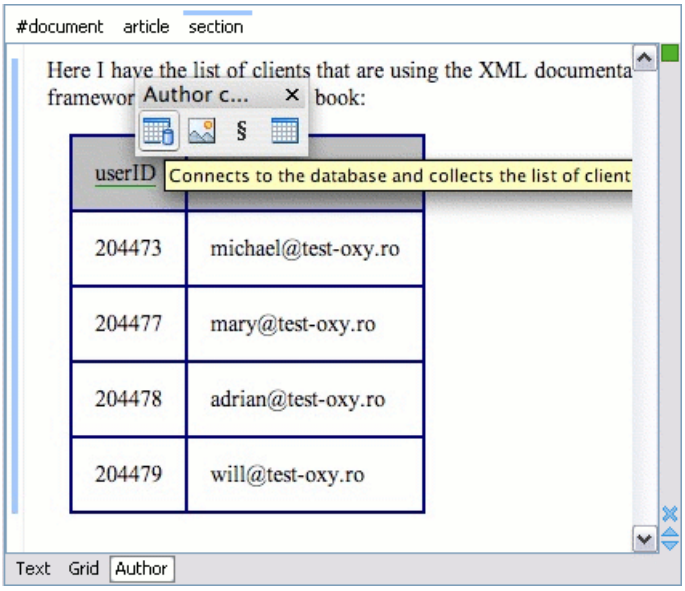


Figure 159: Table Content Extracted from the Database

Editing attributes in-place using form controls

To edit attributes in the **Author** mode, use the ***Attributes View*** or the in-place attributes editing dialog.

The `oxy_editor` CSS extension function allows you to edit attribute and element text values directly in the Author mode using form-based controls. Various implementations are available out of the box: *combo boxes*, *checkboxes*, *text fields*, *pop-ups*, *buttons* which invoke custom Author actions or *URL choosers*. You can also implement custom editors for your specific needs.

As a working example, the bundled samples project contains a file called `personal.xml` which allows editing attributes in-place using some of these default implementations.

Localizing Frameworks

Oxygen XML Author supports framework localization (translating framework actions, buttons, and menu entries to different languages). This lets you develop and distribute a framework to users that speak different languages without changing the distributed framework. Changing the language used in Oxygen XML Author (in **Options** > **Preferences** > **Global** > **Language** Global preferences page) is enough to set the right language for each framework.

To localize the content of a framework, create a `translation.xml` file which contains all the translation (key, value) mappings. The `translation.xml` has the following format:

```
<translation>
    <languageList>
        <language description="English" lang="en_US"/>
        <language description="German" lang="de_DE"/>
        <language description="French" lang="fr_FR"/>
    </languageList>
    <key value="list">
        <comment>List menu item name.</comment>
        <val lang="en_US">List</val>
        <val lang="de_DE">Liste</val>
        <val lang="fr_FR">Liste</val>
    </key>
.....................
</translation>
```

Oxygen XML Author matches the GUI language with the language set in the `translation.xml` file. In case this language is not found, the first available language declared in the `languagelist` tag for the corresponding framework is used.

Add the directory where this file is located to the **Classpath** list corresponding to the edited document type.

After you create this file, you are able to use the keys defined in it to customize the name and description of:

- framework actions;
- menu entries;
- contextual menus;
- toolbar;
- static CSS content.

For example, if you want to localize the bold action go to **Options** > **Preferences** > **Document Type Association**. Open the **Document type** dialog, go to **Author** > **Actions**, and rename the bold action to `${i18n(translation_key)}`. Actions with a name format different than `${i18n(translation_key)}` are not localized. `Translation_key` corresponds to the key from the translation.xml file.

Now open the `translation.xml` file and edit the translation entry if it exists or create one if it does not exist. This example presents an entry in the translation.xml file:

```
<key value="translation_key">
        <comment>Bold action name.</comment>
        <val lang="en_US">Bold</val>
        <val lang="de_DE">Bold</val>
        <val lang="fr_FR">Bold</val>
    </key>
```

To use a description from the `translation.xml` file in the Java code used by your custom framework, use the new `ro.sync.ecss.extensions.api.AuthorAccess.getAuthorResourceBundle()` API method to request for a certain key the associated value. In this way all the dialogs that you present from your custom operations can have labels translated in different languages.

You can also refer a key directly in the CSS content:

```
title:before{
    content:"${i18n(title.key)} : ";
}
```

Note: You can enter any language you want in the `languagelist` tag and any number of keys.

The `translation.xml` file for the DocBook framework is located here:`[OXYGEN_INSTALL_DIR]/frameworks/docbook/i18n/translation.xml`. In the **Classpath** list corresponding to the Docbook document type the following entry was added: `${framework}/i18n/`.

In **Options** > **Preferences** > **Document Type Association** > **Author** > **Actions**, you can see how the DocBook actions are defined to use these keys for their name and description. If you look in the Java class `ro.sync.ecss.extensions.docbook.table.SADocbookTableCustomizerDialog` available in the Author SDK, you can see how the new `ro.sync.ecss.extensions.api.AuthorResourceBundle` API is used to retrieve localized descriptions for different keys.

How to Deploy a Plugin or a Framework as an Oxygen XML Author Add-on

To deploy a plugin or a framework as an Oxygen XML Author add-on:

1. Pack it as a `ZIP` file or a *Java Archive (JAR)*. Please note that you should pack the entire root directory not just it's contents.
2. Digitally sign the package. Please note that you can perform this step only if you have created a *JAR* at the previous step. You will need a certificate signed by a trusted authority. To sign the jar you can either use the `jarsigner` command line tool inside Oracle's Java Development Kit. (`'JDK_install_dir'/bin/jarsigner.exe`) or, if you are working with *Apache Ant*, you can use the `signjar` task (which is just a front for the `jarsigner` command line tool).

   The benefit of having a signed add-on is that the user can verify the integrity of the add-on issuer. If you don't have such a certificate you can generate one yourself using the keytool command line tool. Please note that this approach is mostly recommended for tests since anyone can create a self signed certificate.
3. Create a descriptor file. You can use a template that Oxygen XML Author provides. To use this template, go to **File** > **New** and select the **Oxygen add-ons update site** template.
4. Copy the `ZIP` file and the descriptor file to an HTTP server. The URL to this location serves as the **Update Site** URL.

Creating the Basic Association

Let us go through an example of creating a document type and editing an XML document of this type. We will call our document type **Simple Documentation Framework**.

First Step - XML Schema

Our documentation framework will be very simple. The documents will be either `articles` or `books`, both composed of `sections`. The `sections` may contain `titles`, `paragraphs`, `figures`, `tables` and other `sections`. To complete the picture, each section will include a `def` element from another namespace.

The first schema file:

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"
    targetNamespace="http://www.oxygenxml.com/sample/documentation"
    xmlns:doc="http://www.oxygenxml.com/sample/documentation"
    xmlns:abs="http://www.oxygenxml.com/sample/documentation/abstracts"
    elementFormDefault="qualified">

    <xs:import namespace=
    "http://www.oxygenxml.com/sample/documentation/abstracts"
     schemaLocation=
    "abs.xsd"/>
```

The namespace of the documents will be `http://www.oxygenxml.com/sample/documentation`. The namespace of the `def` element is `http://www.oxygenxml.com/sample/documentation/abstracts`.

Now let's define the structure of the sections. They all start with a title, then have the optional `def` element then either a sequence of other sections, or a mixture of paragraphs, images and tables.

```
<xs:element name="book" type="doc:sectionType"/>
<xs:element name="article" type="doc:sectionType"/>
<xs:element name="section" type="doc:sectionType"/>

<xs:complexType name="sectionType">
    <xs:sequence>
        <xs:element name="title" type="xs:string"/>
        <xs:element ref="abs:def" minOccurs="0"/>
        <xs:choice>
            <xs:sequence>
                <xs:element ref="doc:section" maxOccurs="unbounded"/>
            </xs:sequence>
            <xs:choice maxOccurs="unbounded">
                <xs:element ref="doc:para"/>
                <xs:element ref="doc:image"/>
                <xs:element ref="doc:table"/>
            </xs:choice>
        </xs:choice>
    </xs:sequence>
</xs:complexType>
```

The paragraph contains text and other styling markup, such as bold (`b`) and italic (`i`) elements.

```
<xs:element name="para" type="doc:paragraphType"/>

<xs:complexType name="paragraphType" mixed="true">
    <xs:choice minOccurs="0" maxOccurs="unbounded">
        <xs:element name="b"/>
        <xs:element name="i"/>
    </xs:choice>
</xs:complexType>
```

The `image` element has an attribute with a reference to the file containing image data.

```
<xs:element name="image">
    <xs:complexType>
        <xs:attribute name="href" type="xs:anyURI" use="required"/>
    </xs:complexType>
</xs:element>
```

The `table` contains a header row and then a sequence of rows (`tr` elements) each of them containing the cells. Each cell has the same content as the paragraphs.

```
 <xs:element name="table">
    <xs:complexType>
        <xs:sequence>
            <xs:element name="header">
                <xs:complexType>
                    <xs:sequence>
                        <xs:element name="td" maxOccurs="unbounded"
                            type="doc:paragraphType"/>
                    </xs:sequence>
                </xs:complexType>
            </xs:element>
            <xs:element name="tr" maxOccurs="unbounded">
                <xs:complexType>
                    <xs:sequence>
                        <xs:element name="td" type="doc:tdType"
                             maxOccurs="unbounded"/>
                    </xs:sequence>
                </xs:complexType>
            </xs:element>
        </xs:sequence>
    </xs:complexType>
</xs:element>
```

```
<xs:complexType name="tdType">
    <xs:complexContent>
        <xs:extension base="doc:paragraphType">
            <xs:attribute name="row_span" type="xs:integer"/>
            <xs:attribute name="column_span" type="xs:integer"/>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
```

The `def` element is defined as a text only element in the imported schema `abs.xsd`:

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"
    targetNamespace=
     "http://www.oxygenxml.com/sample/documentation/abstracts">
    <xs:element name="def" type="xs:string"/>
</xs:schema>
```

Now the XML data structure will be styled.

Schema Settings

In *the dialog for editing the document type properties*, in the bottom section there are a series of tabs. The first one refers to the schema that is used for validation of the documents that match the defined **Association Rules**.

Important:

If the document refers a schema, using for instance a `DOCTYPE` declaration or a `xsi:schemaLocation` attribute, the schema from the document type association will not be used when validating.

Schema Type — Select from the combo box the value **XML Schema**.

Schema URI — Enter the value `${frameworks}/sdf/schema/sdf.xsd`. We should use the `${frameworks}` editor variable in the schema URI path instead of a full path in order to be valid for different Oxygen XML Author installations.

Important:

The `${frameworks}` variable is expanded at the validation time into the absolute location of the directory containing the frameworks.

Second Step - The CSS

If you read the *Simple Customization Tutorial* then you already have some basic notions about creating simple styles. The example document contains elements from different namespaces, so you will use CSS Level 3 extensions supported by the Author layout engine to associate specific properties with that element.

Defining the General Layout

Now the basic layout of the rendered documents is created.

Elements that are stacked one on top of the other are: `book`, `article`, `section`, `title`, `figure`, `table`, `image`. These elements are marked as having `block` style for display. Elements that are placed one after the other in a flowing sequence are: `b`, `i`. These will have `inline` display.

```
/* Vertical flow */
book,
section,
para,
title,
image,
ref {
    display:block;
}

/* Horizontal flow */
b,i {
    display:inline;
}
```

Important:

Having `block` display children in an `inline` display parent, makes Oxygen XML Author Author change the style of the parent to `block` display.

Styling the `section` Element

The title of any section must be bold and smaller than the title of the parent section. To create this effect a sequence of CSS rules must be created. The `*` operator matches any element, it can be used to match titles having progressive depths in the document.

```
title{
    font-size: 2.4em;
    font-weight:bold;
}
* * title{
    font-size: 2.0em;
}
* * * title{
    font-size: 1.6em;
}
* * * * title{
    font-size: 1.2em;
}
```

It's useful to have before the title a constant text, indicating that it refers to a section. This text can include also the current section number. The `:before` and `:after` pseudo elements will be used, plus the CSS counters.

First declare a counter named `sect` for each `book` or `article`. The counter is set to zero at the beginning of each such element:

```
book,
article{
    counter-reset:sect;
}
```

The `sect` counter is incremented with each `section`, that is a direct child of a `book` or an `article` element.

```
book > section,
article > section{
    counter-increment:sect;
}
```

The "static" text that will prefix the section title is composed of the constant "Section ", followed by the decimal value of the `sect` counter and a dot.

```
book > section > title:before,
article > section > title:before{
    content: "Section " counter(sect) ". ";
}
```

To make the documents easy to read, you add a margin to the sections. In this way the higher nesting level, the larger the left side indent. The margin is expressed relatively to the parent bounds:

```
section{
    margin-left:1em;
    margin-top:1em;
}
```

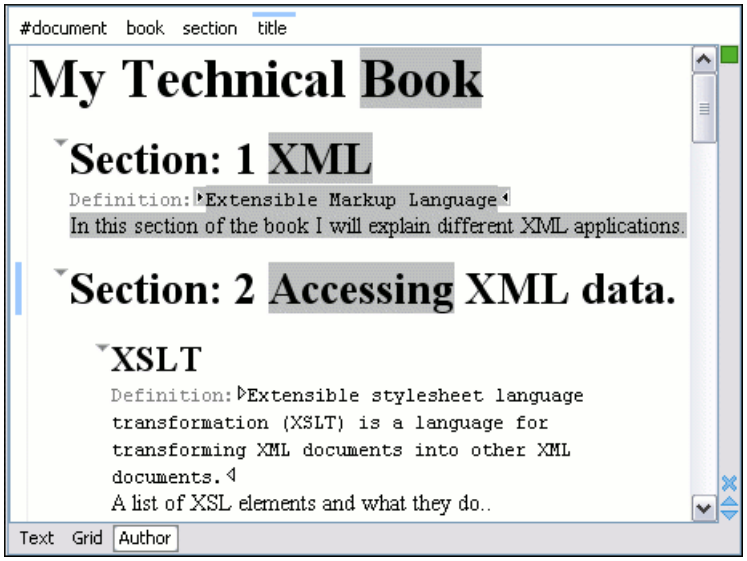


Figure 160: A sample of nested sections and their titles.

In the above screenshot you can see a sample XML document rendered by the CSS stylesheet. The selection "avoids" the text that is generated by the CSS "content" property. This happens because the CSS generated text is not present in the XML document and is just a visual aid.

Styling the Inline Elements

The "bold" style is obtained by using the `font-weight` CSS property with the value `bold`, while the "italic" style is specified by the `font-style` property:

```
b {
    font-weight:bold;
}

i {
    font-style:italic;
}
```

Styling Images

The CSS 2.1 does not specify how an element can be rendered as an image. To overpass this limitation, Oxygen XML Author Author supports a CSS Level 3 extension allowing to load image data from an URL. The URL of the image must be specified by one of the element attributes and it is resolved through the catalogs specified in Oxygen XML Author.

```
image{
    display:block;
    content: attr(href, url);
    margin-left:2em;
}
```

Our `image` element has the required attribute `href` of type `xs:anyURI`. The `href` attribute contains an image location so the rendered content is obtained by using the function:

```
attr(href, url)
```

The first argument is the name of the attribute pointing to the image file. The second argument of the `attr` function specifies the type of the content. If the type has the `url` value, then Oxygen XML Author identifies the content as being an image. If the type is missing, then the content will be the text representing the attribute value.

Oxygen XML Author Author handles both absolute and relative specified URLs. If the image has an *absolute* URL location (e.g: "http://www.oasis-open.org/images/standards/oasis_standard.jpg") then it is loaded directly from this location. If the image URL is *relative* specified to the XML document (e.g: "images/my_screenshot.jpg") then the location is obtained by adding this value to the location of the edited XML document.

An image can also be referenced by the name of a DTD entity which specifies the location of the image file. For example if the document declares an entity **graphic** which points to a JPEG image file:

```
<!ENTITY graphic SYSTEM "depo/keyboard_shortcut.jpg" NDATA JPEG>
```

and the image is referenced in the XML document by specifying the name of the entity as the value of an attribute:

```
<mediaobject>
    <imageobject>
        <imagedata entityref="graphic" scale="50"/>
    </imageobject>
</mediaobject>
```

The CSS should use the functions `url`, `attr` and `unparsed-entity-uri` for displaying the image in the Author mode:

```
imagedata[entityref]{
    content: url(unparsed-entity-uri(attr(entityref)));
}
```

To take into account the value of the `width` attribute of the `imagedata` and use it for resizing the image, the CSS can define the following rule:

```
imagedata[width]{
  width:attr(width, length);
}
```

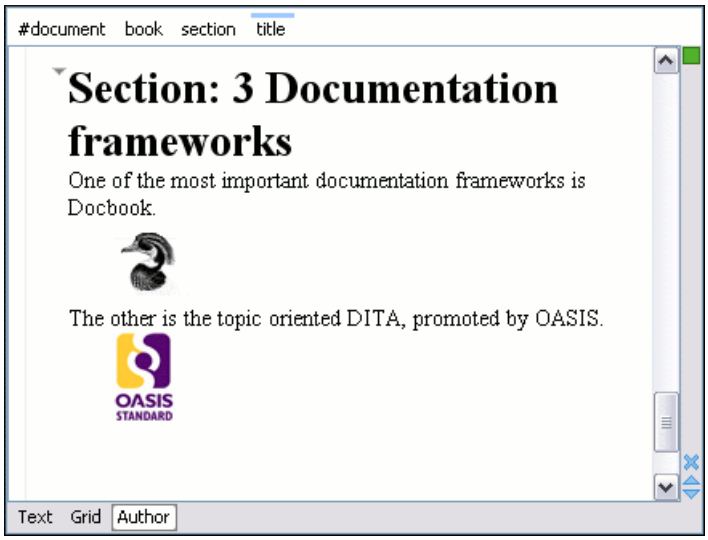


Figure 161: Samples of images in Author

Testing the Document Type Association

To test the new Document Type create an XML instance that is conforming with the *Simple Documentation Framework* association rules. You will not specify an XML Schema location directly in the document, using an `xsi:schemaLocation` attribute; Oxygen XML Author will detect instead its associated document type and use the specified schema.

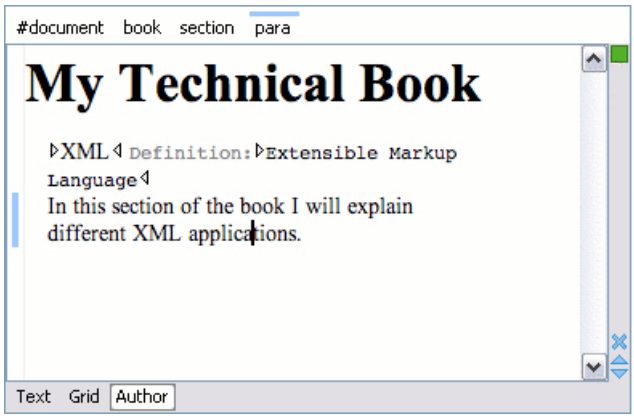
```
<book xmlns="http://www.oxygenxml.com/sample/documentation"
      xmlns:abs="http://www.oxygenxml.com/sample/documentation/abstracts">

    <title>My Technical Book</title>
    <section>
        <title>XML</title>
        <abs:def>Extensible Markup Language</abs:def>
        <para>In this section of the book I will
           explain different XML applications.</para>
    </section>
</book>
```

When trying to validate the document there should be no errors. Now modify the `title` to `title2`. Validate again. This time there should be one error:

```
cvc-complex-type.2.4.a: Invalid content was found starting with element
'title2'. One of '{"http://www.oxygenxml.com/sample/documentation":title}'
is expected.
```

Undo the tag name change. Press on the **Author** button at the bottom of the editing area. Oxygen XML Author should load the CSS from the document type association and create a layout similar to this:



Organizing the Framework Files

First, create a new folder called `sdf` (from "Simple Documentation Framework") in `{oXygen_installation_directory}/frameworks`. This folder will be used to store all files related to the documentation framework. The following folder structure will be created:

```
oxygen
  frameworks
     sdf
       schema
       css
```

The `frameworks` directory is the container where all the oXygen framework customizations are located. Each subdirectory contains files related to a specific type of XML documents: schemas, catalogs, stylesheets, CSSs, etc. Distributing a framework means delivering a framework directory.

It is assumed that you have the right to create files and folder inside the oXygen installation directory. If you do not have this right, you will have to install another copy of the program in a folder you have access to, the home directory for instance, or your desktop. You can download the "all platforms" distribution from the oXygen website and extract it in the chosen folder.

To test your framework distribution, copy it in the `frameworks` directory of the newly installed application and start oXygen by running the provided start-up script files.

You should copy the created schema files `abs.xsd` and `sdf.xsd`, `sdf.xsd` being the master schema, to the `schema` directory and the CSS file `sdf.css` to the `css` directory.

Packaging and Deploying

Using a file explorer, go to the Oxygen XML Author `frameworks` directory. Select the `sdf` directory and make an archive from it. Move it to another Oxygen XML Author installation (eventually on another computer). Extract it in the `frameworks` directory. Start Oxygen XML Author and test the association as explained above.

If you create multiple document type associations and you have a complex directory structure it might be easy from the deployment point of view to use an Oxygen XML Author All Platforms distribution. Add your framework files to it, repackage it and send it to the content authors.

Attention:

When deploying your customized sdf directory please make sure that your sdf directory contains the `sdf.framework` file (that is the file defined as External Storage in Document Type Association dialog shall always be stored inside the sdf directory). If your external storage points somewhere else Oxygen XML Author will not be able to update the Document Type Association options automatically on the deployed computers.

Configuring New File Templates

You will create a set of document templates that the content authors will use as starting points for creating *Simple Document Framework* books and articles.

Each Document Type Association can point to a directory, usually named `templates`, containing the file templates. All files found here are considered templates for the respective document type. The template name is taken from the file name, and the template type is detected from the file extension.

1. Go to the `[oxygen-install-dir]\frameworks\sdf` directory and create a directory named `templates`. The directory tree of the documentation framework now is:

```
oxygen
    frameworks
        sdf
            schema
            css
            templates
```

2. In the `templates` directory create two files: a file for the *book* template and another one for the *article* template.

   The `Book.xml` file:

```
<?xml version="1.0" encoding="UTF-8"?>
<book xmlns="http://www.oxygenxml.com/sample/documentation"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:abs="http://www.oxygenxml.com/sample/documentation/abstracts">
    <title>Book Template Title</title>
    <section>
        <title>Section Title</title>
        <abs:def/>
        <para>This content is copyrighted:</para>
        <table>
            <header>
                <td>Company</td>
                <td>Date</td>
            </header>
            <tr>
                <td/>
                <td/>
            </tr>
        </table>
    </section>
    </book>
```

   The `Article.xml` file:

```
<?xml version="1.0" encoding="UTF-8"?>
<article
    xmlns="http://www.oxygenxml.com/sample/documentation"
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
    <title></title>
    <section>
        <title></title>
        <para></para>
        <para></para>
    </section>
</article>
```

   You can also use *editor variables* in the template files' content and they will be expanded when the files are opened.

   Note: You should avoid using the `${cfd}`,`${cf}`,`${cfu}`, and `${cfdu}` editor variables when you save your documents in a data base.

3. Open the Document Type dialog for the **SDF** framework and click the **Templates** tab. In the **Templates directory** text field, introduce the `${frameworkDir} / templates` path. As you have already seen before, it is recommended that all the file references made from a Document Type Association to be relative to the `${frameworkDir}` directory. Binding a Document Type Association to an absolute file (e. g.: "C:\some_dir\templates") makes the association difficult to share between users.
4. To test the templates settings, go to **File**/**New** to display the **New** dialog. The names of the two templates are prefixed with the name of the Document Type Association (**SDF** in this case). Selecting one of them should create a new XML file with the content specified in the template file.

Editor Variables

An editor variable is a shorthand notation for context-dependent information, like a file or folder path, a time-stamp, or a date. It is used in the definition of a command (for example the input URL of a transformation, the output file path of a transformation, the command line of an external tool) to make a command or a parameter generic and reusable with other input files. When the same command is applied to different files, the notation is expanded at the execution of the command so that the same command has different effects depending on the actual file.

You can use the following editor variables in Oxygen XML Author commands of external engines or other external tools, in transformation scenarios, validation scenarios, and Author operations:

- **${oxygenHome}** - Oxygen XML Author installation folder as URL;
- **${oxygenInstallDir}** - Oxygen XML Author installation folder as file path;
- **${frameworks}** - The path (as URL) of the `frameworks` subfolder of the Oxygen XML Author install folder;
- **${frameworksDir}** - The path (as file path) of the `frameworks` subfolder of the Oxygen XML Author installation folder;
- **${home}** - The path (as URL) of the user home folder;
- **${homeDir}** - The path (as file path) of the user home folder;
- **${pdu}** - Current project folder as URL. Usually the current folder selected in the Project View;
- **${pd}** - Current project folder as file path. Usually the current folder selected in the Project View;
- **${pn}** - Current project name;
- **${cfdu}** - Current file folder as URL, that is the path of the current edited document up to the name of the parent folder, represented as a URL;
- **${cfd}** - Current file folder as file path, that is the path of the current edited document up to the name of the parent folder;
- **${cfn}** - Current file name without extension and without parent folder. The current file is the one currently opened and selected;
- **${cfne}** - Current file name with extension. The current file is the one currently opened and selected;
- **${cf}** - Current file as file path, that is the absolute file path of the current edited document;
- **${cfu}** - The path of the current file as a URL. The current file is the one currently opened and selected;
- **${af}** - The local file path of the ZIP archive that includes the current edited document;
- **${afu}** - The URL path of the ZIP archive that includes the current edited document;
- **${afd}** - The local directory path of the ZIP archive that includes the current edited document;
- **${afdu}** - The URL path of the directory of the ZIP archive that includes the current edited document;
- **${afn}** - The file name (without parent directory and without file extension) of the zip archive that includes the current edited file;
- **${afne}** - The file name (with file extension, for example `.zip` or `.epub`, but without parent directory) of the zip archive that includes the current edited file;
- **${currentFileURL}** - Current file as URL, that is the absolute file path of the current edited document represented as URL;
- **${ps}** - Path separator, that is the separator which can be used on the current platform (Windows, Mac OS X, Linux) between library files specified in the class path;
- **${timeStamp}** - Time stamp, that is the current time in Unix format. It can be used for example to save transformation results in different output files on each transform;
- **${caret}** - The position where the caret is inserted. This variable can be used in a code template, in **Author** operations, or in a selection plugin;
- **${selection}** - The current selected text content in the current edited document. This variable can be used in a code template, in **Author** operations, or in a selection plugin;
- **${id}** - Application-level unique identifier;A short sequence of 10-12 letters and digits which is not guaranteed to be universally unique;
- **${uuid}** - Universally unique identifier;An unique sequence of 32 hexadecimal digits generated by the Java *UUID* class;
- **${env(VAR_NAME)}** - Value of the *VAR_NAME* environment variable. The environment variables are managed by the operating system. If you are looking for Java System Properties, use the **${system(var.name)}** editor variable;

- **${system(var.name)}** - Value of the *var.name* Java System Property. The Java system properties can be specified in the command line arguments of the Java runtime as `-Dvar.name=var.value`. If you are looking for operating system environment variables, use the**${env(VAR_NAME)}** editor variable instead;
- **${ask('message', type, ('real_value1':'rendered_value1'; 'real_value2':'rendered_value2'; ...), 'default_value')}** - To prompt for values at runtime, use the *ask('message', type, ('real_value1':'rendered_value1'; 'real_value2':'rendered_value2'; ...), 'default-value'')* editor variable. You can set the following parameters:
  - `'message'` - the displayed message. Note the quotes that enclose the message;
  - `type` - optional parameter. Can have one of the following values:
    - `url` - input is considered an URL. Oxygen XML Author checks that the URL is valid before passing it to the transformation;
    - `password` - input characters are hidden;
    - `generic` - the input is treated as generic text that requires no special handling;
    - `relative_url` - input is considered an URL. Oxygen XML Author tries to make the URL relative to that of the document you are editing;

      Note: You can use the `$ask` editor variable in file templates. In this case, Oxygen XML Author keeps an absolute URL.

    - `combobox` - displays a dialog that contains a non-editable combo-box;
    - `editable_combobox` - displays a dialog that contains an editable combo-box;
    - `radio` - displays a dialog that contains radio buttons;
  - `'default-value'` - optional parameter. Provides a default value in the input text box;

  Examples:

  - `${ask('message')}` - Only the message displayed for the user is specified.
  - `${ask('message', generic, 'default')}` - `'message'` is displayed, the type is not specified (the default is string), the default value is `'default'`.
  - `${ask('message', password)}` - `'message'` is displayed, the characters typed are masked with a circle symbol.
  - `${ask('message', password, 'default')}` - same as before, the default value is `'default'`.
  - `${ask('message', url)}` - `'message'` is displayed, the parameter type is URL.
  - `${ask('message', url, 'default')}` - same as before, the default value is `'default'`.
- **${date(pattern)}** - Current date. The allowed patterns are equivalent to the ones in the *Java SimpleDateFormat class*. Example: yyyy-MM-dd;

  Note: This editor variable supports both the xs:date and xs:datetime parameters. For details about xs:date, go to *http://www.w3.org/TR/xmlschema-2/#date*. For details about xs:datetime, go to *http://www.w3.org/TR/xmlschema-2/#dateTime*.

- **${dbgXML}** - The local file path to the XML document which is current selected in the Debugger source combo box (for tools started from the XSLT/XQuery Debugger);
- **${dbgXSL}** - The local file path to the XSL/XQuery document which is current selected in the Debugger stylesheet combo box (for tools started from the XSLT/XQuery Debugger);
- **${tsf}** - The transformation result file path. If the current opened file has an associated scenario which specifies a transformation output file, this variable expands to it;
- **${dsu}** - The path of the detected schema as an URL for the current validated XML document;
- **${ds}** - The path of the detected schema as a local file path for the current validated XML document;
- **${cp}** - Current page number. Used to display the current page number on each printed page in the **Editor / Print** Preferences page;
- **${tp}** - Total number of pages in the document. Used to display the total number of pages on each printed page in the **Editor / Print** Preferences page.

Custom Editor Variables

An editor variable can be created by the user and included in any user defined expression where a built-in editor variable is also allowed. For example a custom editor variable may be necessary for configuring the command line of an external tool, the working directory of a custom validator, the command line of a custom XSLT engine, a custom FO processor, etc. All the custom editor variables are listed together with the built-in editor variables, for example when editing the working folder or the command line of an *external tool* or of a *custom validator* , the working directory, etc.

Creating a custom editor variable is very simple: just specify the name that will be used in user defined expressions, the value that will replace the variable name at runtime and a textual description for the user of that variable.

You can configure the custom editor variables in the ***Preferences*** *page.*

Create Your Own Stylesheet Templates

Oxygen XML Author allows you to create your own stylesheets templates and place them in the templates directory:

- Customize the stylesheet (add namespaces etc.) that you want to become a template and save it to a file with an appropriate name.
- Copy the file to the `templates` directory in the Oxygen XML Author installation directory.
- Open Oxygen XML Author and go to **File** > **New** to see your custom template.

Configuring XML Catalogs

In the XML sample file for **SDF** you did not use a xsi:schemaLocation attribute, but instead you let the editor use the schema from the association. However there are cases in which you must refer for instance the location of a schema file from a remote web location and an Internet connection may not be available. In such cases an XML catalog may be used to map the web location to a local file system entry. The following procedure presents an example of using an XML catalogs, by modifying our `sdf.xsd` XML Schema file from the *Example Files Listings*.

1. Create a catalog file that will help the parser locate the schema for validating the XML document. The file must map the location of the schema to a local version of the schema.

   Create a new XML file called `catalog.xml` and save it into the `{oXygen_installation_directory} / frameworks / sdf` directory. The content of the file should be:

```
<?xml version="1.0"?>
<catalog xmlns="urn:oasis:names:tc:entity:xmlns:xml:catalog">
    <uri name="http://www.oxygenxml.com/SDF/abs.xsd"
            uri="schema/abs.xsd"/>
    <uri name="http://www.oxygenxml.com/SDF/abs.xsd"
                uri="schema/abs.xsd"/>
</catalog>
```

2. Add catalog files to your Document Type Association using the Catalogs tab from the Document Type dialog.

To test the catalog settings, restart Oxygen XML Author and try to validate a new sample **Simple Documentation Framework** document. There should be no errors.

> The `sdf.xsd` schema that validates the document refers the other file `abs.xsd` through an import element:
>
> ```
> <xs:import namespace=
>  "http://www.oxygenxml.com/sample/documentation/abstracts"
>  schemaLocation="http://www.oxygenxml.com/SDF/abs.xsd"/>
> ```
>
> The `schemaLocation` attribute references the `abs.xsd` file:
>
> ```
> xsi:schemaLocation="http://www.oxygenxml.com/sample/documentation/abstracts
>     http://www.oxygenxml.com/SDF/abs.xsd"/>
> ```
>
> The catalog mapping is:
>
> ```
> http://www.oxygenxml.com/SDF/abs.xsd -> schema/abs.xsd
> ```

This means that all the references to http://www.oxygenxml.com/SDF/abs.xsd must be resolved to the `abs.xsd` file located in the `schema` directory. The URI element is used by URI resolvers, for example for resolving a URI reference used in an XSLT stylesheet.

Configuring Transformation Scenarios

When distributing a framework to the users, it is a good idea to have the transformation scenarios already configured. This would help the content authors publish their work in different formats. Being contained in the **Document Type Association** the scenarios can be distributed along with the actions, menus, toolbars, catalogs, etc.

These are the steps that allow you to create a transformation scenario for your framework.

1. Create a `xsl` folder inside the `frameworks / sdf` folder.

   The folder structure for the documentation framework should be:

   ```
   oxygen
     frameworks
       sdf
         schema
         css
         templates
         xsl
   ```

2. Create the `sdf.xsl` file in the `xsl` folder. The complete content of the `sdf.xsl` file is found in the *Example Files Listings*.
3. Open the **Options**/**Preferences**/**Document Type Associations**. Open the **Document Type** dialog for the **SDF** framework then choose the **Transformation** tab. Click the **New** button.

   In the **Edit Scenario** dialog, fill the following fields:

   - Fill in the **Name** field with *SDF to HTML*. This will be the name of your transformation scenario.
   - Set the **XSL URL** field to `${frameworks}/sdf/xsl/sdf.xsl`.
   - Set the **Transformer** to *Saxon 9B*.

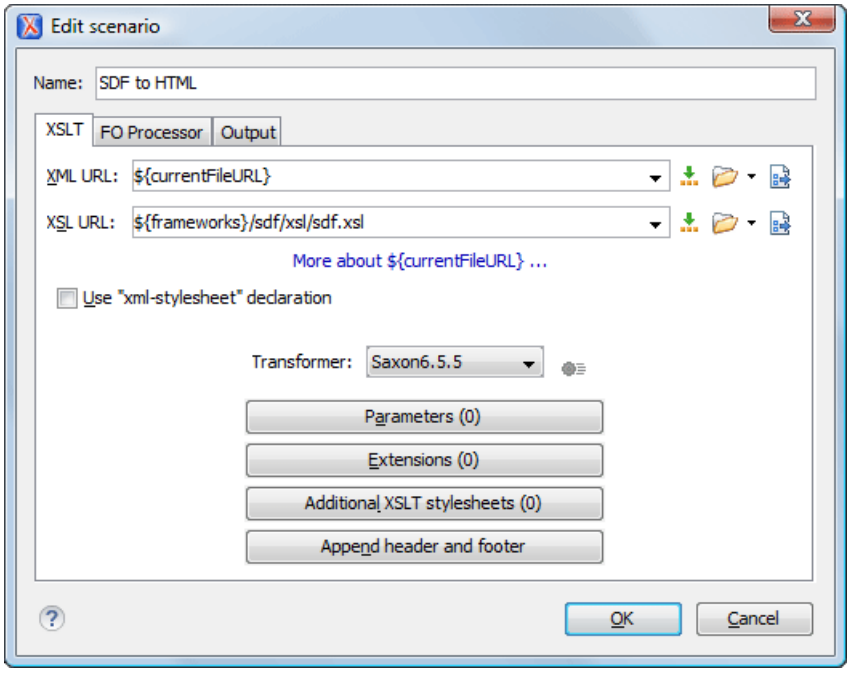


Figure 162: Configuring a transformation scenario

4. Change to the **Output** tab. Configure the fields as follows:

- Set the **Save as** field to `${cfd}/${cfn}.html`. This means the transformation output file will have the name of the XML file and the *html* extension and will be stored in the same folder.
- Enable the **Open in Browser/System Application** option.

  Note: If you already set the **Default Internet browser** option in the **Global** preferences page, it takes precedence over the default system application settings.

- Enable the **Saved file** option.

Now the scenario is listed in the **Transformation** tab:

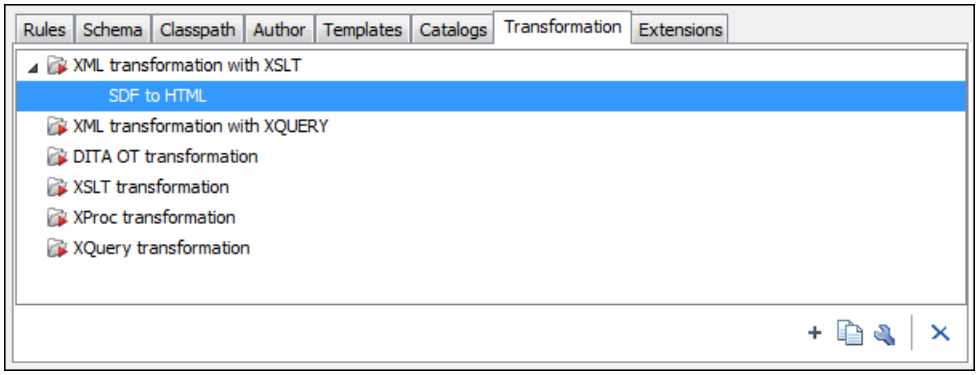


Figure 163: The transformation tab

To test the transformation scenario you just created, open the **SDF** XML sample from the *Example Files Listings*. Click the **Apply Transformation Scenario(s)** button to display the **Configure Transformation Scenario(s)** dialog. Its scenario list contains the scenario you defined earlier *SDF to HTML*. Click it then choose **Transform now**. The HTML file should be saved in the same folder as the XML file and displayed in the browser.

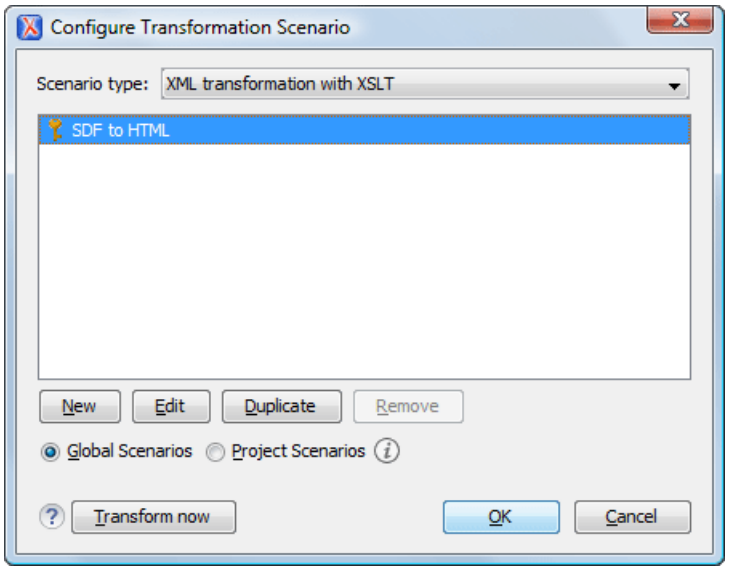


Figure 164: Selecting the predefined scenario

Configuring Validation Scenarios

You can distribute a framework with a series of already configured validation scenarios. Also, this provides enhanced validation support allowing you to use multiple grammars to check the document. For example, you can use Schematron rules to impose guidelines, otherwise impossible to enforce using conventional validation.

To associate a validation scenario with a specific framework, follow these steps:

1. Open the **Options/Preferences/Document Type Associations**. Open the **Document Type** dialog for the **SDF** framework, then choose the **Validation** tab. This tab holds a list of document types for which you can define validation scenarios. To set one of the validation scenarios as default for a specific document type, select it and press / **Toggle default**.
2. Press the **New** button to add a new scenario.
3. Press the **Add** button to add a new validation unit with default settings.
   The dialog that lists all validation units of the scenario is opened.

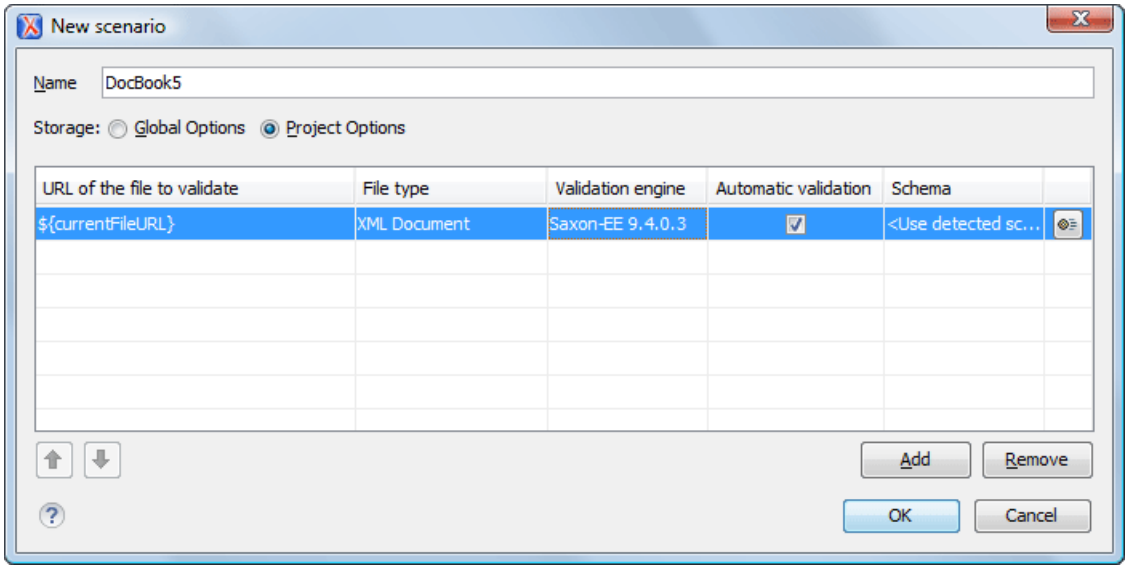


Figure 165: Add / Edit a Validation Unit

The table holds the following information:

- **Storage** - allows you to create a scenario at project level, or as global;
- **URL of the file to validate** - the URL of the main module which includes the current module. It is also the entry module of the validation process when the current one is validated;
- **File type** - the type of the document validated in the current validation unit. Oxygen XML Author automatically selects the file type depending on the value of the **URL of the file to validate** field;
- **Validation engine** - one of the engines available in Oxygen XML Author for validation of the type of document to which the current module belongs. **Default engine** is the default setting and means that the default engine executes the validation. This engine is set in **Preferences** pages for the type of the current document (XML document, XML Schema, XSLT stylesheet, XQuery file, and others) instead of a validation scenario;
- **Automatic validation** - if this option is checked, then the validation operation defined by this row of the table is applied also by *the automatic validation feature*. If the **Automatic validation** feature is *disabled in Preferences* then this option does not take effect as the Preference setting has higher priority;
- **Schema** - the this option becomes active when you set the **File type** to **XML Document**;
- **Settings** - opens the **Specify Schema** dialog box, allowing you to set a schema for validating XML documents, or a list of extensions for validating XSL or XQuery documents. You can also set a default phase for validation with a Schematron schema.

4. Edit the URL of the main validation module.

   Specify the URL of the main module:

   - browsing for a local, remote, or archived file;
   - using an *editor variable* or a *custom editor variable*, available in the following pop-up menu, opened after pressing the button:

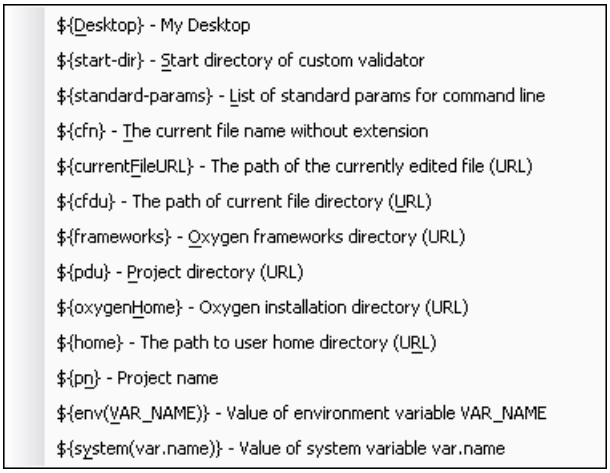


Figure 166: Insert an Editor Variable

5. Select the type of the validated document.

   Note that it determines the list of possible validation engines.
6. Select the validation engine.
7. Select the **Automatic validation** option if you want to validate the current unit when *automatic validation feature is turned on in Preferences.*
8. Choose what schema is used during validation: the one detected after parsing the document or a custom one.

Configuring Extensions

You can add extensions to your Document Type Association using the **Extensions** tab from the Document Type dialog.

Note: It is possible for a plugin to share the same classes with a framework. For further details, go to *How to Share the Classloader Between a Framework and a Plugin*.

Configuring an Extensions Bundle

Starting with Oxygen XML Author 10.3 version a single bundle was introduced acting as a provider for all other extensions. The individual extensions can still be set and if present they take precedence over the single provider, but this practice is being discouraged and the single provider should be used instead. To set individual extensions go to **Options** > **Preferences** > **Document Type Association**, double-click a document type and go to the extension tab.

The extensions bundle is represented by the *`ro.sync.ecss.extensions.api.ExtensionsBundle`* class. The provided implementation of the `ExtensionsBundle` is instantiated when the rules of the Document Type Association defined for the custom framework match a document opened in the editor. Therefor references to objects which need to be persistent throughout the application running session must not be kept in the bundle because the next detection event can result in creating another `ExtensionsBundle` instance.

Note: The Javadoc documentation of the Author API used in the example files is *available on the Oxygen XML Author website*. Also it can be downloaded as a *zip archive from the website*.

1. Create a new Java project, in your IDE. Create the `lib` folder in the Java project folder and copy in it the `oxygen.jar` file from the `{oXygen_installation_directory}/lib` folder.
2. Create the class `simple.documentation.framework.SDFExtensionsBundle` which must extend the abstract class `ro.sync.ecss.extensions.api.ExtensionsBundle`.

```
public class SDFExtensionsBundle extends ExtensionsBundle {
```

3. A **Document Type ID** and a short description should be defined first by implementing the methods `getDocumentTypeID` and `getDescription`. The Document Type ID is used to uniquely identify the current framework. Such an ID must be provided especially if options related to the framework need to be persistently stored and retrieved between sessions.

```
public String getDocumentTypeID() {
     return "Simple.Document.Framework.document.type";
}

public String getDescription() {
     return "A custom extensions bundle used for the Simple Document" +
                  "Framework document type";
}
```

4. In order to be notified about the activation of the custom Author extension in relation with an opened document an *`ro.sync.ecss.extensions.api.AuthorExtensionStateListener`* should be implemented. The **activation** and **deactivation** events received by this listener should be used to perform custom initializations and to register / remove listeners like *`ro.sync.ecss.extensions.api.AuthorListener`*, *`ro.sync.ecss.extensions.api.AuthorMouseListener`* or *`ro.sync.ecss.extensions.api.AuthorCaretListener`*. The custom author extension state listener should be provided by implementing the method `createAuthorExtensionStateListener`.

```
public AuthorExtensionStateListener createAuthorExtensionStateListener() {
     return new SDFAuthorExtensionStateListener();
}
```

   The `AuthorExtensionStateListener` is instantiated and notified about the activation of the framework when the rules of the Document Type Association match a document opened in the Author editor mode. The listener is notified about the deactivation when another framework is activated for the same document, the user switches to another mode or the editor is closed. A complete description and implementation of an `ro.sync.ecss.extensions.api.AuthorExtensionStateListener` can be found in the *Implementing an Author Extension State Listener*.

   If Schema Aware mode is active in Oxygen, all actions that can generate invalid content will be redirected toward the *`ro.sync.ecss.extensions.api.AuthorSchemaAwareEditingHandler`*. The handler can either resolve a specific case, let the default implementation take place or reject the edit entirely by throwing an *`ro.sync.ecss.extensions.api.InvalidEditException`*. The actions that are forwarded to this handler include typing, delete or paste.

   See the *Implementing an Author Schema Aware Editing Handler* section for more details about this handler.

5. Customizations of the content completion proposals are permitted by creating a schema manager filter extension. The interface that declares the methods used for content completion proposals filtering is *`ro.sync.contentcompletion.xml.SchemaManagerFilter`*. The filter can be applied on elements, attributes or on their values. Responsible for creating the content completion filter is the method `createSchemaManagerFilter`. A new `SchemaManagerFilter` will be created each time a document matches the rules defined by the Document Type Association which contains the filter declaration.

```
public SchemaManagerFilter createSchemaManagerFilter() {
     return new SDFSchemaManagerFilter();
}
```

   A detailed presentation of the schema manager filter can be found in *Configuring a Content completion handler* section.

6. The Author supports link based navigation between documents and document sections. Therefore, if the document contains elements defined as links to other elements, for example links based on the **id** attributes, the extension should provide the means to find the referred content. To do this an implementation of the *`ro.sync.ecss.extensions.api.link.ElementLocatorProvider`* interface should be returned by the `createElementLocatorProvider` method. Each time an element pointed by a link needs to be located the method is invoked.

```
public ElementLocatorProvider createElementLocatorProvider() {
     return new DefaultElementLocatorProvider();
}
```

   The section that explains how to implement an element locator provider is *Configuring a Link target element finder*.

7. The drag and drop functionality can be extended by implementing the *ro.sync.exml.editor.xmleditor.pageauthor.AuthorDnDListener* interface. Relevant methods from the listener are invoked when the mouse is dragged, moved over, or exits the Author editor mode, when the drop action changes, and when the drop occurs. Each method receives the `DropTargetEvent` containing information about the drag and drop operation. The drag and drop extensions are available on Author mode for both Oxygen XML Author Eclipse plugin and standalone application. The Text mode corresponding listener is available only for Oxygen XML Author Eclipse plugin. The methods corresponding to each implementation are: `createAuthorAWTDndListener`, `createTextSWTDndListener` and `createAuthorSWTDndListener`.

```
public AuthorDnDListener createAuthorAWTDndListener() {
     return new SDFAuthorDndListener();
}
```

For more details about the Author drag and drop listeners see the *Configuring a custom Drag and Drop listener* section.

8. Another extension which can be included in the bundle is the reference resolver. In our case the references are represented by the **ref** element and the attribute indicating the referred resource is **location**. To be able to obtain the content of the referred resources you will have to implement a Java extension class which implements the *ro.sync.ecss.extensions.api.AuthorReferenceResolver*. The method responsible for creating the custom references resolver is `createAuthorReferenceResolver`. The method is called each time a document opened in an Author editor mode matches the Document Type Association where the extensions bundle is defined. The instantiated references resolver object is kept and used until another extensions bundle corresponding to another Document Type is activated as result of the detection process.

```
public AuthorReferenceResolver createAuthorReferenceResolver() {
     return new ReferencesResolver();
}
```

A more detailed description of the references resolver can be found in the *Configuring a References Resolver* section.

9. To be able to dynamically customize the default CSS styles for a certain *ro.sync.ecss.extensions.api.node.AuthorNode* an implementation of the *ro.sync.ecss.extensions.api.StylesFilter* can be provided. The extensions bundle method responsible for creating the `StylesFilter` is `createAuthorStylesFilter`. The method is called each time a document opened in an Author editor mode matches the document type association where the extensions bundle is defined. The instantiated filter object is kept and used until another extensions bundle corresponding to another Document Type is activated as a result of the detection process.

```
public StylesFilter createAuthorStylesFilter() {
     return new SDFStylesFilter();
}
```

See the *Configuring CSS styles filter* section for more details about the styles filter extension.

10. In order to edit data in custom tabular format implementations of the *ro.sync.ecss.extensions.api.AuthorTableCellSpanProvider* and *the ro.sync.ecss.extensions.api.AuthorTableColumnWidthProvider* interfaces should be provided. The two methods from the `ExtensionsBundle` specifying these two extension points are `createAuthorTableCellSpanProvider` and `createAuthorTableColumnWidthProvider`.

```
public AuthorTableCellSpanProvider createAuthorTableCellSpanProvider() {
     return new TableCellSpanProvider();
}

public AuthorTableColumnWidthProvider
         createAuthorTableColumnWidthProvider() {
     return new TableColumnWidthProvider();
}
```

The two table information providers are not reused for different tables. The methods are called for each table in the document so new instances should be provided every time. Read more about the cell span and column width information providers in *Configuring a Table Cell Span Provider* and *Configuring a Table Column Width Provider* sections.

If the functionality related to one of the previous extension point does not need to be modified then the developed *`ro.sync.ecss.extensions.api.ExtensionsBundle`* should not override the corresponding method and leave the default base implementation to return **null**.

11. An XML vocabulary can contain links to different areas of a document. In case the document contains elements defined as link you can choose to present a more relevant text description for each link. To do this an implementation of the *`ro.sync.ecss.extensions.api.link.LinkTextResolver`* interface should be returned by the `createLinkTextResolver` method. This implementation is used each time *the oxy_link-text() function* is encountered in the CSS styles associated with an element.

```
public LinkTextResolver createLinkTextResolver() {
  return new DitaLinkTextResolver();
}
```

Oxygen XML Author offers built in implementations for DITA and DocBook:
`ro.sync.ecss.extensions.dita.link.DitaLinkTextResolver`
`ro.sync.ecss.extensions.docbook.link.DocbookLinkTextResolver`

12. Pack the compiled class into a jar file.
13. Copy the jar file into the `frameworks / sdf` directory.
14. Add the jar file to the Author class path.
15. Register the Java class by clicking on the **Extensions** tab. Press the **Choose** button and select from the displayed dialog the name of the class: `SDFExtensionsBundle`.

Note: The complete source code can be found in the Simple Documentation Framework project, included in the *Oxygen Author SDK zip* available for download *on the Oxygen XML Author website*.

Customize Profiling Conditions

For each document type, you can configure the phrase-type elements that wrap the profiled content by setting a custom *`ro.sync.ecss.extensions.api.ProfilingConditionalTextProvider`*. This configuration is set by default for DITA and Docbook frameworks.

Preserve Style and Format on Copy and Paste from External Applications

Styled content can be inserted in the Author editor by copying or dragging it from:

- Office-type applications (**Microsoft Word** and **Microsoft Excel**, **OpenOffice.org Writer** and **OpenOffice.org Calc**);
- web browsers (like **Mozilla Firefox** or **Microsoft Internet Explorer**);
- the **Data Source Explorer** view (where resources are available from WebDAV or CMS servers).

The styles and general layout of the copied content like: sections with headings, tables, list items, bold, and italic text, hyperlinks, are preserved by the paste operation by transforming them to the equivalent XML markup of the target document type. This is available by default in the following *predefined document types*: *DITA*, *DocBook 4*, *DocBook 5*, *TEI 4*, *TEI 5*, *XHTML*.

For other document types the default behavior of the paste operation is to keep only the text content without the styling but it can be customized by setting an XSLT stylesheet in that document type. The XSLT stylesheet must accept as input an XHTML flavor of the copied content and transform it to the equivalent XML markup that is appropriate for the target document type of the paste operation. The stylesheet is *set up* by implementing the `getImporterStylesheetFileName` method of an instance object of *the `AuthorExternalObjectInsertionHandler` class* which is returned by the `createExternalObjectInsertionHandler` method of *the `ExtensionsBundle` instance* of the target document type.

Implementing an Author Extension State Listener

The *ro.sync.ecss.extensions.api.AuthorExtensionStateListener* implementation is notified when the Author extension where the listener is defined is activated or deactivated in the Document Type detection process.

Note: The Javadoc documentation of the Author API used in the example files is *available on the Oxygen XML Author website*. Also it can be downloaded as a *zip archive from the website*.

```
import ro.sync.ecss.extensions.api.AuthorAccess;
import ro.sync.ecss.extensions.api.AuthorExtensionStateListener;

public class SDFAuthorExtensionStateListener implements
  AuthorExtensionStateListener {
  private AuthorListener sdfAuthorDocumentListener;
  private AuthorMouseListener sdfMouseListener;
  private AuthorCaretListener sdfCaretListener;
  private OptionListener sdfOptionListener;
```

The **activation** event received by this listener when the rules of the Document Type Association match a document opened in the Author editor mode, should be used to perform custom initializations and to register listeners like *ro.sync.ecss.extensions.api.AuthorListener*, *ro.sync.ecss.extensions.api.AuthorMouseListener* or *ro.sync.ecss.extensions.api.AuthorCaretListener*.

```
 public void activated(AuthorAccess authorAccess) {
   // Get the value of the option.
   String option = authorAccess.getOptionsStorage().getOption(
               "sdf.custom.option.key", "");
   // Use the option for some initializations...

   // Add an option listener.
   authorAccess.getOptionsStorage().addOptionListener(sdfOptionListener);

   // Add author document listeners.
   sdfAuthorDocumentListener = new SDFAuthorListener();
   authorAccess.getDocumentController().addAuthorListener(
               sdfAuthorDocumentListener);

   // Add mouse listener.
   sdfMouseListener = new SDFAuthorMouseListener();
   authorAccess.getEditorAccess().addAuthorMouseListener(sdfMouseListener);

   // Add caret listener.
   sdfCaretListener = new SDFAuthorCaretListener();
   authorAccess.getEditorAccess().addAuthorCaretListener(sdfCaretListener);

   // Other custom initializations...

 }
```

The authorAccess parameter received by the `activated` method can be used to gain access to Author specific actions and informations related to components like the editor, document, workspace, tables, or the change tracking manager.

If options specific to the custom developed Author extension need to be stored or retrieved, a reference to the *ro.sync.ecss.extensions.api.OptionsStorage* can be obtained by calling the `getOptionsStorage` method from the author access. The same object can be used to register *ro.sync.ecss.extensions.api.OptionListener* listeners. An option listener is registered in relation with an option **key** and will be notified about the value changes of that option.

An `AuthorListener` can be used if events related to the Author document modifications are of interest. The listener can be added to the *ro.sync.ecss.extensions.api.AuthorDocumentController*. A reference to the document controller is returned by the `getDocumentController` method from the author access. The document controller can also be used to perform operations involving document modifications.

To provide access to Author editor component related functionality and information, the author access has a reference to the *ro.sync.ecss.extensions.api.access.AuthorEditorAccess* that can be obtained when calling the `getEditorAccess` method. At this level `AuthorMouseListener` and `AuthorCaretListener` can be added which will be notified about mouse and caret events occurring in the Author editor mode.

The **deactivation** event is received when another framework is activated for the same document, the user switches to another editor mode or the editor is closed. The `deactivate` method is typically used to unregister the listeners

previously added on the `activate` method and to perform other actions. For example, options related to the deactivated author extension can be saved at this point.

```
public void deactivated(AuthorAccess authorAccess) {
  // Store the option.
  authorAccess.getOptionsStorage().setOption(
              "sdf.custom.option.key", optionValue);

  // Remove the option listener.
  authorAccess.getOptionsStorage().removeOptionListener(sdfOptionListener);

  // Remove document listeners.
  authorAccess.getDocumentController().removeAuthorListener(
              sdfAuthorDocumentListener);

  // Remove mouse listener.
  authorAccess.getEditorAccess().removeAuthorMouseListener(sdfMouseListener);

  // Remove caret listener.
  authorAccess.getEditorAccess().removeAuthorCaretListener(sdfCaretListener);

  // Other actions...

}
```

Implementing an Author Schema Aware Editing Handler

To implement your own handler for actions like typing, deleting, or pasting, provide an implementation of *`ro.sync.ecss.extensions.api.AuthorSchemaAwareEditingHandler`*. For this handler to be called, the ***Schema Aware Editing*** option must be set to **On**,or **Custom**. The handler can either resolve a specific case, let the default implementation take place, or reject the edit entirely by throwing an `InvalidEditException`.

Note: The Javadoc documentation of the Author API used in the example files is *available on the Oxygen XML Author website*. Also it can be downloaded as a *zip archive from the website*.

```
package simple.documentation.framework.extensions;

/**
 * Specific editing support for SDF documents.
 * Handles typing and paste events inside section and tables.
 */
public class SDFSchemaAwareEditingHandler implements AuthorSchemaAwareEditingHandler {
```

Typing events can be handled using the `handleTyping` method. For example, the `SDFSchemaAwareEditingHandler` checks if the schema is not a learned one, was loaded successfully and ***Smart Paste*** is active. If these conditions are met, the event will be handled.

```
/**
 * @see ro.sync.ecss.extensions.api.AuthorSchemaAwareEditingHandler#handleTyping(int, char,
ro.sync.ecss.extensions.api.AuthorAccess)
 */
public boolean handleTyping(int offset, char ch, AuthorAccess authorAccess)
throws InvalidEditException {
  boolean handleTyping = false;
  AuthorSchemaManager authorSchemaManager = authorAccess.getDocumentController().getAuthorSchemaManager();
  if (!authorSchemaManager.isLearnSchema() &&
      !authorSchemaManager.hasLoadingErrors() &&
      authorSchemaManager.getAuthorSchemaAwareOptions().isEnableSmartTyping()) {
    try {
      AuthorDocumentFragment characterFragment =
        authorAccess.getDocumentController().createNewDocumentTextFragment(String.valueOf(ch));
      handleTyping = handleInsertionEvent(offset, new AuthorDocumentFragment[] {characterFragment}, authorAccess);

    } catch (AuthorOperationException e) {
      throw new InvalidEditException(e.getMessage(), "Invalid typing event: " + e.getMessage(), e, false);
    }
  }
  return handleTyping;
}
```

Implementing the `AuthorSchemaAwareEditingHandler` gives the possibility to handle other events like: the keyboard delete event at the given offset (using Delete or Backspace keys), delete element tags, delete selection, join elements or paste fragment.

Note: The complete source code can be found in the Simple Documentation Framework project, included in the *Oxygen Author SDK zip* available for download *on the Oxygen XML Author website*.

Configuring a Content Completion Handler

You can filter or contribute to items offered for content completion by implementing the `ro.sync.contentcompletion.xml.SchemaManagerFilter` interface.

Note: The Javadoc documentation of the Author API used in the example files is *available on the Oxygen XML Author website*. Also it can be downloaded as a *zip archive from the website*.

```
import java.util.List;

import ro.sync.contentcompletion.xml.CIAttribute;
import ro.sync.contentcompletion.xml.CIElement;
import ro.sync.contentcompletion.xml.CIValue;
import ro.sync.contentcompletion.xml.Context;
import ro.sync.contentcompletion.xml.SchemaManagerFilter;
import ro.sync.contentcompletion.xml.WhatAttributesCanGoHereContext;
import ro.sync.contentcompletion.xml.WhatElementsCanGoHereContext;
import ro.sync.contentcompletion.xml.WhatPossibleValuesHasAttributeContext;

public class SDFSchemaManagerFilter implements SchemaManagerFilter {
```

You can implement the various callbacks of the interface either by returning the default values given by Oxygen XML Author or by contributing to the list of proposals. The filter can be applied on elements, attributes or on their values. Attributes filtering can be implemented using the `filterAttributes` method and changing the default content completion list of `ro.sync.contentcompletion.xml.CIAttribute` for the element provided by the current `ro.sync.contentcompletion.xml.WhatAttributesCanGoHereContext` context. For example, the `SDFSchemaManagerFilter` checks if the element from the current context is the `table` element and adds the `frame` attribute to the `table` list of attributes.

```
/**
 * Filter attributes of the "table" element.
 */
public List<CIAttribute> filterAttributes(List<CIAttribute> attributes,
    WhatAttributesCanGoHereContext context) {
  // If the element from the current context is the 'table' element add the
  // attribute named 'frame' to the list of default content completion proposals
  if (context != null) {
    ContextElement contextElement = context.getParentElement();
    if ("table".equals(contextElement.getQName())) {
      CIAttribute frameAttribute = new CIAttribute();
      frameAttribute.setName("frame");
      frameAttribute.setRequired(false);
      frameAttribute.setFixed(false);
      frameAttribute.setDefaultValue("void");
      if (attributes == null) {
        attributes = new ArrayList<CIAttribute>();
      }
      attributes.add(frameAttribute);
    }
  }
  return attributes;
}
```

The elements that can be inserted in a specific context can be filtered using the `filterElements` method. The `SDFSchemaManagerFilter` uses this method to replace the `td` child element with the `th` element when `header` is the current context element.

```
public List<CIElement> filterElements(List<CIElement> elements,
    WhatElementsCanGoHereContext context) {
  // If the element from the current context is the 'header' element remove the
  // 'td' element from the list of content completion proposals and add the
  // 'th' element.
  if (context != null) {
    Stack<ContextElement> elementStack = context.getElementStack();
    if (elementStack != null) {
      ContextElement contextElement = context.getElementStack().peek();
      if ("header".equals(contextElement.getQName())) {
        if (elements != null) {
          for (Iterator<CIElement> iterator = elements.iterator(); iterator.hasNext();) {
            CIElement element = iterator.next();
            // Remove the 'td' element
            if ("td".equals(element.getQName())) {
              elements.remove(element);
              break;
            }
          }
        } else {
          elements = new ArrayList<CIElement>();
        }
        // Insert the 'th' element in the list of content completion proposals
        CIElement thElement = new SDFElement();
        thElement.setName("th");
```

```
        elements.add(thElement);
      }
    }
  } else {
    // If the given context is null then the given list of content completion elements contains
    // global elements.
  }
  return elements;
}
```

The elements or attributes values can be filtered using the `filterElementValues` or `filterAttributeValues` methods.

Note: The complete source code can be found in the Simple Documentation Framework project, included in the *Oxygen Author SDK zip* available for download *on the Oxygen XML Author website*.

Configuring a Link target element finder

The link target reference finder represents the support for finding references from links which indicate specific elements inside an XML document. This support will only be available if a schema is associated with the document type.

If you do not define a custom link target reference finder, the `DefaultElementLocatorProvider` implementation will be used by default. The interface which should be implemented for a custom link target reference finder is *`ro.sync.ecss.extensions.api.link.ElementLocatorProvider`*. As an alternative, the *`ro.sync.ecss.extensions.commons.DefaultElementLocatorProvider`* implementation can also be extended.

The used `ElementLocatorProvider` will be queried for an *`ElementLocator`* when a link location must be determined (when a link is clicked). Then, to find the corresponding (linked) element, the obtained `ElementLocator` will be queried for each element from the document.

Note: The Javadoc documentation of the Author API used in the example files is *available on the Oxygen XML Author website*. Also it can be downloaded as a *zip archive from the website*.

The `DefaultElementLocatorProvider` implementation

The `DefaultElementLocatorProvider` implementation offers support for the most common types of links:

- links based on ID attribute values
- XPointer element() scheme

The method `getElementLocator` determines what `ElementLocator` should be used. In the default implementation it checks if the link is an XPointer element() scheme otherwise it assumes it is an ID. A non-null `IDTypeVerifier` will always be provided if a schema is associated with the document type.

The `link` string argument is the "anchor" part of the of the URL which is composed from the value of the link property specified for the link element in the CSS.

```
public ElementLocator getElementLocator(IDTypeVerifier idVerifier,
                String link) {
  ElementLocator elementLocator = null;
  try {
    if(link.startsWith("element(")){
      // xpointer element() scheme
      elementLocator = new XPointerElementLocator(idVerifier, link);
    } else {
      // Locate link element by ID
      elementLocator = new IDElementLocator(idVerifier, link);
    }
  } catch (ElementLocatorException e) {
    logger.warn("Exception when create element locator for link: "
        + link + ". Cause: " + e, e);
  }
  return elementLocator;
}
```

The `XPointerElementLocator` implementation

`XPointerElementLocator` is an implementation of the abstract class *`ro.sync.ecss.extensions.api.link.ElementLocator`* for links that have one of the following XPointer element() scheme patterns:

element(*elementID*)	Locate the element with the specified id.
element(*/1/2/3*)	A child sequence appearing alone identifies an element by means of stepwise navigation, which is directed by a sequence of integers separated by slashes (/); each integer n locates the nth child element of the previously located element.
element(*elementID/3/4*)	A child sequence appearing after a *NCName* identifies an element by means of stepwise navigation, starting from the element located by the given name.

The constructor separates the id/integers which are delimited by slashes(/) into a sequence of identifiers (an XPointer path). It will also check that the link has one of the supported patterns of the XPointer element() scheme.

```
public XPointerElementLocator(IDTypeVerifier idVerifier, String link)
                      throws ElementLocatorException {
  super(link);
  this.idVerifier = idVerifier;

  link = link.substring("element(".length(), link.length() - 1);

  StringTokenizer stringTokenizer = new StringTokenizer(link, "/", false);
  xpointerPath = new String[stringTokenizer.countTokens()];
  int i = 0;
  while (stringTokenizer.hasMoreTokens()) {
    xpointerPath[i] = stringTokenizer.nextToken();
    boolean invalidFormat = false;

    // Empty xpointer component is not supported
    if(xpointerPath[i].length() == 0){
      invalidFormat = true;
    }

    if(i > 0){
      try {
        Integer.parseInt(xpointerPath[i]);
      } catch (NumberFormatException e) {
        invalidFormat = true;
      }
    }

    if(invalidFormat){
      throw new ElementLocatorException(
        "Only the element() scheme is supported when locating XPointer links."
        + "Supported formats: element(elementID), element(/1/2/3),
              element(elemID/2/3/4).");
    }
    i++;
  }

  if(Character.isDigit(xpointerPath[0].charAt(0))){
    // This is the case when xpointer have the following pattern /1/5/7
    xpointerPathDepth = xpointerPath.length;
  } else {
    // This is the case when xpointer starts with an element ID
    xpointerPathDepth = -1;
    startWithElementID  = true;
  }
}
```

The method `startElement` will be invoked at the beginning of every element in the XML document(even when the element is empty). The arguments it takes are

uri	The namespace URI, or the empty string if the element has no namespace URI or if namespace processing is disabled.
localName	Local name of the element.
qName	Qualified name of the element.
atts	Attributes attached to the element. If there are no attributes, this argument will be empty.

The method returns `true` if the processed element is found to be the one indicated by the link.

The `XPointerElementLocator` implementation of the `startElement` will update the depth of the current element and keep the index of the element in its parent. If the `xpointerPath` starts with an element ID then the current element ID is verified to match the specified ID. If this is the case the depth of the XPointer is updated taking into account the depth of the current element.

If the XPointer path depth is the same as the current element depth then the kept indices of the current element path are compared to the indices in the XPointer path. If all of them match then the element has been found.

```
public boolean startElement(String uri, String localName,
        String name, Attr[] atts) {
  boolean linkLocated = false;
  // Increase current element document depth
  startElementDepth ++;

  if (endElementDepth != startElementDepth) {
    // The current element is the first child of the parent
    currentElementIndexStack.push(new Integer(1));
  } else {
    // Another element in the parent element
    currentElementIndexStack.push(new Integer(lastIndexInParent + 1));
  }

  if (startWithElementID) {
    // This the case when xpointer path starts with an element ID.
    String xpointerElement = xpointerPath[0];
    for (int i = 0; i < atts.length; i++) {
      if(xpointerElement.equals(atts[i].getValue())){
        if(idVerifier.hasIDType(
            localName, uri, atts[i].getQName(), atts[i].getNamespace())){
          xpointerPathDepth = startElementDepth + xpointerPath.length - 1;
          break;
        }
      }
    }
  }

  if (xpointerPathDepth == startElementDepth){
    // check if xpointer path matches with the current element path
    linkLocated = true;
    try {
      int xpointerIdx = xpointerPath.length - 1;
      int stackIdx = currentElementIndexStack.size() - 1;
      int stopIdx = startWithElementID ? 1 : 0;
      while (xpointerIdx >= stopIdx && stackIdx >= 0) {
        int xpointerIndex = Integer.parseInt(xpointerPath[xpointerIdx]);
        int currentElementIndex =
          ((Integer)currentElementIndexStack.get(stackIdx)).intValue();
        if(xpointerIndex != currentElementIndex) {
          linkLocated = false;
          break;
        }

        xpointerIdx--;
        stackIdx--;
      }

    } catch (NumberFormatException e) {
      logger.warn(e,e);
    }
  }
  return linkLocated;
}
```

The method `endElement` will be invoked at the end of every element in the XML document (even when the element is empty).

The `XPointerElementLocator` implementation of the `endElement` updates the depth of the current element path and the index of the element in its parent.

```
public void endElement(String uri, String localName, String name) {
  endElementDepth = startElementDepth;
  startElementDepth --;
  lastIndexInParent = ((Integer)currentElementIndexStack.pop()).intValue();
}
```

The `IDElementLocator` implementation

The `IDElementLocator` is an implementation of the abstract class *`ro.sync.ecss.extensions.api.link.ElementLocator`* for links that use an **id**.

The constructor only assigns field values and the method `endElement` is empty for this implementation.

The method `startElement` checks each of the element's attribute values and when one matches the link, it considers the element found if one of the following conditions is satisfied:

- the qualified name of the attribute is `xml:id`
- the attribute type is ID

The attribute type is checked with the help of the method `IDTypeVerifier.hasIDType`.

```
public boolean startElement(String uri, String localName,
        String name, Attr[] atts) {
  boolean elementFound = false;
  for (int i = 0; i < atts.length; i++) {
    if (link.equals(atts[i].getValue())) {
      if("xml:id".equals(atts[i].getQName())) {
        // xml:id attribute
        elementFound = true;
      } else {
        // check if attribute has ID type
        String attrLocalName =
          ExtensionUtil.getLocalName(atts[i].getQName());
        String attrUri = atts[i].getNamespace();
        if (idVerifier.hasIDType(localName, uri, attrLocalName, attrUri)) {
          elementFound = true;
        }
      }
    }
  }

  return elementFound;
}
```

Creating a customized link target reference finder

If you need to create a custom link target reference finder you can do so by creating the class which will implement the *`ro.sync.ecss.extensions.api.link.ElementLocatorProvider`* interface. As an alternative, your class could extend *`ro.sync.ecss.extensions.commons.DefaultElementLocatorProvider`*, the default implementation.

Note: The complete source code of the *`ro.sync.ecss.extensions.commons.DefaultElementLocatorProvider`*, *`ro.sync.ecss.extensions.commons.IDElementLocator`* or *`ro.sync.ecss.extensions.commons.XPointerElementLocator`* can be found in the Oxygen Default Frameworks project, included in the *Oxygen Author SDK zip* available for download *on the Oxygen XML Author website*.

Configuring a custom Drag and Drop listener

Sometimes it is useful to perform various operations when certain objects are dropped from outside sources in the editing area. You can choose from three interfaces to implement depending on whether you are using the framework with the Eclipse plugin or the standalone version of the application or if you want to add the handler for the Text or Author modes.

Note: The Javadoc documentation of the Author API used in the example files is *available on the Oxygen XML Author website*. Also it can be downloaded as a *zip archive from the website*.

Table 7: Interfaces for the DnD listener

Interface	Description
`ro.sync.exml.editor.xmleditor.pageauthor.AuthorDnDListener`	Receives callbacks from the standalone application for Drag And Drop in **Author** mode.
`com.oxygenxml.editor.editors.author.AuthorDnDListener`	Receives callbacks from the Eclipse plugin for Drag And Drop in **Author** mode.
`com.oxygenxml.editor.editors.TextDnDListener`	Receives callbacks from the Eclipse plugin for Drag And Drop in Text mode.

Configuring a References Resolver

You need to provide a handler for resolving references and obtain the content they refer. In our case the element which has references is **ref** and the attribute indicating the referred resource is **location**. You will have to implement a Java extension class for obtaining the referred resources.

Note: The Javadoc documentation of the Author API used in the example files is *available on the Oxygen XML Author website*. Also it can be downloaded as a *zip archive from the website*.

1. Create the class `simple.documentation.framework.ReferencesResolver`. This class must implement the *`ro.sync.ecss.extensions.api.AuthorReferenceResolver`* interface.

```
import ro.sync.ecss.extensions.api.AuthorReferenceResolver;
import ro.sync.ecss.extensions.api.AuthorAccess;
import ro.sync.ecss.extensions.api.node.AttrValue;
import ro.sync.ecss.extensions.api.node.AuthorElement;
import ro.sync.ecss.extensions.api.node.AuthorNode;

public class ReferencesResolver
      implements AuthorReferenceResolver {
```

2. The `hasReferences` method verifies if the handler considers the node to have references. It takes as argument an `AuthorNode` that represents the node which will be verified. The method will return `true` if the node is considered to have references. In our case, to be a reference the node must be an element with the name *ref* and it must have an attribute named *location*.

```
public boolean hasReferences(AuthorNode node) {
  boolean hasReferences = false;
  if (node.getType() == AuthorNode.NODE_TYPE_ELEMENT) {
    AuthorElement element = (AuthorElement) node;
    if ("ref".equals(element.getLocalName())) {
      AttrValue attrValue = element.getAttribute("location");
      hasReferences = attrValue != null;
    }
  }
  return hasReferences;
}
```

3. The method `getDisplayName` returns the display name of the node that contains the expanded referred content. It takes as argument an `AuthorNode` that represents the node for which the display name is needed. The referred content engine will ask this `AuthorReferenceResolver` implementation what is the display name for each node which is considered a reference. In our case the display name is the value of the *location* attribute from the *ref* element.

```
public String getDisplayName(AuthorNode node) {
  String displayName = "ref-fragment";
  if (node.getType() == AuthorNode.NODE_TYPE_ELEMENT) {
    AuthorElement element = (AuthorElement) node;
    if ("ref".equals(element.getLocalName())) {
      AttrValue attrValue = element.getAttribute("location");
      if (attrValue != null) {
        displayName = attrValue.getValue();
      }
    }
  }
  return displayName;
}
```

4. The method `resolveReference` resolves the reference of the node and returns a `SAXSource` with the parser and the parser's input source. It takes as arguments an `AuthorNode` that represents the node for which the reference needs resolving, the *systemID* of the node, the `AuthorAccess` with access methods to the Author data model and a SAX `EntityResolver` which resolves resources that are already opened in another editor or resolve resources through the XML catalog. In the implementation you need to resolve the reference relative to the *systemID*, and create a parser and an input source over the resolved reference.

```
public SAXSource resolveReference(
    AuthorNode node,
    String systemID,
    AuthorAccess authorAccess,
    EntityResolver  entityResolver) {
  SAXSource saxSource = null;

  if (node.getType() == AuthorNode.NODE_TYPE_ELEMENT) {
    AuthorElement element = (AuthorElement) node;
    if ("ref".equals(element.getLocalName())) {
      AttrValue attrValue = element.getAttribute("location");
      if (attrValue != null) {
        String attrStringVal = attrValue.getValue();
```

```
        try {
          URL absoluteUrl = new URL(new URL(systemID),
              authorAccess.correctURL(attrStringVal));

          InputSource inputSource = entityResolver.resolveEntity(null,
              absoluteUrl.toString());
          if(inputSource == null) {
            inputSource = new InputSource(absoluteUrl.toString());
          }

          XMLReader xmlReader = authorAccess.newNonValidatingXMLReader();
          xmlReader.setEntityResolver(entityResolver);

          saxSource = new SAXSource(xmlReader, inputSource);
        } catch (MalformedURLException e) {
          logger.error(e, e);
        } catch (SAXException e) {
          logger.error(e, e);
        } catch (IOException e) {
          logger.error(e, e);
        }
      }
    }
  }

  return saxSource;
}
```

5. The method `getReferenceUniqueID` should return an unique identifier for the node reference. The unique identifier is used to avoid resolving the references recursively. The method takes as argument an `AuthorNode` that represents the node with the reference. In the implementation the unique identifier is the value of the *location* attribute from the *ref* element.

```
public String getReferenceUniqueID(AuthorNode node) {
  String id = null;
  if (node.getType() == AuthorNode.NODE_TYPE_ELEMENT) {
    AuthorElement element = (AuthorElement) node;
    if ("ref".equals(element.getLocalName())) {
      AttrValue attrValue = element.getAttribute("location");
      if (attrValue != null) {
        id = attrValue.getValue();
      }
    }
  }
  return id;
}
```

6. The method `getReferenceSystemID`should return the *systemID* of the referred content. It takes as arguments an `AuthorNode` that represents the node with the reference and the `AuthorAccess` with access methods to the Author data model. In the implementation you use the value of the *location* attribute from the *ref* element and resolve it relatively to the XML base URL of the node.

```
public String getReferenceSystemID(AuthorNode node,
                                   AuthorAccess authorAccess) {
  String systemID = null;
  if (node.getType() == AuthorNode.NODE_TYPE_ELEMENT) {
    AuthorElement element = (AuthorElement) node;
    if ("ref".equals(element.getLocalName())) {
      AttrValue attrValue = element.getAttribute("location");
      if (attrValue != null) {
        String attrStringVal = attrValue.getValue();
        try {
          URL absoluteUrl = new URL(node.getXMLBaseURL(),
              authorAccess.correctURL(attrStringVal));
          systemID = absoluteUrl.toString();
        } catch (MalformedURLException e) {
          logger.error(e, e);
        }
      }
    }
  }
  return systemID;
}
```

Note: The complete source code can be found in the Simple Documentation Framework project, included in the *Oxygen Author SDK zip* available for download *on the Oxygen XML Author website*.

In the listing below, the XML document contains the **ref** element:

```
<ref location="referred.xml">Reference</ref>
```

When no reference resolver is specified, the reference has the following layout:

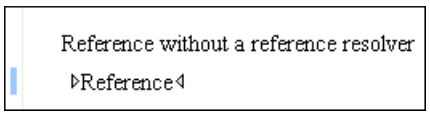


Figure 167: Reference with no specified reference resolver

When the above implementation is configured, the reference has the expected layout:

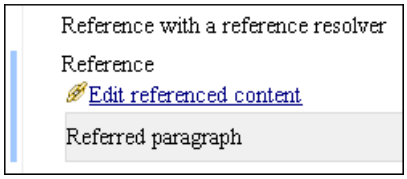


Figure 168: Reference with reference resolver

Configuring CSS Styles Filter

You can modify the CSS styles for each *ro.sync.ecss.extensions.api.node.AuthorNode* rendered in the Author mode using an implementation of *ro.sync.ecss.extensions.api.StylesFilter*. You can implement the various callbacks of the interface either by returning the default value given by Oxygen XML Author or by contributing to the value. The received styles `ro.sync.ecss.css.Styles` can be processed and values can be overwritten with your own. For example you can override the `KEY_BACKGROUND_COLOR` style to return your own implementation of *ro.sync.exml.view.graphics.Color* or override the `KEY_FONT` style to return your own implementation of *ro.sync.exml.view.graphics.Font*.

Note: The Javadoc documentation of the Author API used in the example files is *available on the Oxygen XML Author website*. Also it can be downloaded as a *zip archive from the website*.

For instance in our simple document example the filter can change the value of the `KEY_FONT` property for the `table` element:

```
package simple.documentation.framework;

import ro.sync.ecss.css.Styles;
import ro.sync.ecss.extensions.api.StylesFilter;
import ro.sync.ecss.extensions.api.node.AuthorNode;
import ro.sync.exml.view.graphics.Font;

public class SDFStylesFilter implements StylesFilter {

     public Styles filter(Styles styles, AuthorNode authorNode) {
         if (AuthorNode.NODE_TYPE_ELEMENT == authorNode.getType()
           && "table".equals(authorNode.getName())) {
           styles.setProperty(Styles.KEY_FONT, new Font(null, Font.BOLD, 12));
         }
         return styles;
     }
}
```

Configuring tables

There are standard CSS properties used to indicate what elements are tables, table rows and table cells. What CSS is missing is the possibility to indicate the cell spanning, row separators or the column widths. Oxygen XML Author Author offers support for adding extensions to solve these problems. This will be presented in the next chapters.

The table in this example is a simple one. The header must be formatted in a different way than the ordinary rows, so it will have a background color.

```
table{
    display:table;
    border:1px solid navy;
    margin:1em;
    max-width:1000px;
    min-width:150px;
}

table[width]{
  width:attr(width, length);
```

```
}

tr, header{
    display:table-row;
}

header{
    background-color: silver;
    color:inherit
}

td{
  display:table-cell;
  border:1px solid navy;
  padding:1em;
}
```

Because in the *schema* the `td` tag has the attributes **row_span** and **column_span** that are not automatically recognized by Oxygen XML Author Author, a Java extension will be implemented which will provide information about the cell spanning. See the section *Configuring a Table Cell Span Provider*.

The column widths are specified by the attributes **width** of the elements `customcol` that are not automatically recognized by Oxygen XML Author Author. It is necessary to implement a Java extension which will provide information about the column widths. See the section *Configuring a Table Column Width Provider*.

The table from our example does not make use of the attributes `colsep` and `rowsep` (which are automatically recognized) but we still want the rows to be separated by horizontal lines. It is necessary to implement a Java extension which will provide information about the row and column separators. See the section *Configuring a Table Cell Row And Column Separator Provider* on page 370.

Configuring a Table Column Width Provider

In the sample documentation framework the `table` element as well as the table columns can have specified widths. In order for these widths to be considered by Author we need to provide the means to determine them. As explained in the *Configuring tables* on page 364, if you use the table element attribute **width** Oxygen XML Author can determine the table width automatically. In this example the table has `col` elements with **width** attributes that are not recognized by default. You will need to implement a Java extension class to determine the column widths.

Note: The Javadoc documentation of the Author API used in the example files is *available on the Oxygen XML Author website*. Also it can be downloaded as a *zip archive from the website*.

1. Create the class `simple.documentation.framework.TableColumnWidthProvider`. This class must implement the *`ro.sync.ecss.extensions.api.AuthorTableColumnWidthProvider`* interface.

```
import ro.sync.ecss.extensions.api.AuthorAccess;
import ro.sync.ecss.extensions.api.AuthorOperationException;
import ro.sync.ecss.extensions.api.AuthorTableColumnWidthProvider;
import ro.sync.ecss.extensions.api.WidthRepresentation;
import ro.sync.ecss.extensions.api.node.AuthorElement;

public class TableColumnWidthProvider
      implements AuthorTableColumnWidthProvider {
```

2. Method `init` is taking as argument an *`ro.sync.ecss.extensions.api.node.AuthorElement`* that represents the XML `table` element. In our case the column widths are specified in `col` elements from the `table` element. In such cases you must collect the span information by analyzing the `table` element.

```
 public void init(AuthorElement tableElement) {
  this.tableElement = tableElement;
  AuthorElement[] colChildren = tableElement.getElementsByLocalName("customcol");
  if (colChildren != null && colChildren.length > 0) {
   for (int i = 0; i < colChildren.length; i++) {
    AuthorElement colChild = colChildren[i];
    if (i == 0) {
     colsStartOffset = colChild.getStartOffset();
    }
    if (i == colChildren.length - 1) {
     colsEndOffset = colChild.getEndOffset();
    }
    // Determine the 'width' for this col.
    AttrValue colWidthAttribute = colChild.getAttribute("width");
    String colWidth = null;
    if (colWidthAttribute != null) {
     colWidth = colWidthAttribute.getValue();
     // Add WidthRepresentation objects for the columns this 'customcol' specification
     // spans over.
     colWidthSpecs.add(new WidthRepresentation(colWidth, true));
    }
```

```
   }
  }
 }
```

3. The method `isTableAcceptingWidth` should check if the table cells are `td`.

```
public boolean isTableAcceptingWidth(String tableCellsTagName) {
  return "td".equals(tableCellsTagName);
}
```

4. The method `isTableAndColumnsResizable` should check if the table cells are `td`. This method determines if the table and its columns can be resized by dragging the edge of a column.

```
public boolean isTableAndColumnsResizable(String tableCellsTagName) {
  return "td".equals(tableCellsTagName);
}
```

5. Methods `getTableWidth` and `getCellWidth` are used to determine the table and column width. The table layout engine will ask this *`ro.sync.ecss.extensions.api.AuthorTableColumnWidthProvider`* implementation what is the table width for each table element and the cell width for each cell element from the table that was marked as cell in the CSS using the property `display:table-cell`. The implementation is simple and just parses the value of the **width** attribute. The methods must return `null` for the tables / cells that do not have a specified width.

```
public WidthRepresentation getTableWidth(String tableCellsTagName) {
 WidthRepresentation toReturn = null;
 if (tableElement != null && "td".equals(tableCellsTagName)) {
  AttrValue widthAttr = tableElement.getAttribute("width");
  if (widthAttr != null) {
   String width = widthAttr.getValue();
   if (width != null) {
    toReturn = new WidthRepresentation(width, true);
   }
  }
 }
 return toReturn;
}
```

```
public List<WidthRepresentation> getCellWidth(AuthorElement cellElement, int colNumberStart,
  int colSpan) {
 List<WidthRepresentation> toReturn = null;
 int size = colWidthSpecs.size();
 if (size >= colNumberStart && size >= colNumberStart + colSpan) {
  toReturn = new ArrayList<WidthRepresentation>(colSpan);
  for (int i = colNumberStart; i < colNumberStart + colSpan; i ++) {
   // Add the column widths
   toReturn.add(colWidthSpecs.get(i));
  }
 }
 return toReturn;
}
```

6. Methods `commitTableWidthModification` and `commitColumnWidthModifications` are used to commit changes made to the width of the table or its columns when using the mouse drag gestures.

```
public void commitTableWidthModification(AuthorDocumentController authorDocumentController,
  int newTableWidth, String tableCellsTagName) throws AuthorOperationException {
 if ("td".equals(tableCellsTagName)) {
  if (newTableWidth > 0) {
   if (tableElement != null) {
    String newWidth = String.valueOf(newTableWidth);

    authorDocumentController.setAttribute(
      "width",
      new AttrValue(newWidth),
      tableElement);
   } else {
    throw new AuthorOperationException("Cannot find the element representing the table.");
   }
  }
 }
}
```

```
public void commitColumnWidthModifications(AuthorDocumentController authorDocumentController,
   WidthRepresentation[] colWidths, String tableCellsTagName) throws AuthorOperationException {
 if ("td".equals(tableCellsTagName)) {
  if (colWidths != null && tableElement != null) {
   if (colsStartOffset >= 0 && colsEndOffset >= 0 && colsStartOffset < colsEndOffset) {
    authorDocumentController.delete(colsStartOffset,
      colsEndOffset);
   }
   String xmlFragment = createXMLFragment(colWidths);
   int offset = -1;
   AuthorElement[] header = tableElement.getElementsByLocalName("header");
   if (header != null && header.length > 0) {
    // Insert the cols elements before the 'header' element
    offset = header[0].getStartOffset();
```

```
    }
    if (offset == -1) {
     throw new AuthorOperationException("No valid offset to insert the columns width specification.");
    }
    authorDocumentController.insertXMLFragment(xmlFragment, offset);
   }
  }
 }

 private String createXMLFragment(WidthRepresentation[] widthRepresentations) {
  StringBuffer fragment = new StringBuffer();
  String ns = tableElement.getNamespace();
  for (int i = 0; i < widthRepresentations.length; i++) {
   WidthRepresentation width = widthRepresentations[i];
   fragment.append("<customcol");
   String strRepresentation = width.getWidthRepresentation();
   if (strRepresentation != null) {
    fragment.append(" width=\"" + width.getWidthRepresentation() + "\"");
   }
   if (ns != null && ns.length() > 0) {
    fragment.append(" xmlns=\"" + ns + "\"");
   }
   fragment.append("/>");
  }
  return fragment.toString();
 }
```

7. The following three methods are used to determine what type of column width specifications the table column width provider support. In our case all types of specifications are allowed:

```
public boolean isAcceptingFixedColumnWidths(String tableCellsTagName) {
 return true;
}

public boolean isAcceptingPercentageColumnWidths(String tableCellsTagName) {
 return true;
}

public boolean isAcceptingProportionalColumnWidths(String tableCellsTagName) {
 return true;
}
```

Note: The complete source code can be found in the Simple Documentation Framework project, included in the *Oxygen Author SDK zip* available for download *on the Oxygen XML Author website*.

In the listing below, the XML document contains the table element:

```
<table width="300">
    <customcol width="50.0px"/>
    <customcol width="1*"/>
    <customcol width="2*"/>
    <customcol width="20%"/>
    <header>
        <td>C1</td>
        <td>C2</td>
        <td>C3</td>
        <td>C4</td>
    </header>
    <tr>
        <td>cs=1, rs=1</td>
        <td>cs=1, rs=1</td>
        <td row_span="2">cs=1, rs=2</td>
        <td row_span="3">cs=1, rs=3</td>
    </tr>
    <tr>
        <td>cs=1, rs=1</td>
        <td>cs=1, rs=1</td>
    </tr>
    <tr>
        <td column_span="3">cs=3, rs=1</td>
    </tr>
</table>
```

When no table column width provider is specified, the table has the following layout:

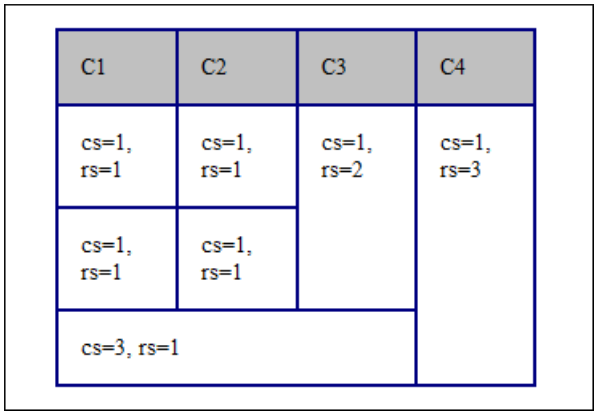


Figure 169: Table layout when no column width provider is specified

When the above implementation is configured, the table has the correct layout:

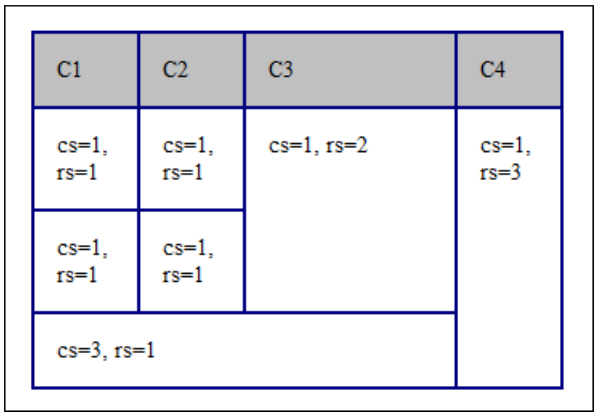


Figure 170: Columns with custom widths

Configuring a Table Cell Span Provider

In the sample documentation framework the `table` element can have cells that span over multiple columns and rows. As explained in *Configuring tables* on page 364, you need to indicate Oxygen XML Author a method to determine the cell spanning. If you use the cell element attributes **rowspan** and **colspan** or **rows** and **cols**, Oxygen XML Author can determine the cell spanning automatically. In our example the `td` element uses the attributes **row_span** and **column_span** that are not recognized by default. You will need to implement a Java extension class for defining the cell spanning.

Note: The Javadoc documentation of the Author API used in the example files is *available on the Oxygen XML Author website*. Also it can be downloaded as a *zip archive from the website*.

1. Create the class `simple.documentation.framework.TableCellSpanProvider`. This class must implement the *`ro.sync.ecss.extensions.api.AuthorTableCellSpanProvider`* interface.

```
import ro.sync.ecss.extensions.api.AuthorTableCellSpanProvider;
import ro.sync.ecss.extensions.api.node.AttrValue;
import ro.sync.ecss.extensions.api.node.AuthorElement;

public class TableCellSpanProvider
      implements AuthorTableCellSpanProvider {
```

2. The `init` method is taking as argument the *`ro.sync.ecss.extensions.api.node.AuthorElement`* that represents the XML `table` element. In our case the cell span is specified for each of the cells so you leave this method empty. However there are cases like the table CALS model when the cell spanning is specified in the `table` element. In such cases you must collect the span information by analyzing the `table` element.

```
public void init(AuthorElement table) {
}
```

3. The `getColSpan` method is taking as argument the table cell. The table layout engine will ask this `AuthorTableSpanSupport` implementation what is the column span and the row span for each XML element from the table that was marked as cell in the CSS using the property `display:table-cell`. The implementation is simple and just parses the value of **column_span** attribute. The method must return `null` for all the cells that do not change the span specification.

```
public Integer getColSpan(AuthorElement cell) {
  Integer colSpan = null;

  AttrValue attrValue = cell.getAttribute("column_span");
  if(attrValue != null) {
    // The attribute was found.
    String cs = attrValue.getValue();
    if(cs != null) {
      try {
        colSpan = new Integer(cs);
      } catch (NumberFormatException ex) {
        // The attribute value was not a number.
      }
    }
  }
  return colSpan;
}
```

4. The row span is determined in a similar manner:

```
public Integer getRowSpan(AuthorElement cell) {
  Integer rowSpan = null;

  AttrValue attrValue = cell.getAttribute("row_span");
  if(attrValue != null) {
    // The attribute was found.
    String rs = attrValue.getValue();
    if(rs != null) {
      try {
        rowSpan = new Integer(rs);
      } catch (NumberFormatException ex) {
        // The attribute value was not a number.
      }
    }
  }
  return rowSpan;
}
```

5. The method `hasColumnSpecifications` always returns `true` considering column specifications always available.

```
public boolean hasColumnSpecifications(AuthorElement tableElement) {
  return true;
}
```

Note: The complete source code can be found in the Simple Documentation Framework project, included in the *Oxygen Author SDK zip* available for download *on the Oxygen XML Author website*.

6. In the listing below, the XML document contains the table element:

```
<table>
    <header>
        <td>C1</td>
        <td>C2</td>
        <td>C3</td>
        <td>C4</td>
    </header>
    <tr>
        <td>cs=1, rs=1</td>
        <td column_span="2" row_span="2">cs=2, rs=2</td>
        <td row_span="3">cs=1, rs=3</td>
    </tr>
    <tr>
        <td>cs=1, rs=1</td>
    </tr>
    <tr>
        <td column_span="3">cs=3, rs=1</td>
    </tr>
</table>
```

When no table cell span provider is specified, the table has the following layout:

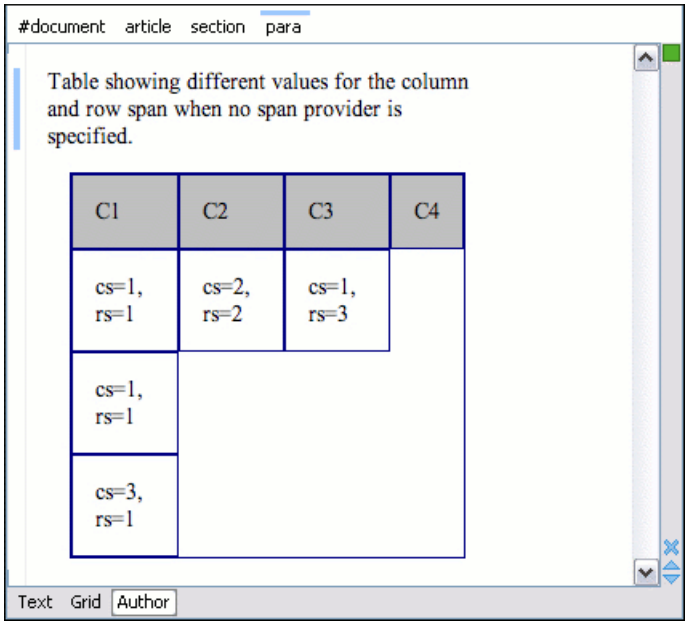


Figure 171: Table layout when no cell span provider is specified

When the above implementation is configured, the table has the correct layout:

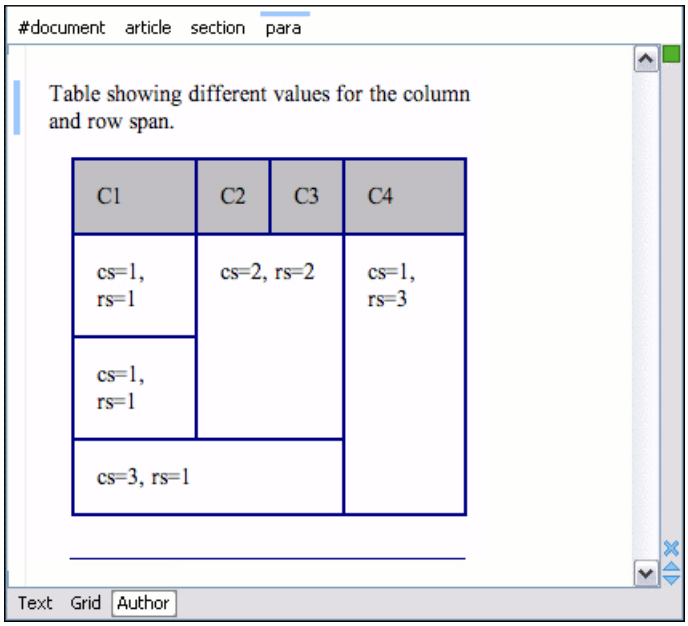


Figure 172: Cells spanning multiple rows and columns.

Configuring a Table Cell Row And Column Separator Provider

In the sample documentation framework the `table` element has separators between rows. As explained in *Configuring tables* on page 364 section which describes the CSS properties needed for defining a table, you need to indicate Oxygen XML Author a method to determine the way rows and columns are separated. If you use the `rowsep` and `colsep` cell element attributes, or your table is conforming to the CALS table model, Oxygen XML Author can determine the cell separators. In the example there are no attributes defining the separators but we still want the rows to be separated. You will need to implement a Java extension.

Note: The Javadoc documentation of the Author API used in the example files is *available on the Oxygen XML Author website*. Also it can be downloaded as a *zip archive from the website*.

1. Create the class `simple.documentation.framework.TableCellSepProvider`. This class must implement the *`ro.sync.ecss.extensions.api.AuthorTableCellSepProvider`* interface.

```
import ro.sync.ecss.extensions.api.AuthorTableCellSepProvider;
import ro.sync.ecss.extensions.api.node.AuthorElement;

public class TableCellSepProvider implements AuthorTableCellSepProvider{
```

2. The `init` method is taking as argument the *`ro.sync.ecss.extensions.api.node.AuthorElement`* that represents the XML `table` element. In our case the separator information is implicit, it does not depend on the current table, so you leave this method empty. However there are cases like the table CALS model when the cell separators are specified in the `table` element - in that case you should initialize your provider based on the given argument.

```
public void init(AuthorElement table) {
}
```

3. The `getColSep` method is taking as argument the table cell. The table layout engine will ask this `AuthorTableCellSepProvider` implementation if there is a column separator for each XML element from the table that was marked as cell in the CSS using the property `display:table-cell`. In our case we choose to return **false** since we do not need column separators.

```
  /**
   * @return false - No column separator at the right of the cell.
   */
  @Override
  public boolean getColSep(AuthorElement cellElement, int columnIndex) {
    return false;
  }
```

4. The row separators are determined in a similar manner. This time the method returns **true**, forcing a separator between the rows.

```
  /**
   * @return true - A row separator below each cell.
   */
  @Override
  public boolean getRowSep(AuthorElement cellElement, int columnIndex) {
    return true;
  }
```

Note: The complete source code can be found in the Simple Documentation Framework project, included in the *Oxygen Author SDK zip* available for download *on the Oxygen XML Author website*.

5. In the listing below, the XML document contains the table element:

```
<table>
     <header>
       <td>H1</td>
       <td>H2</td>
       <td>H3</td>
       <td>H4</td>
     </header>
     <tr>
       <td>C11</td>
       <td>C12</td>
       <td>C13</td>
       <td>C14</td>
     </tr>
     <tr>
       <td>C21</td>
       <td>C22</td>
       <td>C23</td>
       <td>C24</td>
     </tr>
     <tr>
       <td>C31</td>
       <td>C32</td>
       <td>C33</td>
       <td>C34</td>
     </tr>
   </table>
```

When the borders for the `td` element are removed from the CSS, the row separators become visible:

H1	H2	H3	H4
C11	C12	C13	C14
C21	C22	C23	C24
C31	C32	C33	C34

Figure 173: Row separators provided by the Java implementation.

Configuring an Unique Attributes Recognizer

The *ro.sync.ecss.extensions.api.UniqueAttributesRecognizer* interface can be implemented if you want to provide for your framework the following features:

Note: The Javadoc documentation of the Author API used in the example files is *available on the Oxygen XML Author website*. Also it can be downloaded as a *zip archive from the website*.

- **Automatic ID generation** - You can automatically generate unique IDs for newly inserted elements. Implementations are already available for the DITA and Docbook frameworks. The following methods can be implemented to accomplish this: `assignUniqueIDs(int startOffset, int endOffset)`, `isAutoIDGenerationActive()`
- **Avoiding copying unique attributes when "Split" is called inside an element** - You can split the current block element by pressing the "Enter" key and then choosing "Split". This is a very useful way to create new paragraphs, for example. All attributes are by default copied on the new element but if those attributes are IDs you sometimes want to avoid creating validation errors in the editor. Implementing the following method, you can decide whether an attribute should be copied or not during the split: `boolean copyAttributeOnSplit(String attrQName, AuthorElement element)`

  Tip:

  The *ro.sync.ecss.extensions.commons.id.DefaultUniqueAttributesRecognizer* class is an implementation of the interface which can be extended by your customization to provide easy assignation of IDs in your framework. You can also check out the DITA and Docbook implementations of `ro.sync.ecss.extensions.api.UniqueAttributesRecognizer` to see how they were implemented and connected to the extensions bundle.

Configuring an XML Node Renderer Customizer

You can use this API extension to customize the way an XML node is rendered in the **Author Outline** view, **Author** breadcrumb navigation bar, **Text** mode **Outline** view, content completion assistant window or **DITA Maps Manager** view.

Note: Oxygen XML Author uses XMLNodeRendererCustomizer implementations for the following frameworks: DITA, DITAMap, Docbook 4, Docbook 5, TEI P4, TEI P5, XHTML, XSLT, and XML Schema.

Note: The Javadoc documentation of the Author API used in the example files is *available on the Oxygen XML Author website*. Also it can be downloaded as a *zip archive from the website*.

There are two methods to provide an implementation of `ro.sync.exml.workspace.api.node.customizer.XMLNodeRendererCustomizer`:

- as a part of a bundle - returning it from the `createXMLNodeCustomizer()` method of the *ExtensionsBundle* associated with your document type in the **Document type** dialog, **Extensions** tab, **Extensions bundle** field.

- as an individual extension - associated with your document type in the **Document type** dialog, **Extensions** tab, **Individual extensions** section, **XML node renderer customizer** field.

Sample project reference

Note: The complete source code can be found in the Simple Documentation Framework project, included in the *Oxygen Author SDK zip* available for download *on the Oxygen XML Author website*.

Note: The complete source code of the `ro.sync.ecss.extensions.commons.DefaultElementLocatorProvider`, `ro.sync.ecss.extensions.commons.IDElementLocator` or `ro.sync.ecss.extensions.commons.XPointerElementLocator` can be found in the Oxygen Default Frameworks project, included in the *Oxygen Author SDK zip* available for download *on the Oxygen XML Author website*.

Note: The Javadoc documentation of the Author API used in the example files is *available on the Oxygen XML Author website*. Also it can be downloaded as a *zip archive from the website*.

Customizing the Default CSS of a Document Type

The easiest way of customizing the default CSS stylesheet of a document type is to create a new CSS stylesheet in the same folder as the customized one, import the customized CSS stylesheet and set the new stylesheet as the default CSS of the document type. For example let us customize the default CSS for DITA documents by changing the background color of the *task* and *topic* elements to red.

1. First you create a new CSS stylesheet called `my_dita.css` in the folder `${frameworks}/dita/css_classed` where the default stylesheet called `dita.css` is located. `${frameworks}` is the subfolder `frameworks` of the Oxygen XML Author Editor. The new stylesheet `my_dita.css` contains:

```
@import "dita.css";

task, topic{
    background-color:red;
}
```

2. To set the new stylesheet as the default CSS stylesheet for DITA documents first open the Document Type Association preferences panel from menu **Options** > **Preferences** > **Document Type Association**. Select the DITA document type and start editing it by pressing the Edit button. In the Author tab of the document type edit dialog change the URI of the default CSS stylesheet from `${frameworks}/dita/css_classed/dita.css` to `${frameworks}/dita/css_classed/my_dita.css`.

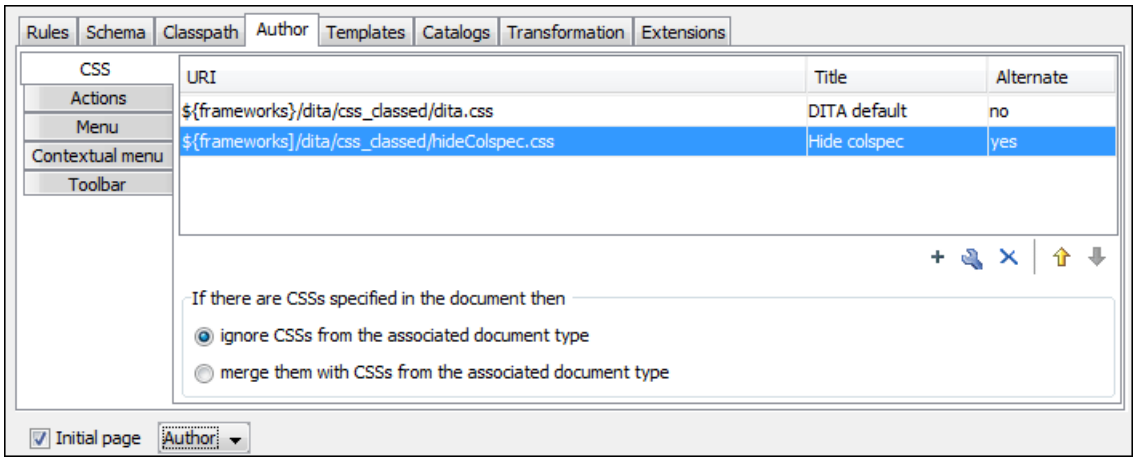


Figure 174: Set the location of the default CSS stylesheet

3. Press OK in all the dialogs to validate the changes. Now you can start editing DITA documents based on the new CSS stylesheet. You can edit the new CSS stylesheet itself at any time and see the effects on rendering DITA XML documents in the **Author** mode by running the *Refresh* action available on the Author toolbar and on the DITA menu.

Document Type Sharing

Oxygen XML Author allows you to share the customizations for a specific XML type by creating your own *Document Type* in the **Document Type Association** preferences page.

A document type can be shared between authors as follows:

- Save it externally in a separate framework folder in the `OXYGEN_INSTALL_DIR/frameworks` directory.

  Important: For this approach to work, have the application installed to a folder with full write access.

  Please follow these steps:

  1. Go to `OXYGEN_INSTALL_DIR/frameworks` and create a directory for your new framework (name it for example `custom_framework`). This directory will contain resources for your framework (CSS files, new file templates, schemas used for validation, catalogs). See the **Docbook** framework structure from the `OXYGEN_INSTALL_DIR/frameworks/docbook` as an example.
  2. Create your custom document type and save it externally, in the `custom_framework` directory.
  3. Configure the custom document type according to your needs, take special care to make all file references relative to the `OXYGEN_INSTALL_DIR/frameworks` directory by using the `${frameworks}` editor variable. The *Author Developer Guide* contains all details necessary for creating and configuring a new document type.
  4. If everything went fine then you should have a new configuration file saved in: `OXYGEN_INSTALL_DIR/frameworks/custom_framework/custom.framework` after the Preferences are saved.
  5. Then, to share the new framework directory with other users, have them copy it to their `OXYGEN_INSTALL_DIR/frameworks` directory. The new document type will be available in the list of Document Types when Oxygen XML Author starts.

     Note: In case you have a `frameworks` directory stored on your local drive, you can also go to the **Document Type Association** > **Locations** preferences page and add your `frameworks` directory in the **Additional frameworks directories** list.

- Save the document type at project level in the **Document Type Association** preferences page.

  Please see the following steps:

  1. On your local drive, create a directory with full write access, containing the Oxygen XML Author project file and associated document type resources (CSS files, new file templates, schemas used for validation, catalogs).
  2. Start Oxygen XML Author, go to the ***Project** view* and create a project. Save it in the newly created directory.
  3. In the **Document Type Association** preferences page, select **Project Options** at the bottom of the page.
  4. Create your custom document type using the default **internal** storage for it. It will actually be saved in the previously chosen Oxygen XML Author project `.xpr` file.
  5. Configure the custom document type according to your needs, take special care to make all file references relative to the project directory by using the `${pd}` editor variable. The *Author Developer Guide* contains all details necessary for creating and configuring a new document type.
  6. You can then share the new project directory with other users. When they open the customized project file in the ***Project** view*, the new document type becomes available in the list of Document Types.

- Deploy your document type configuration *as an add-on*.

Adding Custom Persistent Highlights

The Author API allows you to create or remove custom persistent highlights, set their properties, and customize their appearance. They get serialized in the XML document as processing instructions, having the following format:

```
<?oxy_custom_start prop1="val1"....?> xml content <?oxy_custom_end?>
```

The functionality is available in the `AuthorPersistentHighlighter` class, accessible through `AuthorEditorAccess#getPersistentHighlighter()` method. For more information, see JavaDoc online at: *http://www.oxygenxml.com/InstData/Editor/SDK/javadoc/index.html*

CSS Support in Author

Author editing mode supports most CSS 2.1 selectors, a lot of CSS 2.1 properties and a few CSS 3 selectors. Also some custom functions and properties that extend the W3C CSS specification and are useful for URL and string manipulation are available to the developer who creates an Author editing framework.

Handling CSS Imports

When a CSS document contains imports to other CSS documents, the references are also passed through the XML catalog URI mappings in order to determine an indirect CSS referenced location.

> You can have a CSS import like:
>
> ```
> @import "http://host/path/to/location/custom.css";
> ```
>
> and then add to the *XML / XML Catalog* preferences page your own XML catalog file which maps the location to a custom CSS:
>
> ```
> <uri name="http://host/path/to/location/custom.css" uri="path/to/custom.css"/>
> ```

In addition to this, you can also add in your XML Catalog file the following mapping:

```
<uri name="http://www.oxygenxml.com/extensions/author/css/userCustom.css" uri="path/to/custom.css"/>
```

This extra mapped CSS location will be parsed every time the application processes the CSSs used to render the opened XML document in the visual **Author** editing mode. In this way your custom CSS can be used without the need to modify all other CSSs contributed in the document type configuration.

Media Type oxygen

The CSS stylesheets can specify how a document is presented on different media: on the screen, on paper, on speech synthesizer, etc. You can specify that some of the selectors from your CSS should be taken into account only in the **Author** mode and ignored in the rest. This can be accomplished by using the oxygen media type.

For instance using the following CSS:

```
b{
 font-weight:bold;
 display:inline;
}

@media oxygen{
 b{
  text-decoration:underline;
 }
}
```

would make a text bold if the document was opened in a web browser that does not recognize `@media oxygen` and bold and underlined in Oxygen XML Author Author.

You can use this media type to group specific Oxygen XML Author CSS selectors and have them ignored when opening the documents with other viewers.

Standard W3C CSS Supported Features

oXygen supports most of the CSS Level 3 selectors and most of the CSS Level 2.1 properties

Supported CSS Selectors

Expression	Name	CSS Level	Description / Example
`*`	Universal selector	CSS Level 2	Matches any element
`E`	Type selector	CSS Level 2	Matches any `E` element (i. e. an element with the local name `E`)
`E F`	Descendant selector	CSS Level 2	Matches any `F` element that is a descendant of an `E` element.
`E > F`	Child selectors	CSS Level 2	Matches any `F` element that is a child of an element `E`.
`E:lang(c)`	Language pseudo-class	CSS Level 2	Matches element of type `E` if it is in (human) language `c` (the document language specifies how language is determined).
`E + F`	Adjacent selector	CSS Level 2	Matches any `F` element immediately preceded by a sibling element `E`.
`E[foo]`	Attribute selector	CSS Level 2	Matches any `E` element with the `"foo"` attribute set (whatever the value).
`E[foo="warning"]`	Attribute selector with value	CSS Level 2	Matches any `E` element whose `"foo"` attribute value is exactly equal to `"warning"`.
`E[foo~="warning"]`	Attribute selector containing value	CSS Level 2	Matches any `E` element whose `"foo"` attribute value is a list of space-separated values, one of which is exactly equal to `"warning"`.
`E[lang|="en"]`	Attribute selector containing hyphen separated values	CSS Level 2	Matches any `E` element whose `"lang"` attribute has a hyphen-separated list of values beginning (from the left) with `"en"`.
`E:before and E:after`	Pseudo elements	CSS Level 2	The `':before'` and `':after'` pseudo-elements can be used to insert generated content before or after an element's content.
`E:first-child`	The first-child pseudo-class	CSS Level 2	Matches element `E` when `E` is the first child of its parent.
`E:not(s)`	Negation pseudo-class	CSS Level 2	An E element that does not match simple selector s.
`E:hover`	The hover pseudo-class	CSS Level 2	The `:hover` pseudo-class applies while the user designates an element with a pointing device, but does not necessarily

Expression	Name	CSS Level	Description / Example
			activate it. When moving the pointing device over an element, all the parent elements up to the root are taken into account.
`E:focus`	The focus pseudo-class	CSS Level 2	The `:focus` pseudo-class applies while an element has the focus (accepts keyboard input).
`E#myid`	The ID selector	CSS Level 2	Matches any E element with ID equal to "myid". **Important:** Limitation: In oXygen the match is performed taking into account only the attributes with the exact name: "id".
`E[att^="val"]`	Substring matching attribute selector	CSS Level 3	An E element whose `att` attribute value begins exactly with the string `val`.
`E[att$="val"]`	Substring matching attribute selector	CSS Level 3	An E element whose `att` attribute value ends exactly with the string `val`.
`E[att*="val"]`	Substring matching attribute selector	CSS Level 3	An E element whose `att` attribute value contains the substring `val`.
`E:root`	Root pseudo-class	CSS Level 3	Matches the root element of the document. In HTML, the root element is always the HTML element.
`E:empty`	Empty pseudo-class	CSS Level 3	An E element which has no text or child elements.
`E:nth-child(n)`	The nth-child pseudo-class	CSS Level 3	An E element, the n-th child of its parent.
`E:nth-last-child(n)`	The nth-last-child pseudo-class	CSS Level 3	An E element, the n-th child of its parent, counting from the last one.
`E:nth-of-type(n)`	The nth-of-type pseudo-class	CSS Level 3	An E element, the n-th sibling of its type.
`E:nth-last-of-type(n)`	The nth-last-of-type pseudo-class	CSS Level 3	An E element, the n-th sibling of its type, counting from the last one.
`E:last-child`	The last-child pseudo-class	CSS Level 3	An E element, last child of its parent.
`E:first-of-type`	The first-of-type pseudo-class	CSS Level 3	An E element, first sibling of its type.
`E:last-of-type`	The last-of-type pseudo-class	CSS Level 3	An E element, last sibling of its type.
`E:only-child`	The only-child pseudo-class	CSS Level 3	An E element, only child of its parent.
`E:only-of-type`	The only-of-type pseudo-class	CSS Level 3	An E element, only sibling of its type.
`ns|E`	Element namespace selector	CSS Level 3	An element that has the local name E and the namespace given by the prefix "ns". The namespace prefix can be bound to an URI by the at-rule: `@namespace ns "http://some_namespace_uri";`

Expression	Name	CSS Level	Description / Example
			See *Namespace Selector* on page 378.
E ! >F	The subject selector	CSS Level 4 (experimental)	An element that has the local name E and has a child F. See *Subject Selector* on page 379.

Namespace Selector

In the CSS 2.1 standard the element selectors are ignoring the namespaces of the elements they are matching. Only the local name of the elements are considered in the selector matching process.

Oxygen XML Author Author uses a different approach similar to the CSS Level 3 specification. If the element name from the CSS selector is not preceded by a namespace prefix it is considered to match an element with the same local name as the selector value and ANY namespace, otherwise the element must match both the local name and the namespace.

In CSS up to version 2.1 the name tokens from selectors are matching all elements from ANY namespace that have the same local name. Example:

```
<x:b xmlns:x="ns_x"/>
<y:b xmlns:y="ns_y"/>
```

Are both matched by the rule:

```
b {font-weight:bold}
```

Starting with CSS Level 3 you can create selectors that are namespace aware.

Defining both prefixed namespaces and the default namespace

Given the namespace declarations:

```
@namespace sync "http://sync.example.org";
@namespace "http://example.com/foo";
```

In a context where the default namespace applies:

sync|A	represents the name A in the `http://sync.example.org` namespace.
|B	represents the name B that belongs to NO NAMESPACE.
***|C**	represents the name C in ANY namespace, including NO NAMESPACE.
D	represents the name D in the `http://example.com/foo` namespace.

Defining only prefixed namespaces

Given the namespace declaration:

```
@namespace sync "http://sync.example.org";
```

Then:

sync|A	represents the name A in the `http://sync.example.org` namespace.
|B	represents the name B that belongs to NO NAMESPACE.
***|C**	represents the name C in ANY namespace, including NO NAMESPACE.
D	represents the name D in ANY namespace, including NO NAMESPACE.

Defining prefixed namespaces combined with pseudo-elements

To match the `def` element its namespace will be declared, bind it to the *abs* prefix, and then write a CSS rule:

```
@namespace abs "http://www.oxygenxml.com/sample/documentation/abstracts";
```

Then:

abs|def	represents the name "def" in the `http://www.oxygenxml.com/sample/documentation/abstracts` namespace.
abs|def:before	represents the :before pseudo-element of the "def" element from the `http://www.oxygenxml.com/sample/documentation/abstracts` namespace.

Subject Selector

Oxygen XML Author Author supports the subject selector described in CSS Level 4 (currently a working draft at W3C *http://dev.w3.org/csswg/selectors4/*). This selector matches a structure of the document, but unlike a compound selector, the styling properties are applied to the subject element (the one marked with "!") instead of the last element from the path.

The subject of the selector can be explicitly identified by appending an exclamation mark (!) to one of the compound selectors in a selector. Although the element structure that the selector represents is the same with or without the exclamation mark, indicating the subject in this way can change which compound selector represents the subject in that structure.

```
table! > caption {
  border: 1px solid red;
}
```

A border will be drawn to the table elements that contain a caption as direct child.

This is different from:

```
table > caption {
  border: 1px solid red;
}
```

which draws a border around the caption.

Important: As a limitation of the current implementation the general descendant selectors are taken into account as direct child selectors. For example the two CSS selectors are considered equivalent:

```
a! b c
```

and:

```
a! > b > c
```

Supported CSS Properties

Oxygen XML Author validates all CSS 2.1 properties, but does not render in Author mode *aural* and *paged* categories properties, as well as some of the values of the *visual* category, listed below under the **Ignored Values** column. For the Oxygen XML Author specific (extension) CSS properties, go to *Oxygen CSS Extensions* on page 386.

Name	Rendered Values	Ignored Values
'background-attachment'		ALL
'background-color'	<color> | inherit	transparent
'background-image'	<uri> | none | inherit	

Name	Rendered Values	Ignored Values
'background-position'	top | right | bottom | left | center	<percentage> | <length>
'background-repeat'	repeat | repeat-x | repeat-y | no-repeat | inherit	
'background'		ALL
'border-collapse'		ALL
'border-color'	<color> | inherit	transparent
'border-spacing'		ALL
'border-style'	<border-style> | inherit	
'border-top' 'border-right' 'border-bottom' 'border-left'	[<border-width> || <border-style> || 'border-top-color'] | inherit	
'border-top-color' 'border-right-color' 'border-bottom-color' 'border-left-color'	<color> | inherit	transparent
'border-top-style' 'border-right-style' 'border-bottom-style' 'border-left-style'	<border-style> | inherit	
'border-top-width' 'border-right-width' 'border-bottom-width' 'border-left-width'	<border-width> | inherit	
'border-width'	<border-width> | inherit	
'border'	[<border-width> || <border-style> || 'border-top-color'] | inherit	
'bottom'		ALL
'caption-side'		ALL
'clear'		ALL
'clip'		ALL
'color'	<color> | inherit	
'content'	normal | none | [<string> | <URI> | <counter> | attr(<identifier>) | open-quote | close-quote]+ | inherit	no-open-quote | no-close-quote
'counter-increment'	[<identifier> <integer> ?]+ | none | inherit	

Name	Rendered Values	Ignored Values
'counter-reset'	[<identifier> <integer> ?]+ | none | inherit	
'cursor'		ALL
'direction'	ltr| rtl | inherit	
'display'	inline | block | list-item | table | table-row-group | table-header-group | table-footer-group | table-row | table-column-group | table-column | table-cell | table-caption | none | inherit	run-in | inline-block | inline-table - considered block
'empty-cells'	show | hide | inherit	
'float'		ALL
'font-family'	[[<family-name> | <generic-family>] [, <family-name> | <generic-family>]*] | inherit	
'font-size'	<absolute-size> | <relative-size> | <length> | <percentage> | inherit	
'font-style'	normal | italic | oblique | inherit	
'font-variant'		ALL
'font-weight'	normal | bold | bolder | lighter | 100 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | inherit	
'font'	[['font-style' || 'font-weight']? 'font-size' [/ 'line-height']? 'font-family'] | inherit	'font-variant' 'line-height' caption | icon | menu | message-box | small-caption | status-bar
'height'		ALL
'left'		ALL
'letter-spacing'		ALL
'line-height'	normal | <number> | <length> | <percentage> | inherit	
'list-style-image'		ALL
'list-style-position'		ALL

Name	**Rendered Values**	**Ignored Values**
'list-style-type'	disc | circle | square | decimal | lower-roman | upper-roman | lower-latin | upper-latin | lower-alpha | upper-alpha | -oxy-lower-cyrillic-ru | -oxy-lower-cyrillic-uk | -oxy-upper-cyrillic-ru | -oxy-upper-cyrillic-uk | box | diamond | check | hyphen | none | inherit	lower-greek | armenian | georgian
'list-style'	['list-style-type'] | inherit	'list-style-position' || 'list-style-image'
'margin-right' 'margin-left'	<margin-width> | inherit | auto	
'margin-top' 'margin-bottom'	<margin-width> | inherit	
'margin'	<margin-width> | inherit | auto	
'max-height'		ALL
'max-width'	<length> | <percentage> | none | inherit - supported for inline, block-level, and replaced elements, e.g. images, tables, table cells.	
'min-height'		ALL
'min-width'	<length> | <percentage> | inherit - supported for inline, block-level, and replaced elements, e. g. images, tables, table cells.	
'outline-color'		ALL
'outline-style'		ALL
'outline-width'		ALL
'outline'		ALL
'overflow'		ALL
'padding-top' 'padding-right' 'padding-bottom' 'padding-left'	<padding-width> | inherit	
'padding'	<padding-width> | inherit	
'position'		ALL
'quotes'		ALL
'right'		ALL
'table-layout'	auto	fixed | inherit

Name	Rendered Values	Ignored Values
'text-align'	left | right | center | inherit	justify
'text-decoration'	none | [underline || overline || line-through] | inherit	blink
'text-indent'		ALL
'text-transform'	ALL	
'top'		ALL
'unicode-bidi'	bidi-override| normal| embed| inherit	
'vertical-align'	baseline | sub | super | top | text-top | middle | bottom | text-bottom | inherit	<percentage> | <length>
'visibility'	visible | hidden | inherit | -oxy-collapse-text	collapse
'white-space'	normal | pre | nowrap | pre-wrap | pre-line	
'width'	<length> | <percentage> | auto | inherit - supported for inline, block-level, and replaced elements, e.g. images, tables, table cells.	
'word-spacing'		ALL
'z-index'		ALL

Transparent Colors

CSS3 supports RGBA colors. The RGBA declaration allows you to set opacity (via the Alpha channel) as part of the color value. A value of `0` corresponds to a completely transparent color, while a value of `1` corresponds to a completely opaque color. To specify a value, you can use either a *real* number between `0` and `1`, or a percent.

RGBA color

```
personnel:before {
    display:block;
    padding: 1em;
    font-size: 1.8em;
    content: "Employees";
    font-weight: bold;
    color:#EEEEEE;
    background-color: rgba(50, 50, 50, 0.6);
}
```

The `attr()` Function: Properties Values Collected from the Edited Document.

In CSS Level 2.1 you may collect attribute values and use them as content *only* for the pseudo-elements. For instance the :before pseudo-element can be used to insert some content before an element. This is valid in CSS 2.1:

```
title:before{
  content: "Title id=(" attr(id) ")";
}
```

If the `title` element from the XML document is:

```
<title id="title12">My title.</title>
```

Then the title will be displayed as:

```
Title id=(title12) My title.
```

In Oxygen XML Author Author the use of `attr()` function is available not only for the `content` property, but also for any other property. This is similar to the CSS Level 3 working draft: *http://www.w3.org/TR/2006/WD-css3-values-20060919/#functional*. The arguments of the function are:

`attr( attribute_name , attribute_type , default_value )`

`attribute_name` The attribute name. This argument is required.

`attribute_type` The attribute type. This argument is optional. If it is missing, argument's type is considered `string`. This argument indicates what is the meaning of the attribute value and helps to perform conversions of this value. Oxygen XML Author Author accepts one of the following types:

- **`color`** The value represents a color. The attribute may specify a color in different formats. Oxygen XML Author Author supports colors specified either by name: `red`, `blue`, `green`, etc. or as an RGB hexadecimal value `#FFEEFF`.
- **`url`** The value is an URL pointing to a media object. Oxygen XML Author Author supports only images. The attribute value can be a complete URL, or a relative one to the XML document. Please note that this URL is also resolved through the catalog resolver.
- **`integer`** The value must be interpreted as an integer.
- **`number`** The value must be interpreted as a float number.
- **`length`** The value must be interpreted as an integer.
- **`percentage`** The value must be interpreted relative to another value (length, size) expressed in percents.
- **`em`** The value must be interpreted as a size. 1 em is equal to the *font-size* of the relevant font.
- **`ex`** The value must be interpreted as a size. 1 ex is equal to the *height* of the **x** character of the relevant font.
- **`px`** The value must be interpreted as a size expressed in pixels relative to the viewing device.
- **`mm`** The value must be interpreted as a size expressed in millimeters.
- **`cm`** The value must be interpreted as a size expressed in centimeters.
- **`in`** The value must be interpreted as a size expressed in inches. 1 inch is equal to 2.54 centimeters.
- **`pt`** The value must be interpreted as a size expressed in points. The points used by CSS2 are equal to 1/72th of an inch.
- **`pc`** The value must be interpreted as a size expressed in picas. 1 pica is equal to 12 points.

`default_value` This argument specifies a value that is used by default if the attribute value is missing. This argument is optional.

Usage samples for the attr() function

Consider the following XML instance:

```
<sample>
    <para bg_color="#AAAAFF">Blue paragraph.</para>
    <para bg_color="red">Red paragraph.</para>
    <para bg_color="red" font_size="2">Red paragraph with large font.</para>
    <para bg_color="#00AA00" font_size="0.8" space="4">
        Green paragraph with small font and margin.</para>
</sample>
```

The `para` elements have `bg_color` attributes with RGB color values like #AAAAFF. You can use the `attr()` function to change the elements appearance in the editor based on the value of this attribute:

```
background-color:attr(bg_color, color);
```

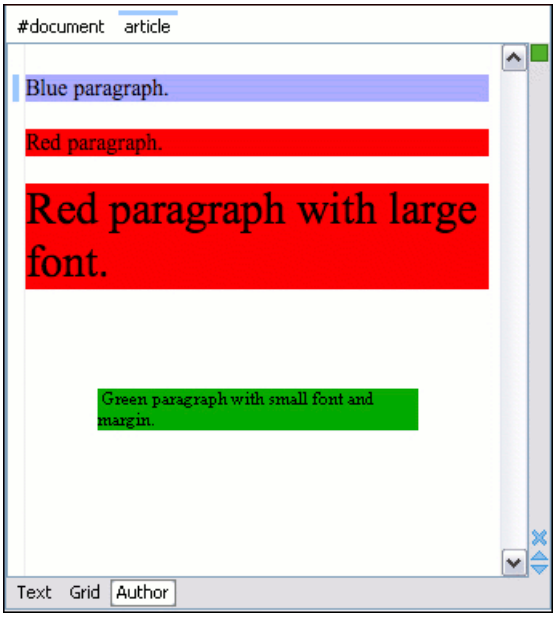
The attribute `font_size` represents the font size in *em* units. You can use this value to change the style of the element:

```
font-size:attr(font_size, em);
```

The complete CSS rule is:

```
para{
 display:block;
 background-color:attr(bg_color, color);
 font-size:attr(font_size, em);
 margin:attr(space, em);
}
```

The document is rendered as:



Supported CSS At-rules

Oxygen supports some of the at-rules specified by CSS Level 2.1 and 3.

The @font-face at-rule

Oxygen XML Author allows you to use custom fonts in the **Author** mode by specifying them in the CSS using the `@font-face` media type. Only the `src` and `font-family` CSS properties can be used for this media type.

```
@font-face{
    font-family:"Baroque Script";
    /*The location of the loaded TTF font must be relative to the CSS*/
```

```
    src:url("BaroqueScript.ttf");
}
```

The @media at-rule

Oxygen XML Author supports several media types, allowing you to set different styles for presenting a document on different media (on the screen, on paper and so on). The following media types are supported:

- `screen` - the styles marked with this media type are used only for rendering a document in the **Author** mode;
- `all` - the styles marked with this media type are used for rendering a document in the **Author** mode and also for printing the document;
- `oxygen` - the styles marked with this media type are used only for rendering a document in the **Author** mode;

  Note: This is an Oxygen XML Author specific media.

- `print` - the styles marked with this media type are used only for printing a document.

Oxygen CSS Extensions

CSS stylesheets provide support mainly for displaying documents. When editing documents some non-standard, oXygen specific CSS extensions are useful, for example:

- property for marking foldable elements in large files;
- enforcing a display mode for the XML tags regardless of the current mode selected by the author user;
- construct an URL from a relative path location;
- string processing functions.

Additional CSS Selectors

Oxygen XML Author Author provides support for selecting additional types of nodes. These custom selectors apply to: *document*, *doctype sections*, *processing-instructions*, *comments*, *CDATA sections*, *reference sections*, and *entities*. *Processing-instructions* are not displayed by default. To display them, go to **Options** > **Preferences** > **Editor** > **Author** and select **Show processing instructions**.

Note: The custom selectors are presented in the default CSS for **Author** mode and all of their properties are marked with an *!important* flag. For this reason, you have to set the *!important* flag on each property of the custom selectors from your CSS to be applicable.

For the custom selectors to work in your CSSs, declare the Author extensions namespace at the beginning of the stylesheet documents:

```
@namespace oxy url('http://www.oxygenxml.com/extensions/author');
```

- The *oxy|document* selector matches the entire document:

  ```
  oxy|document {
      display:block !important;
  }
  ```

- The following example changes the rendering of doctype sections:

  ```
  oxy|doctype {
      display:block !important;
      color:blue !important;
      background-color:transparent !important;
  }
  ```

- To match the processing instructions, you can use the *oxy|processing-instruction* selector:

  ```
  oxy|processing-instruction {
      display:block !important;
      color:purple !important;
      background-color:transparent !important;
  }
  ```

  A processing instruction usually has a target and one or more pseudo attributes:

  ```
  <?target_name data="b"?>
  ```

You can match a processing instruction with a particular target from the CSS using the construct:

```
oxy|processing-instruction[target_name]
```

You can also match the processing instructions having a certain target and pseudo attribute value like:

```
oxy|processing-instruction[target_name][data="b"]
```

- The XML comments display in Author mode can be changed using the *oxy|comment* selector:

```
oxy|comment {
    display:block !important;
    color:green !important;
    background-color:transparent !important;
}
```

- The *oxy|cdata* selector matches CDATA sections:

```
oxy|cdata{
    display:block !important;
    color:gray !important;
    background-color:transparent !important;
}
```

- The *oxy|entity* selector matches the entities content:

```
oxy|entity {
    display:morph !important;
    editable:false !important;
    color:orange !important;
    background-color:transparent !important;
}
```

- The *references to entities*, *XInclude*, and *DITA conrefs* are expanded by default in Author mode and *the referred content is displayed*. The referred resources are loaded and displayed inside the element or entity that refers them.
  - You can use the *reference* property to customize the way these references are rendered in the **Author** mode:

    ```
    oxy|reference {
      border:1px solid gray !important;
    }
    ```

  In the **Author** mode, content is highlighted when parts of text contain:

  - *comments;*
  - changes and *Track Changes* was active when the content was modified.

  If this content is referred, the **Author** mode does not display the highlighted areas in the new context. If you want to mark the existence of this comments and changes you can use the *oxy|reference[comments]*, *oxy|reference[changeTracking]*, and *oxy|reference[changeTracking][comments]* selectors.

  Note: Two artificial attributes (*comments* and *changeTracking*) are set on the reference node, containing information about the number of comments and track changes in the content.

  - The following example represents the customization of the reference fragments that contain comments:

    ```
    oxy|reference[comments]:before {
      content: "Comments: " attr(comments) !important;
    }
    ```

  - To match reference fragments based on the fact that they contain change tracking inside, use the *oxy|reference[changeTracking]* selector.

    ```
    oxy|reference[changeTracking]:before {
      content: "Change tracking: " attr(changeTracking) !important;
    }
    ```

  - Here is an example of how you can set a custom color to the reference containing both track changes and comments:

    ```
    oxy|reference[changeTracking][comments]:before {
      content: "Change tracking: " attr(changeTracking) " and comments: " attr(comments) !important;
    }
    ```

A sample document rendered using these rules:

Additional CSS Properties

Oxygen XML Author Author offers an extension of the standard CSS properties suited for content editing.

Folding Elements: `-oxy-foldable`, `-oxy-not-foldable-child` and `-oxy-folded` properties

Oxygen XML Author Author allows you to declare some elements to be *foldable* (collapsible). This is especially useful when working with large documents organized in logical blocks, editing a large DocBook article or book for instance. Oxygen XML Author marks the foldable content with a small blue triangle. When you hover with your mouse pointer over this marker, a dotted line borders the collapsible content. The following contextual actions are available:

- **Close Other FoldsCtrl (Meta on Mac OS) + NumPad + /** - Folds all the elements except the current element.
- **Collapse Child Folds (Ctrl+Decimal)** - Folds the elements indented with one level inside the current element.
- **Expand Child Folds (Ctrl+Equals)**- Unfolds all child elements of the currently selected element.
- **Expand All (Ctrl+NumPad+*)** - Unfolds all elements in the current document.
- **Toggle Fold** - Toggles the state of the current fold.

To define the element whose content can be folded by the user, you must use the property: `-oxy-foldable:true;`. To define the elements that are folded by default, use the `-oxy-folded:true` property.

Note: The `-oxy-folded` property works in conjunction with the `-oxy-foldable` property. Thus, the `folded` property is ignored if the `-oxy-foldable` property is not set on the same element.

When collapsing an element, it is useful to keep some of its content visible, like a short description of the collapsed region. The property `-oxy-not-foldable-child` is used to identify the child elements that are kept visible. It accepts as value an element name or a list of comma separated element names. If the element is marked as *foldable* (`-oxy-foldable:true;`) but it doesn't have the property `-oxy-not-foldable-child` or none of the specified

non-foldable children exists, then the element is still foldable. In this case the element kept visible when folded will be the `before` pseudo-element.

Note: Deprecated properties `foldable`, `not-foldable-child`, and `folded` are also supported.

Folding DocBook Elements

All the elements below can have a `title` child element and are considered to be logical sections. You mark them as being *foldable* leaving the `title` element visible.

```
set,
book,
part,
reference,
chapter,
preface,
article,
sect1,
sect2,
sect3,
sect4,
section,
appendix,
figure,
example,
table {
    -oxy-foldable:true;
    -oxy-not-foldable-child: title;
}
```

Placeholders for empty elements: `-oxy-show-placeholder` and `-oxy-placeholder-content` properties

Oxygen XML Author Author displays the element name as pseudo-content for empty elements, if the *http://www.oxygenxml.com/doc/ug-editor/topics/preferences-author.html**Show placeholders for empty elements*** option is enabled and there is no before or after content set is CSS for this type of element.

To control the displayed pseudo-content for empty elements, you can use the `-oxy-placeholder-content` CSS property.

The `-oxy-show-placeholder` property allows you to decide whether the placeholder must be shown. The possible values are:

- `always` - Always display placeholders.
- `default` - Always display placeholders if before or after content are not set is CSS.
- `inherit` - The placeholders are displayed according to **Show placeholders for empty elements** option (if `before` and `after` content is not declared).

Note: Deprecated properties `show-placeholder` and `placeholder-content` are also supported.

Read-only elements: `-oxy-editable` property

If you want to inhibit editing a certain element content, you can set the `-oxy-editable` (deprecated property `editable` is also supported) CSS property to `false`.

Display Elements: `-oxy-morph` value

Oxygen XML Author Author allows you to specify that an element has an `-oxy-morph` display type (deprecated `morph` property is also supported), meaning that the element is inline if all its children are inline.

Let's suppose we have a **wrapper** XML element allowing users to set a number of attributes on all sub-elements. This element should have an inline or block behavior depending on the behavior of its child elements:

```
wrapper{
 display:-oxy-morph;
}
```

The `whitespace` property: `-oxy-trim-when-ws-only` value

Oxygen XML Author Author allows you to set the `whitespace` property to `-oxy-trim-when-ws-only`, meaning that the leading and trailing whitespaces are removed.

The `visibility` property: -oxy-collapse-text

Oxygen XML Author Author allows you to set the value of the `visibility` property to `-oxy-collapse-text`, meaning that the text content of that element is not rendered. If an element is marked as `-oxy-collapse-text` you are not able to position the caret inside it and edit it. The purpose of `-oxy-collapse-text` is to make the text value of an element editable only through a form control.

The text value of an XML element will be edited using a text field form control. In this case, we want the text content not to be directly present in the Author visual editing mode:

```
title{
 content: oxy_textfield(edit, '#text', columns, 40);
 visibility:-oxy-collapse-text;
}
```

Cyrillic Counters: `list-style-type` values `-oxy-lower-cyrillic`

Oxygen XML Author Author allows you to set the value of the `list-style-type` property to `-oxy-lower-cyrillic-ru`, `-oxy-lower-cyrillic-uk`, `-oxy-upper-cyrillic-ru` or `-oxy-upper-cyrillic-uk`, meaning that you can have Russian and Ukrainian counters.

Counting list items with Cyrillic symbols:

```
li{
  display:list-item;
  list-style-type:-oxy-lower-cyrillic-ru;
}
```

The link property: link

Oxygen XML Author Author allows you to declare some elements to be *links*. This is especially useful when working with many documents which refer each other. The links allow for an easy way to get from one document to another. Clicking on the link marker will open the referred resource in an editor.

To define the element which should be considered a link, you must use the property `link` on the before or after pseudo element. The value of the property indicates the location of the linked resource. Since links are usually indicated by the value of an attribute in most cases it will have a value similar to `attr(href)`

Docbook Link Elements

All the elements below are defined to be links on the before pseudo element and their value is defined by the value of an attribute.

```
*[href]:before{
    link:attr(href);
    content: "Click " attr(href) " for opening" ;
}

ulink[url]:before{
    link:attr(url);
    content: "Click to open: " attr(url);
}

olink[targetdoc]:before{
    -oxy-link: attr(targetdoc);
    content: "Click to open: " attr(targetdoc);
}
```

Display Tag Markers: -oxy-display-tags

Oxygen XML Author Author allows you to choose whether tag markers of an element should never be presented or the current display mode should be respected. This is especially useful when working with `:before` and `:after` pseudo-elements in which case the element range is already visually defined so the tag markers are redundant.

The property is named `-oxy-display-tags`, with the following possible values:

- *none* - Tags markers must not be presented regardless of the current *Display mode.*
- *default* - The tag markers will be created depending on the current *Display mode.*
- *inherit* - The value of the property is inherited from an ancestor element.

```
-oxy-display-tags
    Value: none | default | inherit
    Initial: default
    Applies to: all nodes(comments, elements, CDATA, etc)
    Inherited: false
    Media: all
```

Docbook Para elements

In this example the **para** element from Docbook is using an `:before` and `:after` element so you don't want its tag markers to be visible.

```
para:before{
    content: "{";
}

para:after{
    content: "}";
}

para{
    -oxy-display-tags: none;
    display:block;
    margin: 0.5em 0;
}
```

Append Content Properties: `-oxy-append-content` and `-oxy-prepend-content`

The `-oxy-append-content` Property

This property appends the specified content to the content generated by other matching CSS rules of lesser specificity. Unlike the `content` property, where only the value from the rule with the greatest specificity is taken into account, the `-oxy-append-conent` property adds content to that generated by the lesser specificity rules into a new compound content.

`-oxy-append-content` Example

```
element:before{
    content: "Hello";
}
element:before{
    -oxy-append-content: " World!";
}
```

The content shown before the `element` will be `Hello World!`.

The `-oxy-prepend-content` Property

Prepends the specified content to the content generated by other matching CSS rules of lesser specificity. Unlike the `content` property, where only the value from the rule with the greatest specificity is taken into account, the `-oxy-prepend-conent` prepends content to that generated by the lesser specificity rules into a new compound content.

`-oxy-prepend-content` Example

```
element:before{
    content: "Hello!";
```

```
}
element:before{
    -oxy-prepend-content: "said: ";
}
element:before{
    -oxy-prepend-content: "I ";
}
```

The content shown before the `element` will be `I said: Hello!`.

Custom colors for element tags: -oxy-tags-color and -oxy-tags-background-color

By default Oxygen XML Author does not display element tags. You can use this button  from the **Author** tool bar to control the amount of *displayed markup.*

To configure the default background and foreground colors of the tags, go to **Editor** > **Edit modes** > **Author**. The `-oxy-tags-background-color` and `-oxy-tags-color` properties allow you to control the background and foreground colors for any particular XML element.

```
para {
    -oxy-tags-color:white;
    -oxy-tags-background-color:green;
}
title {
    -oxy-tags-color:yellow;
    -oxy-tags-background-color:black;
}
```

Custom CSS Functions

The visual Author editing mode supports also a wide range of custom CSS extension functions.

The `oxy_local-name()` Function

The `oxy_local-name()` function evaluates the local name of the current node. It does not have any arguments.

To insert as static text content before each element its local name, use this CSS selector:

```
*:before{
  content: oxy_local-name() ": ";
}
```

The `oxy_name()` Function

The `oxy_name()` function evaluates the qualified name of the current node. It does not have any arguments.

To insert as static text content before each element its qualified name, use this CSS selector:

```
*:before{
  content: oxy_name() ": ";
}
```

The `oxy_url()` Function

The `oxy_url()` function extends the standard CSS **url()** function, by allowing you to specify additional relative path components (parameters **loc_1** to **loc_n**). Oxygen XML Author uses all these parameters to construct an absolute location.

`oxy_url( location , loc_1 , loc_2 )`

location	The location as string. If not absolute, will be solved relative to the CSS file URL.
loc_1 ... loc_n	Relative location path components as string. (optional)

The following function:

```
oxy_url('http://www.oxygenxml.com/css/test.css', '../dir1/', 'dir2/dir3/',
'../../dir4/dir5/test.xml')
```

returns

```
'http://www.oxygenxml.com/dir1/dir4/dir5/test.xml'
```

As a concrete example if you have image references but you want to see in the visual Author editing mode thumbnail images which reside in the same folder:

```
image[href]{
 content:oxy_url(oxy_base-uri(), oxy_replace(attr(href), '.jpeg', 'Thumbnail.jpeg'));
}
```

The `oxy_base-uri()` Function

The `oxy_base-uri()` function evaluates the base URL in the context of the current node. It does not have any arguments and takes into account the `xml:base` context of the current node. See the *XML Base specification* for more details.

If you have image references but you want to see in the visual Author editing mode thumbnail images which reside in the same folder:

```
image[href]{
 content:oxy_url(oxy_base-uri(), oxy_replace(attr(href), '.jpeg', 'Thumbnail.jpeg'));
}
```

The `oxy_parent-url()` Function

The `oxy_parent-url()` function evaluates the parent URL of an URL received as string.

`oxy_parent-url ( URL )`

URL The URL as string.

The `oxy_capitalize()` Function

This function capitalizes the first letter of the text received as argument.

`oxy_capitalize ( text )`

text The text for which the first letter will be capitalized.

To insert as static text content before each element its capitalized qualified name, use this CSS selector:

```
*:before{
  content: oxy_capitalize(oxy_name()) ": ";
}
```

The `oxy_uppercase()` Function

The `oxy_uppercase()` function transforms to upper case the text received as argument.

`oxy_uppercase ( text )`

text The text to be capitalized.

To insert as static text content before each element its upper-cased qualified name, use this CSS selector:

```
*:before{
  content: oxy_uppercase(oxy_name()) ": ";
}
```

The `oxy_lowercase()` Function

The `oxy_lowercase()` function transforms to lower case the text received as argument.

`oxy_lowercase( text )`

text	The text to be lower cased.

To insert as static text content before each element its lower-cased qualified name, use this CSS selector:

```
*:before{
  content: oxy_lowercase(oxy_name()) ": ";
}
```

The `oxy_concat()` Function

The `oxy_concat()` function concatenates the received string arguments.

`oxy_concat( str_1 , str_2 )`

str_1 ... str_n	The string arguments to be concatenated.

If an XML element has an attribute called **padding-left**:

and you want to add a padding before it with that specific amount specified in the attribute value:

```
*[padding-left]{
 padding-left:oxy_concat(attr(padding-left), "px");
}
```

The `oxy_replace()` Function

The `oxy_replace()` function has two signatures:

- `oxy_replace( text , target , replacement )`

  This function replaces each substring of the text that matches the literal target string with the specified literal replacement string.

text	The text in which the replace will occur.
target	The target string to be replaced.
replacement	The string replacement.

- `oxy_replace( text , target , replacement , isRegExp )`

  This function replaces each substring of the text that matches the target string with the specified replacement string.

text	The text in which the replace will occur.
target	The target string to be replaced.
replacement	The string replacement.
isRegExp	If *true* the target and replacement arguments are considered regular expressions in PERL syntax, if *false* they are considered literal strings.

If you have image references but you want to see in the visual Author editing mode thumbnail images which reside in the same folder:

```
image[href]{
 content:oxy_url(oxy_base-uri(), oxy_replace(attr(href), '.jpeg', 'Thumbnail.jpeg'));
}
```

The `oxy_unparsed-entity-uri()` Function

The `oxy_unparsed-entity-uri()` function returns the URI value of an unparsed entity name.

`oxy_unparsed-entity-uri ( unparsedEntityName )`

unparsedEntityName	The name of an unparsed entity defined in the DTD.

This function can be useful to display images which are referred with unparsed entity names.

CSS for displaying the image in Author for an *imagedata* with *entityref* to an unparsed entity

```
imagedata[entityref]{
content: oxy_url(oxy_unparsed-entity-uri(attr(entityref)));
}
```

The `oxy_attributes()` Function

The `oxy_attributes()` function concatenates the attributes for an element and returns the serialization.

`oxy_attributes ( )`

oxy_attributes()

For the following XML fragment:`<element att1="x" xmlns:a="2" x="""/>` the CSS selector

```
element{
  content:oxy_attributes();
}
```

will display`att1="x" xmlns:a="2" x="""`.

The `oxy_substring()` Function

The `oxy_substring()` function has two signatures:

- `oxy_substring ( text , startOffset )`

  Returns a new string that is a substring of the original **text** string. It begins with the character at the specified index and extends to the end of **text** string.

text	The original string.
startOffset	The beginning index, inclusive

- `substring ( text , startOffset , endOffset )`

  Returns a new string that is a substring of the original **text** string. The substring begins at the specified **startOffset** and extends to the character at index **endOffset** - 1.

text	The original string.
startOffset	The beginning index, inclusive
endOffset	The ending index, exclusive.

`oxy_substring('abcd', 1)` returns the string `'bcd'`.

`oxy_substring('abcd', 4)` returns an empty string.

`oxy_substring('abcd', 1, 3)` returns the string `'bc'`.

If we want to display only part of an attribute's value, the part which comes before an **Appendix** string:

```
image[longdesc]{
 content: oxy_substring(attr(longdesc), 0, oxy_indexof(attr(longdesc), "Appendix"));
}
```

The `oxy_getSomeText(text, length)` Function

The `oxy_getSomeText(text, length)` function allows you to truncate a long string and to set a maximum number of displayed characters.

The following properties are supported:

- **text** - displays the actual text;
- **length** - sets the maximum number of characters that are displayed;
- **endsWithPoints** - specifies whether the truncated text ends with ellipsis.

If an attribute value is very large we can trim its content before it is displayed as static content:

```
*[longdesc]:before{
  content: oxy_getSomeText(attr(longdesc), 200);
}
```

The `oxy_indexof()` Function

The `oxy_indexof()` function has two signatures:

- `oxy_indexof( text , toFind )`

  Returns the index within **text** string of the first occurrence of the **toFind** substring.

text	Text to search in.
toFind	The searched substring.

- `oxy_indexof( text , toFind , fromOffset )`

  Returns the index within **text** string of the first occurrence of the **toFind** substring. The search starts from **fromOffset** index.

text	Text to search in.
toFind	The searched substring.
fromOffset	The index from which to start the search.

`oxy_indexof('abcd', 'bc')` returns 1.

`oxy_indexof('abcdbc', 'bc', 2)` returns 4.

If we want to display only part of an attribute's value, the part which comes before an **Appendix** string:

```
image[longdesc]{
 content: oxy_substring(attr(longdesc), 0, oxy_indexof(attr(longdesc), "Appendix"));
}
```

The `oxy_lastindexof()` Function

The `oxy_lastindexof()` function has two signatures:

- `oxy_lastindexof( text , toFind )`

  Returns the index within **text** string of the rightmost occurrence of the **toFind** substring.

text	Text to search in.
toFind	The searched substring.

- `oxy_lastindexof ( text , toFind , fromOffset )`

  The search starts from **fromOffset** index. Returns the index within **text** string of the last occurrence of the **toFind** substring, searching backwards starting from the **fromOffset** index.

text	Text to search in.
toFind	The searched substring.
fromOffset	The index from which to start the search backwards.

  `oxy_lastindexof('abcdbc', 'bc')` returns 4.

  `oxy_lastindexof('abcdbccdbc', 'bc', 2)` returns 1.

  If we want to display only part of an attribute's value, the part which comes before an **Appendix** string:

```
image[longdesc]{
 content: oxy_substring(attr(longdesc), 0, oxy_lastindexof(attr(longdesc), "Appendix"));
}
```

The `oxy_xpath()` Function

The `oxy_xpath()` function has one signature:

- `oxy_xpath ( expression )`

  Evaluates the given XPath expression using Saxon 9 and returns the result.

  Note: The entities are ignored when the XPath expressions are evaluated.

expression	An XPath 2.0 expression to be evaluated.

  The following example counts the number of words from a paragraph and displays the result in front of it:

```
para:before{
  content:
    concat("|Number of words:",
           oxy_xpath(
                "count(tokenize(normalize-space(string-join(text(), '')), ' '))"
           ), "| ");
}
```

The `oxy_editor()` Function

The `oxy_editor` function allows you to edit attributes or simple element values in the **Author** mode using standard form controls like combo boxes, text fields, pop-ups, URL choosers or to implement your own custom form controls and renderers.

The `oxy_editor()` function can appear in the `content` property of a CSS rule. The function's arguments are *property name* - *property value* pairs:

```
myElement {
    content: oxy_editor(
        type, combo,
        edit, "@my_attr"
    )
}
```

The form control allows you to edit Processing Instructions (PIs), the value of an attribute, or the text content of an element. This is specified using the `edit` property. This property can have the following values:

- **@attribute_name** - specifies that the presented/edited value is the value of an attribute;
- **#text** - specifies that the presented/edited value is the simple text value of an element. This text can contain built-in character entities.

Note: You can set the value of the `visibility` property to `-oxy-collapse-text` to render the text only in the form control that the oxy_editor function specifies.

You can use a number of built-in form controls through the `type` property. The following values are recognized:

- ***text*** - a text field with optional content completion capabilities is used to present and edit a value;
- ***combo*** - a combo-box is used to present and edit a value;
- ***check*** - a single check box or multiple check boxes are used to present and edit a value;
- ***popupSelection*** - a pop-up with single/multiple selection is used as form control;
- ***button*** - a button that invokes an author action is used as form control;
- ***urlChooser*** - a text field with a browse button is used as form control.
- ***datePicker*** - a text field with a calendar browser button is used as form control.

To watch our video demonstration about form controls, go to *http://oxygenxml.com/demo/Form_Controls.html*.

The Text Field Form Control

A text field with optional content completion capabilities is used to present and edit the value of an attribute or an element. It can be added using the generic function `oxy_editor`. Alternatively, you can use the dedicated function: `oxy_textfield`. This type of form control supports the following properties:

- `type` - this property specifies the built-in form control you are using. Only needed if you use `oxy_editor` generic function to add the form control. For the Text form control, its value has to be `text`;
- `edit` - lets you edit the value of an attribute, the text content of an element or Processing Instructions (PIs). This property can have the following values:
  - **@attribute_name** - The name of the attribute who's value is being edited. If the attribute is in a namespace the value of the property must be a QName and the CSS must have a namespace declaration for the prefix:

    ```
    @namespace fc "http://www.oxygenxml.com/ns/samples/form-controls";
    myElement {
        content: oxy_editor(
            type, combo,
            edit,  "@fc:my_attr"
        )
    }
    ```

  - **#text** - specifies that the presented/edited value is the simple text value of an element.

    Note: You can set the value of the `visibility` property to `-oxy-collapse-text` to render the text only in the form control that the oxy_editor function specifies

- `columns` - controls the width of the form control. The unit size is the width of the **w** character;
- `fontInherit` - this value specifies whether the form control inherits its font from its parent element. The values of this property can be `true`, or `false`.To make the `pop-up` form control inherit its font from its parent element, set the `fontInherit` property to `true`;
- `visible` - specifies whether the form control is visible. The possible values of this property are **true** (the form control is visible) and **false** (the form control is not visible);
- `values` - specifies the values that populate the content completion list of proposals. In case these values are not specified, they are collected from the associated schema;
- `tooltips` - associates tooltips to each value in the `values` property. The value of this property are a list of tooltips separated by commas. In case you want the tooltip to display a comma, use the `${comma}` variable;
- `tooltip` - specifies a tooltip for the form control itself. This tooltip is displayed when you hover the form control using your cursor;
- `color` - specifies the foreground color of the form control. In case the value of the `color` property is `inherit`, the form control has the same color as the element in which it is inserted.

Text Field Form Control

```
element {
    content: "Label: "
        oxy_editor(
```

```
            type, text,
            edit, "@my_attr",
            values, "value1, value2"
            columns, 40);
}
```

The `oxy_editor` function acts as a proxy that allows you to insert any of the supported form controls. Alternatively, you can use the `oxy_textfield` dedicated function.

```
element {
    content: "Label: "
        oxy_textfield(
            edit, "@my_attr",
            values, "value1, value2"
            columns, 40);
}
```

The Combo Box Form Control

A combo box is used to present and edit the value of an attribute or an element. It can be added using the generic function `oxy_editor`. Alternatively, you can use the dedicated function: `oxy_combobox`. This type of form control supports the following properties:

- `type` - this property specifies the built-in form control you are using. Only needed if you use `oxy_editor` generic function to add the form control. For the Combo box form control, its value has to be `combo`;
- `edit` - lets you edit the value of an attribute, the text content of an element or Processing Instructions (PIs). This property can have the following values:
  - **@attribute_name** - The name of the attribute who's value is being edited. If the attribute is in a namespace the value of the property must be a QName and the CSS must have a namespace declaration for the prefix:

    ```
    @namespace fc "http://www.oxygenxml.com/ns/samples/form-controls";
    myElement {
        content: oxy_editor(
            type, combo,
            edit,  "@fc:my_attr"
        )
    }
    ```

  - **#text** - specifies that the presented/edited value is the simple text value of an element.

    Note: You can set the value of the `visibility` property to `-oxy-collapse-text` to render the text only in the form control that the oxy_editor function specifies

- `columns` - controls the width of the form control. The unit size is the width of the **w** character;
- `visible` - specifies whether the form control is visible. The possible values of this property are **true** (the form control is visible) and **false** (the form control is not visible);
- `editable` - this property accepts the **true** and **false** values. The **true** value generates an editable combo-box that allows you to insert other values than the proposed ones. The **false** value generates a combo-box that only accepts the proposed values;
- `tooltips` - associates tooltips to each value in the `values` property. The value of this property are a list of tooltips separated by commas. In case you want the tooltip to display a comma, use the `${comma}` variable;
- `values` - specifies the values that populate the content completion list of proposals. In case these values are not specified, they are collected from the associated schema;
- `fontInherit` - this value specifies whether the form control inherits its font from its parent element. The values of this property can be `true`, or `false`. To make the Combo-box form control inherit its font from its parent element, set the `fontInherit` property to `true`;
- `labels` - this property must have the same number of items as the `values` property. Each item provides a literal description of the items listed in the `values` property;

  Note: This property is available only for read-only Combo boxes (Combo boxes that have the `editable` property set to `false`).

- `color` - specifies the foreground color of the form control. In case the value of the `color` property is `inherit`, the form control has the same color as the element in which it is inserted.

Combo Box Form Control

```
comboBox:before {
    content: "A combo box that edits an attribute value. The possible values are provided from
CSS:"
        oxy_editor(
            type, combo,
            edit, "@attribute",
            editable, true,
            values, "value1, value2, value3",
            labels, "Value no1, Value no2, Value no3");
}
```

The `oxy_editor` function acts as a proxy that allows you to insert any of the supported form controls. Alternatively, you can use the `oxy_combobox` dedicated function.

```
comboBox:before {
    content: "A combo box that edits an attribute value. The possible values are provided from
CSS:"
        oxy_combobox(
            edit, "@attribute",
            editable, true,
            values, "value1, value2, value3",
            labels, "Value no1, Value no2, Value no3");
}
```

The Check Box Form Control

A single check-box or multiple check-boxes are used to present and edit the value on an attribute or element. It can be added using the generic function `oxy_editor`. Alternatively, you can use the dedicated function: `oxy_checkbox`. This type of form control supports the following properties:

- `type` - this property specifies the built-in form control you are using. Only needed if you use `oxy_editor` generic function to add the form control. For the Check Box form control, its value has to be `check`;
- `edit` - lets you edit the value of an attribute, the text content of an element or Processing Instructions (PIs). This property can have the following values:
  - **@attribute_name** - The name of the attribute who's value is being edited. If the attribute is in a namespace the value of the property must be a QName and the CSS must have a namespace declaration for the prefix:

    ```
    @namespace fc "http://www.oxygenxml.com/ns/samples/form-controls";
    myElement {
        content: oxy_editor(
            type, combo,
            edit,  "@fc:my_attr"
        )
    }
    ```

  - **#text** - specifies that the presented/edited value is the simple text value of an element.

    Note: You can set the value of the `visibility` property to `-oxy-collapse-text` to render the text only in the form control that the oxy_editor function specifies

- `resultSeparator` - in case multiple check-boxes are used, the separator is used to compose the final result;
- `tooltips` - associates tooltips to each value in the `values` property. The value of this property are a list of tooltips separated by commas. In case you want the tooltip to display a comma, use the `${comma}` variable;
- `visible` - specifies whether the form control is visible. The possible values of this property are **true** (the form control is visible) and **false** (the form control is not visible);
- `values` - specifies the values that are committed when the check-boxes are selected. In case these values are not specified in the CSS, they are collected from the associated XML Schema;
- `fontInherit` - this value specifies whether the form control inherits its font from its parent element. The values of this property can be `true`, or `false`. To make the Check box form control inherit its font from its parent element, set the `fontInherit` property to `true`.
- `uncheckedValues` - specifies the values that are committed when the check-boxes are not selected;
- `labels` - this property must have the same number of items as the `values` property. Each item provides a literal description of the items listed in the `values` property. In case this property is not specified, the `values` property is used as label;
- `columns` - controls the width of the form control. The unit size is the width of the **w** character;

- `color` - specifies the foreground color of the form control. In case the value of the `color` property is `inherit`, the form control has the same color as the element in which it is inserted.

Single Check-box Form Control

```
checkBox[attribute]:before {
    content: "A check box editor that edits a two valued attribute (On/Off).
             The values are specified in the CSS:"
oxy_editor(
    type, check,
        edit, "@attribute",
        values, "On",
        uncheckedValues, "Off",
        labels, "On/Off");
}
```

Multiple Check-boxes Form Control

```
multipleCheckBox[attribute]:before {
    content: "Multiple checkboxes editor that edits an attribute value.
             Depending whether the check-box is selected a different value is committed:"
        oxy_editor(
        type, check,
        edit, "@attribute",
        values, "true, yes, on",
        uncheckedValues, "false, no, off",
        resultSeparator, ","
        labels, "Present, Working, Started");
}
```

The `oxy_editor` function acts as a proxy that allows you to insert any of the supported form controls. Alternatively, you can use the `oxy_checkbox` dedicated function.

```
multipleCheckBox[attribute]:before {
    content: "Multiple checkboxes editor that edits an attribute value.
             Depending whether the check-box is selected a different value is committed:"
        oxy_checkbox(
        edit, "@attribute",
        values, "true, yes, on",
        uncheckedValues, "false, no, off",
        resultSeparator, ","
        labels, "Present, Working, Started");
}
```

The Pop-up Form Control

A pop-up with single or multiple selection is used as a form control. It can be added using the generic function `oxy_editor`. Alternatively, you can use the dedicated function: `oxy_popup`. This type of form control supports the following properties:

- `type` - this property specifies the built-in form control you are using. Only needed if you use `oxy_editor` generic function to add the form control. For the Pop-up form control, its value has to be `popupSelection`;
- `edit` - lets you edit the value of an attribute, the text content of an element or Processing Instructions (PIs). This property can have the following values:
  - **@attribute_name** - The name of the attribute who's value is being edited. If the attribute is in a namespace the value of the property must be a QName and the CSS must have a namespace declaration for the prefix:

    ```
    @namespace fc "http://www.oxygenxml.com/ns/samples/form-controls";
    myElement {
        content: oxy_editor(
            type, combo,
            edit,  "@fc:my_attr"
        )
    }
    ```

  - **#text** - specifies that the presented/edited value is the simple text value of an element.

    Note: You can set the value of the `visibility` property to `-oxy-collapse-text` to render the text only in the form control that the oxy_editor function specifies

- `rows` - this property specifies the number of rows that the form control presents;

  Note: In case the value of the **rows** property is not specifies, the default value of *12* is used.

- `color` - specifies the foreground color of the form control. In case the value of the `color` property is `inherit`, the form control has the same color as the element in which it is inserted;
- `visible` - specifies whether the form control is visible. The possible values of this property are **true** (the form control is visible) and **false** (the form control is not visible);
- `tooltips` - associates tooltips to each value in the `values` property. The value of this property are a list of tooltips separated by commas. In case you want the tooltip to display a comma, use the `${comma}` variable;
- `values` - specifies the values that are committed when the check-boxes are selected. In case these values are not specified in the CSS, they are collected from the associated XML Schema;
- `resultSeparator` - in case multiple check-boxes are used, the separator is used to compose the final result;

Note: The value of the `resultSeparator` property cannot exceed one character.

- `selectionMode` - specifies whether the form control allows the selection of a single value or of multiple values. The predefined values of this property are `single` and `multiple`;
- `labels` - specifies the label associated with each entry used for presentation. In case this property is not specified, the **values** property is used as label;
- `columns` - controls the width of the form control. The unit size is the width of the **w** character. This property is used for the visual representation of the form control;
- `rendererSort` - allows you to sort the values rendered on the pop-up form control label. The possible values of this property are `ascending` and `descending`;
- `editorSort` - allows you to sort the values rendered on the pop-up window. The possible values of this property are `ascending` and `descending`;
- `rendererSeparator` - defines a separator used when multiple values are rendered;
- `fontInherit` - this value specifies whether the form control inherits its font from its parent element. The values of this property can be `true`, or `false`. To make the Pop-up form control inherit its font from its parent element, set the `fontInherit` property to `true`;

Tip: In the below example, the value of the **fontInherit** property is **true**, meaning that the pop-up form control inherits the font size of `30px` from the **font-size** property.

Pop-up Form Control

```
popupWithMultipleSelection:before {
    content: " This editor edits an attribute value. The possible values are     specified
    inside the CSS: "
        oxy_editor(
            type, popupSelection,
            edit, "@attribute",
            values, "value1, value2, value3, value4, value5",
            labels, "Value no1, Value no2, Value no3, Value no4, Value no5",
            resultSeparator, "|",
            columns, 10,
            selectionMode, "multiple",
            fontInherit, true);
    font-size:30px;
}
```

The `oxy_editor` function acts as a proxy that allows you to insert any of the supported form controls. Alternatively, you can use the `oxy_popup` dedicated function.

```
popupWithMultipleSelection:before {
    content: " This editor edits an attribute value. The possible values are     specified
    inside the CSS: "
        oxy_popup(
            edit, "@attribute",
            values, "value1, value2, value3, value4, value5",
            labels, "Value no1, Value no2, Value no3, Value no4, Value no5",
            resultSeparator, "|",
            columns, 10,
            selectionMode, "multiple",
            fontInherit, true);
    font-size:30px;
}
```

The Button Form Control

This form control contributes a button that invokes a *custom Author action* (defined in the associated Document Type) using its defined ID. It can be added using the generic function `oxy_editor`. Alternatively, you can use the dedicated function: `oxy_button`. The following properties are supported:

- `type` - this property specifies the built-in form control you are using. Only needed if you use `oxy_editor` generic function to add the form control. For the Button form control the value of the `type` property is `button`;
- `actionContext` - specifies the context in which the action associated with the form control is executed. Its possible values are `element` and `caret`. If you select the `element` value, the context is the element that holds the form control. If you select the `caret` value, the action is invoked at the caret location. In case the caret is not inside the element that holds the form control, the `element` value is selected automatically;
- `fontInherit` - this value specifies whether the form control inherits its font from its parent element. The values of this property can be `true`, or `false`. To make the `button` form control inherit its font from its parent element, set the **fontInherit** property to **true**;
- `color` - specifies the foreground color of the form control. In case the value of the `color` property is `inherit`, the form control has the same color as the element in which it is inserted;
- `actionID` - the ID of the action specified in *Author actions*, that is invoked when you click the button;

  Note: The element that contains the `Button` form control represents the context where the action is invoked.

- `visible` - specifies whether the form control is visible. The possible values of this property are **true** (the form control is visible) and **false** (the form control is not visible);
- `transparent` - flattens the aspect of the button form control, removing its border and background.
- `showText` - specifies if the action text should be displayed on the button form control. If this property is missing then the button displays only the icon if it is available, or the text if the icon is not available. The values of this property can be `true` or `false`.

```
element {
  content: oxy_button(actionID, 'remove.attribute', showText, true);
}
```

- `showIcon` - specifies if the action icon should be displayed on the button form control. If this property is missing then the button displays only the icon if it is available, or the text if the icon is not available. The values of this property can be `true` or `false`.

```
element {
  content: oxy_button(actionID, 'remove.attribute', showIcon, true);
}
```

Button Form Control

```
button:before {
    content: "Label:"
        oxy_editor(
            type, button,
            /* This action is declared in the document type associated with the XML document. */

            actionID, "insert.popupWithMultipleSelection");
}
```

The `oxy_editor` function acts as a proxy that allows you to insert any of the supported form controls. Alternatively, you can use the `oxy_button` dedicated function.

```
button:before {
    content: "Label:"
        oxy_button(
            /* This action is declared in the document type associated with the XML document. */

            actionID, "insert.popupWithMultipleSelection");
}
```

The Button Group Form Control

A pop-up menu is shown, which can invoke one of the several custom Author actions (defined in the associated Document Type) specified by their ID. It can be added using the generic function `oxy_editor`. Alternatively, you can use the dedicated function: `oxy_buttonGroup`. This type of form control supports the following properties:

- `actionIDs` - comma separated IDs of the actions to be displayed in the pop-up menu;

- `type` - this property specifies the built-in form control you are using. Only needed if you use `oxy_editor` generic function to add the form control
- `label` - specifies the label to be displayed on the button;
- `icon` - the path to the icon to be displayed on the button;
- `actionContext` - specifies the context in which the action associated with the form control is executed. Its possible values are `element` and `caret`. If you select the `element` value, the context is the element that holds the form control. If you select the `caret` value, the action is invoked at the caret location. In case the caret is not inside the element that holds the form control, the `element` value is selected automatically;
- `visible` - specifies whether the form control is visible. The possible values of this property are **true** (the form control is visible) and **false** (the form control is not visible);
- `actionStyle` - specifies what to display for an action in the pop-up menu. The values of this property can be text, and icon, or both;
- `tooltips` - associates tooltips to each value in the `values` property. The value of this property are a list of tooltips separated by commas. In case you want the tooltip to display a comma, use the `${comma}` variable;
- `transparent` - makes the button transparent without any borders or background colors. The values of this property can be `true` or `false`;
- `fontInherit` - this value specifies whether the form control inherits its font from its parent element. The values of this property can be `true`, or `false`. To make the form control inherit its font from its parent element, set the **fontInherit** property to `true`.

The Button Group Form Control

```
buttongroup:before {
    content:
        oxy_label(text, "Button Group:", width, 150px, text-align, left)
        oxy_buttonGroup(
            label, 'A group of actions',
           /* The action IDs are declared in the document type  associated with the XML document.
 */
            actionIDs, "insert.popupWithMultipleSelection,insert.popupWithSingleSelection",
            actionStyle, "both");
}
```

The Text Area Form Control

A text area with optional syntax highlight capabilities is used to present and edit the value of an attribute or an element. It can be added using the generic function `oxy_editor`. Alternatively, you can use the dedicated function: `oxy_textArea`. This type of form control supports the following properties:

- `type` - this property specifies the built-in form control you are using. Only needed if you use `oxy_editor` generic function to add the form control. For the Text Area form control, its value has to be `textArea`;
- `edit` - lets you edit the value of an attribute, the text content of an element or Processing Instructions (PIs). This property can have the following values:
  - **@attribute_name** - The name of the attribute who's value is being edited. If the attribute is in a namespace the value of the property must be a QName and the CSS must have a namespace declaration for the prefix:

    ```
    @namespace fc "http://www.oxygenxml.com/ns/samples/form-controls";
    myElement {
        content: oxy_editor(
            type, combo,
            edit,  "@fc:my_attr"
        )
    }
    ```

  - **#text** - specifies that the presented/edited value is the simple text value of an element.

    Note: You can set the value of the `visibility` property to `-oxy-collapse-text` to render the text only in the form control that the oxy_editor function specifies

- `columns` - controls the width of the form control. The unit size is the width of the **w** character;
- `fontInherit` - this value specifies whether the form control inherits its font from its parent element. The values of this property can be `true`, or `false`;

- `visible` - specifies whether the form control is visible. The possible values of this property are **true** (the form control is visible) and **false** (the form control is not visible);
- `rows` - this property specifies the number of rows that the form control presents. In case the form control has more lines, you are able to scroll and see them all;
- `edit` - lets you edit the value of an attribute, the text content of an element or Processing Instructions (PIs). This property can have the following values:
  - **@attribute_name** - The name of the attribute who's value is being edited. If the attribute is in a namespace the value of the property must be a QName and the CSS must have a namespace declaration for the prefix:

```
@namespace fc "http://www.oxygenxml.com/ns/samples/form-controls";
myElement {
    content: oxy_editor(
        type, combo,
        edit,  "@fc:my_attr"
    )
}
```

  - **#text** - specifies that the presented/edited value is the simple text value of an element.

Note: You can set the value of the `visibility` property to `-oxy-collapse-text` to render the text only in the form control that the oxy_editor function specifies

- `contentType` - specifies the type of content for which the form control offers syntax highlight. The following values are supported: `text/css; text/shell; text/cc; text/xquery; text/xml; text/python; text/xsd; text/c; text/xpath; text/javascript; text/xsl; text/wsdl; text/html; text/xproc; text/properties; text/sql; text/rng; text/sch; text/json; text/perl; text/php; text/java; text/batch; text/rnc; text/dtd; text/nvdl; text/plain`;
- `indentOnTab` - specifies the behaviour of the **Tab** key. If the value of this property is set to **true**, the **Tab** key inserts characters. If it is set to **false**, **Tab** is used for navigation, jumping to the next editable position in the document.

The `white-space` CSS property influences the value that you edit, as well as the from control size:

- `pre` - the white spaces and new lines of the value are preserved and edited. If the `rows` and `columns` properties are not specifies, the Text Area form control calculates its size on its own so that all the text is visible;
- `pre-wrap` - the long lines are wrapped to avoid horizontal scrolling;

Note: The `rows` and `columns` properties have to be specified. In case these are not specified, the form control considers the value to be `pre`.

- `normal` - the white spaces and new lines are normalized.

The following example presents a text area with CSS syntax highlight which calculates its own dimension, and a second one with XML syntax highlight with defined dimension.

```
textArea {
    visibility: -oxy-collapse-text;
    white-space: pre;
}

textArea[language="CSS"]:before {
    content: oxy_textArea(
      edit, '#text',
      contentType, 'text/css');
}

textArea[language="XML"]:before {
    content: oxy_textArea(
      edit, '#text',
      contentType, 'text/xml',
      rows, 10,
      columns, 30);
}
```

The URL Chooser Form Control

A field that allows you to select local and remote resources is used as a form control. The inserted reference will be made relative to the current opened editor's URL. It can be added using the generic function `oxy_editor`. Alternatively, you can use the dedicated function: `oxy_urlChooser`. This type of editor supports the following properties:

- `type` - this property specifies the built-in form control you are using. Only needed if you use `oxy_editor` generic function to add the form control. For the URL Chooser editor, its value has to be `urlChooser`;
- `edit` - lets you edit the value of an attribute, the text content of an element or Processing Instructions (PIs). This property can have the following values:
  - **@attribute_name** - The name of the attribute who's value is being edited. If the attribute is in a namespace the value of the property must be a QName and the CSS must have a namespace declaration for the prefix:

    ```
    @namespace fc "http://www.oxygenxml.com/ns/samples/form-controls";
    myElement {
        content: oxy_editor(
            type, combo,
            edit,  "@fc:my_attr"
        )
    }
    ```

  - **#text** - specifies that the presented/edited value is the simple text value of an element.

    Note: You can set the value of the `visibility` property to `-oxy-collapse-text` to render the text only in the form control that the oxy_editor function specifies

- `columns` - controls the width of the form control. The unit size is the width of the **w** character;
- `color` - specifies the foreground color of the form control. In case the value of the `color` property is `inherit`, the form control has the same color as the element in which it is inserted;
- `visible` - specifies whether the form control is visible. The possible values of this property are **true** (the form control is visible) and **false** (the form control is not visible);
- `fontInherit` - this value specifies whether the form control inherits its font from its parent element. The values of this property can be `true`, or `false`.

URL Chooser Form Control

```
urlChooser[file]:before {
    content: "An URL chooser editor that allows browsing for a URL. The selected URL is made
relative to the currently edited file:"
        oxy_editor(
        type, urlChooser,
        edit, "@file",
        columns 25);
}
```

The `oxy_editor` function acts as a proxy that allows you to insert any of the supported form controls. Alternatively, you can use the `oxy_urlChooser` dedicated function.

```
urlChooser[file]:before {
    content: "An URL chooser editor that allows browsing for a URL. The selected URL is made
relative to the currently edited file:"
        oxy_urlChooser(
        edit, "@file",
        columns 25);
}
```

The Date Picker Form Control

A text field with a calendar browser is used as a form control. The browse button shows a date chooser allowing you to easily choose a certain date. It can be added using the generic function `oxy_editor`. Alternatively, you can use the dedicated function: `oxy_datePicker`. This type of form control supports the following properties:

- `type` - this property specifies the built-in form control you are using. Only needed if you use `oxy_editor` generic function to add the form control. For the Date picker form control, its value has to be `datePicker`;
- `edit` - lets you edit the value of an attribute, the text content of an element or Processing Instructions (PIs). This property can have the following values:
  - **@attribute_name** - The name of the attribute who's value is being edited. If the attribute is in a namespace the value of the property must be a QName and the CSS must have a namespace declaration for the prefix:

```
@namespace fc "http://www.oxygenxml.com/ns/samples/form-controls";
myElement {
    content: oxy_editor(
        type, combo,
        edit,  "@fc:my_attr"
    )
}
```

- **#text** - specifies that the presented/edited value is the simple text value of an element.

  Note: You can set the value of the `visibility` property to `-oxy-collapse-text` to render the text only in the form control that the oxy_editor function specifies

- `columns` - controls the width of the form control. The unit size is the width of the **w** character;
- `color` - specifies the foreground color of the form control. In case the value of the `color` property is `inherit`, the form control has the same color as the element in which it is inserted;
- `format` - this property specifies the format of the inserted date. The pattern value must be a valid Java date (or date-time) format. If missing, the type of the date is determined from the associated schema;
- `visible` - specifies whether the form control is visible. The possible values of this property are **true** (the form control is visible) and **false** (the form control is not visible);
- `validateInput` - specifies if the form control is validated. In case you introduce a date that does not respect the format, the `datePicker` form control is rendered with red foreground. By default, the input is validated. To disable the validation, set this property to `false`.

Date Picker Form Control

```
date {
    content:
        oxy_label(text, "Date time attribute with format defined in CSS: ", width, 300px)
        oxy_editor(
            type, datePicker,
            columns, 16,
            edit, "@attribute",
            format, "yyyy-MM-dd");
}
```

The `oxy_editor` function acts as a proxy that allows you to insert any of the supported form controls. Alternatively, you can use the `oxy_datePicker` dedicated function.

```
date {
    content:
        oxy_label(text, "Date time attribute with format defined in CSS: ", width, 300px)
        oxy_datePicker(
            columns, 16,
            edit, "@attribute",
            format, "yyyy-MM-dd");
}
```

Editing PIs Using Form Controls

Oxygen XML Author allows you to edit *processing instructions*, *comments*, and *cdata* using the built-in editors.

Note: You can edit both the content and the attribute value from a *processing instruction*.

Editing an Attribute from a Processing Instruction

PI content

```
<?pi_target attr="val"?>
```

CSS

```
oxy|processing-instruction:before {
    display:inline;
    content:
        "EDIT attribute: " oxy_textfield(edit, '@attr', columns, 15);
    visibility:visible;
}
oxy|processing-instruction{
    visibility:-oxy-collapse-text;
}
```

Implementing Custom Form Controls

In case the built-in form controls are not enough, you can implement custom form controls in Java and specify them using the following properties:

- **rendererClassName** - the name of the class that draws the edited value. It must be an implementation of `ro.sync.ecss.extensions.api.editor.InplaceRenderer`. The renderer has to be a SWING implementation and can be used both in the standalone and Eclipse distributions;
- **swingEditorClassName** - you can use this property for the standalone (**Swing**-based) distribution to specify the name of the class used for editing. It is a **Swing** implementation of `ro.sync.ecss.extensions.api.editor.InplaceEditor`;
- **swtEditorClassName** - you can use this property for the Eclipse plug-in distribution to specify the name of the class used for editing. It is a **SWT** implementation of the `ro.sync.ecss.extensions.api.editor.InplaceEditor`;
- **classpath** - you can use this property to specify the location of the classes used for a custom form control. The value of the **classpath** property is an enumeration of URLs separated by comma;
- **edit** - in case your form control edits the value of an attribute, or the text value of an element, you can use the **@attribute_name** and **#text** predefined values and oxygen will perform the commit logic by itself. You can use the **custom** value to perform the commit logic yourself.

  Note: If the custom form control chooses to perform the commit by itself, it must do so after it triggers the `ro.sync.ecss.extensions.api.editor.InplaceEditingListener.editingStopped(EditingE` notification.

If the custom form control is intended to work in the Oxygen XML Author standalone distribution, the declaration of **swtEditorClassName** is not required. The *renderer* (the class that draws the value) and the *editor* (the class that edits the value) have different properties because you can present a value in one way and edit it in another way.

The custom form controls can use any of the predefined properties of the `oxy_editor` function, as well as specified custom properties. This is an example of how to specify a custom form control:

```
myElement {
    content: oxy_editor(
        rendererClassName, "com.custom.editors.CustomRenderer",
        swingEditorClassName, "com.custom.editors.SwingCustomEditor",
        swtEditorClassName, "com.custom.editors.SwtCustomEditor",
        edit, "@my_attr"
        customProperty1, "customValue1",
        customProperty2, "customValue2"
    )
}
```

Note: Add these custom **Java** implementations in the *classpath* of the document type associated with the document you are editing. To get you started the Java sources for the `SimpleURLChooserEditor` are available in the Author SDK.

The `oxy_editor` function can receive other functions as parameters for obtaining complex behaviors.

The following example shows how the combo box editor can obtain its values from the current XML file by calling the `oxy_xpath` function:

```
link:before{
      content: "Managed by:"
        oxy_editor(
            type, combo,
            edit, "@manager",
            values, oxy_xpath('string-join(//@id , ",") '));
```

The `oxy_label()` Function

The `oxy_label()` function can be used in conjunction with the CSS `content` property to change the style of generated text. The arguments of the function are *property name* - *property value* pairs. The following properties are supported:

- `text` - this property specifies the built-in form control you are using;

- `width` - specifies the horizontal space reserved for the content. The value of this property has the same format as the value of the CSS `width` property. In case this value is not specified, the text is wrapped;
- `color` - specifies the foreground color of the form control. In case the value of the `color` property is `inherit`, the form control has the same color as the element in which it is inserted;
- `background-color` - specifies the background color of the form control. In case the value of the `background-color` property is `inherit`, the form control has the same color as the element in which it is inserted;
- `styles` - specifies styles for the form control. The values of this property are a set of CSS properties:
  - `font-weight`, `font-size`, `font-style`, `font`;
  - `text-align`, `text-decoration`;
  - `width`;
  - `color`, `background-color`.

```
element{
    content: oxy_label(text, "Label Text", styles,
      "font-size:2em;color:red;");
}
```

If the text from an `oxy_label()` function contains new lines, for example `oxy_label(text, 'LINE1\A LINE2', width, 100px)`, the text is split and the new line has the specified width (100 pixels in this case).

Note: The text is split only after `\A`. In case a `width` is specified for the `oxy_label()` function and a `\A` is encountered, the new line has the specified width.

You can use the *oxy_editor()* and `oxy_label()` functions together to create a form control based layout.

Let's say we want to edit two attributes on a single element using form controls on separate lines:

```
person:before {
  content: "Name:*" oxy_textfield(edit, '@name', columns, 20) "\A Address:" oxy_textfield(edit,
'@address', columns, 20)
}
```

We can use `oxy_label()` if we want only the **Name** label to be bold and also to properly align the two controls:

```
person:before {
  content: oxy_label(text, "Name:*", styles, "font-weight:bold;width:200px") oxy_textfield(edit,
 '@name', columns, 20) "\A "
           oxy_label(text, "Address:", styles, "width:200px") oxy_textfield(edit, '@address',
columns, 20)
}
```

The `oxy_link-text()` Function

You can use the `oxy_link-text()` function on the CSS `content` property to obtain a text description from the source of a reference. By default, the `oxy_link-text()` function resolves DITA and DocBook references. For further details about how you can also extend this functionality to other frameworks, go to *Configuring an Extensions Bundle*.

DITA Support

For DITA, the `oxy_link-text()` function resolves the `xref` element and the elements that have a `keyref` attribute. The text description is the same as the one presented in the final output for those elements. If you use this function for a `topicref` element that has the `navtitle` and `locktitle` attributes set, the function returns the value of the `navtitle` attribute.

DocBook Support

For DocBook, the `oxy_link-text()` function resolves the `xref` element that defines a link in the same document. The text description is the same as the one presented in the final output for those elements.

For the following XML and associated CSS fragments the `oxy_link-text()` function is resolved to the value of the `xreflabel` attribute.

```
<para><code id="para.id" xreflabel="The reference label">my code</code></para>
<para><xref linkend="para.id"/></para>
```

```
xref {
    content: oxy_link-text();
}
```

Arithmetic Functions

You can use any of the arithmetic functions implemented in the `java.lang.Math` class: *http://download.oracle.com/javase/6/docs/api/java/lang/Math.html*.

In addition to that, the following functions are available:

Syntax	Details
oxy_add(param1, ... , paramN, 'returnType')	Adds the values of all parameters from `param1` to `paramN`.
oxy_subtract(param1, ..., paramN, 'returnType')	Subtracts the values of parameters `param2` to `paramN` from `param1`.
oxy_multiply(param1, ..., paramN, 'returnType')	Multiplies the values of parameters from `param1` to `paramN`.
oxy_divide(param1, param2, 'returnType')	Performs the division of `param1` to `param2`.
oxy_modulo(param1, param2, 'returnType')	Returns the reminder of the division of `param1` to `param2`.

Note: The `returnType` can be `'integer'`, `'number'`, or any of the supported CSS measuring types.

If we have an image with **width** and **height** specified on it we can compute the number of pixels on it:

```
image:before{
 content: "Number of pixels: " oxy_multiply(attr(width), attr(height), "px");
}
```

Custom CSS Pseudo-classes

You can set your custom CSS pseudo-classes on the nodes from the *AuthorDocument* model. These are similar to the normal XML attributes, with the important difference that they are not serialized, and by changing them the document does not create undo and redo edits - the document is considered unmodified. You can use custom pseudo-classes for changing the style of an element (and its children) without altering the document.

In oXygen they are used to hide/show the colspec elements from CALS tables. To take a look at the implementation, see:

1. `OXYGEN_INSTALL_DIR/frameworks/docbook/css/cals_table.css` (Search for `-oxy-visible-colspecs`)
2. The definition of action `table.toggle.colspec` from the DocBook 4 framework makes use of the pre-defined *TogglePseudoClassOperation* Author operation.

Here are some examples:

Controlling the visibility of a section using a pseudo-class

You can use a non standard (custom) pseudo-class to impose a style change on a specific element. For instance you can have CSS styles matching the custom pseudo-class `access-control-user`, like the one below:

```
section {
  display:none;
```

```
}

section:access-control-user {
  display:block;
}
```

By setting the pseudo-class `access-control-user`, the element section will become visible by matching the second CSS selector.

Coloring the elements over which the caret was placed

```
*:caret-visited {
  color:red;
}
```

You could create an *AuthorCaretListener* that sets the `caret-visited` pseudo-class to the element at the caret location. The effect will be that all the elements traversed by the caret become red.

The API you can use from the caret listener:

```
ro.sync.ecss.extensions.api.AuthorDocumentController#setPseudoClass(java.lang.String,
ro.sync.ecss.extensions.api.node.AuthorElement)
ro.sync.ecss.extensions.api.AuthorDocumentController#removePseudoClass(java.lang.String,
ro.sync.ecss.extensions.api.node.AuthorElement)
```

Pre-defined *AuthorOperation*s can be used directly in your framework ("Author/Actions") to work with custom pseudo classes:

1. *TogglePseudoClassOperation*
2. *SetPseudoClassOperation*
3. *RemovePseudoClassOperation*

Builtin CSS Stylesheet

When Oxygen XML Author renders content in the **Author** mode, it adds built-in CSS selectors (in addition to the CSS stylesheets linked in the XML or specified in the document type associated to the XML document). These built-in CSS selectors are processed before all other CSS content, but they can be overwritten in case the CSS developer wants to modify a default behavior.

List of CSS Selector Contributed by Oxygen XML Author

```
@namespace oxy "http://www.oxygenxml.com/extensions/author";
@namespace xi "http://www.w3.org/2001/XInclude";
@namespace xlink "http://www.w3.org/1999/xlink";
@namespace svg "http://www.w3.org/2000/svg";
@namespace mml "http://www.w3.org/1998/Math/MathML";

oxy|document {
    display:block !important;
}

oxy|cdata {
    display:-oxy-morph !important;
    white-space:pre-wrap !important;
    border-width:0px !important;
    margin:0px !important;
    padding: 0px !important;
}

oxy|processing-instruction {
    display:block !important;
    color: rgb(139, 38, 201) !important;
    white-space:pre-wrap !important;
    border-width:0px !important;
    margin:0px !important;
    padding: 0px !important;
}

oxy|comment {
    display:-oxy-morph !important;
    color: rgb(0, 100, 0) !important;
    background-color:rgb(255, 255, 210) !important;
    white-space:pre-wrap !important;
    border-width:0px !important;
    margin:0px !important;
    padding: 0px !important;
```

```
}

oxy|reference:before,
oxy|entity[href]:before{
  link: attr(href) !important;
  text-decoration: underline !important;
  color: navy !important;

  margin: 2px !important;
  padding: 0px !important;
}

oxy|reference:before {
  display: -oxy-morph !important;
  content: url(../images/editContent.gif) !important;
}

oxy|entity[href]:before{
  display: -oxy-morph !important;
  content: url(../images/editContent.gif) !important;
}

oxy|reference,
oxy|entity {
    -oxy-editable:false !important;
    background-color: rgb(240, 240, 240) !important;
    margin:0px !important;
    padding: 0px !important;
}

oxy|reference {
    display:-oxy-morph !important;
    /*EXM-28674 No need to present tags for these artificial references.*/
    -oxy-display-tags: none;
}

oxy|entity {
    display:-oxy-morph !important;
}

oxy|entity[href] {
  border: 1px solid rgb(175, 175, 175) !important;
  padding: 0.2em !important;
}

xi|include {
    display:-oxy-morph !important;
    margin-bottom: 0.5em !important;
    padding: 2px !important;
}
xi|include:before,
xi|include:after{
    display:inline !important;
    background-color:inherit !important;
    color:#444444 !important;
    font-weight:bold !important;
}

xi|include:before {
    content:url(../images/link.gif) attr(href)  !important;
    link: attr(href) !important;
}
xi|include[xpointer]:before {
    content:url(../images/link.gif) attr(href) " " attr(xpointer) !important;
    link: oxy_concat(attr(href), "#", attr(xpointer)) !important;
}

xi|fallback {
    display:-oxy-morph !important;
    margin: 2px !important;
    border: 1px solid #CB0039 !important;
}

xi|fallback:before {
    display:-oxy-morph !important;
    content:"XInclude fallback: " !important;
    color:#CB0039 !important;
}

oxy|doctype {
    display:block !important;
    background-color: transparent !important;
    color:blue !important;
    border-width:0px !important;
    margin:0px !important;
    padding: 2px !important;
}

oxy|error {
    display:-oxy-morph !important;
    -oxy-editable:false !important;
```

```
    white-space:pre !important;
    color: rgb(178, 0, 0) !important;
    font-weight:bold !important;
}

oxy|error:before {
    content:url(../images/ReferenceError.png) !important;
}

*[xlink|href]:before {
    content:url(../images/link.gif);
    link: attr(xlink|href) !important;
}


/*No direct display of the MathML and SVG images.*/
svg|svg{
 display:inline !important;
    white-space: -oxy-trim-when-ws-only;
}
/*EXM-28827 SVG can contain more than one namespace in it*/
svg|svg * {
    display:none !important;
    white-space:normal;
}

mml|math{
 display:inline !important;
    white-space: -oxy-trim-when-ws-only;
}
mml|math mml|*{
    display:none !important;
    white-space: normal;
}

/*Text direction attributes*/
*[dir='rtl'] { direction:rtl; unicode-bidi:embed; }
*[dir='rlo'] { direction:rtl; unicode-bidi:bidi-override; }

*[dir='ltr'] { direction:ltr; unicode-bidi:embed; }
*[dir='lro'] { direction:ltr; unicode-bidi:bidi-override; }
```

To show all entities in the **Author** mode as transparent, without that grayed-out background, first define in your CSS after all imports the namespace:

```
@namespace oxy "http://www.oxygenxml.com/extensions/author";
```

and then add the following selector:

```
oxy|entity {
    background-color: inherit !important;
}
```

Example Files Listings - The Simple Documentation Framework Files

This section lists the files used in the customization tutorials: the XML Schema, CSS files, XML files, XSLT stylesheets.

XML Schema files

sdf.xsd

This sample file can also be found in the *Author SDK distribution* in the "oxygenAuthorSDK\samples\Simple Documentation Framework - SDF\framework\schema" directory.

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"
    targetNamespace="http://www.oxygenxml.com/sample/documentation"
    xmlns:doc="http://www.oxygenxml.com/sample/documentation"
    xmlns:abs="http://www.oxygenxml.com/sample/documentation/abstracts"
    elementFormDefault="qualified">

    <xs:import
        namespace="http://www.oxygenxml.com/sample/documentation/abstracts"
        schemaLocation="abs.xsd"/>
```

```
    <xs:element name="book" type="doc:sectionType"/>
    <xs:element name="article" type="doc:sectionType"/>
    <xs:element name="section" type="doc:sectionType"/>

    <xs:complexType name="sectionType">
        <xs:sequence>
            <xs:element name="title" type="xs:string"/>
            <xs:element ref="abs:def" minOccurs="0"/>
            <xs:choice>
                <xs:sequence>
                    <xs:element ref="doc:section"
                        maxOccurs="unbounded"/>
                </xs:sequence>
                <xs:choice maxOccurs="unbounded">
                    <xs:element ref="doc:para"/>
                    <xs:element ref="doc:ref"/>
                    <xs:element ref="doc:image"/>
                    <xs:element ref="doc:table"/>
                </xs:choice>
            </xs:choice>
        </xs:sequence>
    </xs:complexType>

    <xs:element name="para" type="doc:paragraphType"/>

    <xs:complexType name="paragraphType" mixed="true">
        <xs:choice minOccurs="0" maxOccurs="unbounded">
            <xs:element name="b"/>
            <xs:element name="i"/>
            <xs:element name="link"/>
        </xs:choice>
    </xs:complexType>

    <xs:element name="ref">
        <xs:complexType>
            <xs:attribute name="location" type="xs:anyURI"
                use="required"/>
        </xs:complexType>
    </xs:element>

    <xs:element name="image">
        <xs:complexType>
            <xs:attribute name="href" type="xs:anyURI"
                use="required"/>
        </xs:complexType>
    </xs:element>

    <xs:element name="table">
        <xs:complexType>
            <xs:sequence>
                <xs:element name="customcol" maxOccurs="unbounded">
                    <xs:complexType>
                        <xs:attribute name="width" type="xs:string"/>
                    </xs:complexType>
                </xs:element>
                <xs:element name="header">
                    <xs:complexType>
                        <xs:sequence>
                            <xs:element name="td"
                                maxOccurs="unbounded"
                                type="doc:paragraphType"/>
                        </xs:sequence>
                    </xs:complexType>
                </xs:element>
                <xs:element name="tr" maxOccurs="unbounded">
                    <xs:complexType>
                        <xs:sequence>
                            <xs:element name="td"
                                type="doc:tdType"
                                maxOccurs="unbounded"/>
                        </xs:sequence>
                    </xs:complexType>
                </xs:element>
            </xs:sequence>
            <xs:attribute name="width" type="xs:string"/>
        </xs:complexType>
    </xs:element>


    <xs:complexType name="tdType">
        <xs:complexContent>
            <xs:extension base="doc:paragraphType">
                <xs:attribute name="row_span"
                    type="xs:integer"/>
                <xs:attribute name="column_span"
                    type="xs:integer"/>
            </xs:extension>
        </xs:complexContent>
    </xs:complexType>
</xs:schema>
```

abs.xsd

This sample file can also be found in the *Author SDK distribution* in the "oxygenAuthorSDK\samples\Simple Documentation Framework - SDF\framework\schema" directory.

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"
    targetNamespace=
 "http://www.oxygenxml.com/sample/documentation/abstracts">
    <xs:element name="def" type="xs:string"/>
</xs:schema>
```

CSS Files

sdf.css

This sample file can also be found in the *Author SDK distribution* in the oxygenAuthorSDK\samples\Simple Documentation Framework - SDF\framework\css directory.

```
/* Element from another namespace */
@namespace abs "http://www.oxygenxml.com/sample/documentation/abstracts";

abs|def{
    font-family:monospace;
    font-size:smaller;
}
abs|def:before{
    content:"Definition:";
    color:gray;
}

/* Vertical flow */
book,
section,
para,
title,
image,
ref {
    display:block;
}

/* Horizontal flow */
b,i {
    display:inline;
}

section{
    margin-left:1em;
    margin-top:1em;
}

section{
    -oxy-foldable:true;
    -oxy-not-foldable-child: title;
}

link[href]:before{
    display:inline;
    link:attr(href);
    content: "Click to open: " attr(href);
}

/* Title rendering*/
title{
    font-size: 2.4em;
    font-weight:bold;
}

* * title{
    font-size: 2.0em;
}
* * * title{
    font-size: 1.6em;
}
* * * * title{
    font-size: 1.2em;
}

book,
article{
    counter-reset:sect;
}
book > section,
```

```
article > section{
    counter-increment:sect;
}
book > section > title:before,
article > section > title:before{
    content: "Section: " counter(sect) " ";
}

/* Inlines rendering*/
b {
    font-weight:bold;
}

i {
    font-style:italic;
}

/*Table rendering */
table{
    display:table;
    border:1px solid navy;
    margin:1em;
    max-width:1000px;
    min-width:150px;
}

table[width]{
  width:attr(width, length);
}

tr, header{
    display:table-row;
}

header{
    background-color: silver;
    color:inherit
}

td{
  display:table-cell;
  border:1px solid navy;
  padding:1em;
}

image{
    display:block;
    content: attr(href, url);
    margin-left:2em;
}
```

XML Files

`sdf_sample.xml`

This sample file can also be found in the *Author SDK distribution* in the `"oxygenAuthorSDK\samples\Simple Documentation Framework - SDF\framework"` directory.

```
<?xml version="1.0" encoding="UTF-8"?>
<book xmlns="http://www.oxygenxml.com/sample/documentation"
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xmlns:abs="http://www.oxygenxml.com/sample/documentation/abstracts">
    <title>My Technical Book</title>
    <section>
        <title>XML</title>
        <abs:def>Extensible Markup Language</abs:def>
        <para>In this section of the book I will explain
            different XML applications.</para>
    </section>
    <section>
        <title>Accessing XML data.</title>
        <section>
            <title>XSLT</title>
            <abs:def>Extensible stylesheet language
                transformation (XSLT) is a language for
                transforming XML documents into other XML
                documents.</abs:def>
            <para>A list of XSL elements and what they do..</para>
            <table>
                <header>
                    <td>XSLT Elements</td>
                    <td>Description</td>
                </header>
                <tr>
                    <td>
```

```
                        <b>xsl:stylesheet</b>
                    </td>
                    <td>The <i>xsl:stylesheet</i> element is
                        always the top-level element of an
                        XSL stylesheet. The name
                            <i>xsl:transform</i> may be used
                        as a synonym.</td>
                </tr>
                <tr>
                    <td>
                        <b>xsl:template</b>
                    </td>
                    <td>The <i>xsl:template</i> element has
                        an optional mode attribute. If this
                        is present, the template will only
                        be matched when the same mode is
                        used in the invoking
                            <i>xsl:apply-templates</i>
                        element.</td>
                </tr>
                <tr>
                    <td>
                        <b>for-each</b>
                    </td>
                    <td>The xsl:for-each element causes
                        iteration over the nodes selected by
                        a node-set expression.</td>
                </tr>
                <tr>
                    <td column_span="2">End of the list</td>
                </tr>
            </table>
        </section>
        <section>
            <title>XPath</title>
            <abs:def>XPath (XML Path Language) is a terse
                (non-XML) syntax for addressing portions of
                an XML document. </abs:def>
            <para>Some of the XPath functions.</para>
            <table>
                <header>
                    <td>Function</td>
                    <td>Description</td>
                </header>
                <tr>
                    <td>format-number</td>
                    <td>The <i>format-number</i> function
                        converts its first argument to a
                        string using the format pattern
                        string specified by the second
                        argument and the decimal-format
                        named by the third argument, or the
                        default decimal-format, if there is
                        no third argument</td>
                </tr>
                <tr>
                    <td>current</td>
                    <td>The <i>current</i> function returns
                        a node-set that has the current node
                        as its only member.</td>
                </tr>
                <tr>
                    <td>generate-id</td>
                    <td>The <i>generate-id</i> function
                        returns a string that uniquely
                        identifies the node in the argument
                        node-set that is first in document
                        order.</td>
                </tr>
            </table>
        </section>
    </section>
    <section>
        <title>Documentation frameworks</title>
        <para>One of the most important documentation
            frameworks is Docbook.</para>
        <image
            href="http://www.xmlhack.com/images/docbook.png"/>
        <para>The other is the topic oriented DITA, promoted
            by OASIS.</para>
        <image
href="http://www.oasis-open.org/images/standards/oasis_standard.jpg"
        />
    </section>
</book>
```

XSL Files

sdf.xsl

This sample file can also be found in the *Author SDK distribution* in the `"oxygenAuthorSDK\samples\Simple Documentation Framework - SDF\framework\xsl"` directory.

```
<?xml version="1.0" encoding="UTF-8"?>
<xsl:stylesheet
    xmlns:xsl="http://www.w3.org/1999/XSL/Transform" version="2.0"
    xpath-default-namespace=
    "http://www.oxygenxml.com/sample/documentation">

    <xsl:template match="/">
        <html><xsl:apply-templates/></html>
    </xsl:template>

    <xsl:template match="section">
        <xsl:apply-templates/>
    </xsl:template>

    <xsl:template match="image">
        <img src="{@href}"/>
    </xsl:template>

    <xsl:template match="para">
        <p>
            <xsl:apply-templates/>
        </p>
    </xsl:template>

    <xsl:template match="abs:def"
        xmlns:abs=
        "http://www.oxygenxml.com/sample/documentation/abstracts">
        <p>
            <u><xsl:apply-templates/></u>
        </p>
    </xsl:template>

    <xsl:template match="title">
        <h1><xsl:apply-templates/></h1>
    </xsl:template>

    <xsl:template match="b">
        <b><xsl:apply-templates/></b>
    </xsl:template>

    <xsl:template match="i">
        <i><xsl:apply-templates/></i>
    </xsl:template>

    <xsl:template match="table">
        <table frame="box" border="1px">
            <xsl:apply-templates/>
        </table>
    </xsl:template>

    <xsl:template match="header">
        <tr>
            <xsl:apply-templates/>
        </tr>
    </xsl:template>

    <xsl:template match="tr">
        <tr>
            <xsl:apply-templates/>
        </tr>
    </xsl:template>

    <xsl:template match="td">
        <td>
            <xsl:apply-templates/>
        </td>
    </xsl:template>

    <xsl:template match="header/header/td">
        <th>
            <xsl:apply-templates/>
        </th>
    </xsl:template>

</xsl:stylesheet>
```

Author Component

The Author Component was designed as a separate product to provide the functionality of the standard **Author** mode. Recently (in version 14.2), the component API was extended to also allow multiple edit modes like **Text** and **Grid**. The component can be embedded either in a third-party standalone Java application or customized as a Java Web Applet to provide WYSIWYG-like XML editing directly in your web browser of choice.

The Author Component Startup Project for Java/Swing integrations is available online on the Oxygen XML Author website: *http://www.oxygenxml.com/demo/AuthorDemoApplet/author-component-startup-project.zip*

Licensing

The licensing terms and conditions for the Author Component are defined in the **<oXygen/> XML Editor SDK License Agreement**. To obtain the licensing terms and conditions and other licensing information as well, you can also contact our support team at **support@oxygenxml.com**. You may also obtain a free of charge evaluation license key for development purposes. Any development work using the Author Component is also subject to the terms of the SDK agreement.

There are two main categories of Author Component integrations:

1. Integration for internal use.

   You develop an application which embeds the Author Component to be used internally (in your company or by you). You can buy and use *oXygen XML Author standard licenses* (either user-based or floating) to enable the Author Component in your application.

2. Integration for external use.

   Using the Author Component, you create an application that you distribute to other users outside your company (with a CMS for example). In this case you need to contact us to apply for a Value Added Reseller (VAR) partnership.

From a technical point of view, the Author Component provides the Java API to:

- Inject floating license server details in the Java code. The following link provides details about how to configure a floating license servlet or server:*http://www.oxygenxml.com/license_server.html*.

```
AuthorComponentFactory.getInstance().init(frameworkZips, optionsZipURL, codeBase, appletID,
    //The servlet URL
    "http://www.host.com/servlet",
    //The HTTP credentials user name
    "userName",
    //The HTTP credentials password
    "password");
```

- Inject the licensing information key (for example the evaluation license key) directly in the component's Java code.

```
AuthorComponentFactory.getInstance().init(
   frameworkZips, optionsZipURL, codeBase, appletID,
   //The license key if it is a fixed license.
   licenseKey);
```

- Display the license registration dialog to the end user. This is the default behavior in case a `null` license key is set using the API, this transfers the licensing responsibility to the end-user. The user can license an Author component using standard Oxygen XML Author Editor/Author license keys. The license key will be saved to the local user's disk and on subsequent runs the user will not be asked anymore.

```
AuthorComponentFactory.getInstance().init(
   frameworkZips, optionsZipURL, codeBase, appletID,
   //Null license key, will ask the user.
   null);
```

Installation Requirements

Running the Author component as a Java applet requires:

- Oracle (Sun) Java JRE version 1.6 update 10 or newer;
- At least 100 MB disk space and 100MB free memory;
- The applet needs to be signed with a valid certificate and will request full access to the user machine, in order to store customization data (like options and framework files);
- A table of supported browsers can be found here:*Supported browsers and operating systems* on page 423.

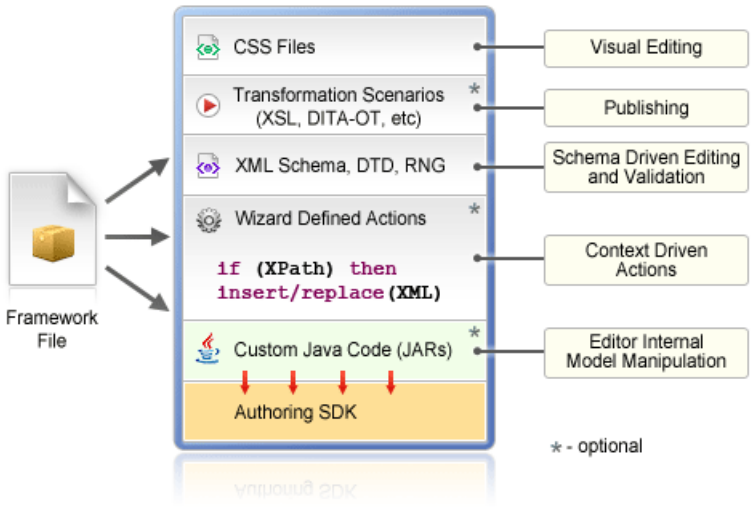
Running the Author component embedded in a third-party Java/Swing application requires:

- Oracle (Sun) Java JRE version 1.6 or newer;
- At least 100 MB disk space and 100MB free memory;

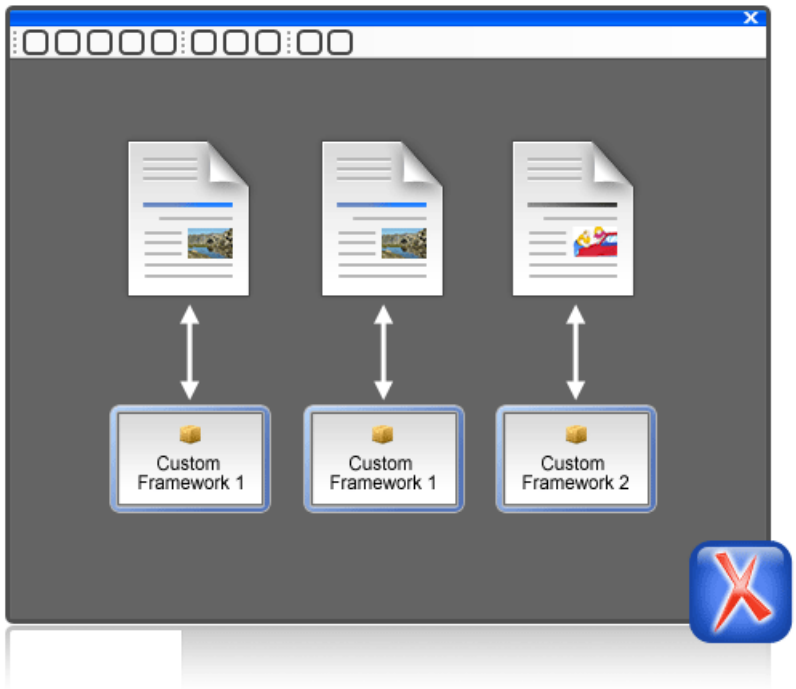
Customization

For a special type of XML, you can create a custom framework (which also works in an Oxygen standalone version). Oxygen XML Author already has frameworks for editing DocBook, DITA, TEI, and so on. Their sources are available in *the Author SDK*. This custom framework is then packed in a zip archive and used to deploy the component.

The following diagram shows the components of a custom framework.



More than one framework can coexist in the same component and can be used at the same time for editing XML documents.



You can add on your custom toolbar all actions available in the standalone Oxygen XML Author application for editing in the **Author** mode. You can also add custom actions defined in the framework customized for each XML type.

The Author component can also provide the *Outline*, *Model*, *Elements* and *Attributes* views which can be added to your own developed containers.

Packing a fixed set of options

The Author Component shares a common internal architecture with the standalone application although it does not have a **Preferences** dialog. But the Author Component Applet can be configured to use a fixed set of user options on startup.

The sample project contains a resource called `APPLET_PROJECT/resources/options.zip.jar`. The JAR contains a ZIP archive which contains a file called `options.xml`. Such an XML file can be obtained by exporting to an XML format from a standalone application.

To create an *options file* in the Oxygen XML Author:

- make sure the options that you want to set are not *stored at project level*;
- set the values you want to impose as defaults in the *Preferences pages*;
- select **Options** > **Export Global Options**.

Deployment

The Author Component Java API allows you to use it in your Java application or as a Java applet. The JavaDoc for the API can be found in the *sample project* in the `lib/apiSrc.zip` archive. The sample project also comes with Java sources (`ro/sync/ecss/samples/AuthorComponentSample.java`) demonstrating how the component is created, licensed and used in a Java application.

Web Deployment

The Author Component can be deployed as a Java Applet using the new Applet with JNLP Java technology, available in Oracle (Sun) Java JRE version 1.6 update 10 or newer.

The *sample project* demonstrates how the Author component can be distributed as an applet.

Here are the main steps you need to follow in order to deploy the Author component as a Java Applet:

- Unpack the sample project archive and look for Java sources of the sample Applet implementation. They can be customized to fit your requirements.
- The `default.properties` configuration file must first be edited to specify your custom certificate information used to sign the applet libraries. You also have to specify the code base from where the applet will be downloaded.
- You can look inside the `author-component-dita.html` and `author-component-dita.js` sample Web resources to see how the applet is embedded in the page and how it can be controlled using Javascript (to set and get XML content from it).
- The sample Applet `author-component-dita.jnlp` JNLP file can be edited to add more libraries. The packed frameworks and options are delivered using the JNLP file as JAR archives:

```
<jar href="resources/frameworks.zip.jar"/>
<jar href="resources/options.zip.jar"/>
```

- The sample frameworks and options JAR archives can be found in the `resources` directory.
- Use the `build.xml` ANT build file to pack the component. The resulting applet distribution is copied in the `dist` directory. From this on, you can copy the applet files on your web server.

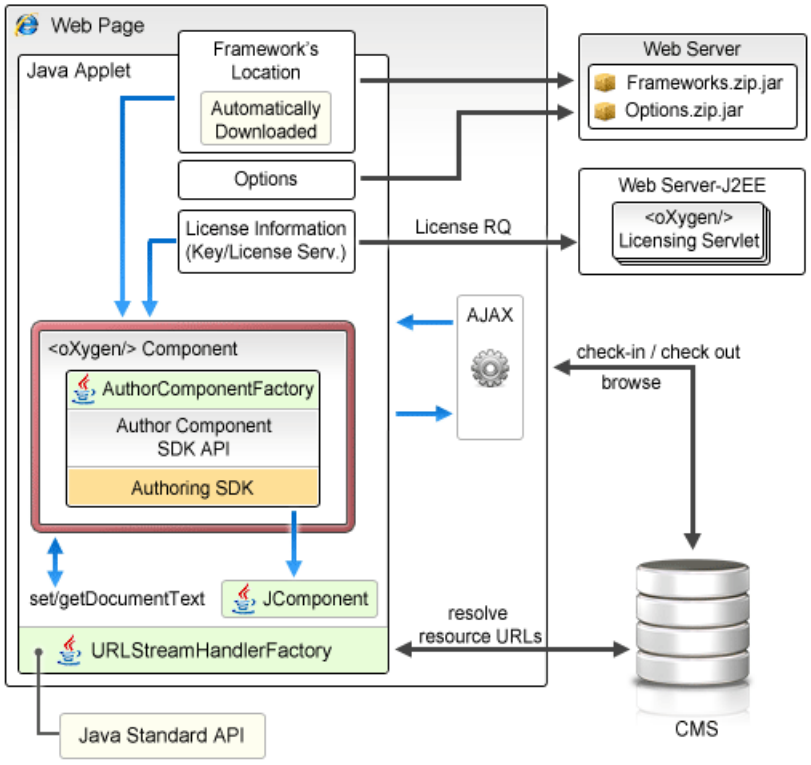


Figure 175: Oxygen XML Author Author Component deployed as a Java applet

Generate a Testing Certificate For Signing an Applet

All jar files of an applet deployed on a remote Web server must be signed with the same certificate before the applet is deployed. The following steps describe how to generate a test certificate for signing the jar files. We will use the tool called **keytool** which is included in the Oracle's Java Development Kit.

1. Create a keystore with a RSA encryption key.

Invoke the following in a command line terminal:

```
keytool -genkey -alias myAlias -keystore keystore.pkcs -storetype PKCS12 -keyalg
 RSA -keysize 2048 -dname "cn=your name here, ou=organization unit name,
o=organization name, c=US"
```

This command creates a keystore file called `keystore.pkcs`. The certificate attributes are specified in the *dname* parameter: common name of the certificate, organization unit name (for example *Purchasing* or *Sales Department*), organization name, country.

2. Generate a self-signed certificate.

   Invoke the following in a command line terminal:

   ```
   keytool -selfcert -alias myAlias -keystore keystore.pkcs -storetype PKCS12
   ```

3. Optionally display the certificate details in a human readable form.

   First, the certificate must be exported to a separate file with the following command:

   ```
   keytool -export -alias myAlias -keystore keystore.pkcs -storetype PKCS12 -file certfile.cer
   ```

   The certificate details are displayed with the command:

   ```
   keytool -printcert -file certfile.cer
   ```

4. Edit the `default.properties` file and fill-in the parameters that hold the path to `keystore.pkcs` file (`keystore` parameter), keystore type (`storetype` parameter, with `JSK` or `PKCS12` as possible values), alias (`alias` parameter) and password (`password` parameter).
5. Sign the jar files using the certificate by running the `sign` Ant task available in *the applet project*.

Supported browsers and operating systems

The applet was tested for compatibility with the following browsers:

	IE 7	IE 8	IE 9	IE 10	IE 11	Firefox	Safari	Chrome	Opera
Windows XP	Passed	Passed	-	-	-	Passed	-	Passed	Passed
Vista	-	Passed	Passed	Passed	Passed	Passed	-	Passed	Passed
Windows 7	-	-	Passed	Passed	Passed	Passed	-	Passed	Passed
Windows 8	-	-	-	Passed	Passed	Passed	-	Passed	Passed
Mac OS X (10.6 - 10.9)	-	-	-	-	-	Passed	Passed	Failed	Passed
Linux Ubuntu 10	-	-	-	-	-	Passed	-	Failed	Passed

Communication between the Web Page and Java Applet

Using the Java 1.6 *LiveConnect* technology, applets can communicate with Javascript code which runs in the Web Page. Javascript code can call an applet's Java methods and from the Java code you can invoke Javascript code from the web page.

> You are not limited to displaying only Swing dialogs from the applet. From an applet's operations you can invoke Javascript API which shows a web page and then obtains the data which has been filled by the user.

Troubleshooting

When the applet fails to start:

1. Make sure that your web browser really runs the next generation Java plug-in and not the legacy Java plug-in.

   For Windows and Mac OSX the procedure is straight forward. Some steps are given below for installing the Java plug-in on Linux.

   Manual Installation and Registration of Java Plugin for Linux:
   http://www.oracle.com/technetwork/java/javase/manual-plugin-install-linux-136395.html
2. Refresh the web page.
3. Remove the Java Webstart cache from the local drive and try again.
   - On Windows this folder is located in: `%APPDATA%\LocalLow\Sun\Java\Deployment\cache`;
   - On Mac OSX this folder is located in: `/Users/user_name/Library/Caches/Java/cache`;
   - On Linux this folder is located in: `/home/user/.java/deployment/cache`.
4. Remove the Author Applet Frameworks cache from the local drive and try again:
   - On Windows Vista or 7 this folder is located in: `%APPDATA%\Roaming\com.oxygenxml.author.component`;
   - On Windows XP this folder is located in: `%APPDATA%\com.oxygenxml.author.component`;
   - On Mac OSX this folder is located in: `/Users/user_name/Library/Preferences/com.oxygenxml.author.component`;
   - On Linux this folder is located in: `/home/user/.com.oxygenxml.author.component`.
5. Problems sometimes occur after upgrading the web browser and/or the JavaTM runtime. Redeploy the applet on the server by running ANT in your Author Component project. However, doing this does not always fix the problem, which often lies in the web browser and/or in the Java plug-in itself.
6. Sometimes when the HTTP connection is slow on first time uses the JVM would simply shut down while the jars were being pushed to the local cache (i.e., first time uses). This shut down typically occurs while handling `oxygen.jar`. One of the reasons could be that some browsers (Firefox for example) implement some form of "Plugin hang detector" See *https://developer.mozilla.org/en/Plugins/Out_of_process_plugins/The_plugin_hang_detector*.
7. If you are running the Applet using Safari on MAC OS X and it has problems writing to disk or fails to start, do the following:
   - in Safari, go to **Safari**->**Preferences**->**Security**;
   - select **Manage Website Settings**;
   - then select Java and for the **oxygenxml.com** entry choose the **Run in Unsafe mode** option.

Enable JavaWebstart logging on your computer to get additional debug information:

1. Open a console and run `javaws -viewer`;
2. In the **Advanced** tab, expand the **Debugging** category and select all boxes.
3. Expand the **Java console** category and choose **Show console**.
4. Save settings.
5. After running the applet, you will find the log files in:
   - On Windows this folder is located in: `%APPDATA%\LocalLow\Sun\Java\Deployment\log`;
   - On Mac OSX this folder is located in: `/Users/user_name/Library/Caches/Java/log`;
   - On Linux this folder is located in: `/home/user/.java/deployment/log`.

Avoiding Resource Caching

A Java plugin installed in a web browser caches access to all HTTP resources that the applet uses. This is useful in order to avoid downloading all the libraries each time the applet is run. However, this may have undesired side-effects when

the applet presents resources loaded via HTTP. If such a resource is modified on the server and the browser window is refreshed, you might end-up with the old content of the resource presented in the applet.

To avoid such a behaviour, you need to edit the `ro.sync.ecss.samples.AuthorComponentSampleApplet` class and set a custom `URLStreamHandlerFactory` implementation. A sample usage is already available in the class, but it is commented-out for increased flexibility:

```
//THIS IS THE WAY IN WHICH YOU CAN REGISTER YOUR OWN PROTOCOL HANDLER TO THE JVM.
//THEN YOU CAN OPEN YOUR CUSTOM URLs IN THE APPLET AND THE APPLET WILL USE YOUR HANDLER
URL.setURLStreamHandlerFactory(new URLStreamHandlerFactory() {
 public URLStreamHandler createURLStreamHandler(String protocol) {
  if("http".equals(protocol) || "https".equals(protocol)) {
   return new URLStreamHandler() {
    @Override
    protected URLConnection openConnection(URL u) throws IOException {
     URLConnection connection = new HttpURLConnection(u, null);
     if(!u.toString().endsWith(".jar")) {
      //Do not cache HTTP resources other than JARS
      //By default the Java HTTP connection caches content for
      //all URLs so if one URL is modified and then re-loaded in the
      //applet the applet will show the old content.
      connection.setDefaultUseCaches(false);
     }
     return connection;
    }
   };
  }
  return null;
 }
});
```

Adding MathML support in the Author Component Web Applet

By default the Author Component Web Applet project does not come with the libraries necessary for viewing and editing MathML equations in the Author page. You can view and edit MathML equations either by adding support for *JEuclid* or by adding support for *MathFlow*.

Adding MathML support using JEuclid

In the `author-component-dita.jnlp` JNLP file, refer additional libraries necessary for the `JEuclid` library to parse MathML equations:

```
<jar href="lib/jcip-annotations.jar"/>
<jar href="lib/jeuclid-core.jar"/>
<jar href="lib/batik-all-1.7.jar"/>
<jar href="lib/commons-io-1.3.1.jar"/>
<jar href="lib/commons-logging-1.0.4.jar"/>
<jar href="lib/xmlgraphics-commons-1.4.jar"/>
```

Copy these additional libraries to the component project `lib` directory from an `OXYGEN_INSTALLATION_DIRECTORY/lib` directory.

To edit specialized DITA Composite with MathML content, include the entire `OXYGEN_INSTALLATION_DIRECTORY/frameworks/mathml2` Mathml2 framework directory in the frameworks bundled with the component `frameworks.zip.jar`. This directory is used to solve references to MathML DTDs.

Adding MathML support using MathFlow

In the `author-component-dita.jnlp` JNLP file, refer additional libraries necessary for the `MathFlow` library to parse MathML equations:

```
<jar href="lib/MFComposer.jar"/>
<jar href="lib/MFExtraSymFonts.jar"/>
<jar href="lib/MFSimpleEditor.jar"/>
<jar href="lib/MFStructureEditor.jar"/>
<jar href="lib/MFStyleEditor.jar"/>
```

Copy these additional libraries from the `MathFlow` SDK.

In addition, you must obtain fixed `MathFlow` license keys for editing and composing MathML equations and register them using these API methods: `AuthorComponentFactory.setMathFlowFixedLicenseKeyForEditor` and `AuthorComponentFactory.setMathFlowFixedLicenseKeyForComposer`.

To edit specialized DITA Composite with MathML content, include the entire OXYGEN_INSTALLATION_DIRECTORY/frameworks/mathml2 Mathml2 framework directory in the frameworks bundled with the component frameworks.zip.jar. This directory is used to solve references to MathML DTDs.

Adding Support to Insert References from a WebDAV Repository

Already defined actions which insert references, like the **Insert Image Reference** action, display an URL chooser which allows you to select the **Browse Data Source Explorer** action. To use an already configured WebDAV connection in the Author Component, follow these steps:

1. Open a standalone Oxygen XML 14.2 and configure a WebDAV connection;
2. Pack the *fixed set of options* from the standalone to use them with the Author Component Project;
3. In the Author Component, the defined connection still does not work when expanded because the additional JAR libraries used to browse the WebDAV repository are missing. Go to the installation directory of Oxygen XML and from the lib directory copy the httpclient-4.2.1.jar, httpcore-4.2.1.jar, commons-logging-1.1.1.jar and commons-codec-1.6.jar libraries. These libraries are used in the class path of the component (applet).

   If you want to have a different WebDAV connection URL, user name and password depending on the user who has started the component, you have a more flexible approach using the API:

```
//DBConnectionInfo(String id, String driverName, String url, String user, String passwd, String host, String
port)
DBConnectionInfo info = new DBConnectionInfo("WEBDAV", "WebDAV FTP", "http://host/webdav-user-root", "userName",
 "password", null, null);
AuthorComponentFactory.getInstance().setObjectProperty("database.stored.sessions1", new DBConnectionInfo[]
{info});
```

Using Plugins with the Author Component

To bundle Workspace Access plugins, that are developed for standalone application with the Author Component, follow these steps:

- The content that is bundled to form the `frameworks.zip.jar` must contain the additional plugin directories, besides the framework directories. The content must also contain a `plugin.dtd` file.

  Note:

  Copy the `plugin.dtd` file from an `OXYGEN_INSTALL_DIR\plugins` folder.
- In the class which instantiates the `AuthorComponentFactory`, for example the `ro.sync.ecss.samples.AuthorComponentSample` class, call the methods `AuthorComponentFactory.getPluginToolbarCustomizers()`, `AuthorComponentFactory.getPluginViewCustomizers()` and `AuthorComponentFactory.getMenubarCustomizers()`, obtain the customizers which have been added by the plugins and call them to obtain the custom swing components that they contribute. There is a commented-out example for this in the `AuthorComponentSample.reconfigureActionsToolbar()` method for adding the toolbar from the **Acrolinx** plugin.

Important: As the Author Component is just a subset of the entire application, there is no guarantee that all the functionality of the plugin works.

Sample SharePoint Integration of the Author Component

This section presents the procedure to integrate the Author Component as a Java applet on a SharePoint site.

Author Component

The Author Component was designed as a separate product to provide the functionality of the standard **Author** mode. Recently (in version 14.2), the component API was extended to also allow multiple edit modes like **Text** and **Grid**. The component can be embedded either in a third-party standalone Java application or customized as a Java Web Applet to provide WYSIWYG-like XML editing directly in your web browser of choice.

The Author Component Startup Project for Java/Swing integrations is available online on the **<oXygen/> XML Editor** website: *http://www.oxygenxml.com/demo/AuthorDemoApplet/author-component-startup-project.zip*

Microsoft SharePoint®

Microsoft SharePoint® is a Web application platform developed by Microsoft®.

SharePoint comprises a multipurpose set of Web technologies backed by a common technical infrastructure. It provides the benefit of a central location for storing and collaborating on documents, which can significantly reduce emails and duplicated work in an organization. It is also capable of keeping track of the different versions created by different users.

Why Integrate the Author Component with SharePoint

The Author Component can be embedded in a SharePoint site as a Java applet. This is a simple and convenient way for you to retrieve, open, and save XML and XML related documents stored on your company's SharePoint server, directly from your web browser.

For example, let's say that you are working on a team project that uses the DITA framework for writing product documentation. You have the DITA Maps and topics stored on a SharePoint repository. By using a custom defined action from the contextual menu of a document, you can easily open it in the Author Component applet that is embedded in your SharePoint Documents page.

You can embed the applet either on a site that is located on a standalone SharePoint server, or on your company's Microsoft Office 365 account.

This example can be used as a starting point for other CMS integrations.

Integration Adjustments

Deploying Resources

You are able to embed the Author component in a SharePoint site as a Java Applet, using the new Applet with JNLP Java technology. Sign with a valid certificate the JNLP file and the associated JAR files that the applet needs.

Deploy these resources on a third party server (other than the SharePoint server). The Java applet downloads the resources as needed. If you deploy the JNLP and JAR files on the SharePoint server, the Java Runtime Environment will not be able to access the applet resources because it is not aware of the current authentication tokens from your browser. This causes the Java Class Loader to fail loading classes, making the applet unable to start.

Accessing Documents

One of the main challenges when integrating the Author Component applet in your SharePoint site is to avoid authenticating twice when opening a document resource stored in your SharePoint repository.

You have already signed in when you started the SharePoint session, but the applet is not aware of your current session. In this case every time the applet is accessing a document it will ask you to input your credentials again.

As a possible solution, do not execute HTTP requests directly from the Java code, but forward them to the web browser that hosts the applet, because it is aware of the current user session (authentication cookies).

To open documents stored on your SharePoint repository, register your own protocol handler to the JVM. We implemented a handler for both *http* and *https* protocols that forwards the HTTP requests to a JavaScript `XMLHttpRequest` object. This way, the browser that executes the JavaScript code is responsible for handling the authentication to the SharePoint site.

To install this handler, add the following line to your Java Applet code (in our case, in the `ro.sync.ecss.samples.AuthorComponentSampleApplet` class):

```
URL.setURLStreamHandlerFactory(new ro.sync.net.protocol.http.handlers.CustomURLStreamHandlerFactory(this));
```

To enable JavaScript calls from your Java applet code, set the MAYSCRIPT attribute to `true` in the `<applet>` element embedded in you HTML page:

```
<applet width="100%" height="600"
  code="ro.sync.ecss.samples.AuthorComponentSampleApplet"
  name="authorComponentAppletName" id="authorComponentApplet"
  MAYSCRIPT="true">
    .....
</applet>
```

Tip: In case the applet is not working, or you cannot open documents from your SharePoint repository, enable the debugging tools that come bundled with your Web Browser or the Java Console from your operating system to try to identify the cause of the problem.

Getting Started

To integrate the Author Component as a Java applet with your SharePoint site, you need the author component start-up project. This project contains the Author SDK and the basic resources to get started.

The project is available at *http://www.oxygenxml.com/demo/AuthorDemoApplet/author-component-startup-project.zip*.

An online demo applet is deployed at *http://www.oxygenxml.com/demo/AuthorDemoApplet/author-component-dita-requirements.html*.

Customize Your Applet

Follow these steps to customize the Author Component Java applet:

1. Unpack the sample project archive and look for the Java sources (these can be customized to fit your requirements) of the sample applet implementation;

   Note: The Java source files are located in the `src` folder.

2. Look inside `author-component-dita.aspx` and the associated `*.js` resources, to see how the applet is embedded in the page and how it can be controlled using Javascript (to set and get XML content from it).
3. Edit the `default.properties` configuration to specify your custom certificate information, used to sign the applet libraries. Also, specify the code base from where the applet resources will be downloaded;
4. To add more libraries to your applet, edit the `author-component-dita.jnlp` JNLP file. The packed frameworks and options are delivered using the JNLP file as JAR archives:

   ```
   <jar href="resources/frameworks.zip.jar"/>
   <jar href="resources/options.zip.jar"/>
   ```

   The sample frameworks and options JAR archives are located in the `resources` directory.

   Note: The JNLP file and the associated resources and libraries must be deployed on a non-SharePoint web server, otherwise the applet will not be loaded.

5. Use the `build.xml` ANT build file to pack the component. The resulting applet distribution is copied in the `dist` directory. From now on, you can copy the applet files on your web server.

Add Resources to Your SharePoint Site

Copy the following resources to a sub-folder (in our example named `author-component`) of the `SitePages` folder from your SharePoint site, where you want to embed the applet:

1. **`author-component-dita.aspx`** - an HTML document containing the Java applet;

   Note: It has an `.aspx` extension instead of `.html`. If you use the latter extension, the browser will download the HTML document instead of displaying it.

   Note: Edit the **`.aspx`** file and change the value of the applet parameter jnlp_href to the URL of the deployed `author-component-dita.jnlp`. Keep in mind that the JNLP file should be deployed on a third party server. For example:

   ```
   <applet>
       <param name="jnlp_href"
              value="http://www.oxygenxml.com/demo/AuthorDemoApplet/author-component-dita.jnlp"/>
       ..........
   </applet>
   ```

2. **`author-component-dita.css`** - contains custom styling rules for the HTML document;
3. **`author-component-dita.js`** - contains JavaScript code, giving access to the Author Component contained by the Java applet;

4. **`connectionUtil.js`** - contains JavaScript utility methods.

   Note: Replace the value of the SPRootSiteURL property with the URL of your SharePoint root site, without trailing `'/'`. This is used by the `openListItemInAuthor(itemUrl)` method, to compute the absolute URL of the list item that is to be opened in the Author applet.

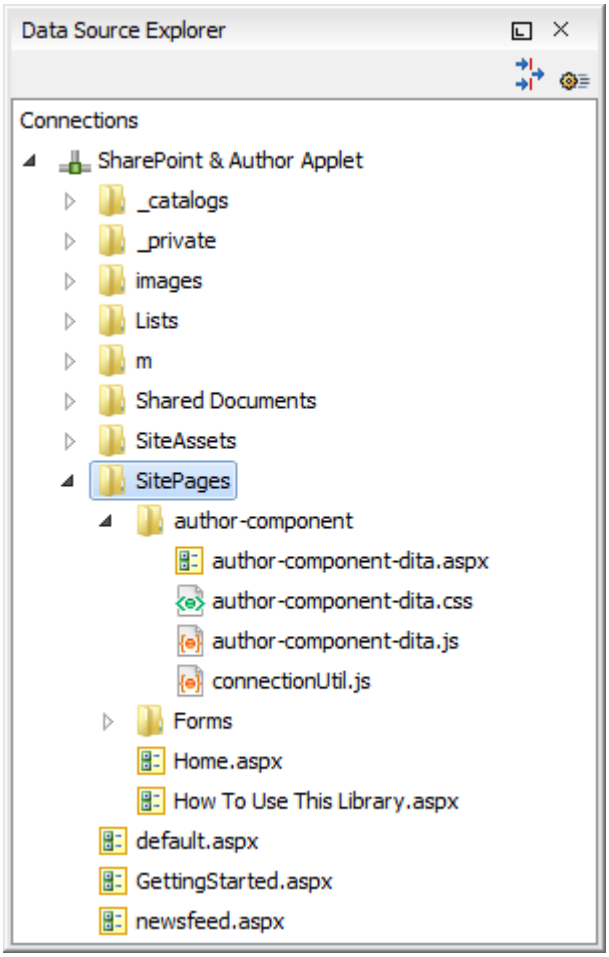
Copy Resources Using <oXygen/> XML Editor

You can use **<oXygen/> XML Editor** to copy your resources to the SharePoint server:

1. Configure a new connection to your SharePoint site in the **Data Source Explorer** View.

   Note: To watch our video demonstration about connecting to repository located on a SharePoint server, go to *http://www.oxygenxml.com/demo/SharePoint_Support.html*.

2. Browse your new SharePoint connection site and select the **`SitePages`** folder;
3. Create a folder named `author-component` using the **New Folder** contextual menu action;
4. Upload your resources to this folder using the **Import Files** contextual menu action.



Embed the Java Applet in Your SharePoint Site

To embed the Java Applet in your SharePoint site, edit the page that contains the applet and add a new Script Editor Web Part next to an existing Documents web part.

Note: It is recommended that you deselect the **Enable Java content in the browser** option from the **Java Control Panel** until you finish editing the page. Otherwise, the browser will load the applet for every change that you will make.

Edit the page directly in your browser, following these steps:

1. Navigate to the home page of your SharePoint site where you want to add the Author Component Java applet;
2. Select the **Page** tab from the ribbon located at top of the page and click the **Edit** button;
3. Select the **Insert** tab and click **Web Part**;
4. In the **Categories** panel, select **Media and Content**;
5. In the **Parts** panel, select the **Script Editor** Web Part;
6. Click the **Add** button to insert the selected Web Part to your page content;
7. Select the newly added Web Part;
8. Select the **Web Part** tab and click the **Web Part Properties** button.
9. Click the **Edit Snippet** link under your Web Part;
10. Insert the following HTML snippet to your newly created Web Part:

```
<div>
    <iframe
       id="appletIFrame"
       src="/applet/SitePages/author-component/author-component-dita.aspx"
       width="800px" height="850px">
    </iframe>
    <script type="text/JavaScript">
        function openInAuthor(itemUrl) {
            var appletFrame = document.getElementById("appletIFrame");
            var appletWin = appletFrame.contentWindow;
            appletWin.openListItemInAuthor(itemUrl);
        }
    </script>
</div>
```

The above HTML fragment contains an `IFrame` that points to the page where the Java applet resides. Replace the value of the `src` attribute with the path of the `author-component-dita.aspx` HTML page that you added earlier to the `SitePages` folder;

Note: Use the `iframe` element from the HTML fragment with the expanded form (`<iframe></iframe>`). Otherwise, the Web Part will not display the target page of the frame.

11. Save the changes you made to the page.

Note: Do not forget to select the **Enable Java content in the browser**, to allow the browser to load the Java applet.

Create a SharePoint Custom Action

To open a document from your SharePoint repository in the Author Component applet, add a new custom action to the contextual menu of your Documents Library:

1. Open your SharePoint site in **Microsoft SharePoint Designer®**;
2. Click **Lists and Libraries** in the **Navigation** pane;
3. Open the **Documents** library;
4. Go to the **Custom Actions** panel;
5. Click the **New** button to add a new custom action;
6. Give a name to the action, for example **Open In Oxygen XML Author**;
7. In the **Select the type of action** section, select the **Navigate to URL** option an enter the following text:

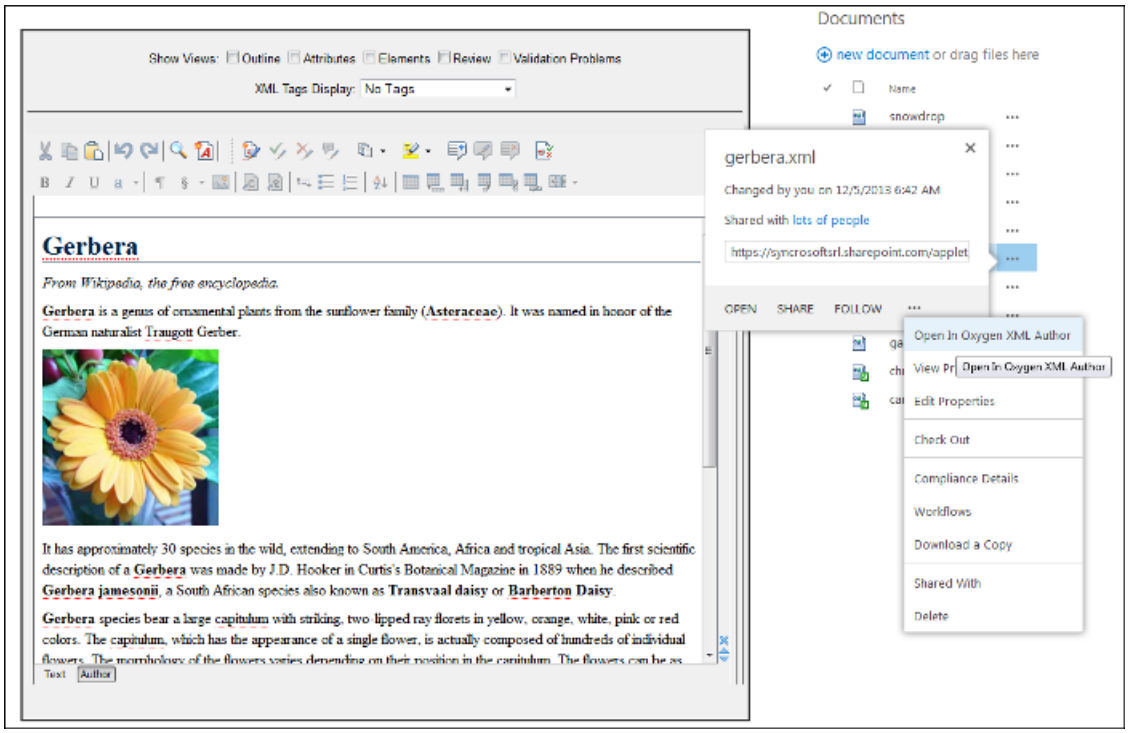
```
javascript:openInAuthor("{ItemUrl}")
```

Note: This translates to a call to the `openInAuthor(itemUrl)` JavaScript function defined in the HTML fragment that was embedded in the Script Editor Web Part. The `{ItemUrl}` parameter will be expanded to the URL of the list item that the action is invoked on.

8. Click the **OK** button to save the action.

The Result

The Author Component applet embedded in a SharePoint site:



Frequently asked questions

Installation and licensing

1. What hosting options are available for applet delivery and licensing services (i.e., Apache, IIS, etc.)?

   For applet delivery any web server. We currently use Apache to deploy the sample on our site. For the floating license server you would need a J2EE server, like Tomcat if you want to restrict the access to the licenses.

   If you do not need the access restrictions that are possible with a J2EE server you can simplify the deployment of the floating license server by using the standalone version of this server. The standalone license server is a simple Java application that communicates with Author Component by TCP/IP connections.

2. Are there any client requirements beyond the Java VM and (browser) Java Plug-In Technology?

   Oracle (formerly Sun) Java JRE version 1.6 update 10 or newer. At least 200 MB disk space and 200MB free memory would be necessary for the Author Applet component.

3. Are there any other client requirements or concerns that could make deployment troublesome (i.e., browser security settings, client-side firewalls and AV engines, etc.)?

   The applet is signed and will request access to the user machine, in order to store customization data (frameworks). The applet needs to be signed by you with a valid certificate.

4. How sensitive is the applet to the automatic Java VM updates, which are typically on by default (i.e., could automatic updates potentially "break" the run-time)?

   The component should work well with newer Java versions but we cannot guarantee this.

5. How and when are "project" related files deployed to the client (i.e., applet code, DTD, styling files, customizations, etc.)?

   Framework files are downloaded on the first load of the applet. Subsequent loads will re-use the cached customization files and will be much faster.

6. For on-line demo (http://www.oxygenxml.com/demo/AuthorDemoApplet/author-component-dita.html), noted a significant wait during initial startup. Any other mechanisms to enhance startup time?

   See explanation above.

7. Does the XML Author component support multiple documents being open simultaneously? What are the licensing ramifications?

   A single `AuthorComponentFactory` instance can create multiple `EditorComponentProvider` editors which can then be added and managed by the developer who is customizing the component in a Swing `JTabbedPane`. A single license (floating or user-based) is enough for this.

   If you need to run multiple Java Applets or distinct Java processes using the Author component, the current floating license model allows for now only two concurrent components from the same computer when using the license servlet. An additional started component will take an extra license seat.

   Another licensing technique would be to embed the license key in one of the jar libraries used by the applet. But you would need to implement your own way of determining how many users are editing using the Author applet.

8. Is there any internet traffic during an editing session (user actively working on the content, on the client side, in the XML Author component))?

   No.

Functionality

1. How and when are saves performed back to the hosting server?

   What you can see on our web site is just an example of the Author component (which is a Java Swing component) used in an Applet.

   This applet is just for demonstration purposes. It's source can be at most a starting point for a customization. You should implement, sign and deploy your custom applet implementation.

   The save operation could be implemented either in Javascript by requesting the XML content from the Applet or in Java directly working with the Author component. You would be responsible to send the content back to the CMS.

2. Is there a particular XML document size (or range) when the Author applet would start to exhibit performance problems?

   The applet has a total amount of used memory specified in the JNLP JavaWebstart configuration file which can be increased if necessary. By default it is 156 Mb. It should work comfortably with documents of 1-3 megabytes.

3. What graphic formats can be directly rendered in the XML Author component?

   GIF, JPEG, PNG, BMP and SVG.

4. Can links be embedded to retrieve (from the server) and "play" other types of digital assets, such as audio or video files?

   You could add listeners to intercept clicks and open the clicked links. This would require a good knowledge of the Author SDK. The Author component can only render static images (no GIF animations).

5. Does the XML Author component provide methods for uploading ancillary files (new graphics, for instance) to the hosting server?

   No.

6. Does the XML Author component provide any type of autosave functionality?

By default no but you could customize the applet that contains the author component to save its content periodically to a file on disk.

7. Assuming multiple documents can be edited simultaneously, can content be copied, cut and pasted from one XML Author component "instance" to another?

   Yes.

8. Does the XML Author component support pasting content from external sources (such as a web page or a Microsoft Word document and, if so, to what extent?

   If no customizations are available the content is pasted as simple text. We provide customizations for the major frameworks (DITA, Docbook, TEI, etc) which use a conversion XSLT stylesheet to convert HTML content from clipboard to the target XML.

9. Can UTF-8 characters (such as Greeks, mathematical symbols, etc.) be inserted and rendered?

   Any UTF-8 character can be inserted and rendered as long as the font used for editing supports rendering the characters. The font can be changed by the developers but not by the users. When using a logical font (which by default is *Serif* for the Author component) the JVM will know how to map all characters to glyphs. There is no character map available but you could implement one

Customization

1. Please describe, in very general terms, the menus, toolbars, context menu options, "helper panes", etc. that are available for the XML Author component "out of the box".

   You can mount on your custom toolbar all actions available in the standalone Oxygen application for editing in the Author page. This includes custom actions defined in the framework customized for each XML type.

   The Author component also can provide the *Outline, Model, Elements* and *Attributes* views which can be added to your own panels (see sample applet).

2. Please describe, in general terms, the actions, project resources (e.g., DTD/Schema for validation purposes, CSS/XSL for styling, etc.) and typical level of effort that would be required to deploy a XML Author component solution for a customer with a proprietary DTD.

   The Author internal engine uses CSS to render XML.

   For a special type of XML you can create a custom framework (which also works in an Oxygen standalone version) which would also contain default schemas and custom actions. A simple framework would probably need 2-3 weeks development time. For a complex framework with many custom actions it could take a couple of months. Oxygen already has frameworks for editing Docbook, DITA, TEI, etc. Sources for them are available in *the Author SDK*.

   More than one framework can coexist in the same Oxygen instance (the desktop standalone version or the applet version) and can be used at the same time for editing XML documents.

3. Many customers desire a very simplistic interface for contributors (with little or no XML expertise) but a more robust XML editing environment for editors (or other users with more advanced XML savviness). How well does the XML Author component support varying degrees of user interface complexity and capability?

   - *Showing/hiding menus, toolbars, helpers, etc.*

     All the UI parts from the Author component are assembled by you. You could provide two applet implementations: one for advanced/power users and one for technical writers.

   - *Forcing behaviors (i.e., ensuring change tracking is on and preventing it from being shut down)*

     You could avoid placing the change tracking toolbar actions in the custom applet. You could also use API to turn change tracking ON when the content has been loaded.

   - *Preventing access to "privileged" editor processes (i.e., accept/reject changes)*

You can remove the change tracking actions completely in a custom applet implementation. Including the ones from the contextual menu.

- *Presenting and/or describing XML constructs (i.e., tags) in "plain-English"*

  Using our API you can customize what the Outline or Breadcrumb presents for each XML tag. You can also customize the in-place content completion list.

- *Presenting a small subset of the overall XML tag set (rather than the full tag set) for use by contributors (i.e., allowing an author to only insert Heading, Para and inline emphasis) Could varying "interfaces", with different mixes these capabilities and customizations, be developed and pushed to the user based on a "role" or a similar construct?*

  The API allows for a content completion filter which also affects the *Elements* view.

4. Does the XML Author component's API provide access to the XML document, for manipulation purposes, using common XML syntax such as DOM, XPath, etc.?

   Yes, using the Author API.

5. Can custom dialogs be developed and launched to collect information in a "form" (with scripting behind to push tag the collection information and embed it in the XML document?

   Yes.

6. Can project resources, customizations, etc. be readily shared between the desktop and component versions of your XML Author product line?

   A framework developed for the Desktop Oxygen application can then be bundled with an Author component in a custom applet. For example the Author demo applet from our web site is DITA-aware using the same framework as the Oxygen standalone distribution.

   A custom version of the applet that includes one or more customized frameworks and user options can be built and deployed for non-technical authors by a technical savvy user using a built-in tool of Oxygen. All the authors that load the deployed applet from the same server location will share the same frameworks and options.

   A custom editing solution can deploy one or more frameworks that can be used at the same time.

Creating and Running Automated Tests

If you have developed complex custom plugins and/or document types the best way to test your implementation and insure that further changes will not interfere with the current behavior is to make automated tests for your customization.

An Oxygen XML Author installation standalone (Author or Editor) comes with a main `oxygen.jar` library located in the `OXYGEN_INSTALLATION_DIRECTORY`. That JAR library contains a base class for testing developer customizations named `ro.sync.exml.workspace.api.PluginWorkspaceTCBase`.

Please see below some steps in order to develop `JUnit` tests for your customizations using the **Eclipse** workbench:

1. Create a new Eclipse Java project and copy to it the entire contents of the `OXYGEN_INSTALLATION_DIRECTORY`.
2. Add to the **Java Build Path**->**Libraries** tab all JAR libraries present in the `OXYGEN_INSTALLATION_DIRECTORY/lib` directory. Make sure that the main JAR library `oxygen.jar` or `oxygenAuthor.jar` is the first one in the Java classpath by moving it up in the **Order and Export** tab.
3. Download and add to the Java build path the additional `JUnit` libraries *`jfcunit.jar`* and *`junit.jar`*.
4. Create a new Java class which extends `ro.sync.exml.workspace.api.PluginWorkspaceTCBase`.
5. Pass on to the constructor of the super class the following parameters:

   - `File frameworksFolder` The file path to the frameworks directory. It can point to a custom frameworks directory where the custom framework resides.

- `File pluginsFolder` The file path to the plugins directory. It can point to a custom plugins directory where the custom plugins resides.
- `String licenseKey` The license key used to license the test class.

6. Create test methods which use the API in the base class to open XML files and perform different actions on them. Your test class could look something like:

```
public class MyTestClass extends PluginWorkspaceTCBase {

 /**
  * Constructor.
  */
 public MyTestClass() throws Exception {
  super(new File("frameworks"), new File("plugins"),
        "------START-LICENSE-KEY------\n" +
    "\n" +
    "Registration_Name=Developer\n" +
    "\n" +
    "Company=\n" +
    "\n" +
    "Category=Enterprise\n" +
    "\n" +
    "Component=XML-Editor, XSLT-Debugger, Saxon-SA\n" +
    "\n" +
    "Version=14\n" +
    "\n" +
    "Number_of_Licenses=1\n" +
    "\n" +
    "Date=09-04-2012\n" +
    "\n" +
    "Trial=31\n" +
    "\n" +
    "SGN=MCwCFGNoEGJSeiC3XCYIyalvjzHhGhhqAhRNRDpEu8RIWb8icCJO7HqfVP4++A\\=\\=\n" +
    "\n" +
  "-------END-LICENSE-KEY-------");
 }

  /**
    * <p><b>Description:</b> TC for opening a file and using the bold operation</p>
    * <p><b>Bug ID:</b> EXM-20417</p>
    *
    * @author radu_coravu
    *
    * @throws Exception
    */
   public void testOpenFileAndBoldEXM_20417() throws Exception {
     WSEditor ed = open(new File("D:/projects/eXml/test/authorExtensions/dita/sampleSmall.xml").toURL());
     //Move caret
     moveCaretRelativeTo("Context", 1, false);

     //Insert <b>
     invokeAuthorExtensionActionForID("bold");
     assertEquals("<?xml version=\"1.0\" encoding=\"utf-8\"?>\n" +
       "<!DOCTYPE task PUBLIC \"-//OASIS//DTD DITA Task//EN\"
\"http://docs.oasis-open.org/dita/v1.1/OS/dtd/task.dtd\">\n" +
       "<task id=\"taskId\">\n" +
       "    <title>Task <b>title</b></title>\n" +
       "    <prolog/>\n" +
       "    <taskbody>\n" +
       "        <context>\n" +
       "            <p>Context for the current task</p>\n" +
       "        </context>\n" +
       "        <steps>\n" +
       "            <step>\n" +
       "                <cmd>Task step.</cmd>\n" +
       "            </step>\n" +
       "        </steps>\n" +
       "    </taskbody>\n" +
       "</task>\n" +
       "", getCurrentEditorXMLContent());
   }
}
```

Chapter 9

API Frequently Asked Questions (API FAQ)

Topics:

This section contains answers to common questions regarding the Oxygen XML Author customisations using the *Author SDK*, *Author Component*, or *Plugins*.

For additional questions, *contact us*. The preferred approach is via email because API questions must be analysed thoroughly. We also provide code snippets in case they are required.

To stay up-to-date with the latest API changes, discuss issues and ask for solutions from other developers working with the Oxygen XML Author SDK, register to the *oXygen-SDK mailing list*.

Difference Between a Document Type (Framework) and a Plugin Extension

Question

What is the difference between a Document Type (Framework) and a Plugin Extension?

Answer

Two ways of customising the application are possible:

1. Implementing a plugin.

   A plugin serves a general purpose and influences any type of XML file that you open in Oxygen XML Author.

   For the Oxygen XML AuthorPlugins API, Javadoc, samples, and documentation, go to *http://www.oxygenxml.com/oxygen_sdk.html#Developer_Plugins*

2. Creating or modifying the document type which is associated to your specific XML vocabulary.

   This document type is used to provide custom actions for your type of XML files and to mount them on the toolbar, menus, and contextual menus.

   For example, if the application end users are editing DITA, all the toolbar actions which are specific for DITA are provided by the DITA Document Type. If you look in the Oxygen Preferences->"Document Type Association" there is a "DITA" document type.

   If you *edit that document type* in Oxygen XML Author you will see that it has an `Author` tab in which it defines all custom DITA actions and adds them to the toolbars, main menus, contextual menus.

   We have a special chapter in our user manual which explains how such document types are constructed and modified:

   http://www.oxygenxml.com/doc/ug-oxygen/index.html?q=/doc/ug-oxygen/topics/author-devel-guide-intro.html

   If you look on disk in the:

   ```
   OXYGEN_INSTALL_DIR\frameworks\dita
   ```

   folder there is a file called `dita.framework`. That file gets updated when you edit a document type from the Oxygen Preferences. Then you can share that updated file with all users.

   The same folder contains some JAR libraries. These libraries contain custom complex Java operations which are called when the user presses certain toolbar actions.

   If you want to add a custom action this topic explains how:

   http://www.oxygenxml.com/doc/ug-oxygen/index.html?q=/doc/ug-oxygen/tasks/addCustomActionHowTo.html

   We have an Author SDK which contains the Java sources from all the DITA Java customizations:

   http://www.oxygenxml.com/oxygen_sdk.html#XML_Editor_Authoring_SDK

Important: It is possible for a plugin to share the same classes with a framework. For further details, go to *How to Share the Classloader Between a Framework and a Plugin*.

Dynamically Modify the Content Inserted by the Writer

Question

Is there a way to insert typographic quotation marks instead of double quotes?

Answer

By using the API you can set a document filter to change the text that is inserted in the Author document. You can use this method to change the insertion of double quotes with the typographic quotes.

Here is some sample code:

```
authorAccess.getDocumentController().setDocumentFilter(new AuthorDocumentFilter() {
  /**
   * @see
ro.sync.ecss.extensions.api.AuthorDocumentFilter#insertText(ro.sync.ecss.extensions.api.AuthorDocumentFilterBypass,
 int, java.lang.String)
   */
  @Override
  public void insertText(AuthorDocumentFilterBypass filterBypass, int offset, String toInsert) {
    if(toInsert.length() == 1 && "\"".equals(toInsert)) {
      //User typed a quote but he actually needs a smart quote.
      //So we either have to add \u201E (start smart quote)
      //Or we add \u201C (end smart quote)
      //Depending on whether we already have a start smart quote inserted in the current paragraph.

      try {
        AuthorNode currentNode = authorAccess.getDocumentController().getNodeAtOffset(offset);
        int startofTextInCurrentNode = currentNode.getStartOffset();
        if(offset > startofTextInCurrentNode) {
          Segment seg = new Segment();
         authorAccess.getDocumentController().getChars(startofTextInCurrentNode, offset - startofTextInCurrentNode,
 seg);
          String previosTextInNode = seg.toString();
          boolean insertStartQuote = true;
          for (int i = previosTextInNode.length() - 1; i >= 0; i--) {
            char ch = previosTextInNode.charAt(i);
            if('\u201C' == ch) {
              //Found end of smart quote, so yes, we should insert a start one
              break;
            } else if('\u201E' == ch) {
              //Found start quote, so we should insert an end one.
              insertStartQuote = false;
              break;
            }
          }

          if(insertStartQuote) {
            toInsert = "\u201E";
          } else {
            toInsert = "\u201C";
          }
        }
      } catch (BadLocationException e) {
        e.printStackTrace();
      }
    }
    System.err.println("INSERT TEXT |" + toInsert + "|");
    super.insertText(filterBypass, offset, toInsert);
  }
});
```

You can find the online Javadoc for `AuthorDocumentFilter` API here:
http://www.oxygenxml.com/InstData/Editor/SDK/javadoc/ro/sync/ecss/extensions/api/AuthorDocumentFilter.html

An alternative to using a document filtering is the use of a `ro.sync.ecss.extensions.api.AuthorSchemaAwareEditingHandlerAdapter` which has clear callbacks indicating the source from where the API is called (Paste, Drag and Drop, Typing).

Split Paragraph on Enter (Instead of Showing Content Completion List)

Question

How to split the paragraph on Enter instead of showing the content completion list?

Answer

To obtain this behaviour, *edit your Document Type* and in the `Author` tab, `Actions` tab, add your own split action. This action must have the **Enter** shortcut key associated and must trigger your own custom operation which handles the split.

So, when you press **Enter**, your Java operation is invoked and it will be your responsibility to split the paragraph using the current API (probably creating a document fragment from the caret offset to the end of the paragraph, removing the content and then inserting the created fragment after the paragraph).

This solution has as a drawback. Oxygen XML Author hides the content completion window when you press **Enter**. If you want to show allowed child elements at that certain offset, implement your own content proposals window using the `ro.sync.ecss.extensions.api.AuthorSchemaManager` API to use information from the associated schema.

Impose Custom Options for Writers

Question

How to enable **Track Changes** at startup?

Answer

There are two ways to enable **Track Changes** for every document that you open:

1. You could *customise the default options* which are used by your writers and set the Track Changes *`Initial State` option* to `Always On.`
2. Use the API to toggle the Track Changes state after a document is opened in **Author** mode:

```
// Check the current state of Track Changes
boolean trackChangesOn = authorAccess.getReviewController().isTrackingChanges();
if (!trackChangesOn) {
  // Set Track Changes state to On
  authorAccess.getReviewController().toggleTrackChanges();
}
```

Highlight Content

Question

How can we add custom highlights to the Author document content?

Answer

There are two types of highlights you can add:

1. Not Persistent Highlights. Such highlights are removed when the document is closed and then re-opened.

   You can use the following API method:

   ```
   ro.sync.exml.workspace.api.editor.page.author.WSAuthorEditorPageBase.getHighlighter()
   ```

   to obtain an *AuthorHighlighter* which allows you to add a highlight between certain offsets with a certain painter.

   For example you can use this support to implement your custom spell checker.

2. Persistent Highlights. Such highlights are saved in the XML content as processing instructions.

   You can use the following API method:

   ```
   ro.sync.exml.workspace.api.editor.page.author.WSAuthorEditorPageBase.getPersistentHighlighter()
   ```

   to obtain an *AuthorPersistentHighlighter* which allows you to add a persistent highlight between certain offsets and containing certain custom properties and render it with a certain painter.

   For example you can use this support to implement your own way of adding review comments.

How Do I Add My Custom Actions to the Contextual Menu?

The API methods `WSAuthorEditorPageBase.addPopUpMenuCustomizer` and `WSTextEditorPage.addPopUpMenuCustomizer` allow you to customize the contextual menu shown either in the Author or in the Text modes. The API is available both in the standalone application and in the Eclipse plugin.

Here's an elegant way to add from your Eclipse plugin extension actions to the Author page:

1. Create a pop-up menu customizer implementation:

```
import org.eclipse.jface.action.ContributionManager;
import org.eclipse.ui.PlatformUI;
import org.eclipse.ui.menus.IMenuService;
import ro.sync.ecss.extensions.api.AuthorAccess;
import ro.sync.ecss.extensions.api.structure.AuthorPopupMenuCustomizer;
/**
* This class is used to create the possibility to attach certain
* menuContributions to the {@link ContributionManager}, which is used for the
* popup menu in the Author Page of the Oxygen Editor.<br />
* You just need to use the org.eclipse.ui.menus extension and add a
* menuContribution with the locationURI: <b>menu:oxygen.authorpage</b>
*/
public class OxygenAuthorPagePopupMenuCustomizer implements
        AuthorPopupMenuCustomizer {

    @Override
    public void customizePopUpMenu(Object menuManagerObj,
            AuthorAccess authoraccess) {
        if (menuManagerObj instanceof ContributionManager) {
            ContributionManager contributionManager = (ContributionManager) menuManagerObj;
            IMenuService menuService = (IMenuService) PlatformUI.getWorkbench()
                    .getActiveWorkbenchWindow().getService(IMenuService.class);

            menuService.populateContributionManager(contributionManager,
                    "menu:oxygen.authorpage");
            contributionManager.update(true);
        }
    }
}
```

2. Add a workbench listener and add the pop-up customizer when an editor is opened in the Author page:

```
Workbench.getInstance().getActiveWorkbenchWindow().getPartService().addPartListener(
    new IPartListener() {
      @Override
      public void partOpened(IWorkbenchPart part) {
        if(part instanceof ro.sync.exml.workspace.api.editor.WSEditor) {
          WSEditorPage currentPage = ((WSEditor)part).getCurrentPage();
          if(currentPage instanceof WSAuthorEditorPage) {
           ((WSAuthorEditorPage)currentPage).addPopUpMenuCustomizer(new OxygenAuthorPagePopupMenuCustomizer());

          }
        }
      }
      ........
    });
```

3. Implement the extension point in your `plugin.xml`:

```
<extension
       point="org.eclipse.ui.menus">
    <menuContribution
          allPopups="false"
          locationURI="menu:oxygen.authorpage">
       <command
             commandId="eu.doccenter.kgu.client.tagging.removeTaggingFromOxygen"
             style="push">
       </command>
    </menuContribution>
</extension>
```

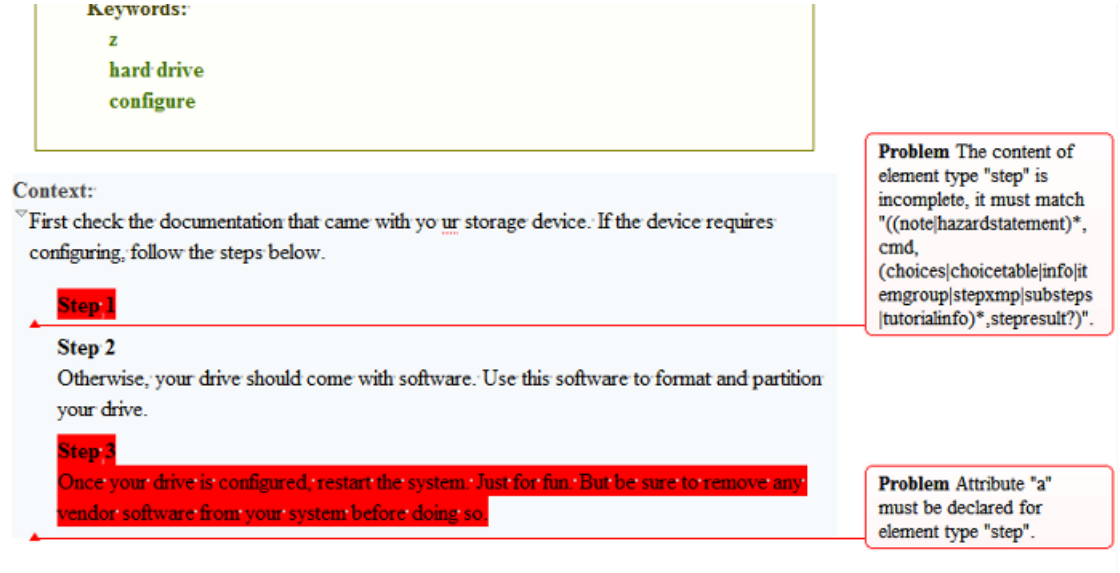
Adding Custom Callouts

Question

I'd like to highlight validation errors, instead of underlining them, for example changing the text background color to light red (or yellow).Also I like to let oxygen write a note about the error type into the author view directly at the error position, like " [value "text" not allowed for attribute "type"] ". Is this possible using the API?

Answer

The Plugins API allows setting a `ValidationProblemsFilter` which gets notified when automatic validation errors are available. Then you can map each of the problems to an offset range in the Author page using the API `WSTextBasedEditorPage.getStartEndOffsets(DocumentPositionedInfo)`. For each of those offsets you can add either persistent or non-persistent highlights. If you add persistent highlights you can also customize callouts to appear for each of them, the downside is that they need to be removed before the document gets saved. The end result would look something like:



Here is a small working example:

```
   /**
   * Plugin extension - workspace access extension.
   */
   public class CustomWorkspaceAccessPluginExtension
                        implements WorkspaceAccessPluginExtension {

     /**
      * @see ro.sync.exml.plugin.workspace.WorkspaceAccessPluginExtension
             #applicationStarted(ro.sync.exml.workspace.api.standalone.StandalonePluginWorkspace)
      */
     public void applicationStarted(final StandalonePluginWorkspace pluginWorkspaceAccess) {
       pluginWorkspaceAccess.addEditorChangeListener(new WSEditorChangeListener() {
         /**
          * @see ro.sync.exml.workspace.api.listeners.WSEditorChangeListener#editorOpened(java.net.URL)
          */
         @Override
         public void editorOpened(URL editorLocation) {
           final WSEditor currentEditor = pluginWorkspaceAccess.getEditorAccess(editorLocation,
StandalonePluginWorkspace.MAIN_EDITING_AREA);
           WSEditorPage currentPage = currentEditor.getCurrentPage();
           if(currentPage instanceof WSAuthorEditorPage) {
             final WSAuthorEditorPage currentAuthorPage = (WSAuthorEditorPage)currentPage;
             currentAuthorPage.getPersistentHighlighter().setHighlightRenderer(new PersistentHighlightRenderer()
{
               @Override
               public String getTooltip(AuthorPersistentHighlight highlight) {
                 return highlight.getClonedProperties().get("message");
               }
               @Override
```

```
    public HighlightPainter getHighlightPainter(AuthorPersistentHighlight highlight) {
      //Depending on severity could have different color.
      ColorHighlightPainter painter = new ColorHighlightPainter(Color.COLOR_RED, -1, -1);
      painter.setBgColor(Color.COLOR_RED);
      return painter;
    }
  });
  currentAuthorPage.getReviewController()
    .getAuthorCalloutsController().setCalloutsRenderingInformationProvider(
        new CalloutsRenderingInformationProvider() {
    @Override
    public boolean shouldRenderAsCallout(AuthorPersistentHighlight highlight) {
      //All custom highlights are ours
      return true;
    }
    @Override
    public AuthorCalloutRenderingInformation getCalloutRenderingInformation(
        final AuthorPersistentHighlight highlight) {
      return new AuthorCalloutRenderingInformation() {
        @Override
        public long getTimestamp() {
          //Not interesting
          return -1;
        }
        @Override
        public String getContentFromTarget(int limit) {
          return "";
        }
        @Override
        public String getComment(int limit) {
          return highlight.getClonedProperties().get("message");
        }
        @Override
        public Color getColor() {
          return Color.COLOR_RED;
        }
        @Override
        public String getCalloutType() {
          return "Problem";
        }
        @Override
        public String getAuthor() {
          return "";
        }
        @Override
        public Map<String, String> getAdditionalData() {
          return null;
        }
      };
    }
  });
  currentEditor.addValidationProblemsFilter(new ValidationProblemsFilter() {
    List<int[]> lastStartEndOffsets = new ArrayList<int[]>();
    /**
     * @see ro.sync.exml.workspace.api.editor.validation.ValidationProblemsFilter
       #filterValidationProblems(ro.sync.exml.workspace.api.editor.validation.ValidationProblems)
     */
    @Override
    public void filterValidationProblems(ValidationProblems validationProblems) {
      List<int[]> startEndOffsets = new ArrayList<int[]>();
      List<DocumentPositionedInfo> problemsList = validationProblems.getProblemsList();
      if(problemsList != null) {
        for (int i = 0; i < problemsList.size(); i++) {
          try {
            startEndOffsets.add(currentAuthorPage.getStartEndOffsets(problemsList.get(i)));
          } catch (BadLocationException e) {
            e.printStackTrace();
          }
        }
      }
        if(lastStartEndOffsets.size() != startEndOffsets.size()) {
          //Continue
        } else {
          boolean equal = true;
          for (int i = 0; i < startEndOffsets.size(); i++) {
            int[] o1 = startEndOffsets.get(i);
            int[] o2 = lastStartEndOffsets.get(i);
            if(o1 == null && o2 == null) {
              //Continue
            } else  if(o1 != null && o2 != null
                && o1[0] == o2[0] && o1[1] == o2[1]){
              //Continue
            } else {
              equal = false;
              break;
            }
          }
          if(equal) {
            //Same list of problems already displayed.
            return;
          }
```

```
                }
                //Keep last used offsets.
                lastStartEndOffsets = startEndOffsets;
              try {
                if(! SwingUtilities.isEventDispatchThread()) {
                  SwingUtilities.invokeAndWait(new Runnable() {
                    @Override
                    public void run() {
                      //First remove all custom highlights.
                      currentAuthorPage.getPersistentHighlighter().removeAllHighlights();
                    }
                  });
                }
              } catch (InterruptedException e1) {
                e1.printStackTrace();
              } catch (InvocationTargetException e1) {
                e1.printStackTrace();
              }
              if(problemsList != null) {
                for (int i = 0; i < problemsList.size(); i++) {
                  //A reported problem (could be warning, could be error).
                  DocumentPositionedInfo dpi = problemsList.get(i);
                  try {
                    final int[] currentOffsets = startEndOffsets.get(i);
                    if(currentOffsets != null) {
                      //These are offsets in the Author content.
                     final LinkedHashMap<String, String> highlightProps = new LinkedHashMap<String, String>();

                      highlightProps.put("message", dpi.getMessage());
                      highlightProps.put("severity", dpi.getSeverityAsString());
                      if(! SwingUtilities.isEventDispatchThread()) {
                        SwingUtilities.invokeAndWait(new Runnable() {
                          @Override
                          public void run() {
                            currentAuthorPage.getPersistentHighlighter().addHighlight(
                                currentOffsets[0], currentOffsets[1] - 1, highlightProps);
                          }
                        });
                      }
                    }
                  } catch (InterruptedException e) {
                    e.printStackTrace();
                  } catch (InvocationTargetException e) {
                    e.printStackTrace();
                  }
                }
              }
            }
          });
          currentEditor.addEditorListener(new WSEditorListener() {
            /**
             * @see ro.sync.exml.workspace.api.listeners.WSEditorListener#editorAboutToBeSavedVeto(int)
             */
            @Override
            public boolean editorAboutToBeSavedVeto(int operationType) {
              try {
                if(! SwingUtilities.isEventDispatchThread()) {
                  SwingUtilities.invokeAndWait(new Runnable() {
                    @Override
                    public void run() {
                      //Remove all persistent highlights before saving
                      currentAuthorPage.getPersistentHighlighter().removeAllHighlights();
                    }
                  });
                }
              } catch (InterruptedException e) {
                e.printStackTrace();
              } catch (InvocationTargetException e) {
                e.printStackTrace();
              }
              return true;
            }
          });
        }
      }
    }, StandalonePluginWorkspace.MAIN_EDITING_AREA);
  }


  /**
   * @see ro.sync.exml.plugin.workspace.WorkspaceAccessPluginExtension#applicationClosing()
   */
  public boolean applicationClosing() {
    return true;
  }
}
```

Change the DOCTYPE of an Opened XML Document

Question

How to change the DOCTYPE of a document opened in the **Author** mode?

Answer

The following API:

```
ro.sync.ecss.extensions.api.AuthorDocumentController.getDoctype()
```

allows you to get the `DOCTYPE` of the current XML file opened in the Author page.

There is also an API method available which would allow you to set the `DOCTYPE` back to the XML:

```
ro.sync.ecss.extensions.api.AuthorDocumentController.setDoctype(AuthorDocumentType)
```

Here is an example of how this solution would work:

```
AuthorDocumentType dt = new AuthorDocumentType("article", "testSystemID", "testPublicID",
            "<!DOCTYPE article PUBLIC \"testPublicID\" \"testSystemID\">");
docController.setDoctype(dt);
```

Basically you could take the entire content from the existing DOCTYPE,

```
ro.sync.ecss.extensions.api.AuthorDocumentType.getContent()
```

modify it to your needs, and create another `AuthorDocumentType` object with the new content and with the same public, system IDs.

For example you could use this API is you want to add unparsed entities in the XML `DOCTYPE`.

Customize the Default Application Icons for Toolbars/Menus

Question

How can we change the default icons used for the application built-in actions?

Answer

If you look inside the main JAR library `OXYGEN_INSTALL_DIR\lib\oxygen.jar` or `OXYGEN_INSTALL_DIR\lib\author.jar` it contains an `images` folder in which all the images which we use for our buttons, menus, and toolbars exist.

In order to overwrite them with your own creations:

1. In the `OXYGEN_INSTALL_DIR\lib` directory create a folder called `endorsed`;
2. In the `endorsed` folder create another folder called `images`;
3. Add your own images in the `images` folder.

You can use this mechanism to overwrite any kind of resource located in the main Oxygen JAR library. The folder structure in the endorsed directory and in the main Oxygen JAR must be identical.

Disable Context-Sensitive Menu Items for Custom Author Actions

Question

Is there a way to disable menu items for custom Author actions depending on the cursor context?

Answer

By default Oxygen does not toggle the enabled/disabled states for actions based on whether the activation XPath expressions for that certain Author action are fulfilled. This is done because the actions can be many and evaluating XPath expression on each caret move can lead to performance problems. But if you have your own `ro.sync.ecss.extensions.api.ExtensionsBundle` implementation you can overwrite the method:

```
ro.sync.ecss.extensions.api.ExtensionsBundle.createAuthorExtensionStateListener()
```

and when the extension state listener gets activated you can use the API like:

```
/**
 * @see ro.sync.ecss.extensions.api.AuthorExtensionStateListener#activated(ro.sync.ecss.extensions.api.AuthorAccess)
 */
public void activated(final AuthorAccess authorAccess) {

  //Add a caret listener to enable/disable extension actions:
  authorAccess.getEditorAccess().addAuthorCaretListener(new AuthorCaretListener() {
    @Override
    public void caretMoved(AuthorCaretEvent caretEvent) {
      try {
        Map<String, Object> authorExtensionActions =
authorAccess.getEditorAccess().getActionsProvider().getAuthorExtensionActions();
        //Get the action used to insert a paragraph. It's ID is "paragraph"
        AbstractAction insertParagraph = (AbstractAction) authorExtensionActions.get("paragraph");
        //Evaluate an XPath expression in the context of the current node in which the caret is located
        Object[] evaluateXPath = authorAccess.getDocumentController().evaluateXPath(".[ancestor-or-self::p]",
false, false, false, false);
        if(evaluateXPath != null && evaluateXPath.length > 0 && evaluateXPath[0] != null) {
          //We are inside a paragraph, disable the action.
          insertParagraph.setEnabled(false);
        } else {
          //Enable the action
          insertParagraph.setEnabled(true);
        }
      } catch (AuthorOperationException e) {
        e.printStackTrace();
      }
    }
  });
```

When the extension is deactivated you should remove the caret listener in order to avoid adding multiple caret listeners which perform the same functionality.

Dynamic Open File in Oxygen XML Author Distributed via JavaWebStart

Question

How can we dynamically open a file in an Oxygen XML Author distributed via JWS?

Answer

The JWS packager ANT build file which comes with Oxygen signs by default the JNLP file (this means that a copy of it is included in the main JAR library) in this step:

```
<copy file="${outputDir}/${packageName}/${productName}.jnlp" tofile="${home}/JNLP-INF/APPLICATION.JNLP"/>
```

Signing the JNLP file indeed means that it is impossible to automatically generate a JNLP file containing some dynamic arguments.

But the JNLP does not need to be signed. Indeed the user probably receives this information when launching the application but at least in this way you should be able to dynamically generate a JNLP file via a PHP script based on the URL which was clicked by the user.

The generated JNLP would then take as argument the URL which needs to be opened when Oxygen starts.

Maybe a different approach (more complicated though) would be to have the JNLP file signed and always refer as a URL argument a location like this:

```
http://path/to/server/redirectEditedURL.php
```

When the URL gets clicked on the client side you would also call a PHP script on the server side which would update the redirect location for `redirectEditedURL.php` to point to the clicked XML resource. Then the opened Oxygen would try to connect to the redirect PHP and be redirected to open the XML.

Change the Default Track Changes (Review) Author Name

Question

How can we change the default author name used for Track Changes in the Author Component?

Answer

The Track Changes (Review) Author name is determined in the following order:

1. **API** - The review user name can be imposed through the following API:
   ```
   ro.sync.ecss.extensions.api.AuthorReviewController.setReviewerAuthorName(String)
   ```
2. **Options** - If the author name was not imposed from the API, it is determined from the `Author` option set from the following `Preferences` page: *`Editor / Edit modes / Author / Review.`*
3. **System properties** - If the author name was not imposed from the API or from the application options then the following system property is used:
   ```
   System.getProperty("user.name")
   ```

So, to impose the Track Changes author, use one of the following approaches:

1. Use the API to impose the reviewer Author name. Here is the online Javadoc of this method: *http://www.oxygenxml.com/InstData/Editor/SDK/javadoc/ro/sync/ecss/extensions/api/AuthorReviewController.html#setReviewerAuthorName(java.lang.String)*
2. *Customise the default options* and set a specific value for the reviewer Author name option.
3. Set the value of `user.name` system property when the applet is initialising and before any document is loaded.

Multiple Rendering Modes for the Same Author Document

Question

How can we add multiple buttons, each showing different visualisation mode of the same Author document (by associating additional/different CSS style sheet)?

Answer

In the toolbar of the **Author** mode there is a drop-down button which contains alternative CSS styles for the same document. To add an alternative CSS stylesheet go to Oxygen XML Author `Preferences->Document Type Association` page, select the document type associated with your documents and press `Edit`. In the `Document Type` dialog that appears go to "Author" tab, "CSS" tab and add there references to alternate CSS stylesheets.

For example, one of the alternate CSSs that we offer for `DITA` document type is located here:

```
OXYGEN_INSTALL_DIR/frameworks/dita/css_classed/hideColspec.css
```

If you open it, you will see that it imports the main CSS and then adds selectors of its own.

Obtain a DOM Element from an `AuthorNode` or `AuthorElement`

Question

Can a DOM Element be obtained from an `AuthorNode` or an `AuthorElement`?

Answer

No, a DOM Element cannot be obtained from an `AuthorNode` or an `AuthorElement`. The `AuthorNode` structure is also hierarchical but the difference is that all the text content is kept in a single text buffer instead of having individual text nodes.

We have an image in the Javadoc which explains the situation:*http://www.oxygenxml.com/InstData/Editor/SDK/javadoc/ro/sync/ecss/extensions/api/node/AuthorDocumentFragment.html*

Print Document Within the Author Component

Question

Can a document be printed within the Author Component?

Answer

You can use the following API method to either print the Author document content to the printer or to show the Print Preview dialog, depending on the `preview` parameter value:

```
AuthorComponentProvider.print(boolean preview)
```

Here is the online Javadoc for this method:
http://www.oxygenxml.com/InstData/Editor/SDK/javadoc/ro/sync/ecss/extensions/api/component/AuthorComponentProvider.html#print(boolean)

Running XSLT or XQuery Transformations

Question

Can I run XSL 2.0 / 3.0 transformation with Saxon EE using the oXygen SDK?

Answer

The API class `ro.sync.exml.workspace.api.util.XMLUtilAccess` allows you to create an XSLT Transformer which implements the JAXP interface `javax.xml.transform.Transformer`. Then this type of transformer can be used to transform XML. Here's just an example of transforming when you have an `AuthorAccess` API available:

```
 InputSource is = new org.xml.sax.InputSource(URLUtil.correct(new File("test/personal.xsl")).toString());
 xslSrc = new SAXSource(is);
 javax.xml.transform.Transformer transformer = authorAccess.getXMLUtilAccess().createXSLTTransformer(xslSrc, null,
 AuthorXMLUtilAccess.TRANSFORMER_SAXON_ENTERPRISE_EDITION);
 transformer.transform(new StreamSource(new File("test/personal.xml")), new StreamResult(new
File("test/personal.html")));
```

If you want to create the transformer from the plugins side, you can use this method instead: `ro.sync.exml.workspace.api.PluginWorkspace.getXMLUtilAccess()`.

Use Different Rendering Styles for Entity References, Comments or Processing Instructions

Question

Is there a way to display entity references in the **Author** mode without the distinct gray background and tag markers?

Answer

There is a built-in CSS stylesheet in the Oxygen libraries which is used when styling content in the **Author** mode, no matter what CSS you use. This CSS has the following content:

```
@namespace oxy url('http://www.oxygenxml.com/extensions/author');
@namespace xi "http://www.w3.org/2001/XInclude";
@namespace xlink "http://www.w3.org/1999/xlink";
@namespace svg "http://www.w3.org/2000/svg";
@namespace mml "http://www.w3.org/1998/Math/MathML";

oxy|document {
    display:block !important;
}

oxy|cdata {
    display:morph !important;
    white-space:pre-wrap !important;
    border-width:0px !important;
    margin:0px !important;
    padding: 0px !important;
}

oxy|processing-instruction {
    display:block !important;
    color: rgb(139, 38, 201) !important;
    white-space:pre-wrap !important;
    border-width:0px !important;
    margin:0px !important;
    padding: 0px !important;
}

oxy|comment {
    display:morph !important;
    color: rgb(0, 100, 0) !important;
    background-color:rgb(255, 255, 210) !important;
    white-space:pre-wrap !important;
    border-width:0px !important;
    margin:0px !important;
    padding: 0px !important;
}

oxy|reference:before,
oxy|entity[href]:before{
  link: attr(href) !important;
  text-decoration: underline !important;
  color: navy !important;

  margin: 2px !important;
  padding: 0px !important;
}

oxy|reference:before {
  display: morph !important;
  content: url(../images/editContent.gif) !important;
}

oxy|entity[href]:before{
  display: morph !important;
  content: url(../images/editContent.gif) !important;
}

oxy|reference,
oxy|entity {
    editable:false !important;
    background-color: rgb(240, 240, 240) !important;
    margin:0px !important;
    padding: 0px !important;
}

oxy|reference {
    display:morph !important;
}

oxy|entity {
    display:morph !important;
}

oxy|entity[href] {
  border: 1px solid rgb(175, 175, 175) !important;
  padding: 0.2em !important;
}

xi|include {
    display:block !important;
    margin-bottom: 0.5em !important;
    padding: 2px !important;
}
xi|include:before,
xi|include:after{
```

```
    display:inline !important;
    background-color:inherit !important;
    color:#444444 !important;
    font-weight:bold !important;
}

xi|include:before {
    content:url(../images/link.gif) attr(href)  !important;
    link: attr(href) !important;
}
xi|include[xpointer]:before {
    content:url(../images/link.gif) attr(href) " " attr(xpointer) !important;
    link: oxy_concat(attr(href), "#", attr(xpointer)) !important;
}

xi|fallback {
    display:morph !important;
    margin: 2px !important;
    border: 1px solid #CB0039 !important;
}

xi|fallback:before {
    display:morph !important;
    content:"XInclude fallback: " !important;
    color:#CB0039 !important;
}

oxy|doctype {
    display:block !important;
    background-color: transparent !important;
    color:blue !important;
    border-width:0px !important;
    margin:0px !important;
    padding: 2px !important;
}

oxy|error {
    display:morph !important;
    editable:false !important;
    white-space:pre !important;
    color: rgb(178, 0, 0) !important;
    font-weight:bold !important;
}

*[xlink|href]:before {
    content:url(../images/link.gif);
    link: attr(xlink|href) !important;
}


/*No direct display of the MathML and SVG images.*/
svg|svg{
 display:inline !important;
    white-space: trim-when-ws-only;
}
svg|svg svg|*{
    display:none !important;
    white-space:normal;
}

mml|math{
 display:inline !important;
    white-space: trim-when-ws-only;
}
mml|math mml|*{
    display:none !important;
    white-space: normal;
}
```

In the CSS used for rendering the XML in **Author** mode do the following:

- import the special Author namespace;
- use a special selector to customize the `entity` node.

Example:

```
@namespace oxy url('http://www.oxygenxml.com/extensions/author');
oxy|entity {
   background-color: inherit !important;
   margin:0px !important;
   padding: 0px !important;
    -oxy-display-tags:none;
}
```

You can overwrite styles in the predefined CSS in order to custom style comments, processing instructions and *CData* sections. You can also customize the way in which `xi:include` elements are rendered.

Insert an Element with all the Required Content

Question

I'm inserting a DITA *image* XML element, using the Author API, which points to a certain resource and has required content. Can the required content be automatically inserted by the application?

Answer

The API `ro.sync.ecss.extensions.api.AuthorSchemaManager` can propose valid elements which can be inserted at the specific offset. Using the method `AuthorSchemaManager.createAuthorDocumentFragment(CIElement)` you can convert the proposed elements to document fragments (which have all the required content filled in) which can then be inserted in the document.

```
AuthorSchemaManager schemaManager = this.authorAccess.getDocumentController().getAuthorSchemaManager();
WhatElementsCanGoHereContext context =
schemaManager.createWhatElementsCanGoHereContext(this.authorAccess.getEditorAccess().getCaretOffset());
List<CIElement> possibleElementsAtCaretPosition = schemaManager.whatElementsCanGoHere(context);
loop: for (int i = 0; i < possibleElementsAtCaretPosition.size(); i++) {
  CIElement possibleElement = possibleElementsAtCaretPosition.get(i);
  List<CIAttribute> attrs = possibleElement.getAttributes();
  if(attrs != null) {
    for (int j = 0; j < attrs.size(); j++) {
      CIAttribute ciAttribute = attrs.get(j);
      if (ciAttribute.getName().equals("class")) {
        if (ciAttribute.getDefaultValue() != null
            && ciAttribute.getDefaultValue().contains("  topic/image ")) {
          //Found a CIElement for image
          //Create a fragment for it. The fragment contains all required child elements already built.
          AuthorDocumentFragment frag = schemaManager.createAuthorDocumentFragment(possibleElement);
          //Now set the @href to it.
          //Ask the user and obtain a value for the @href
          //Then:

          String href = "test.png";
          List<AuthorNode> nodes = frag.getContentNodes();
          if(!nodes.isEmpty()) {
            AuthorElement imageEl = (AuthorElement) nodes.get(0);
            imageEl.setAttribute("href", new AttrValue(href));
          }
          //And insert the fragment.

this.authorAccess.getDocumentController().insertFragment(this.authorAccess.getEditorAccess().getCaretOffset(),
frag);
          break loop;
        }
      }
    }
  }
}
```

Obtain the Current Selected Element Using the Author API

Question

If in the **Author** mode, an element is fully selected, I would like to perform an action on it. If not, I would like to perform an action on the node which is located at the caret position. Is this possible via the API?

Answer

When an element is fully selected by the user the selection start and end offsets are actually outside of the node's offset bounds. So using `AuthorDocumentController.getNodeAtOffset` will actually return the parent of the selected node. We have some special API which makes it easier for you to determine this situation: `WSAuthorEditorPageBase.getFullySelectedNode()`.

```
AuthorDocumentController controller = authorPageAccess.getDocumentController();
AuthorAccess authorAccess = authorPageAccess.getAuthorAccess();
int caretOffset = authorAccess.getEditorAccess().getCaretOffset();

AuthorElement nodeAtCaret = (AuthorElement) authorAccess.getEditorAccess().getFullySelectedNode();
```

```
if (nodeAtCaret == null) {
     //We have no fully selected node. We can look at the caret offset.
     nodeAtCaret = (AuthorElement) authorAccess.getDocumentController().getNodeAtOffset(caretOffset);
    //Or we could look at the selection start and end, see which node is the parent of each offset and get the
closest common ancestor.
}
```

Debugging a Plugin Using the Eclipse Workbench

To debug problems in the code of the plugin without having to re-bundle the Java classes of the plugin in a JAR library, follow these steps:

1. Download and unpack an *all platforms standalone version* of Oxygen XML Author/Editor to a folder on your hard drive.

   Note: Name the folder `OXYGEN_DIR`.

2. Download the *Plugins SDK*.
3. Create an Eclipse Java Project (let's call it `MyPluginProject`) with the Java sources from one of the sample plugins (the Workspace Access plugin for example).
4. In the Project root folder, create a folder called `myPlugin` and add the `plugin.xml` from the sample plugin in there. Modify the added plugin.xml to add a library reference to the project's classes directory: `<library name="../classes"/>`.
5. Copy the `plugin.dtd` from the `OXYGEN_DIR/plugins` folder in the root Project folder.
6. In the Project's build path add external JAR references to all the JAR libraries in the `OXYGEN_DIR/lib` folder. Now your Project should compile successfully.
7. Create a new Java Application configuration for debugging. The Main Class should be `ro.sync.exml.Oxygen`. The given VM Arguments should be:

   ```
   -Dcom.oxygenxml.app.descriptor=ro.sync.exml.EditorFrameDescriptor -Xmx1024m
   -XX:MaxPermSize=384m -Dcom.oxygenxml.editor.plugins.dir=D:\projects\MyPluginProject
   ```

8. Add a break point in one of the source Java classes.
9. Debug the created configuration. When the code reaches your breakpoint, the debug perspective should take over.

Debugging an SDK Extension Using the Eclipse Workbench

To debug problems in the extension code without having to bundle the extension's Java classes in a JAR library, perform the following steps:

1. Download and unpack an *all platforms standalone version* of Oxygen XML Author/Editor to a folder on your hard drive.

   Note: Name the folder `OXYGEN_DIR`.

2. Download the *Author SDK*.
3. Create an Eclipse Java Project (let's call it `MySDKProject`) with the corresponding Java sources (for example a custom implementation of the `ro.sync.ecss.extensions.api.StylesFilter` interface).
4. In the Project's build path add external JAR references to all the JAR libraries in the `OXYGEN_DIR/lib` folder. Now your Project should compile successfully.
5. Start the standalone version of Oxygen from the `OXYGEN_DIR` and in the **Document Type Association** Preferences page edit the document type (for example **DITA**). In the **Classpath** tab, add a reference to your Project's `classes` directory and in the **Extensions** tab, select your custom `StylesFilter` extension as a value for the **CSS styles filter** property. Close the application to save the changes to the framework file.
6. Create a new Java Application configuration for debugging. The Main Class should be `ro.sync.exml.Oxygen`. The given VM Arguments should be

   ```
   -Dcom.oxygenxml.app.descriptor=ro.sync.exml.EditorFrameDescriptor -Xmx1024m -XX:MaxPermSize=384m
   ```

7. Add a break point in one of the source Java classes.
8. Debug the created configuration. When the code reaches your breakpoint, the debug perspective should take over.

Extending the Java Functionality of an Existing Framework (Document Type)

Question

How can I change the way Docbook 4 `xref`'s display in author view based on what element is at the `linkend`?

Please follow the steps below:

1. Download the Author SDK, create a Java project (we work with Eclipse for example) which adds to the classpath all libraries of the SDK.
2. Also add to the project's class path the: "OXYGEN_INSTALL_DIR\frameworks\docbook\docbook.jar".
3. Create a class which extends `ro.sync.ecss.extensions.docbook.DocBook4ExtensionsBundle` and overwrites the method: `ro.sync.ecss.extensions.api.ExtensionsBundle#createLinkTextResolver()`
4. For your custom resolver implementation you can start from the Java sources of the `ro.sync.ecss.extensions.docbook.link.DocbookLinkTextResolver` (the Java code for the entire Docbook customization is present in a subfolder in the Author SDK).
5. Pack your extension classes in a JAR file. Copy the JAR to: "OXYGEN_INSTALL_DIR\frameworks\docbook\custom.jar".
6. Start Oxygen, in the **Preferences** > **Document Type Association**-> page edit the Docbook 4 document type. In the **Classpath** list add the path to the new JAR. In the extensions list select your custom extension instead of the regular Docbook one.
7. You can rename the document type and also the "docbook" framework folder to something else like "custom_docbook" and share it with others. A document type can also be installed using our *add-on support*.

Controlling XML Serialization in the Author Component

Question

How can I force the Author Component to save the XML with zero indent size and not to break the line inside block-level elements?

Answer

Usually, in a standalone version of Oxygen XML Author, the **Editor** > **Format** and **Editor** > **Format** > **XML** preferences pages allow you to control the way the XML is saved on the disk after you edit it in the **Author** mode.

In the editor application (Standalone or Eclipse-based), you can either bundle a *default set of options* or use the `PluginWorkspace.setGlobalObjectProperty(String, Object)` API:

```
//For not breaking the line
//Long line
pluginWorkspace.setObjectProperty("editor.line.width", new Integer(100000));
//Do not break before inline elements
pluginWorkspace.setObjectProperty("editor.format.indent.inline.elements", false);

//For forcing zero indent
//Force indent settings to be controlled by us
pluginWorkspace.setObjectProperty("editor.detect.indent.on.open", false);
//Zero indent size
pluginWorkspace.setObjectProperty("editor.indent.size.v9.2", 0);
```

In the Author Component, you can either bundle a *fixed set of options*, or use our Java API to set properties which overwrite the default options:

```
//For not breaking the line
//Long line
AuthorComponentFactory.getInstance().setObjectProperty("editor.line.width", new Integer(100000));
//Do not break before inline elements
AuthorComponentFactory.getInstance().setObjectProperty("editor.format.indent.inline.elements", false);

//For forcing zero indent
//Force indent settings to be controlled by us
AuthorComponentFactory.getInstance().setObjectProperty("editor.detect.indent.on.open", false);
//Zero indent size
AuthorComponentFactory.getInstance().setObjectProperty("editor.indent.size.v9.2", 0);
```

How can I add a custom Outline view for editing XML documents in the Text mode?

Let's say you have XML documents like

```
<doc startnumber="15">
    <sec counter="no">
        <info/>
        <title>Introduction</title>
      </sec>
    <sec>
        <title>Section title</title>
      <para>Content</para>
        <sec>
            <title>Section title</title>
                <para>Content</para>
        </sec>
    </sec>
    <sec>
            <title>Section title</title>
        <para>Content</para>
      </sec>
</doc>
```

and you want to display the XML content in a simplified Outline view like:

```
doc "15"
sec Introduction
sec 15 Section title
sec 15.1 Section title
sec 16 Section title
```

Usually an Outline should have the following characteristics:

1. Double clicking in the Outline the corresponding XML content would get selected.
2. When the caret moves in the opened XML document the Outline would select the proper entry.
3. When modifications occur in the document, the Outline would refresh.

A simple implementation using a Workspace Access plugin type could be something like:

```
/**
 * Simple Outline for the Text mode based on executing XPaths over the text content.
 */
public class CustomWorkspaceAccessPluginExtension implements WorkspaceAccessPluginExtension {
  /**
   * The custom outline list.
   */
  private JList customOutlineList;

  /**
   * Maps outline nodes to ranges in document
   */
  private WSXMLTextNodeRange[] currentOutlineRanges;

  /**
   * The current text page
   */
  private WSXMLTextEditorPage currentTextPage;

  /**
   * Disable caret listener when we select from the caret listener.
   */
  private boolean enableCaretListener = true;

  /**
   * @see
ro.sync.exml.plugin.workspace.WorkspaceAccessPluginExtension#applicationStarted(ro.sync.exml.workspace.api.standalone.StandalonePluginWorkspace)

   */
  @Override
```

```
  public void applicationStarted(final StandalonePluginWorkspace pluginWorkspaceAccess) {
    pluginWorkspaceAccess.addViewComponentCustomizer(new ViewComponentCustomizer() {
      /**
       * @see
ro.sync.exml.workspace.api.standalone.ViewComponentCustomizer#customizeView(ro.sync.exml.workspace.api.standalone.ViewInfo)

       */
      @Override
      public void customizeView(ViewInfo viewInfo) {
        if(
            //The view ID defined in the "plugin.xml"
            "SampleWorkspaceAccessID".equals(viewInfo.getViewID())) {
          customOutlineList = new JList();
          //Render the content in the Outline.
          customOutlineList.setCellRenderer(new DefaultListCellRenderer() {
            /**
             * @see javax.swing.DefaultListCellRenderer#getListCellRendererComponent(javax.swing.JList,
java.lang.Object, int, boolean, boolean)
             */
            @Override
            public Component getListCellRendererComponent(JList<?> list, Object value, int index,
                boolean isSelected, boolean cellHasFocus) {
              JLabel label = (JLabel) super.getListCellRendererComponent(list, value, index, isSelected,
cellHasFocus);
              String val = null;
              if(value instanceof Element) {
                Element element = ((Element)value);
                val = element.getNodeName();
                if(!"".equals(element.getAttribute("startnumber"))) {
                  val += " " + "'" + element.getAttribute("startnumber") + "'";
                }
                NodeList titles = element.getElementsByTagName("title");
                if(titles.getLength() > 0) {
                  val += " \"" + titles.item(0).getTextContent() + "\"";
                }
              }
              label.setText(val);
              return label;
            }
          });
          //When we click a node, select it in the text page.
          customOutlineList.addMouseListener(new MouseAdapter() {
            @Override
            public void mouseClicked(MouseEvent e) {
              if(SwingUtilities.isLeftMouseButton(e) && e.getClickCount() == 2) {
                int sel = customOutlineList.getSelectedIndex();
                enableCaretListener = false;
                try {

currentTextPage.select(currentTextPage.getOffsetOfLineStart(currentOutlineRanges[sel].getStartLine()) +
currentOutlineRanges[sel].getStartColumn() - 1,
                    currentTextPage.getOffsetOfLineStart(currentOutlineRanges[sel].getEndLine()) +
currentOutlineRanges[sel].getEndColumn());
                } catch (BadLocationException e1) {
                  e1.printStackTrace();
                }
                enableCaretListener = true;
              }
            }
          });
          viewInfo.setComponent(new JScrollPane(customOutlineList));
          viewInfo.setTitle("Custom Outline");
        }
      }
    });

    pluginWorkspaceAccess.addEditorChangeListener(new WSEditorChangeListener() {
      /**
       * @see ro.sync.exml.workspace.api.listeners.WSEditorChangeListener#editorOpened(java.net.URL)
       */
      @Override
      public void editorOpened(URL editorLocation) {
        //An editor was opened
        WSEditor editorAccess = pluginWorkspaceAccess.getEditorAccess(editorLocation,
StandalonePluginWorkspace.MAIN_EDITING_AREA);
        if(editorAccess != null) {
          WSEditorPage currentPage = editorAccess.getCurrentPage();
          if(currentPage instanceof WSXMLTextEditorPage) {
            //User editing in Text mode an opened XML document.
            final WSXMLTextEditorPage xmlTP = (WSXMLTextEditorPage) currentPage;
            //Reconfigure outline on each change.
            xmlTP.getDocument().addDocumentListener(new DocumentListener() {
              @Override
              public void removeUpdate(DocumentEvent e) {
                reconfigureOutline(xmlTP);
              }
              @Override
              public void insertUpdate(DocumentEvent e) {
                reconfigureOutline(xmlTP);
              }
              @Override
```

```
            public void changedUpdate(DocumentEvent e) {
              reconfigureOutline(xmlTP);
            }
          });
          JTextArea textComponent = (JTextArea) xmlTP.getTextComponent();
          textComponent.addCaretListener(new CaretListener() {
            @Override
            public void caretUpdate(CaretEvent e) {
              if(currentOutlineRanges != null && currentTextPage != null && enableCaretListener) {
                enableCaretListener = false;
                //Find the node to select in the outline.
                try {
                  int line = xmlTP.getLineOfOffset(e.getDot());
                  for (int i = currentOutlineRanges.length - 1; i >= 0; i--) {
                   if(line > currentOutlineRanges[i].getStartLine() && line < currentOutlineRanges[i].getEndLine())
{
                        customOutlineList.setSelectedIndex(i);
                        break;
                    }
                  }
                } catch (BadLocationException e1) {
                  e1.printStackTrace();
                }
                enableCaretListener = true;
              }
            }
          });
        }
      }
    }
    /**
     * @see ro.sync.exml.workspace.api.listeners.WSEditorChangeListener#editorActivated(java.net.URL)
     */
    @Override
    public void editorActivated(URL editorLocation) {
      //An editor was selected, reconfigure the common outline
      WSEditor editorAccess = pluginWorkspaceAccess.getEditorAccess(editorLocation,
StandalonePluginWorkspace.MAIN_EDITING_AREA);
      if(editorAccess != null) {
        WSEditorPage currentPage = editorAccess.getCurrentPage();
        if(currentPage instanceof WSXMLTextEditorPage) {
          //User editing in Text mode an opened XML document.
          WSXMLTextEditorPage xmlTP = (WSXMLTextEditorPage) currentPage;
          reconfigureOutline(xmlTP);
        }
      }
    }
  }, StandalonePluginWorkspace.MAIN_EDITING_AREA);
 }

 /**
  * Reconfigure the outline
  *
  * @param xmlTP The XML Text page.
  */
 protected void reconfigureOutline(final WSXMLTextEditorPage xmlTP) {
   try {
     //These are DOM nodes.
     Object[] evaluateXPath = xmlTP.evaluateXPath("//doc | //sec");
     //These are the ranges each node takes in the document.
     currentOutlineRanges = xmlTP.findElementsByXPath("//doc | //sec");
     currentTextPage = xmlTP;
     DefaultListModel listModel = new DefaultListModel();
     if(evaluateXPath != null) {
       for (int i = 0; i < evaluateXPath.length; i++) {
         listModel.addElement(evaluateXPath[i]);
       }
     }
     customOutlineList.setModel(listModel);
   } catch(XPathException ex) {
     ex.printStackTrace();
   }
 }

 /**
  * @see ro.sync.exml.plugin.workspace.WorkspaceAccessPluginExtension#applicationClosing()
  */
 @Override
 public boolean applicationClosing() {
   return true;
 }
}
```

Dynamically Adding Form Controls Using a StylesFilter

Usually, a form control is added from the CSS using *The oxy_editor() Function* on page 397. However, in some cases you don't have all the information you need to properly initialize the form control at CSS level. In these cases you can add the form controls by using the API, more specifically `ro.sync.ecss.extensions.api.StylesFilter`.

For instance, let's assume that we want a combo box form control and the values to populate the combo are specified inside a file (for a more interesting scenario we could imagine that they come from a database). Here is how to add the form control from the API:

```
public class SDFStylesFilter implements StylesFilter {

  public Styles filter(Styles styles, AuthorNode authorNode) {
    if(authorNode.getType() == AuthorNode.NODE_TYPE_PSEUDO_ELEMENT
        && "before".equals(authorNode.getName())) {
      authorNode = authorNode.getParent();
      if ("country".equals(authorNode.getName())) {
        // This is the BEFORE pseudo element of the "country" element.
        // Read the supported countries from the configuration file.
        // This will be a comma separated enumeration: France, Spain, Great Britain
        String countries = readCountriesFromFile();
        Map<String, Object> formControlArgs = new HashMap<String, Object>();
        formControlArgs.put(InplaceEditorArgumentKeys.PROPERTY_EDIT, "#text");
        formControlArgs.put(InplaceEditorArgumentKeys.PROPERTY_TYPE, InplaceEditorArgumentKeys.TYPE_COMBOBOX);
        formControlArgs.put(InplaceEditorArgumentKeys.PROPERTY_VALUES, countries);
        formControlArgs.put(InplaceEditorArgumentKeys.PROPERTY_EDITABLE, "false");

        // We also add a label in form of the form control.
        Map<String, Object> labelProps = new HashMap<String, Object>();
        labelProps.put("text", "Country: ");
        labelProps.put("styles", "* {width: 100px; color: gray;}");
        StaticContent[] mixedContent = new StaticContent[] {new LabelContent(labelProps), new
EditorContent(formControlArgs)};
        styles.setProperty(Styles.KEY_MIXED_CONTENT, mixedContent);
      }
    }

    // The previously added form control is the only way the element can be edited.
    if ("country".equals(authorNode.getName())) {
      styles.setProperty(Styles.KEY_VISIBITY, "-oxy-collapse-text");
    }

    return styles;
  }
```

The full source code for this example is available inside the *Author SDK*.

Modifying the XML content on open

Question

I have a bunch of DITA documents which have a fixed path the image `src` attributes. These paths are not valid and I am trying to move away from this practice by converting it in to relative paths. When an XML document is opened, can I trigger the Java API to change the fixed path to a relative path?

Answer

Our Plugins SDK:*http://www.oxygenxml.com/oxygen_sdk.html#Developer_Plugins*contains a sample Plugin Type called *WorkspaceAccess*.Such a plugin is notified when the application starts and it can do what you want in a couple of ways:

1. You add a listener which notifies you when the user opens an XML document. Then if the XML document is opened in the Author visual editing mode you can use our Author API to change attributes:

```
    pluginWorkspaceAccess.addEditorChangeListener(new  WSEditorChangeListener() {
      /**
       * @see ro.sync.exml.workspace.api.listeners.WSEditorChangeListener#editorOpened(java.net.URL)
       */
      @Override
      public void editorOpened(URL editorLocation) {
        WSEditor openedEditor =
pluginWorkspaceAccess.getCurrentEditorAccess(StandalonePluginWorkspace.MAIN_EDITING_AREA);
```

```
       if(openedEditor.getCurrentPage() instanceof WSAuthorEditorPage) {
       WSAuthorEditorPage authPage = (WSAuthorEditorPage)  openedEditor.getCurrentPage();
       AuthorDocumentController docController = authPage.getDocumentController();
       try {
        //All changes will be undone by pressing Undo once.
        docController.beginCompoundEdit();
        fixupImageRefs(docController,
         docController.getAuthorDocumentNode());
       } finally {
          docController.endCompoundEdit();
        }
      }
    }

    private void fixupImageRefs(AuthorDocumentController docController, AuthorNode authorNode) {
        if(authorNode instanceof AuthorParentNode) {
          //Recurse
          List<AuthorNode> contentNodes = ((AuthorParentNode)authorNode).getContentNodes();
          if(contentNodes != null) {
             for (int i = 0; i < contentNodes.size(); i++) {
               fixupImageRefs(docController, contentNodes.get(i));
             }
           }
        }
        if(authorNode.getType() == AuthorNode.NODE_TYPE_ELEMENT) {
          AuthorElement elem = (AuthorElement) authorNode;
          if("image".equals(elem.getLocalName())) {
             if(elem.getAttribute("href") != null) {
               String originalHref = elem.getAttribute("href").getValue();
               URL currentLocation = docController.getAuthorDocumentNode().getXMLBaseURL();
              //TODO here you compute the new href.
              String newHref = null;
              docController.setAttribute("href", new AttrValue(newHref), elem);
           }
        }
      }
    }
  },
 StandalonePluginWorkspace.MAIN_EDITING_AREA);
```

2. You also have API to open XML documents in the application:

```
ro.sync.exml.workspace.api.Workspace.open(URL)
```

So you can create up a plugin which automatically opens one by one XML documents from a certain folder in the application, makes modifications to them, saves the content by calling:

```
ro.sync.exml.workspace.api.editor.WSEditorBase.save()
```

and then closes the editor:

```
ro.sync.exml.workspace.api.Workspace.close(URL)
```

Chapter 10

Transforming Documents

Topics:

XML is mainly used to store, carry, and exchange data. When you want to view the data in a more user friendly form, do one of the following:

- use an XML-compliant user agent;
- transform the XML document to a format that can be read by other user agents. This process is known as **Transformation**.

Output Formats

Within the current version of Oxygen XML Author you can transform your XML documents to the following formats without having to exit from the application:

- **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*.
- **PS** - PostScript is the leading printing technology from *Adobe* 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* 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* 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.

For transformation to formats that are not listed above simply install the tool chain required to perform the transformation and process the xml files created with Oxygen XML Author in accordance with the processor instructions.

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* 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* 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/Oracle* 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* 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 HTML 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 XML Author 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 9.5.0.1 HE, Saxon 9.5.0.1 PE, and Saxon 9.5.0.1 EE.

Transformation Scenario

A transformation scenario is a set of complex operations and settings that gives you the possibility to obtain outputs of multiple types (XML, HTML, PDF, EPUB, and others) from the same source of XML files and stylesheets.

Executing a transformation scenario implies multiple actions, such as:

- validating the input file;
- obtaining intermediate output files (for example formatting objects for the XML to PDF transformation);
- using transformation engines to produce the output.

Before transforming an XML document in Oxygen XML Author, 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 XSLT files** - Such a scenario contains the location of an XML document that the edited XSLT stylesheet is applied on and other transform parameters.
- **Scenarios that apply to XQuery files** - Such a scenario contains the location of an XML source that the edited XQuery file is applied on and other transform parameters. When the XML source is a native XML database the XML source field of the scenario is empty because the XML data is read with XQuery specific functions like `document()`. When the XML source is a local XML file, the URL of the file is specified in the XML input field of the scenario.
- **Scenarios that apply to SQL files** - Such a scenario specifies a database connection for the database server that runs the SQL file associated with the scenario. The data processed by the SQL script is located in the database.
- **Scenarios that apply to XProc files** - Such a scenario contains the location of an XProc script and other transform parameters.
- **DITA-OT scenarios** - Such a scenario provides the parameters for an Ant transformation that executes a DITA-OT build script. Oxygen XML Author comes with a built-in version of Ant and a built-in version of DITA-OT but different versions can be set in the scenario.

Note:

Status messages generated during the transformation process are displayed in the ***Information*** *view*.

Defining a New Transformation Scenario

Defining a transformation scenario is the first step in the process of transforming a document. The following types of scenarios are available:

- ***XML transformation with XSLT*** - specifies transform parameters and the location of an XSLT stylesheet that Oxygen XML Author applies to the edited XML document. This scenario is useful when you develop an XML document and the XSLT document is in its final form;
- ***XML transformation with XQuery*** - specifies transform parameters and the location of an XQuery file that Oxygen XML Author applies to the edited XML document;
- ***DITA-OT transformation*** - specifies the parameters for an Ant transformation that executes a DITA-OT build script. Oxygen XML Author comes with a built-in version of Ant and a built-in version of DITA-OT but different versions can be set in the scenario;

- ***ANT transformation*** - allows you to configure options and parameters of an ANT script;
- ***XSLT transformation*** - specifies transform parameters and the location of an XML document to which the edited XSLT stylesheet is applied. This scenario is useful when you develop an XSLT document and the XML document is in its final form;
- ***XProc transformation*** - contains the location of an XProc script and other transform parameters;
- ***XQuery transformation*** -specifies transform parameters and the location of an XML source to which the edited XQuery file is applied. When the XML source is a native XML database the XML source field of the scenario is empty because the XML data is read with XQuery specific functions like `document()`. When the XML source is a local XML file, the URL of the file is specified in the XML input field of the scenario;
- ***SQL transformation*** - specifies a database connection for the database server that runs the SQL file associated with the scenario. The data processed by the SQL script is located in the database.

XML transformation with XSLT

To create an **XML transformation with XSLT** scenario, use one of the following methods:

- Go to **Window** > **Show View** and select **Transformation Scenarios** to display this view. Click the **New** button and select **XML transformation with XSLT**;
- Click the **Configure Transformation Scenario(s)** (**Ctrl (Meta on Mac OS) + Shift + C**) button on the **Transformation** toolbar, then click the **New** button and select **XML transformation with XSLT**;
- Select **Ctrl (Meta on Mac OS) + Shift + T** on your keyboard or click the **Apply Transformation Scenario** button on the **Transformation** toolbar to open the **Transform With** dialog. In this dialog click the **New** button and select **XML transformation with XSLT**.

  Note: In case a scenario is already associated with the edited document, selecting **Ctrl (Meta on Mac OS) + Shift + T** or **Apply Transformation Scenario** runs the associated scenario automatically. You can check whether transformation scenarios are associated with the edited document by hovering your cursor over the **Apply Transformation Scenario** button.

All three methods open the **New Scenario** dialog box. This dialog allows you to configure the options that control the transformation.

The upper part of the dialog box contains the **Name** field and the **Storage** options:

- **Global Options** - the scenario is saved in the global options stored in the user home directory;
- **Project Options** - the scenario list is stored in the project file. In case your project is saved on a source versioning/sharing system (CVS, SVN, Source Safe, and so on.), your team can use the scenarios you defined.

The lower part of the dialog box contains the following tabs:

- ***XSLT***;
- ***Output***;
- ***FO Processors***.

The XSLT Tab

The **XSLT** tab contains the following options:

- **XML URL** - specifies the source XML file. This URL is resolved through the catalog resolver. If the catalog does not have a mapping for the URL, then the file is used directly from its remote location.

  Note: In case the transformer engine is Saxon 9 and a custom URI resolver is configured in **Preferences** for Saxon 9, the XML input of the transformation is passed to that URI resolver.

  Note: In case the transformer engine is one of the built-in XSLT 2.0 / 3.0 engines and *the name of an initial template* is specified in the scenario, the **XML URL** field can be empty. The **XML URL** field can also be empty in case of *external XSLT processors*. In all other cases a non-empty XML URL value is mandatory.

- **XSL URL** - specifies the source XSL file that the transformation uses. This URL is resolved through the catalog resolver. If the catalog does not have a mapping for the URL, the file is used directly from its remote location.

You can use the following browsing buttons to enter values in the **XML URL** and **XSL URL** fields:

- **Insert Editor Variables** - opens a pop-up menu allowing to introduce special *Oxygen XML Author editor variables* or *custom editor variables* in the XML URL field;
- **Browse for local file** - opens a local file browser dialog box allowing to select a local file;
- **Browse for remote file** - opens an URL browser dialog box allowing to select a remote file;
- **Browse for archived file** - opens a zip archive browser dialog box allowing to select a file from a zip archive;
- **Browse Data Source Explorer** - opens the ***Data Source Explorer*** window;
- **Search for file** - allows you to find a file in the current project;
- **Open in editor** - opens in an editor panel the file with the path specified in the **XML URL** text box.

The rest of the options available in the **XSLT** tab allow you to further customize the transformation scenario:

- **Use "xml-stylesheet" declaration** - use the stylesheet declared with an `xml-stylesheet` declaration instead of the stylesheet specified in the **XSL URL** field. By default this checkbox is not selected and the transformation applies the XSLT stylesheet specified in the **XSL URL** field. If it is checked, the scenario applies the stylesheet specified explicitly in the XML document with the `xml-stylesheet` processing instruction;
- **Transformer** - this combo box presents all the transformation engines available to Oxygen XML Author for performing a transformation. These are the built-in engines and *the external engines defined in the Custom Engines preferences page*. The engine you choose in this dialog is used as the default transformation engine. In case no validation scenario is associated with an XSLT or XQuery document, the transformation engine is used in the validation process, if it provides validation support;
  - **Advanced options** - allows you to configure advanced options of the Saxon HE / PE / EE engine for the current transformation scenario. To configure the same options globally, go to the *Saxon-HE/PE/EE preferences page*. For the current transformation scenario, these **advanced options** override the options configured in the *Saxon-HE/PE/EE preferences page*. The **Initial mode and template** option is available only in the **advanced options**. It is a Saxon-specific option that sets the name of the first XSLT template which starts the XSLT transformation or the initial mode of transformation.
- **Parameters** - opens *the **Configure parameters** dialog*, allowing you to configure the XSLT parameters used in the current transformation. In this dialog you can also configure the parameters of additional stylesheets, set with the **Additional XSLT stylesheets** button. If the XSLT transformation engine is custom-defined you can not use this dialog to configure the parameters sent to the custom engine. In this case, you can copy all parameters from the dialog using the contextual menu actions and edit the custom XSLT engine to include the necessary parameters in the command line ;
- **Extensions** - opens *the dialog for configuring the XSLT/XQuery extension jars or classes* which define extension Java functions or extension XSLT elements used in the transformation;
- **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. This is useful when a chain of XSLT stylesheets must be applied to the input XML document;

XSLT Transformation Parameters

The parameters of the XSLT stylesheet used in the current transformation scenario.

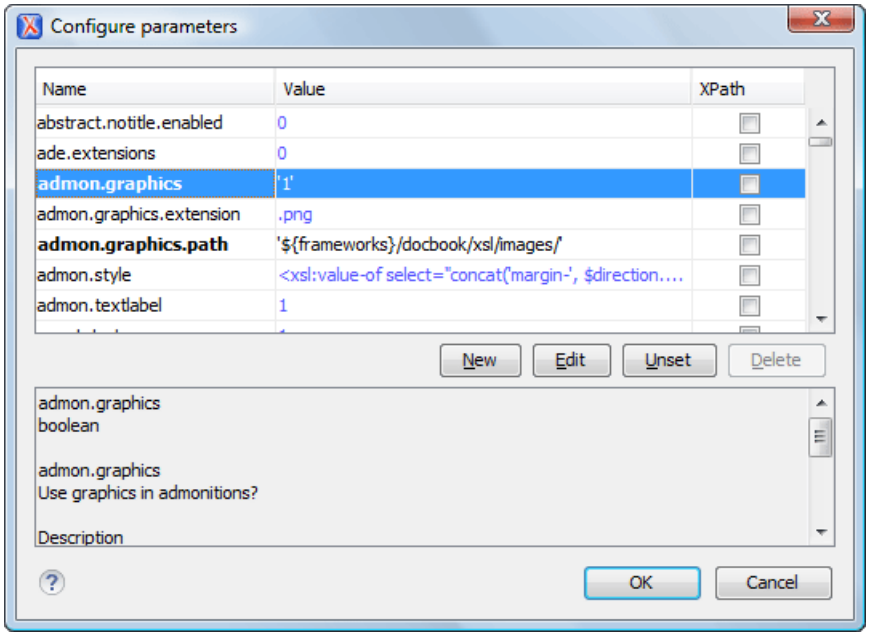


Figure 176: Configure parameters dialog

The table presents all the parameters of the XSLT stylesheet, all imported and included stylesheets and all *additional stylesheets* with their current values. The following font type and color conventions are used:

- blue font values are the defaults collected from the stylesheet;
- black font values and bold font names indicate edited parameters.

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;
- a description of the parameter, if available;
- the system ID of the stylesheet that declares it.

For example setting the value of a parameter having a declared namespace like:

```
<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
```

If the **XPath** column is checked, the parameter value is evaluated as an XPath expression before starting the XSLT transformation.

For example, you can use expressions like:

```
doc('test.xml')//entry
//person[@atr='val']
```

Note:

1. The **doc** function solves the argument relative to the XSL stylesheet location. You can use full paths or editor variables like **${cfdu}** (current file directory) to specify other locations: `doc('${cfdu}/test.xml')//*`
2. You cannot use XSLT Functions. Only XPath functions are allowed.

The following actions are available for managing parameters:

- **New** - Adds a new parameter to the list.

- **Edit** - Edits the value of the selected parameter.
- **Unset** - Resets the selected parameter to its default value. Available only for parameters with set values.
- **Delete** - Removes the selected parameter from the list. It is enabled only for parameters added to the list with the **New** button.

The *editor variables* displayed at the bottom of the dialog can be used in the values of the parameters to make them independent of the location of the XSLT stylesheet or the XML document.

The Output Tab

The **Output** tab contains the following options:

- **Prompt for file** - At the end of the transformation a file browser dialog is displayed for specifying the path and name of the file which stores the transformation result.
- **Save As** - The path of the file where the transformation result are stored. The path can include *special Oxygen XML Author editor variables* or *custom editor variables*.
- **Open in Browser/System Application** - If enabled, Oxygen XML Author opens the transformation result automatically, in a system application associated with the type of the result (HTML/XHTML, PDF, text) file.

  Note: If you already set the **Default Internet browser** option in the **Global** preferences page, it takes precedence over the default system application settings.

- **Saved file** - When **Open in Browser/System Application** is selected this button can be used to specify that Oxygen XML Author should open automatically at the end of the transformation the file specified in the **Save As** text field.
- **Other location** - When **Open in System Application** is selected, this button can be used to specify that Oxygen XML Author 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 XML Author editor variables* or *custom editor variable*.
- **Open in editor** - When this is enabled, the transformation result set in the **Save As** field is opened in a new editor panel with the appropriate built-in editor type: if the result is an XML file it is opened with the built-in XML editor, if it is an XSL-FO file it is opened with the built-in FO editor, and so on.
- **Show in results view as XHTML** - It is enabled only when **Open in browser** is disabled. If this is checked, Oxygen XML Author displays the transformation result in a built-in XHTML browser panel at the bottom of the application window.

  Important: When transforming very large documents, you should be aware that enabling this feature results in a very long time necessary for rendering the transformation result in the XHTML result viewer panel. This drawback appears due to the built-in Java XHTML browser implementation. In these cases, if you wish to see the XHTML result of the transformation, you should use an external browser by checking the **Open in browser** option.

- **Show in results view as XML** - If this is checked Oxygen XML Author displays the transformation result in an XML viewer panel at the bottom of the application window with *syntax highlight* specific for XML documents.
- **Show in results view as SVG** - If this is checked Oxygen XML Author displays the transformation result in an SVG viewer panel at the bottom of the application window by rendering the result as an SVG image.
- **Image URLs are relative to** - If **Show As XHTML** is checked this text field specifies the path used to resolve image paths contained in the transformation result.

The FO Processor Tab

The **FO Processor** tab contains the following options:

- **Perform FO Processing** - specifies whether an FO processor is applied (either the built-in Apache FOP engine or an external engine defined in **Preferences**) during the transformation;
- **XSLT result as input** - the FO processor is applied to the result of the XSLT transformation defined in the **XSLT** tab;
- **XML URL as input** - the FO processor is applied to the input XML file;
- **Method** - the output format of the FO processing. Available options depend on the selected processor type;

- **Processor** - specifies the FO processor. It can be the built-in Apache FOP processor or an *external processor*.

XSLT Stylesheet Parameters

The global parameters of the XSLT stylesheet used in the transformation scenario are configured from the dialog available from the **Parameters** button of the **Configure Transformation** dialog:

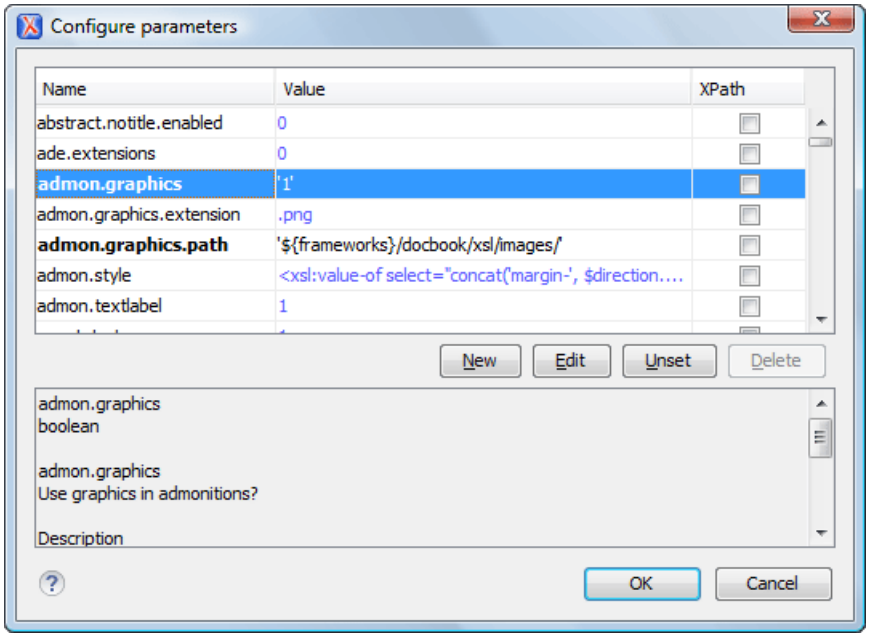


Figure 177: Configure parameters dialog

The table presents all the parameters of the XSLT stylesheet, all imported and included stylesheets and all *additional stylesheets* with their current values. The following font type and color conventions are used:

- blue font values are the defaults collected from the stylesheet;
- black font values and bold font names indicate edited parameters.

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
- a description of the parameter, if available
- the system ID of the stylesheet that declares it

For example setting the value of a parameter having a declared namespace like:

```
<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
```

If the **XPath** column is checked, the parameter value is evaluated as an XPath expression before starting the XSLT transformation.

For example, you can use expressions like:

```
doc('test.xml')//entry
//person[@atr='val']
```

Note:

1. The **doc** function solves the argument relative to the XSL stylesheet location. You can use full paths or editor variables like **${cfdu}** (current file directory) to specify other locations: `doc('${cfdu}/test.xml')//*`
2. You cannot use XSLT Functions. Only XPath functions are allowed.

The following actions are available for managing parameters:

- **New** - Adds a new parameter to the list.
- **Edit** - Edits the value of the selected parameter.
- **Unset** - Resets the selected parameter to its default value. Available only for parameters with set values.
- **Delete** - Removes the selected parameter from the list. It is enabled only for parameters added to the list with the **New** button.

The *editor variables* displayed at the bottom of the dialog can be used in the values of the parameters to make them independent of the location of the XSLT stylesheet or the XML document.

Additional XSLT Stylesheets

The list of additional XSLT stylesheets can be edited in the dialog opened by the button **Additional XSLT Stylesheets** from the **Configure Transformation** dialog.

- **Add** - Adds a stylesheet in the **Additional XSLT stylesheets** list using a file browser dialog. You can type an editor variable in the file name field of the browser dialog. 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** - Moves the selected stylesheet up in the list.
- **Down** - Moves the selected stylesheet down in the list.

This dialog allows the user to add additional XSLT stylesheets to the transformation.

The path specified in the URL text field can include *special Oxygen XML Author editor variables.*

XML Transformation with XQuery

To create an **XML transformation with XQuery** scenario, use one of the following methods:

- Go to **Window** > **Show View** and select **Transformation Scenarios** to display this view. Click the **New** button and select **XML transformation with XQuery**;
- Click the **Configure Transformation Scenario(s)** (**Ctrl (Meta on Mac OS) + Shift + C**) button on the **Transformation** toolbar, then click the **New** button and select **XML transformation with XQuery**;
- Select **Ctrl (Meta on Mac OS) + Shift + T** on your keyboard or click the **Apply Transformation Scenario** button on the **Transformation** toolbar to open the **Transform With** dialog. In this dialog click the **New** button and select **XML transformation with XQuery**.

  Note: In case a scenario is already associated with the edited document, selecting **Ctrl (Meta on Mac OS) + Shift + T** or **Apply Transformation Scenario** runs the associated scenario automatically. You can check whether transformation scenarios are associated with the edited document by hovering your cursor over the **Apply Transformation Scenario** button.

All three methods open the **New Scenario** dialog box. This dialog allows you to configure the options that control the transformation.

The upper part of the dialog box contains the **Name** field and the **Storage** options:

- **Global Options** - the scenario is saved in the global options stored in the user home directory;

- **Project Options** - the scenario list is stored in the project file. In case your project is saved on a source versioning/sharing system (CVS, SVN, Source Safe, and so on.), your team can use the scenarios you defined.

The lower part of the dialog box contains the following tabs:

- *The **XQuery** tab;*
- *The **FO Processor** tab;*
- *The **Output** tab.*

The XQuery Tab

The **XQuery** tab contains the following options:

- **XML URL** - specifies the source XML file. This URL is resolved through the catalog resolver. If the catalog does not have a mapping for the URL, then the file is used directly from its remote location.

  Note: In case the transformer engine is Saxon 9 and a custom URI resolver is configured in **Preferences** for Saxon 9, the XML input of the transformation is passed to that URI resolver.

- **XQuery URL** - specifies the source XQuery file that the transformation uses. This URL is resolved through the catalog resolver. If the catalog does not have a mapping for the URL, the file is used directly from its remote location.

You can use the following browsing buttons to enter values in the **XML URL** and **XQuery URL** fields:

- **Insert Editor Variables** - opens a pop-up menu allowing to introduce special *Oxygen XML Author editor variables* or *custom editor variables* in the XML URL field;
- **Browse for local file** - opens a local file browser dialog box allowing to select a local file;
- **Browse for remote file** - opens an URL browser dialog box allowing to select a remote file;
- **Browse for archived file** - opens a zip archive browser dialog box allowing to select a file from a zip archive;
- **Browse Data Source Explorer** - opens the ***Data Source Explorer*** window;
- **Search for file** - allows you to find a file in the current project;
- **Open in editor** - opens in an editor panel the file with the path specified in the **XML URL** text box.

The rest of the options available in the **XQuery** tab allow you to further customize the transformation scenario:

- **Transformer** - this combo box presents all the transformation engines available to Oxygen XML Author for performing a transformation. These are the built-in engines and *the external engines defined in the Custom Engines preferences page*. The engine you choose in this dialog is used as the default transformation engine. In case no validation scenario is associated with an XSLT or XQuery document, the transformation engine is used in the validation process, if it provides validation support;
  - **Advanced options** - *configure advanced options specific for the Saxon HE / PE / EE engine*.
- **Parameters** - opens the **Configure parameters** dialog for configuring the XQuery parameters. If the XQuery/XSLT transformation engine is custom-defined you can not use this dialog to set parameters. Instead, copy all parameters from the dialog using the contextual menu actions and edit the custom XSLT/XQuery engine to include the necessary parameters in the command line which starts the transformation process;
- **Extensions** - opens *the dialog for configuring the XSLT/XQuery extension jars or classes* which define extension Java functions or extension XQuery elements used in the transformation;

The FO Processor Tab

The **FO Processor** tab contains the following options:

- **Perform FO Processing** - specifies whether an FO processor is applied (either the built-in Apache FOP engine or an external engine defined in **Preferences**) during the transformation;
- **XQuery result as input** - the FO processor is applied to the result of the XQuery transformation defined in the **XQuery** tab;
- **XML URL as input** - the FO processor is applied to the input XML file;

- **Method** - the output format of the FO processing. Available options depend on the selected processor type;
- **Processor** - specifies the FO processor. It can be the built-in Apache FOP processor or an *external processor*.

The Output Tab

The **Output** tab contains the following options:

- **Present as a sequence** - enable this option to avoid the long time necessary for fetching the full result. This option fetches only the first chunk of the result;
- **Prompt for file** - At the end of the transformation a file browser dialog is displayed for specifying the path and name of the file which stores the transformation result;
- **Save As** - The path of the file where the transformation result are stored. The path can include *special Oxygen XML Author editor variables* or *custom editor variables*;
- **Open in Browser/System Application** - If enabled, Oxygen XML Author opens the transformation result automatically, in a system application associated with the type of the result (HTML/XHTML, PDF, text) file.

  Note: If you already set the **Default Internet browser** option in the **Global** preferences page, it takes precedence over the default system application settings.

- **Saved file** - When **Open in Browser/System Application** is selected this button can be used to specify that Oxygen XML Author should open automatically at the end of the transformation the file specified in the **Save As** text field;
- **Other location** - When **Open in System Application** is selected, this button can be used to specify that Oxygen XML Author 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 XML Author editor variables* or *custom editor variable*
- **Open in editor** - When this is enabled, the transformation result set in the **Save As** field is opened in a new editor panel with the appropriate built-in editor type: if the result is an XML file it is opened with the built-in XML editor, if it is an XSL-FO file it is opened with the built-in FO editor, and so on;
- **Show As XHTML** - It is enabled only when **Open in browser** is disabled. If this is checked, Oxygen XML Author displays the transformation result in a built-in XHTML browser panel at the bottom of the application window.

  Important: When transforming very large documents, you should be aware that enabling this feature results in a very long time necessary for rendering the transformation result in the XHTML result viewer panel. This drawback appears due to the built-in Java XHTML browser implementation. In these cases, if you wish to see the XHTML result of the transformation, you should use an external browser by checking the **Open in browser** option.

- **Show in results view as XML** - If this is checked Oxygen XML Author displays the transformation result in an XML viewer panel at the bottom of the application window with *syntax highlight* specific for XML documents
- **Show in results view as SVG** - If this is checked Oxygen XML Author displays the transformation result in an SVG viewer panel at the bottom of the application window by rendering the result as an SVG image;
- **Image URLs are relative to** - If **Show As XHTML** is checked this text field specifies the path used to resolve image paths contained in the transformation result.

DITA OT Transformation

To create a **DITA OT Transformation** scenario, use one of the following methods:

- Go to **Window** > **Show View** and select **Transformation Scenarios** to display this view. Click the **New** button and select **DITA OT Transformation**;
- Click the **Configure Transformation Scenario(s)**(**Ctrl (Meta on Mac OS) + Shift + T**) button on the **Transformation** toolbar, then click the **New** button and select **DITA OT Transformation**;
- Select **Ctrl (Meta on Mac OS) + Shift + T** on your keyboard or click the **Apply Transformation Scenario** button on the **Transformation** toolbar to open the **Transform With** dialog. In this dialog click the **New** button and select **DITA OT Transformation**.

Note: In case a scenario is already associated with the edited document, selecting **Ctrl (Meta on Mac OS) + Shift + T** or **Apply Transformation Scenario** runs the associated scenario automatically. You can check whether transformation scenarios are associated with the edited document by hovering your cursor over the **Apply Transformation Scenario** button.

All three methods open the **DITA transformation type** dialog box. This dialog presents the list of possible outputs that the **DITA OT Transformation** is able to produce. Select the transformation type, click **OK** and move on to configuring the options in the **New Scenario** dialog. This dialog allows you to configure the options that control the transformation.

The upper part of the dialog box contains the **Name** field and the **Storage** options:

- **Global Options** - the scenario is saved in the global options stored in the user home directory;
- **Project Options** - the scenario list is stored in the project file. In case your project is saved on a source versioning/sharing system (CVS, SVN, Source Safe, and so on.), your team can use the scenarios you defined.

The lower part of the dialog box contains the following tabs:

- ***Parameters***;
- ***Filters***;
- ***Advanced***;
- ***Output***;
- ***FO Processor***.

Note: To display the console during the transformation process, click **Show console output** in the status bar.

The Parameters Tab

This dialog allows you to configure the parameters sent to the DITA-OT build file.

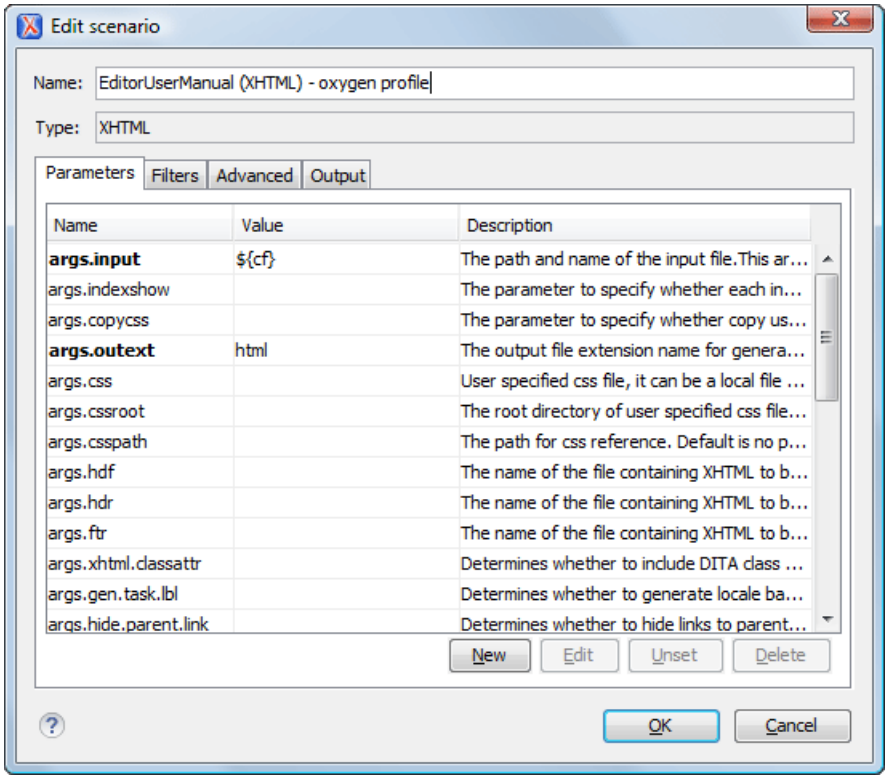


Figure 178: Edit DITA Ant transformation parameters

All the parameters that the DITA-OT documentation specifies as available for each chosen type of transformation (eg: XHTML) are listed along with their description. The values for some important parameters are already filled in. You can find more information about each parameter in the *DITA OT Documentation*. You can also add additional parameters to the list.

Using the toolbar buttons you can add, edit or remove a parameter.

Depending on the type of a parameter, its value can be one of the following:

- a simple text field for simple parameter values;
- a combo box with some predefined values ;
- a file chooser and an editor variables selector to simplify setting a file path as value to a parameter.

The value of a parameter can be entered at runtime if a value *ask('user-message', param-type, 'default-value' ?)* is used as value of parameter in the Configure parameters dialog.

Examples:

- `${ask('message')}` - Only the message displayed for the user is specified.
- `${ask('message', generic, 'default')}` - `'message'` is displayed, the type is not specified (the default is string), the default value is `'default'`.
- `${ask('message', password)}` - `'message'` is displayed, the characters typed are masked with a circle symbol.
- `${ask('message', password, 'default')}` - same as before, the default value is `'default'`.
- `${ask('message', url)}` - `'message'` is displayed, the parameter type is URL.
- `${ask('message', url, 'default')}` - same as before, the default value is `'default'`.

The *Filters* Tab

In the scenario **Filters** tab you can add filters to remove certain content elements from the generated output.

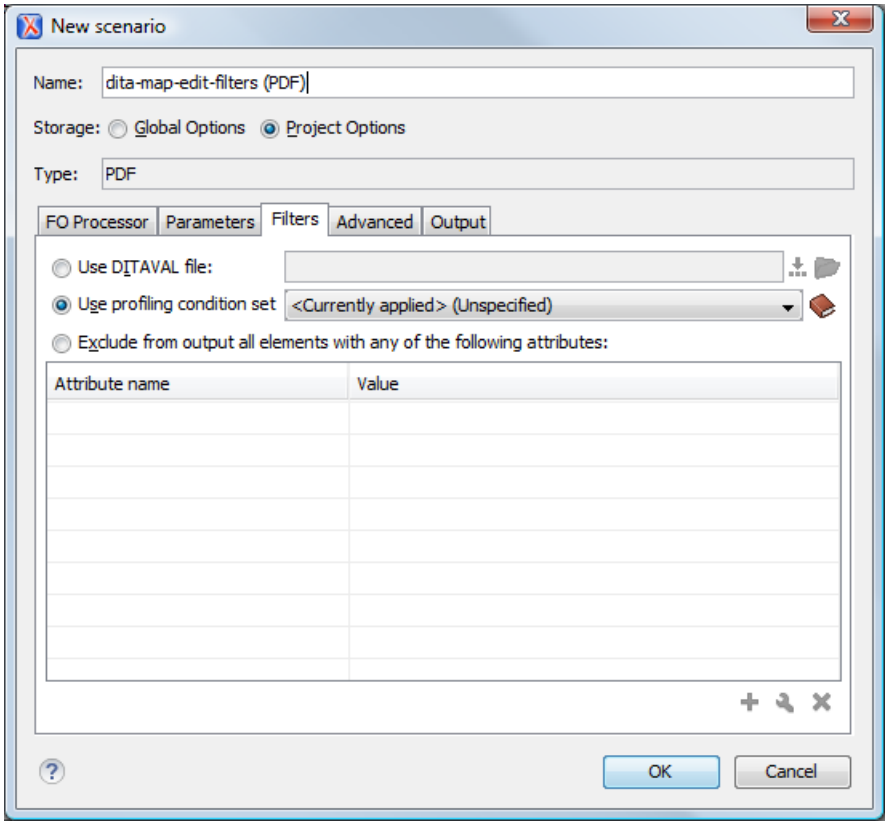


Figure 179: Edit Filters tab

There are three ways to define filters:

- **Use DITAVAL file** - if you already have a DITAVAL file associated with the transformed map you can specify the path to it and it will be used when filtering content. You can find out more about constructing a DITAVAL file in the *DITA OT Documentation* topic;
- **Use profiling condition set** - sets the *profiling condition set* that applies to the document you transform;
- **Exclude from output all elements with any of the following attributes** - you can configure a simple list of attribute (name, value) pairs which when present on an element in the input will remove it from output.

The *Advanced* Tab

In the **Advanced** tab, you can specify advanced options for the transformation.

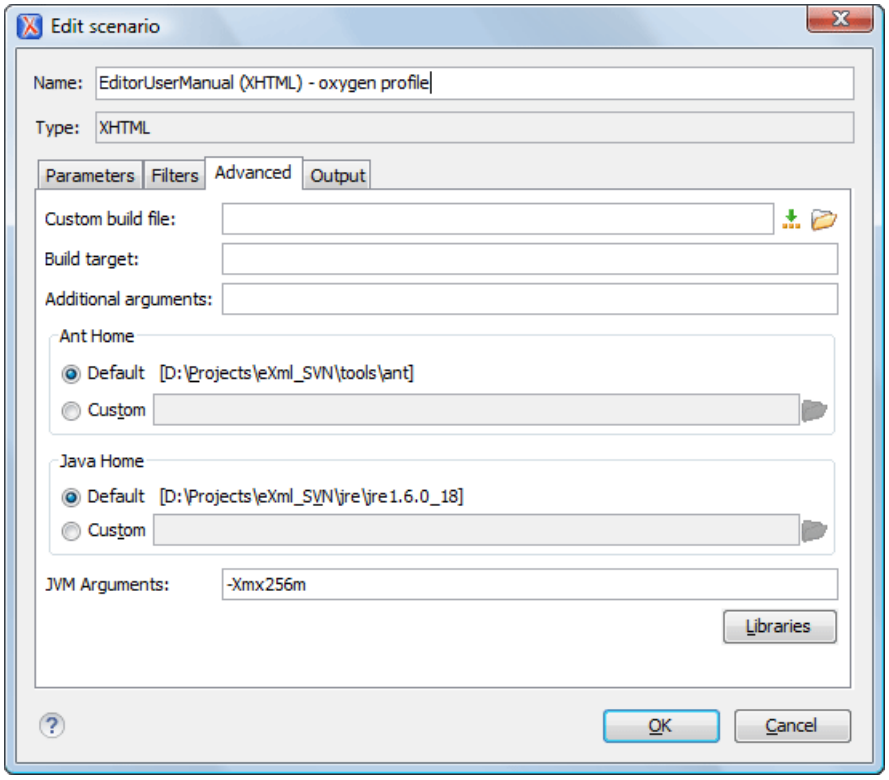


Figure 180: Advanced settings tab

You have several parameters that you can specify here:

- **Custom build file** - If you use a custom DITA-OT build file you can specify the path to the customized build file. If empty, the `build.xml` file from the `dita.dir` directory configured in the **Parameters** tab is used.
- **Build target** - You can specify a build target to the build file. By default no target is necessary and the default `init` target is used.
- **Additional arguments** - You can specify additional command-line arguments to be passed to the ANT transformation like -verbose.
- **Ant Home** - You can specify a custom ANT installation to run the DITA Map transformation. By default it is the ANT installation bundled with .
- **Java Home** - You can specify a custom Java Virtual Machine to run the ANT transformation. By default it is the Java Virtual Machine used by .
- **JVM Arguments** - This parameter allows you to set specific parameters to the Java Virtual Machine used by ANT. By default it is set to -Xmx384m which means the transformation process is allowed to use 384 megabytes of memory. Sometimes, when performing a large DITA map transformation you may want to increase the memory allocated to the Java Virtual Machine from the default value (384 MB) to a higher value, like 512 MB. This way, you can avoid the Out of Memory error messages (**OutOfMemoryError**) received from the ANT process.

Note: If you are publishing DITA to PDF and still experience problems, you should also increase the amount of memory allocated to the FO transformer. To do this, go to the **Advanced** tab and increase the value of the **Java Arguments** parameter.

- **Libraries** - adds by default as high priority libraries which are not transformation-dependent and also patches for certain DITA Open Toolkit bugs. You can specify all the additional libraries (jar files or additional class paths) which are used by the ANT transformer. You can also decide to control all libraries added to the classpath.

The Output Tab

In the **Output** tab, you can configure options related to the place where the output is generated.

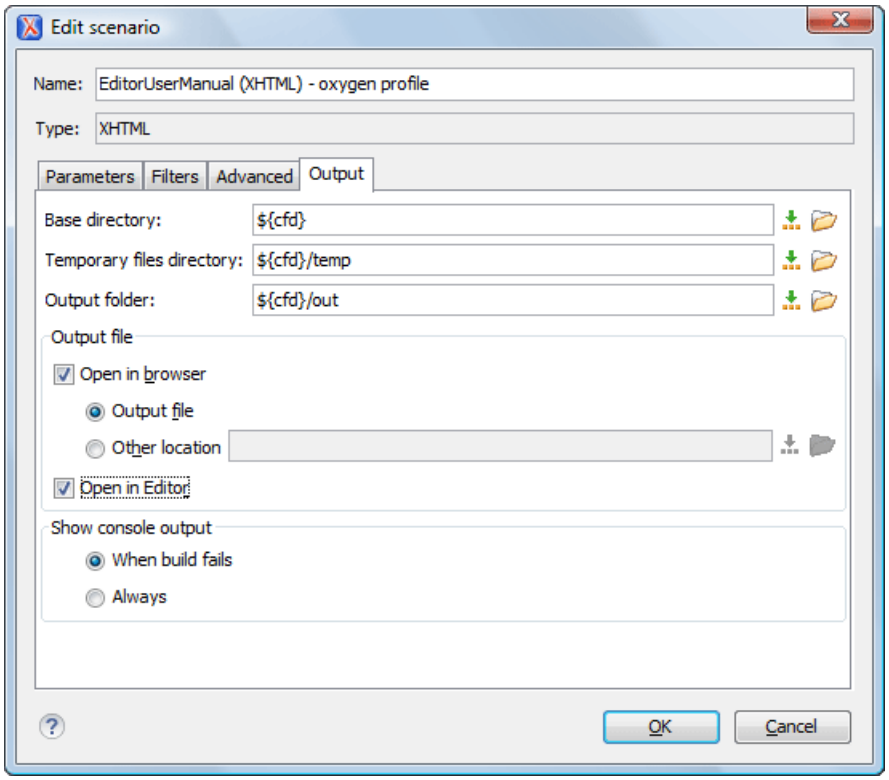


Figure 181: Output settings tab

You have several parameters that you can specify here:

- **Base directory** - all the relative paths which appear as values in parameters are considered relative to the base directory. The default value is the directory where the transformed map is located;
- **Temporary files directory** - this directory is used to store pre-processed temporary files until the final output is obtained;
- **Output folder** - the folder where the final output content is copied;
- **Output file options** - the transformation output can then be opened in a browser or even in the editor, if specified;
- **Show console output** - specifies whether the console is always displayed or only when the build fails.

Note: If the DITA Map or topic is opened from a remote location or from a ZIP file, the scenario must specify absolute output, temporary and base file paths.

The *FO Processor* Tab

This tab allows you to set an FO Processor, when you choose to generate PDF output.

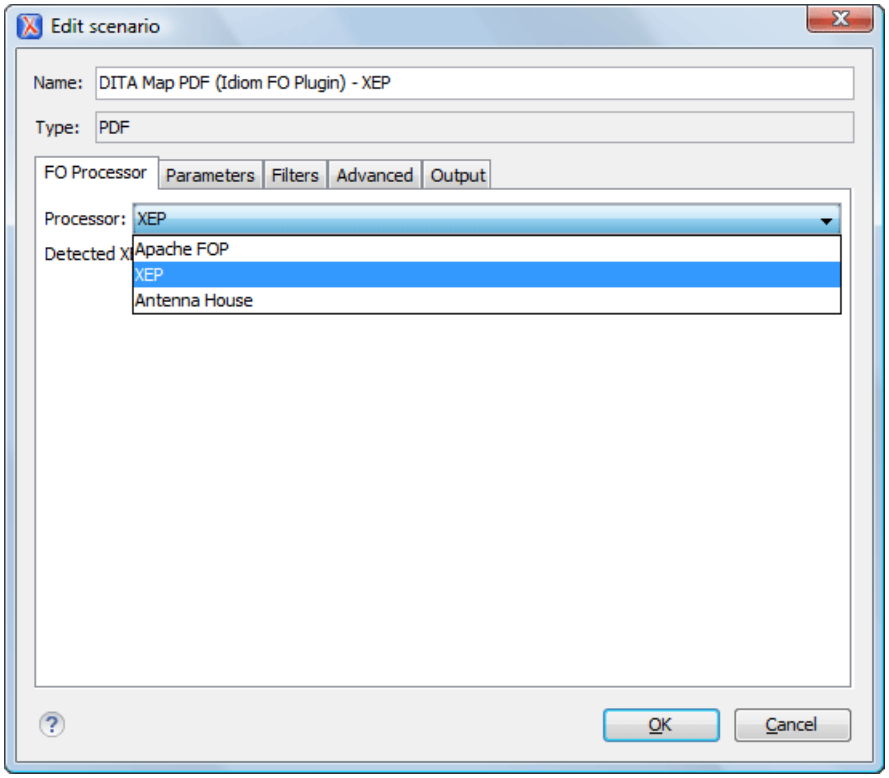


Figure 182: FO Processor configuration tab

You can choose between:

- **Apache FOP** - Default setting. This processor comes bundled with .
- **XEP** - The *RenderX* XEP processor.

  If you select **XEP** in the combo and XEP was already installed in you can see the detected installation path appear under the combo box.

  XEP is considered as installed if it was detected in one of the following sources:

  - XEP was configured as an external FO Processor in the ***FO Processors** option page*;
  - The system property *com.oxygenxml.xep.location* was set to point to the XEP executable file for the platform (eg: `xep.bat` on Windows);
  - XEP was installed in the `frameworks/dita/DITA-OT/plugins/org.dita.pdf2/lib` directory of the installation directory.

- **Antenna House** - The *Antenna House* AH (v5) or XSL (v4) Formatter processor.

  If Antenna House was already installed on your computer and you select **Antenna House** in the combo box, in you can see the detected installation path appear under the combo.

  Antenna House is considered as installed if it was detected in one of the following sources:

  - Environment variable set by Antenna House installation (the newest installation version will be used, *v5* being preferred over *v4*).
  - Antenna House was added as an external FO Processor in the preferences pages.

ANT Transformation

An **ANT** transformation scenario is usually associated with an Ant build script. Oxygen XML Author runs an **ANT** transformation scenario as an external process that executes the Ant build script with the built-in Ant distribution (Apache Ant version 1.8.2) that comes with the application or optionally with a custom Ant distribution configured in the scenario.

To create an **ANT** transformation scenario, use one of the following methods:

- Go to **Window** > **Show View**, select **Transformation Scenarios**, click **New**, and select **ANT**;
- Click the **Configure Transformation Scenario(s)** (**Ctrl (Meta on Mac OS) + Shift + C**) button on the **Transformation** toolbar, then click the **New** button and select **ANT**;
- Select **Ctrl (Meta on Mac OS) + Shift + T** on your keyboard or click the **Apply Transformation Scenario** button on the **Transformation** toolbar to open the **Transform With** dialog. In this dialog click the **New** button and select **ANT**.

  Note: In case a scenario is already associated with the edited document, selecting **Ctrl (Meta on Mac OS) + Shift + T** or **Apply Transformation Scenario** runs the associated scenario automatically. You can check whether transformation scenarios are associated with the edited document by hovering your cursor over the **Apply Transformation Scenario** button.

All three methods open the **New Scenario** dialog box. This dialog allows you to configure the options that control the transformation.

The upper part of the dialog box contains the **Name** field and the **Storage** options:

- **Global Options** - the scenario is saved in the global options stored in the user home directory;
- **Project Options** - the scenario list is stored in the project file. In case your project is saved on a source versioning/sharing system (CVS, SVN, Source Safe, and so on.), your team can use the scenarios you defined.

The lower part of the dialog box contains the following tabs:

- *the **Options** tab*;
- *the **Parameters** tab*;
- *the **Output** tab*.

Note: To display the console during the transformation process, click **Show console output** in the status bar.

The Options Tab

The **Options** tab contains the following options:

- **Working directory** - path of the current directory of the Ant external process. An *editor variable* can be inserted in this text box using the small green arrow button ();
- **Build file** - ant script file that is the input of the Ant external process. An *editor variable* can be inserted in this text box using the small green arrow button ();
- **Build target** - optionally a build target from the Ant script file can be specified. If no target is specified, the Ant target that is specified as default in the Ant script file is executed;
- **Additional arguments** - additional command-line arguments to be passed to the Ant transformation (for example -verbose);
- **Ant Home** - path to the Ant installation to run the transformation. By default it is the Ant installation version 1.8.2 that is bundled with Oxygen XML Author. A custom Ant installation can also be set;
- **Java Home** - the path to the Java Virtual Machine that runs the Ant transformation. By default it is the Java Virtual Machine that is bundled with Oxygen XML Author. A custom Java virtual machine can also be set;
- **JVM Arguments** - this parameter allows you to set specific parameters to the Java Virtual Machine used by Ant. By default it is set to -Xmx384m which means the transformation process is allowed to use 384 megabytes of memory. Sometimes, when performing a large DITA map transformation you may want to increase the memory allocated to the Java Virtual Machine from the default value (384 MB) to a higher value, like 512 MB. In this way, you can avoid running out of memory (**OutOfMemoryError**) when running an Ant process;
- **Libraries** - this button allows adding to the classpath of the Ant process any external libraries that are not bundled with Ant (that is they are not built-in Ant libraries).

The Parameters Tab

On the **Parameters** tab you can use the **New**, **Edit**, and **Delete** buttons to set the parameters accessible as Ant properties in the Ant build script.

The Output Tab

The following details can be configured in the **Output** tab:

- the file to open automatically when the transformation is finished in the **Open** text box, usually the output file of the Ant process; an *editor variable* can be inserted in this text box using the small green arrow button ();
- if the file specified in the **Open** text box is opened in the system application that is set in the operating system as the default application for that type of files (for example the *Acrobat Reader* application for `.pdf` files);
- if the file specified in the **Open** text box is opened in Oxygen XML Author; for example if it is an `.xml` file it is opened automatically in *the XML editor panel*, if it is a `.zip` file or an `.epub` file it is opened in *the **Archive Browser** view*, etc.;

XSLT Transformation

To create an **XSLT transformation** scenario, use one of the following methods:

- Go to **Window** > **Show View** and select **Transformation Scenarios** to display this view. Click the **New** button and select **XSLT transformation**;
- Click the **Configure Transformation Scenario(s)** (**Ctrl (Meta on Mac OS) + Shift + C**) button on the **Transformation** toolbar, then click the **New** button and select **XSLT transformation**;
- Select **Ctrl (Meta on Mac OS) + Shift + T** on your keyboard or click the **Apply Transformation Scenario** button on the **Transformation** toolbar to open the **Transform With** dialog. In this dialog click the **New** button and select **XSLT transformation**.

  Note: In case a scenario is already associated with the edited document, selecting **Ctrl (Meta on Mac OS) + Shift + T** or **Apply Transformation Scenario** runs the associated scenario automatically. You can check whether transformation scenarios are associated with the edited document by hovering your cursor over the **Apply Transformation Scenario** button.

All three methods open the **New Scenario** dialog box. This dialog allows you to configure the options that control the transformation.

The upper part of the dialog box contains the **Name** field and the **Storage** options:

- **Global Options** - the scenario is saved in the global options stored in the user home directory;
- **Project Options** - the scenario list is stored in the project file. In case your project is saved on a source versioning/sharing system (CVS, SVN, Source Safe, and so on.), your team can use the scenarios you defined.

The lower part of the dialog box contains the following tabs:

- ***XSLT***;
- ***FO Processor***;
- ***Output***;

The XSLT Tab

The **XSLT** tab contains the following options:

- **XML URL** - specifies the source XML file that the transformation uses. This URL is resolved through the catalog resolver. If the catalog does not have a mapping for the URL, then the file is used directly from its remote location.

  Note: In case the transformer engine is Saxon 9 and a custom URI resolver is configured in **Preferences** for Saxon 9, the XML input of the transformation is passed to that URI resolver.

Note: In case the transformer engine is one of the built-in XSLT 2.0 / 3.0 engines and *the name of an initial template* is specified in the scenario, the **XML URL** field can be empty. The **XML URL** field can also be empty in case of *external XSLT processors*. In all other cases a non-empty XML URL value is mandatory.

- **XSL URL** - specifies the source XSL. This URL is resolved through the catalog resolver. If the catalog does not have a mapping for the URL, the file is used directly from its remote location.

You can use the following browsing buttons to enter values in the **XML URL** and **XSL URL** fields:

- **Insert Editor Variables** - opens a pop-up menu allowing to introduce special *Oxygen XML Author editor variables* or *custom editor variables* in the XML URL field;
- **Browse for local file** - opens a local file browser dialog box allowing to select a local file;
- **Browse for remote file** - opens an URL browser dialog box allowing to select a remote file;
- **Browse for archived file** - opens a zip archive browser dialog box allowing to select a file from a zip archive;
- **Browse Data Source Explorer** - opens the ***Data Source Explorer*** window;
- **Search for file** - allows you to find a file in the current project;
- **Open in editor** - opens in an editor panel the file with the path specified in the **XML URL** text box.

The rest of the options available in the **XSLT** tab allow you to further customize the transformation scenario:

- **Use "xml-stylesheet" declaration** - use the stylesheet declared with an `xml-stylesheet` declaration instead of the stylesheet specified in the **XSL URL** field. By default this checkbox is not selected and the transformation uses the XSLT stylesheet specified in the **XSL URL** field. If it is checked, the scenario is applied to the stylesheet specified explicitly in the XML document with the `xml-stylesheet` processing instruction;
- **Transformer** - this combo box presents all the transformation engines available to Oxygen XML Author for performing a transformation. These are the built-in engines and *the external engines defined in the Custom Engines preferences page*. The engine you choose in this dialog is used as the default transformation engine. In case no validation scenario is associated with an XSLT or XQuery document, the transformation engine is used in the validation process, if it provides validation support;
- **Advanced options** - allows you to configure advanced options of the Saxon HE / PE / EE engine for the current transformation scenario. To configure the same options globally, go to the *Saxon-HE/PE/EE preferences page*. For the current transformation scenario, these **advanced options** override the options configured in the *Saxon-HE/PE/EE preferences page*. The **Initial mode and template** option is available only in the **advanced options**. It is a Saxon-specific option that sets the name of the first XSLT template which starts the XSLT transformation or the initial mode of transformation;
- **Parameters** - opens *the **Configure parameters** dialog*, allowing you to configure the XSLT parameters used in the current transformation. In this dialog you can also configure the parameters of additional stylesheets, set with the **Additional XSLT stylesheets** button. If the XSLT transformation engine is custom-defined you can not use this dialog to configure the parameters sent to the custom engine. In this case, you can copy all parameters from the dialog using the contextual menu actions and edit the custom XSLT engine to include the necessary parameters in the command line ;
- **Extensions** - opens *the dialog for configuring the XSLT/XQuery extension jars or classes* which define extension Java functions or extension XSLT elements used in the transformation;
- **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. This is useful when a chain of XSLT stylesheets must be applied to the input XML document;

The FO Processor Tab

The **FO Processor** tab contains the following options:

- **Perform FO Processing** - specifies whether an FO processor is applied (either the built-in Apache FOP engine or an external engine defined in **Preferences**) during the transformation;
- **XSLT result as input** - the FO processor is applied to the result of the XSLT transformation defined in the **XSLT** tab;

- **XML URL as input** - the FO processor is applied to the input XML file;
- **Method** - the output format of the FO processing. Available options depend on the selected processor type;
- **Processor** - specifies the FO processor. It can be the built-in Apache FOP processor or an *external processor*.

The Output Tab

The **Output** tab contains the following options:

- **Prompt for file** - At the end of the transformation a file browser dialog is displayed for specifying the path and name of the file which stores the transformation result;
- **Save As** - The path of the file where the transformation result are stored. The path can include *special Oxygen XML Author editor variables* or *custom editor variables*;
- **Saved file** - When **Open in Browser/System Application** is selected this button can be used to specify that Oxygen XML Author should open automatically at the end of the transformation the file specified in the **Save As** text field;
- **Other location** - When **Open in System Application** is selected, this button can be used to specify that Oxygen XML Author 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 XML Author editor variables* or *custom editor variable*;
- **Open in editor** - When this is enabled, the transformation result set in the **Save As** field is opened in a new editor panel with the appropriate built-in editor type: if the result is an XML file it is opened with the built-in XML editor, if it is an XSL-FO file it is opened with the built-in FO editor, and so on;
- **Show in results view as XHTML** - It is enabled only when **Open in browser** is disabled. If this is checked, Oxygen XML Author displays the transformation result in a built-in XHTML browser panel at the bottom of the application window;

  Important: When transforming very large documents, you should be aware that enabling this feature results in a very long time necessary for rendering the transformation result in the XHTML result viewer panel. This drawback appears due to the built-in Java XHTML browser implementation. In these cases, if you wish to see the XHTML result of the transformation, you should use an external browser by checking the **Open in browser** option.

- **Show in results view as XML** - If this is checked Oxygen XML Author displays the transformation result in an XML viewer panel at the bottom of the application window with *syntax highlight* specific for XML documents;
- **Show in results view as SVG** - If this is checked Oxygen XML Author displays the transformation result in an SVG viewer panel at the bottom of the application window by rendering the result as an SVG image;
- **Image URLs are relative to** - If **Show As XHTML** is checked this text field specifies the path used to resolve image paths contained in the transformation result.

XProc Transformation

A sequence of transformations described by an XProc script can be executed with an XProc transformation scenario. To create an **XProc transformation** scenario, use one of the following methods:

- Go to **Window** > **Show View** and select **Transformation Scenarios** to display this view. Click the **New** button and select **XProc transformation**;
- Click the **Configure Transformation Scenario(s)** (**Ctrl (Meta on Mac OS) + Shift + C**) button on the **Transformation** toolbar, then click the **New** button and select **XProc transformation**;
- Select **Ctrl (Meta on Mac OS) + Shift + T** on your keyboard or click the **Apply Transformation Scenario** button on the **Transformation** toolbar to open the **Transform With** dialog. In this dialog click the **New** button and select **XProc transformation**.

  Note: In case a scenario is already associated with the edited document, selecting **Ctrl (Meta on Mac OS) + Shift + T** or **Apply Transformation Scenario** runs the associated scenario automatically. You can check whether transformation scenarios are associated with the edited document by hovering your cursor over the **Apply Transformation Scenario** button.

All three methods open the **New Scenario** dialog box. This dialog allows you to configure the options that control the transformation.

The upper part of the dialog box contains the **Name** field and the **Storage** options:

- **Global Options** - the scenario is saved in the global options stored in the user home directory;
- **Project Options** - the scenario list is stored in the project file. In case your project is saved on a source versioning/sharing system (CVS, SVN, Source Safe, and so on.), your team can use the scenarios you defined.

The lower part of the dialog box contains the following tabs:

- *the **XProc** tab*;
- *the **Inputs** tab*;
- *the **Parameters** tab*;
- *the **Outputs** tab*;
- *the **Options** tab*.

The XProc Tab

The **XProc** tab contains the following options:

- **XProc URL** - specifies the URL of the XProc script;
- **Processor** - specifies the XProc engine. You can select the built-in *Calabash* engine or a custom engine *configured in the **Preferences** dialog*.

The Inputs Tab

The **Inputs** tab contains a list with the ports that the XProc script uses to read input data. To add, modify, and delete ports from this list, use the **New**, **Edit**, and **Delete** buttons. Each input port has an assigned name in the XProc script. The XProc engine reads data from the URLs specified in the **URLs** list. The *built-in editor variables* and the *custom editor variables* can be used to specify these URLs.

The Parameters Tab

The **Parameters** tab presents a list with the parameters collected from the XProc script. To add new parameters click the **New** button.

Each port where the output of the XProc transformation is sent is associated with an URL on the **Outputs** tab of the dialog. The *built-in editor variables* and the *custom editor variables* can be used for specifying this URL.

The Outputs Tab

The **Outputs** tab displays a list of output ports collected from the XProc script. To define additional output ports click the **New** button .

The result of the XProc transformation can be displayed as a sequence in an output view with two sections:

- a list with the output ports on the left side;
- the content of the document(s) that correspond to the selected output port on the right side.

If the **Open results in editor** option is selected, the XProc transformation result is opened automatically in an editor panel. By selecting the **Open in System Application** option, you can specify a file that is opened at the end of the XProc transformation in the system application associated with that file type.

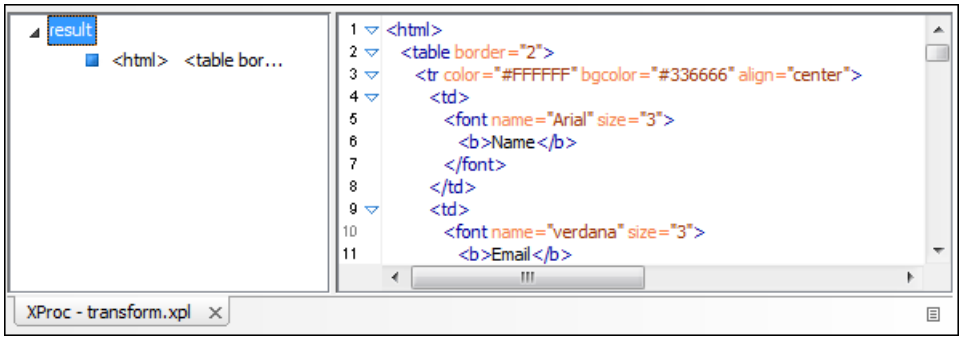


Figure 183: XProc Transformation results view

The Options Tab

The **Options** displays a list with the options collected from the XProc script. To define new options click the **New** button.

The options collected from the script are rendered plain. Edited options as well as new ones are rendered bold.

Configuring Calabash with XEP

To generate PDF output from your XProc pipeline (when using the Calabash XProc processor), follow these steps:

1. Open the `[Oxygen-install-folder]/lib/xproc/calabash/engine.xml` file.
2. Uncomment the `<system-property name="com.xmlcalabash.fo-processor" value="com.xmlcalabash.util.FoXEP"/>` system property.
3. Uncomment the `<system-property name="com.renderx.xep.CONFIG" file="../../../tools/xep/xep.xml"/>` system property. Edit the `file` attribute to point to the configuration file that is usually located in the XEP installation folder.
4. Uncomment the references to the XEP libraries. Edit them to point to the matching library names from the XEP installation directory.
5. Restart Oxygen XML Author.

Integration of an External XProc Engine

The Javadoc documentation of the XProc API is available for download from the application website as a zip file: *`xprocAPI.zip`*. In order to create an XProc integration project follow the next steps:

1. Take the `oxygen.jar` from `[Oxygen-install-folder]/lib` and put it in the `lib` folder of your project.
2. Implement the `ro.sync.xml.transformer.xproc.api.XProcTransformerInterface` interface.
3. Create a Java archive (jar) from the classes you created.
4. Create a `engine.xml` file according with the `engine.dtd` file. The attributes of the `engine` element have the following meanings:
   1. `name` - The name of the XProc engine.
   2. `description` - A short description of the XProc engine.
   3. `class` - The complete name of the class that implements `ro.sync.xml.transformer.xproc.api.XProcTransformerInterface`.
   4. `version` - The version of this integration.
   5. `engineVersion` - The version of the integrated engine.
   6. `vendor` - The name of the vendor / implementor.
   7. `supportsValidation` - `true` if the engine supports validation, `false` otherwise.

   The `engine` element has only one child, `runtime`. The `runtime` element contains several `library` elements with the `name` attribute containing the relative or absolute location of the libraries necessary to run this integration.
5. Create a folder with the name of the integration in the `[Oxygen-install-folder]/lib/xproc`.

6. Put there the `engine.xml`, and all the libraries necessary to run the new integration.

XQuery Transformation

To create an **XQuery transformation** scenario, use one of the following methods:

- Go to **Window** > **Show View** and select **Transformation Scenarios** to display this view. Click the **New** button and select **XQuery transformation**;
- Click the **Configure Transformation Scenario(s)** (**Ctrl (Meta on Mac OS) + Shift + C**) button on the **Transformation** toolbar, then click the **New** button and select **XQuery transformation**;
- Select **Ctrl (Meta on Mac OS) + Shift + T** on your keyboard or click the **Apply Transformation Scenario** button on the **Transformation** toolbar to open the **Transform With** dialog. In this dialog click the **New** button and select **XQuery transformation**.

  Note: In case a scenario is already associated with the edited document, selecting **Ctrl (Meta on Mac OS) + Shift + T** or **Apply Transformation Scenario** runs the associated scenario automatically. You can check whether transformation scenarios are associated with the edited document by hovering your cursor over the **Apply Transformation Scenario** button.

All three methods open the **New Scenario** dialog box. This dialog allows you to configure the options that control the transformation.

The upper part of the dialog box contains the **Name** field and the **Storage** options:

- **Global Options** - the scenario is saved in the global options stored in the user home directory;
- **Project Options** - the scenario list is stored in the project file. In case your project is saved on a source versioning/sharing system (CVS, SVN, Source Safe, and so on.), your team can use the scenarios you defined.

The lower part of the dialog box contains the following tabs:

- *the XQuery tab*;
- *the FO Processor tab*;
- *the Output tab*.

The XQuery Tab

The **XQuery** tab contains the following options:

- **XML URL** - specifies the source XML file that the transformation uses. This URL is resolved through the catalog resolver. If the catalog does not have a mapping for the URL, then the file is used directly from its remote location;

  Note: In case the transformer engine is Saxon 9 and a custom URI resolver is configured in **Preferences** for Saxon 9, the XML input of the transformation is passed to that URI resolver.

- **XQuery URL** - specifies the source XQuery file. This URL is resolved through the catalog resolver. If the catalog does not have a mapping for the URL, the file is used directly from its remote location.

You can use the following browsing buttons to enter values in the **XML URL** and **XQuery URL** fields:

- **Insert Editor Variables** - opens a pop-up menu allowing to introduce special *Oxygen XML Author editor variables* or *custom editor variables* in the XML URL field;
- **Browse for local file** - opens a local file browser dialog box allowing to select a local file;
- **Browse for remote file** - opens an URL browser dialog box allowing to select a remote file;
- **Browse for archived file** - opens a zip archive browser dialog box allowing to select a file from a zip archive;
- **Browse Data Source Explorer** - opens the ***Data Source Explorer*** window;
- **Search for file** - allows you to find a file in the current project;
- **Open in editor** - opens in an editor panel the file with the path specified in the **XML URL** text box.

The rest of the options available in the **XQuery** tab allow you to further customize the transformation scenario:

- **Transformer** - this combo box presents all the transformation engines available to Oxygen XML Author for performing a transformation. These are the built-in engines and *the external engines defined in the Custom Engines preferences page*. The engine you choose in this dialog is used as the default transformation engine. In case no validation scenario is associated with an XSLT or XQuery document, the transformation engine is used in the validation process, if it provides validation support;
  - **Advanced options** - *configure advanced options specific for the Saxon HE / PE / EE engine*
- **Parameters** - opens the **Configure parameters** dialog for configuring the XQuery parameters. If the XQuery/XSLT transformation engine is custom-defined you can not use this dialog to set parameters. Instead, copy all parameters from the dialog using the contextual menu actions and edit the custom XSLT/XQuery engine to include the necessary parameters in the command line which starts the transformation process
- **Extensions** - opens *the dialog for configuring the XSLT/XQuery extension jars or classes* which define extension Java functions or extension XQuery elements used in the transformation

The FO Processor Tab

The **FO Processor** tab contains the following options:

- **Perform FO Processing** - specifies whether an FO processor is applied (either the built-in Apache FOP engine or an external engine defined in **Preferences**) during the transformation;
- **XQuery result as input** - the FO processor is applied to the result of the XQuery transformation defined in the **XQuery** tab;
- **XML URL as input** - the FO processor is applied to the input XML file;
- **Method** - the output format of the FO processing. Available options depend on the selected processor type;
- **Processor** - specifies the FO processor. It can be the built-in Apache FOP processor or an *external processor*.

The Output Tab

The **Output** tab contains the following tab:

- **Prompt for file** - At the end of the transformation a file browser dialog is displayed for specifying the path and name of the file which stores the transformation result.
- **Save As** - The path of the file where the transformation result are stored. The path can include *special Oxygen XML Author editor variables* or *custom editor variables*.
- **Open in Browser/System Application** - If enabled, Oxygen XML Author opens the transformation result automatically, in a system application associated with the type of the result (HTML/XHTML, PDF, text) file.

  Note: If you already set the **Default Internet browser** option in the **Global** preferences page, it takes precedence over the default system application settings.

- **Saved file** - When **Open in Browser/System Application** is selected this button can be used to specify that Oxygen XML Author should open automatically at the end of the transformation the file specified in the **Save As** text field.
- **Other location** - When **Open in System Application** is selected, this button can be used to specify that Oxygen XML Author 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 XML Author editor variables* or *custom editor variable*.
- **Open in editor** - When this is enabled, the transformation result set in the **Save As** field is opened in a new editor panel with the appropriate built-in editor type: if the result is an XML file it is opened with the built-in XML editor, if it is an XSL-FO file it is opened with the built-in FO editor, and so on.
- **Show As XHTML** - It is enabled only when **Open in browser** is disabled. If this is checked, Oxygen XML Author displays the transformation result in a built-in XHTML browser panel at the bottom of the application window.

  Important: When transforming very large documents, you should be aware that enabling this feature results in a very long time necessary for rendering the transformation result in the XHTML result viewer panel. This drawback appears due to the built-in Java XHTML browser implementation. In these cases, if you wish

to see the XHTML result of the transformation, you should use an external browser by checking the **Open in browser** option.

- **Show As XML** - If this is checked Oxygen XML Author displays the transformation result in an XML viewer panel at the bottom of the application window with *syntax highlight* specific for XML documents.
- **Show As SVG** - If this is checked Oxygen XML Author displays the transformation result in an SVG viewer panel at the bottom of the application window by rendering the result as an SVG image.
- **Image URLs are relative to** - If **Show As XHTML** is checked this text field specifies the path used to resolve image paths contained in the transformation result.

SQL Transformation

To create an **SQL transformation** scenario, use one of the following methods:

- Go to **Window** > **Show View** and select **Transformation Scenarios** to display this view. Click the **New** button and select **SQL transformation**;
- Click the **Configure Transformation Scenario(s)** (**Ctrl (Meta on Mac OS) + Shift + C**) button on the **Transformation** toolbar, then click the **New** button and select **SQL transformation**;
- Select **Ctrl (Meta on Mac OS) + Shift + T** on your keyboard or click the **Apply Transformation Scenario** button on the **Transformation** toolbar to open the **Transform With** dialog. In this dialog click the **New** button and select **SQL transformation**.

  Note: In case a scenario is already associated with the edited document, selecting **Ctrl (Meta on Mac OS) + Shift + T** or **Apply Transformation Scenario** runs the associated scenario automatically. You can check whether transformation scenarios are associated with the edited document by hovering your cursor over the **Apply Transformation Scenario** button.

All three methods open the **New Scenario** dialog box. This dialog allows you to configure the following options that control the transformation:

- **Name** - the unique name of the transformation scenario;
- **Global Options** - the scenario is saved in the global options stored in the user home directory;
- **Project Options** - the scenario list is stored in the project file. In case your project is saved on a source versioning/sharing system (CVS, SVN, Source Safe, and so on.), your team can use the scenarios you defined;
- **SQL URL** - specifies the URL of the SQL script. This field also accepts *editor variables*.
- **Connection** - opens the *data source preferences page*;
- **Parameters** - allows you to configure the parameters of the transformation.

XSLT/XQuery Extensions

The **Libraries** dialog is used to specify the jars and classes containing extension functions called from the XSLT/XQuery file of the current transformation scenario.

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.

The Configure Transformation Scenario(s) Dialog

You can use this dialog to manage both the *built-in transformation scenarios* and the ones you create.

To open it, either click the **Configure Transformation Scenario(s)** button on the application toolbar, or go to **Document** > **Transformation** > **Configure transformation scenario. (Ctrl (Meta on Mac OS)+Shift+C)** .

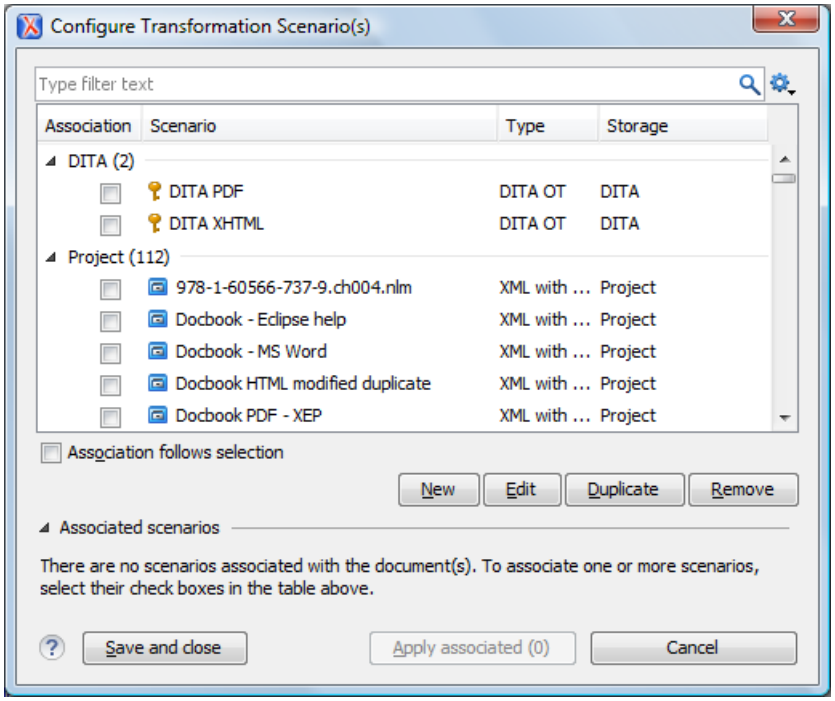


Figure 184: Configure Transformation Scenario(s) Dialog

The top section of the dialog contains a filter that allows you to search through the scenarios list. Using the **Settings** button you can configure the following options:

- **Show all scenarios** - select this option to display all the available scenarios, regardless of the document they are associated with;
- **Show only the scenarios available for the editor** - select this option to display in the **Transformation scenarios** view only the scenarios which Oxygen XML Author can execute for the current document type;
- **Show associated scenarios** - select this option to display only the scenarios associated with the document you are editing;
- **Import scenarios** - use this option to open the **Import scenarios** dialog. The **Import scenarios** dialog allows you to select which scenario of the `scenarios` files you want to import. In case one of the scenarios you import is identical with an existing scenario, Oxygen XML Author ignores the scenario you are importing. In case a conflict appears (an imported scenario has the same name with an existing one), you can choose between two options:
  - keep or replace the existing scenario;
  - keep both scenarios.

  Note: When you keep both scenarios, Oxygen XML Author adds `imported` to the name of the imported scenario.

- **Export selected scenarios** - use this option to export transformation and validation scenarios individually. Oxygen XML Author creates a `scenarios` file which contains the scenarios you export.

The middle section of the dialog presents the scenarios that you can apply to the document you are editing. You can view both the scenarios associated with the current document type and the scenarios defined at project level. The following columns are used to display the transformation scenarios:

- **Association** - the check-boxes in this column mark whether a transformation scenario is associated with the document you are editing;
- **Scenario** - this column presents the names of the transformation scenarios;
- **Type** - specifies the type of the transformation scenario. For further details about the different types of transformation scenarios available in Oxygen XML Author go to *Defining a New Transformation Scenario*;

- **Storage** - specifies whether a transformation scenario is defined at project level.

Left click the header of each column to sort its items. The contextual menu of each header allows you to show or hide the **Type** and **Storage** columns, group the columns by **Association**, **Type**, and **Storage**, ungroup all of them, or reset the layout.

The bottom section of the dialog contains the following actions:

- **Association follows selection** - enable this check-box to associate selected transformation scenarios automatically with the document you are editing. This option also works for multiple selection;

  Note: When this option is enabled, the **Association** column is no longer presented.

- **New** - this button allows you to create a new transformation scenario *depending on its type*;
- **Edit** - this button opens the **Edit scenario** dialog which allows you to configure the options of the transformations scenario you are editing;

  Note: In case you try to edit a transformation scenario associated with a document type, Oxygen XML Author displays a warning message to inform you that this is not possible. You have the option to create a *duplicated transformation scenario* and edit this one instead.

- **Duplicate** - use this button to create a *duplicated transformation scenario*;
- **Remove** - use this button to remove transformation scenarios.

  Note: Removing scenarios associated with a document type is not permitted.

The **Edit**, **Duplicate**, and **Remove** actions are also available in the contextual menu of the transformation scenarios listed in the middle section of the **Configure Transformation Scenario(s)**. This contextual menu also contains the ***Import scenarios*** and ***Export selected scenarios*** actions and allows you to change the storage of a transformation scenario.

Duplicating a Transformation Scenario

Use the following procedure to duplicate a transformation scenario.

1. Go to menu **Document** > **Transformation** > **Configure Transformation Scenario** **(Ctrl (Meta on Mac OS)+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 the **Name** field and type a new name.
   a) You can choose to save the scenarios at project level by setting the **Project Scenarios** setting.
4. Click **OK** or **Transform Now** to save the scenario.

Editing a Transformation Scenario

Editing a transformation scenario is useful in case you run an existing one and you need to configure some of its parameters.

Oxygen XML Author allows you to configure exiting transformation scenarios either from the **Transformation Scenarios** view, or form the **Configure Transformation Scenario(s)**, and **Transform with** dialog boxes.

Use one of the following methods to configure a transformation scenario:

- go to the **Transformation Scenarios** view, select a transformation scenario and click the **Edit** button on the toolbar of the view;
- click the **Configure Transformation Scenario(s)** button on the **Transformation** toolbar, select a transformation scenario from the **Configure Transformation Scenario(s)** dialog box and click the **Edit** button;

- click the **Apply Transformation Scenario** button on the **Transformation** toolbar, select a transformation scenario from the **Transform With** dialog box and click the **Edit** button.

  Note: In case a transformation scenario is associated with the document you are editing, selecting the **Apply Transformation Scenario** button starts the transformation process automatically.

You can edit transformation scenarios that are defined at project level only. To edit a transformation scenario that is associated with a document type, duplicate it and edit the duplicated scenario.

Batch Transformation

A transform action can be applied on a batch of files *from the **Project** view's contextual menu* without having to open the files involved in the transformation:

- **Apply Transformation Scenario(s)** - applies the transformation scenario associated to each of the selected files. If the currently processed file does not have an associated transformation scenario then a warning is displayed in the **Warnings** view;
- **Configure Transformation Scenario(s)...** - opens a dialog box that allows you to create, manage and set default transformation scenarios;
- **Transform with...** - Allows you to select one transformation scenario to be applied to each one of the currently selected files.

xsl:message output information is collected and displayed in the *Results View*. All entries in the Results View point to the location of the code that triggered them.

Note: When you trigger a batch transformation, the output messages from the previous one are deleted.

Built-in Transformation Scenarios

Oxygen XML Author comes with preconfigured built-in transformation scenarios used for usual transformations. To obtain the output simply one of the built-in scenarios with the currently edited document and click the **Apply Transformation Scenario(s)** button.

You can use the **Apply Transformation Scenario(s)** button even if the document you are editing is not associated with a transformation scenario.

In case the document contains an `xml-stylesheet` processing instruction referring to an XSLT stylesheet (commonly used to display the document in web browsers), Oxygen XML Author prompts you to associate the document with a built-in transformation scenario.

The default transformation scenario is suggested based on the processing instruction from the edited document. The **XSL URL** field of the default transformation scenario contains the URL from the `href` attribute of the processing instruction. The **Use xml-stylesheet declaration** check-box of the scenario is selected by default. Saxon is used as transformation engine and no FO processing is performed. The result of the transformation is store in a file with the same URL as the edited document, but the extension is changed to `html`. The name and path are preserved because the output file name is specified with the help of two *editor variables*: `${cfd}` and `${cfn}`.

Sharing the Transformation Scenarios

The transformation scenarios can be shared with other users by saving them at project level. In the lower part of the dialog showing the list of scenarios you will find two radio buttons controlling where the scenarios are stored: **Global Scenarios** and **Project Scenarios**.

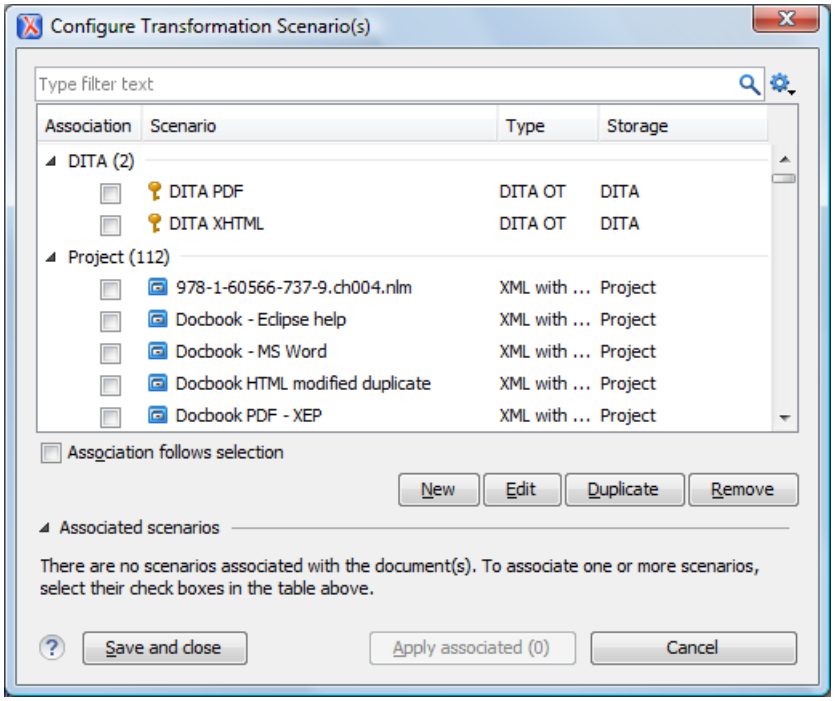


Figure 185: Transformation Scenario List Dialog

Selecting **Global Scenarios** ensures that the scenarios are saved in the global options stored in the user home directory.

After changing the selection to **Project Scenarios**, the scenario list will be stored in the project file. If your project is saved on a source versioning/sharing system (CVS, SVN, Source Safe, etc..) then your team can use the scenarios you defined. When you create a scenario at the project level, the URLs from the scenario become relative to the project URL.

Predefined scenarios are presented according to the current document's detected type. The screenshot above shows all default scenarios for a *DITA* document and several custom transformation scenarios. The key symbol before the scenario name, indicates that the scenario can only be modified from the ***Document Type Association*** preferences page.

Other preferences can also be stored at the project level. For more information, see the *Preference Sharing* section.

Transformation Scenarios View

You are able to manage the transformation scenarios easily, using the **Transformation Scenarios** view. To open this view, go to **Window** > **Show View** > **Transformation Scenarios**.

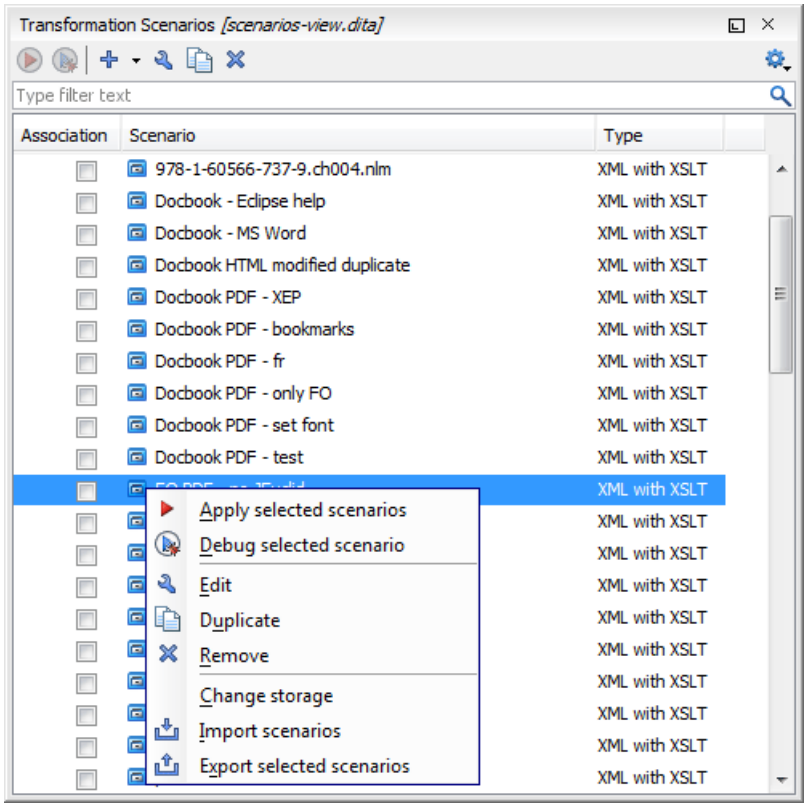


Figure 186: The Scenarios view

The following options are available in the contextual menu of the **Transformation Scenarios** view:

- **Apply selected scenarios** - select this option to run the current transformation scenario;
- **Debug selected scenario** - select this option to switch to the **Debugger** perspective and initialize it with the parameters from the scenario: the XML input, the XSLT, or XQuery input, the transformation engine, the XSLT parameters;
- **Duplicate** - adds a new scenario to the list that is a duplicate of the current scenario. It is useful for creating a scenario that is the same as an existing one but needs some changes;
- **Edit** - opens the dialog for editing the parameters of a transformation scenario;
- **Remove** - removes the current scenario from the list. This action is also available on the **Delete** key;
- **Change storage** - use this option to change the storage location of the selected scenario. You are also able to keep the original storage location and make a copy of the selected scenario in the target storage location;
- **Import scenarios** - use this option to open the **Import scenarios** dialog. The **Import scenarios** dialog allows you to select which scenario of the `scenarios` file you want to import. In case one of the scenarios you import is identical with an existing scenario, Oxygen XML Author ignores the scenario you are importing. In case a conflict appears (an imported scenario has the same name with an existing one), you can choose between two options:
  - keep or replace the existing scenario;
  - keep both scenarios.

  Note: When you keep both scenarios, Oxygen XML Author adds `imported` to the name of the imported scenario.

- **Export selected scenarios** - use this option to export transformation and validation scenarios individually. Oxygen XML Author creates a `scenarios` file which contains the scenarios you export;

Apart from the options available in the contextual menu, the **Transformation Scenarios** view toolbar contains a  **New** drop-down button. The menu of this drop down button contains a list of the scenarios you can create. Oxygen XML Author analyses which scenario is appropriate and displays it as the first item in the list of scenarios, separated by the rest through a horizontal line.

The  **Settings** drop-down menu of the **Transformation Scenarios** view allows you to configure the following options:

- **Show all scenarios** - select this option to display all the available scenarios, regardless of the document they are associated with;
- **Show only the scenarios available for the editor** - select this option to display in the **Transformation scenarios** view only the scenarios which Oxygen XML Author can execute for the current document type;
- **Show associated scenarios** - select this option to display only the scenarios associated with the document you are editing;
- **Change storage** - use this option to change the storage location of the selected scenario. You are also able to keep the original storage location and make a copy of the selected scenario in the target storage location;
-  **Import scenarios** - use this option to open the **Import scenarios** dialog. The **Import scenarios** dialog allows you to select which scenario of the `scenarios` file you want to import. In case one of the scenarios you import is identical with an existing scenario, Oxygen XML Author ignores the scenario you are importing. In case a conflict appears (an imported scenario has the same name with an existing one), you can choose between two options:
  - keep or replace the existing scenario;
  - keep both scenarios.

     **Note:** When you keep both scenarios, Oxygen XML Author adds `imported` to the name of the imported scenario.

-  **Export selected scenarios** - use this option to export transformation and validation scenarios individually. Oxygen XML Author creates a `scenarios` file which contains the scenarios you export;
- **Show Type** - use this option to display the transformation type of each scenario in the **Transformation Scenarios** view;
- **Show Storage** - use this option to display the storage location of the scenarios in the **Transformation Scenarios** view;
- **Group by Association** - select this option to group the scenarios in the **Transformation Scenarios** view depending on whether they are associated or not with the document you are editing;
- **Group by Type** - select this option to group the scenarios in the **Transformation Scenarios** view by their type;
- **Group by Storage** - select this option to group the scenarios in the **Transformation Scenarios** view by their storage location;
-  **Ungroup all** - select this option to ungroup all the scenarios of the **Transformation Scenarios** view;
- **Reset Layout** - select this option to restore the default settings of the layout of the **Transformation Scenarios** view.

Oxygen XML Author supports multiple scenarios association. To associate multiple scenarios with a document, enable the check-boxes in front of each scenario. You can also associate multiple scenarios with a document from the **Configure Transformation Scenario(s)** or **Configure Validation Scenario(s)** dialogs.

The **Transformation Scenarios** presents both global scenarios and project scenarios. By default, Oxygen XML Author presents the items in the **Transformation Scenarios** in the following order: scenarios matching the current framework, scenarios matching the current project, scenarios matching other frameworks. You can group the scenarios depending on the columns in the **Transformation Scenarios** view. Right click the name of a column to choose how to group the scenarios. The following grouping options are available:

- **Group by Association** - select this option to group the scenarios in the **Transformation Scenarios** view depending on whether they are associated or not with the document you are editing;
- **Group by Type** - select this option to group the scenarios in the **Transformation Scenarios** view by their type;
- **Group by Storage** - select this option to group the scenarios in the **Transformation Scenarios** view by their storage location;

Using the Oxygen WebHelp Plugin

The Oxygen WebHelp Plugin allows you to transform DITA and Docbook documents outside of Oxygen XML Author, from a command line. The WebHelp output files created with the Oxygen WebHelp plugin are the same with the output files that Oxygen XML Author produces when you run DITA or DocBook to WebHelp transformation scenarios.

Oxygen WebHelp Plugin for DITA

To transform DITA documents using the Oxygen WebHelp plugin, first integrate the plugin with the DITA Open Toolkit. The purpose of the integration is to add to the DITA Open Toolkit the following transformation types:

- **webhelp** - the transformation that produces **webhelp** for desktop;
- **webhelp-feedback** - the transformation that produces **webhelp** for desktop with the addition of a feedback system;
- **webhelp-mobile** - the transformations that produces **webhelp** for mobile devices.

Integrating the Oxygen WebHelp Plugin with the DITA Open Toolkit

The requirements of the Oxygen WebHelp plugin for the DITA Open Toolkit are:

- Java Virtual Machine 1.6 or later;
- DITA Open toolkit 1.6.x or 1.7.x (Full Easy Install);
- Saxon 9.1.0.8.

To integrate the Oxygen WebHelp plugin with the DITA Open Toolkit, follow these steps:

1. Download and install a *Java Virtual Machine* 1.6 or later.
2. Download and install *DITA Open Toolkit* 1.6.x or 1.7.x (Full Easy Install).
3. Navigate to the `plugins` directory located in the installation directory of the DITA Open Toolkit.
4. Copy the `com.oxygenxml.webhelp` and `com.oxygenxml.highlight` directories inside the `plugins` directory. The `com.oxygenxml.highlight` directory add syntax highlight capabilities to your WebHelp output for codeblock sections that contain source code snippets (XML, Java, JavaScript etc.).
5. In the home directory of the DITA Open Toolkit, run `ant -f integrator.xml`.
6. Go to *http://sourceforge.net/projects/saxon/files/Saxon-B/9.1.0.8/*, download and unzip the `processor.saxonb9-1-0-8j.zip` file (contains the Saxon 9.1.0.8).

Registering the Oxygen WebHelp Plugin

To register the Oxygen WebHelp plugin for the DITA Open Toolkit, follow these steps:

1. Create a `.txt` file named `license` in the `[DITA-OT-install-dir]/plugins/com.oxygenxml.webhelp` directory. The `license.txt` file is created.
2. In this file, copy your Oxygen Scripting license key which you purchased for your Oxygen Webhelp plugin.

   The WebHelp transformation process reads the Oxygen license key from this file. In case the file does not exit, or it contains an invalid license, an error message will be displayed.

Running a DITA Transformation Using the WebHelp Plugin

To run a DITA to WebHelp (**webhelp**, **webhelp-feedback**, **webhelp-mobile)** transformation using the Oxygen WebHelp plugin, use:

- the `dita.bat` script file for Windows based systems;
- the `dita.sh` script file for Unix/Linux based systems.

Note: You can call these files in an automated process or from the command line.

The `dita.bat` and the `dita.sh` files are located in the home directory of the Oxygen WebHelp Plugin. Before using them to generate an WebHelp system, customize them to match the paths to the JVM, DITA Open Toolkit and Saxon engine, and also to set the transformation type. To do this, open a script file and edit the following variables:

- `JVM_INSTALL_DIR` - specifies the path to the Java Virtual Machine installation directory on your disk;
- `DITA_OT_INSTALL_DIR` - specifies the path to DITA Open Toolkit installation directory on your disk;
- `SAXON_9_DIR` - specifies the path to the directory on your disk where you unzipped the Saxon 9 archive files;
- `TRANSTYPE` - specifies the type of the transformation you want to execute. You can set it to `webhelp`, `webhelp-feedback` and `webhelp-mobile`;
- `DITA_MAP_BASE_DIR` - specifies the path to the directory where the input DITA Map file is located;
- `DITAMAP_FILE` - specifies the input DITA Map file;
- `DITAVAL_FILE` - specifies the `.ditaval` input filter that the transformation process applies to the input DITA Map file;
- `DITAVAL_DIR` - specifies the path to the directory where the `.ditaval` file is located;
- `Doutput.dir` - specifies the output directory of the transformation.

The `-Dargs.filter` and the `-Ddita.input.valfile` parameters are optional.

Additional WebHelp Plugin Parameters for DITA

You are able to append the following parameters to the command line that runs the transformation:

- `-Dwebhelp.copyright` - the copyright note that is added in the footer of the Table of Contents frame;
- `-Dwebhelp.footer.file` - specifies the location of a well-formed XHTML file containing your custom footer for the document body. Corresponds to the WEBHELP_FOOTER_FILE XSLT parameter. The fragment must be a well-formed XHTML, with a single root element. As a common practice, place all the content into a element;
- `-Dwebhelp.footer.include` - specifies whether the content of file set in the `-Dwebhelp.footer.file` is used as footer in the WebHelp pages. Its values can be `yes`, or `no`;
- `-Dwebhelp.product.id` - the value of this parameter is a text string, that the **webhelp-feedback** transformation requires. It represents a short name of the documentation target (product). All the user comments that are posted in the WebHelp output pages and are added in the comments database are bound to this product ID;

  Note: You can deploy documentation for multiple products on the same server.

- `-Dwebhelp.product.version` - the value of this parameter is a text string, that the **webhelp-feedback** transformation requires. It specifies the documentation version number, for example: 1.0, 2.5, etc. New user comments are bound to this version.

  Note: Multiple documentation versions can be deployed on the same server.

In case you need to further customize the transformation process, you are able to append other DITA-OT parameters as well. Any parameter that you want to append must follow the `-D` model of the above parameters. For example, to append the `args.hdr` parameter, use:

```
-Dargs.hdr=/path/to/directory/of/header-file.html
```

where `/path/to/directory/of/header-file.html` is the location of the directory that contains the header file.

Database Configuration for DITA WebHelp with Feedback

In case you run the **webhelp-feedback** transformation, you need to configure the database that holds the user comments. The instructions for configuring the database are presented in the `instalation.html` file, located at `[DITA-map-base-dir]/out/[transtype]/oxygen-webhelp/resources`. The `instalation.html` file is created by the transformation process.

Oxygen WebHelp Plugin for DocBook

To transform DocBook documents using the Oxygen WebHelp plugin, first integrate the plugin with the DocBook XSL distribution. The purpose of the integration is to add to the DocBook XSL distribution the following transformation types:

- **webhelp** - the transformation that produces **webhelp** for desktop;
- **webhelp-feedback** - the transformation that produces **webhelp** for desktop with the addition of a feedback system;
- **webhelp-mobile** - the transformations that produces **webhelp** for mobile devices.

Integrating the Oxygen WebHelp Plugin with the DocBook XSL Distribution

The WebHelp plugin transformations run as an ANT build script. The requirements are:

- ANT 1.8 or later;
- Java Virtual Machine 1.6 later;
- DocBook XSL 1.78.1 later;
- Saxon 6.5.5;
- Saxon 9.1.0.8.

To integrate the Oxygen WebHelp plugin with the DocBook XSL distribution, follow these steps:

1. Download and install a *Java Virtual Machine* 1.6 or later.
2. Download and install *ANT 8.0* or later.
3. Download and unzip on your computer the DocBook XSL distribution.
4. Unzip the WebHelp distribution package in the DocBook XSL installation directory.
   The DocBook XSL directory now contains a new subdirectory named `com.oxygenxml.webhelp` and two new files, `oxygen_custom.xsl` and `oxygen_custom_html.xsl`.
5. Download and unzip *saxon6-5-5.zip* on your computer.
6. Download and unzip *saxonb9-1-0-8j.zip* on your computer.

Registering the Oxygen WebHelp Plugin

To register the Oxygen WebHelp plugin for the DocBook XSL distribution, follow these steps:

1. Create a `.txt` file named `license` in the `com.oxygenxml.webhelp` subdirectory of the DocBook XSL directory.
2. In this file, copy the Oxygen Scripting license key, which you purchased for your Oxygen WebHelp plugin.

   The WebHelp transformation process reads the Oxygen license key from this file. In case the file does not exit, or it contains an invalid license, an error message will be displayed.

Running a DocBook Transformation Using the WebHelp Plugin

To run a DocBook to WebHelp (**webhelp**, **webhelp-feedback**, **webhelp-mobile)** transformation using the Oxygen WebHelp plugin, use:

- the `docbook.bat` script file for Windows based systems;
- the `docbook.sh` script file for Unix/Linux based systems.

Note: You can call these files in an automated process or from the command line.

The `docbook.bat` and the `docbook.sh` files are located in the home directory of the Oxygen WebHelp Plugin. Before using them to generate an WebHelp system, customize them to match the paths to the JVM, DocBook XSL distribution and Saxon engine, and also to set the transformation type. To do this, open a script file and edit the following variables:

- `JVM_INSTALL_DIR` - specifies the path to the Java Virtual Machine installation directory on your disk;

- `ANT_INSTALL_DIR` - specifies the path to the installation directory of ANT;
- `SAXON_6_DIR` - specifies the path to the installation directory of Saxon 6.5.5;
- `SAXON_9_DIR` - specifies the path to the installation directory of Saxon 9.1.0.8;
- `DOCBOOK_XSL_DIR` - specifies the path to the installation directory of the DocBook XSL distribution;
- `TRANSTYPE` - specifies the type of the transformation you want to execute. You can set it to `webhelp`, `webhelp-feedback` and `webhelp-mobile`;
- `INPUT_DIR` - specifies the path to the input directory, containing the input XML file;
- `XML_INPUT_FILE` - specifies the name of the input XML file;
- `OUTPUT_DIR` - specifies the path to the output directory where the transformation output is generated;
- `DOCBOOK_XSL_DIR_URL` - specifies the path to the directory of the DocBook XSL distribution in URL format.

Additional WebHelp Plugin Parameters for DocBook

You are able to append the following parameters to the command line that runs the transformation:

- `-Dwebhelp.copyright` - the copyright note (a text string value) that is added in the footer of the table of contents frame (the left side frame of the WebHelp output);
- `-Dwebhelp.footer.file` - specifies the location of a well-formed XHTML file containing your custom footer for the document body. Corresponds to the `WEBHELP_FOOTER_FILE` XSLT parameter . The fragment must be an well-formed XHTML, with a single root element. As a common practice, place all the content inside a element;
- `-Dwebhelp.footer.include` - specifies whether the content of file set in the `-Dwebhelp.footer.file` is used as footer in the WebHelp pages. Its values can be `yes`, or `no`;
- `-Dwebhelp.product.id` - the value of this parameter is a text string, that the **webhelp-feedback** transformation requires. It represents a short name of the documentation target (product). All the user comments that are posted in the WebHelp output pages and are added in the comments database are bound to this product ID;

  Note: You can deploy documentation for multiple products on the same server.

- `-Dwebhelp.product.version` - the value of this parameter is a text string, that the **webhelp-feedback** transformation requires. It specifies the documentation version number, for example: 1.0, 2.5, etc. New user comments are bound to this version.

  Note: Multiple documentation versions can be deployed on the same server.

In case you need to further customize your transformation, other Docbook XSL parameters can be appended. Any parameter that you want to append must follow the `-D` model of the above parameters. For example, you can append the `html.stylesheet` parameter in the following form:

```
-Dhtml.stylesheet=/path/to/directory/of/stylesheet.css
```

Database Configuration for DocBook WebHelp with Feedback

In case you run the **webhelp-feedback** transformation, you need to configure the database that holds the user comments. The instructions for configuring the database are presented in the `instalation.html` file, located at `[OUTPUT_DIR]/oxygen-webhelp/resources/installation.html`. The `instalation.html` file is created by the transformation process.

XSLT Processors

This section explains how to configure an XSLT processor and extensions for such a processor in Oxygen XML Author.

Supported XSLT Processors

Oxygen XML Author comes with the following XSLT processors:

- **Xalan 2.7.1** - *Xalan-Java* 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* 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 9.5.0.1 Home Edition (HE), Professional Edition (PE)** - *Saxon-HE/PE* implements the basic conformance level for XSLT 2.0 / 3.0 and XQuery 1.0. The term *basic XSLT 2.0 / 3.0 processor* is defined in the draft XSLT 2.0 / 3.0 specifications: it is a conformance level that requires support for all features of the language other than those that involve schema processing. The HE product remains open source, but removes some of the more advanced features that were present in Saxon-PE.
- **Saxon 9.5.0.1 Enterprise Edition (EE)** - *Saxon EE* is the schema-aware edition of Saxon and it is one of the built-in processors of Oxygen XML Author. Saxon EE includes an XML Schema processor, and schema-aware XSLT, XQuery, and XPath processors.

  The validation in schema aware transformations is done according to the W3C XML Schema 1.0 or 1.1. This can be *configured in Preferences*.

  Note: Oxygen XML Author implements a Saxon framework that allows you to create Saxon configuration files. Two templates are available: **Saxon collection catalog** and **Saxon configuration**. Both these templates support content completion, element annotation and attribute annotation.

Besides the above list Oxygen XML Author supports the following processors:

- **Xsltproc (libxslt)** - *Libxslt* 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 XML Author is 2.7.6 and the libxslt version is 1.1.26

  Oxygen XML Author 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.

  The Xsltproc processor can be configured from the ***XSLTPROC** options page*.

  Caution: Known problem: file paths containing spaces are not handled correctly in the LIBXML processor. For example the built-in XML catalog files of the predefined document types (DocBook, TEI, DITA, etc) are not handled by LIBXML if Oxygen XML Author is installed in the default location on Windows (C:\Program Files) because the built-in XML catalog files are stored in the `frameworks` subdirectory of the installation directory which in this case contains at least a space character.

- **MSXML 3.0/4.0** - *MSXML 3.0/4.0* is available only on Windows 2000, Windows NT and Windows XP platforms. It can be used for *transformation* .

  Oxygen XML Author uses the Microsoft XML parser through its command line tool *`msxsl.exe`*.

  Because `msxsl.exe` is only a wrapper, Microsoft Core XML Services (MSXML) must be installed on the computer otherwise you will get a corresponding warning. You can get the latest Microsoft XML parser from *Microsoft web-site*

- **MSXML .NET** - *MSXML .NET* is available only on Windows NT4, Windows 2000 and Windows XP platforms. It can be used for *transformation* .

Oxygen XML Author performs XSLT transformations and validations using .NET Framework's XSLT implementation (`System.Xml.Xsl.XslTransform` class) through the **nxslt** command line utility. The **nxslt** version included in Oxygen XML Author is 1.6.

You should have the .NET Framework version 1.0 already installed on your system otherwise you will get the following 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 the *Microsoft website*

- **.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 will get the following 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 the *Microsoft website*

- **.NET 2.0** - A transformer based on the `System.Xml` 2.0 library available in the .NET 2.0 framework from *Microsoft*. It is available only on Windows.

  You should have the .NET Framework version 2.0 already installed on your system otherwise you will get the following 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 the *Microsoft website*

The button **Transformation options** available on the **Transformation** toolbar allows quick access to the *XSLT options* in the Oxygen XML Author user preferences.

Configuring Custom XSLT Processors

You can configure and run XSLT and XQuery transformations with processors other than *the ones which come with the Oxygen XML Author distribution*.

Note:

The output messages of a custom processor are displayed in an output view at the bottom of the application window. If an output message follows *the format of an Oxygen XML Author linked message*, then a click on the message in the output view highlights the location of the message in an editor panel containing the file referred in the message.

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.

The DocBook extensions for Xalan and Saxon are included in the `[Oxygen-install-directory]\frameworks\docbook\xsl\extensions` folder.

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 9.5.0.1 - *http://www.saxonica.com/documentation/extensibility/intro.xml*

To set an XSLT processor extension (a directory or a `jar` file), use *the **Extensions** button* of the scenario edit dialog. The old way of setting an extension (using the parameter -Dcom.oxygenxml.additional.classpath) was deprecated and you should use the extension mechanism of the XSLT transformation scenario.

XSL-FO Processors

This section explains how to apply XSL-FO processors when transforming XML documents to various output formats in Oxygen XML Author.

The Built-in XSL-FO Processor

The Oxygen XML Author installation package is distributed with the *Apache FOP* that is a 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.

To include PNG images in the final PDF document you need the *JIMI* or *JAI* libraries. For PDF images you need the `fop-pdf-images` library. These libraries are not bundled with Oxygen XML Author but using them is very easy. You need to download them and *create an external FO processor* based on the built-in FOP libraries and the extension library. The *external FO processor created in **Preferences*** will have a command line like:

```
java -cp "${oxygenInstallDir}/lib/xercesImpl.jar:
${oxygenInstallDir}/lib/fop.jar:${oxygenInstallDir}/lib/
avalon-framework-4.2.0.jar:
${oxygenInstallDir}/lib/batik-all-1.7.jar:${oxygenInstallDir}/lib/
commons-io-1.3.1.jar:
${oxygenInstallDir}/lib/xmlgraphics-commons-1.3.1.jar:
${oxygenInstallDir}/lib/commons-logging-1.0.4.jar:
${oxygenInstallDir}/lib/saxon9ee.jar:${oxygenInstallDir}/lib/
saxon9-dom.jar:
${oxygenInstallDir}/lib/xalan.jar:${oxygenInstallDir}/lib/
serializer.jar:
${oxygenInstallDir}/lib/resolver.jar:${oxygenInstallDir}/lib/
fop-pdf-images-1.3.jar:
${oxygenInstallDir}/lib/PDFBox-0.7.3.jar"
org.apache.fop.cli.Main -fo ${fo} -${method} ${out}
```

You need to add to the classpath `JimiProClasses.zip` for *JIMI* and `jai_core.jar`, `jai_codec.jar` and `mlibwrapper_jai.jar` for *JAI*. For the *JAI* package you can include the directory containing the native libraries (`mlib_jai.dll` and `mlib_jai_mmx.dll` on Windows) in the *PATH* system variable.

The Mac OS X version of the *JAI* library can be downloaded from *http://www.apple.com/downloads/macosx/apple/java3dandjavaadvancedimagingupdate.html*. In order to use it, install the downloaded package.

Other FO processors can be configured in *the **Preferences** dialog*.

Add a Font to the Built-in FOP - The Simple Version

If the font that must be set to Apache FOP is one of the fonts that are installed in the operating system you should follow the next steps for creating and setting a FOP configuration file that looks for the font that it needs in the system fonts. It is a simplified version of *the procedure for setting a custom font in Apache FOP*.

1. Register the font in FOP configuration. (not necessary in case of DITA PDF transformations, see next step)
   a) Create a FOP configuration file that specifies that FOP should look for fonts in the installed fonts of the operating system.

```
<fop version="1.0">
  <renderers>
    <renderer mime="application/pdf">
      <fonts>
        <auto-detect/>
      </fonts>
    </renderer>
```

```
  </renderers>
</fop>
```

b) Set the FOP configuration file in **Preferences**.

Go to menu **Options** > **Preferences** > **XML** > **XSLT/FO/XQuery** > **FO Processors** and enter the path of the FOP configuration file in the **Configuration file for the built-in FOP** text field.

2. Set the font on the document content.

This is done usually with XSLT stylesheet parameters and depends on the document type processed by the stylesheet.

- For DocBook documents you can start with the predefined scenario called **DocBook PDF**, *edit the XSLT parameters* and set the font name (in our example the font family name is **Arial Unicode MS**) to the parameters body.font.family and title.font.family.
- For TEI documents you can start with the predefined scenario called **TEI PDF**, *edit the XSLT parameters* and set the font name (in our example **Arial Unicode MS**) to the parameters bodyFont and sansFont.
- For DITA transformations to PDF using DITA-OT you should modify the following two files:
  - `${frameworks}/dita/DITA-OT/plugins/org.dita.pdf2/cfg/fo/font-mappings.xml` - the `font-face` element included in each element `physical-font` having the `attribute char-set="default"` must contain the name of the font (**Arial Unicode MS** in our example)
  - `${frameworks}/dita/DITA-OT/plugins/org.dita.pdf2/fop/conf/fop.xconf` - an element `auto-detect` must be inserted in the element `fonts` which is inside the element `renderer` having the attribute `mime="application/pdf"`:

```
<renderer mime="application/pdf">
  . . .
   <fonts>
       <auto-detect/>
   </fonts>
  . . .
</renderer>
```

Add a Font to the Built-in FOP

If an XML document is transformed to PDF using the built-in Apache FOP processor but it contains some Unicode characters that cannot be rendered by the default PDF fonts, then a special font that is capable to render these characters must be configured and embedded in the PDF result.

Important: If this special font is installed in the operating system, there is a simple way of telling FOP to look for it. See *the simplified procedure for adding a font to FOP*.

1. Locate the font.

First, find out the name of a font that has the glyphs for the special characters you used. One font that covers most characters, including Japanese, Cyrillic, and Greek, is Arial Unicode MS.

On Windows the fonts are located into the `C:\Windows\Fonts` directory. On Mac, they are placed in `/Library/Fonts`. To install a new font on your system, is enough to copy it in the `Fonts` directory.

2. Generate a font metrics file from the font file.

a) Open a terminal.

b) Change the working directory to the Oxygen XML Author install directory.

c) Create the following script file in the Oxygen XML Author installation directory.

For Mac OS X and Linux create a file `ttfConvert.sh`:

```
#!/bin/sh

export LIB=lib
export CP=$LIB/fop.jar
export CP=$CP:$LIB/avalon-framework-4.2.0.jar
export CP=$CP:$LIB/xercesImpl.jar
export CP=$CP:$LIB/commons-logging-1.1.1.jar
export CP=$CP:$LIB/commons-io-1.3.1.jar
```

```
export CP=$CP:$LIB/xmlgraphics-commons-1.5.jar
export CP=$CP:$LIB/xml-apis.jar
export CMD="java -cp $CP org.apache.fop.fonts.apps.TTFReader"
export FONT_DIR='.'

$CMD $FONT_DIR/Arialuni.ttf Arialuni.xml
```

For Windows create a file `ttfConvert.bat`:

```
@echo off
set LIB=lib
set CP=%LIB%\fop.jar
set CP=%CP%;%LIB%\avalon-framework-4.2.0.jar
set CP=%CP%;%LIB%\xercesImpl.jar
set CP=%CP%;%LIB%\commons-logging-1.1.1.jar
set CP=%CP%;%LIB%\commons-io-1.3.1.jar
set CP=%CP%;%LIB%\xmlgraphics-commons-1.5.jar
set CP=%CP%;%LIB%\xml-apis.jar
set CMD=java -cp "%CP%" org.apache.fop.fonts.apps.TTFReader
set FONT_DIR=C:\Windows\Fonts
%CMD% %FONT_DIR%\Arialuni.ttf Arialuni.xml
```

The paths specified in the file are relative to the Oxygen XML Author installation directory. If you decide to create it in other directory, change the file paths accordingly.

The *FONT_DIR* can be different on your system. Check that it points to the correct font directory. If the Java executable is not in the *PATH*, specify the full path of the executable.

If the font has bold and italic variants, convert them too by adding two more lines to the script file:

- for Mac OS X and Linux:

  ```
  $CMD $FONT_DIR/Arialuni-Bold.ttf Arialuni-Bold.xml
  $CMD $FONT_DIR/Arialuni-Italic.ttf Arialuni-Italic.xml
  ```

- for Windows:

  ```
  %CMD% %FONT_DIR%\Arialuni-Bold.ttf Arialuni-Bold.xml
  %CMD% %FONT_DIR%\Arialuni-Italic.ttf Arialuni-Italic.xml
  ```

d) Execute the script.

On Linux and Mac OS X, execute the command `sh ttfConvert.sh` from the command line. On Windows, run the command `ttfConvert.bat` from the command line or double click on the file `ttfConvert.bat`.

3. Register the font in FOP configuration. (not necessary in case of DITA PDF transformations, see next step)

a) Create a FOP configuration file that specifies the font metrics file for your font.

```
<fop version="1.0">
  <base>./</base>
  <font-base>file:/C:/path/to/FOP/font/metrics/files/</font-base>
  <source-resolution>72</source-resolution>
  <target-resolution>72</target-resolution>
  <default-page-settings height="11in" width="8.26in"/>
  <renderers>
    <renderer mime="application/pdf">
      <filterList>
        <value>flate</value>
      </filterList>
      <fonts>
          <font metrics-url="Arialuni.xml" kerning="yes"
                embed-url="file:/Library/Fonts/Arialuni.ttf">
              <font-triplet name="Arialuni" style="normal"
                    weight="normal"/>
          </font>
      </fonts>
    </renderer>
  </renderers>
</fop>
```

The `embed-url` attribute points to the font file to be embedded. Specify it using the URL convention. The `metrics-url` attribute points to the font metrics file with a path relative to the `base` element. The triplet refers to the unique combination of name, weight, and style (italic) for each variation of the font. In our case is just one triplet, but if the font had variants, you would have to specify one for each variant. Here is an example for Arial Unicode if it had italic and bold variants:

```
<fop version="1.0">
  ...
    <fonts>
        <font metrics-url="Arialuni.xml" kerning="yes"
              embed-url="file:/Library/Fonts/Arialuni.ttf">
```

```
            <font-triplet name="Arialuni" style="normal"
                  weight="normal"/>
        </font>
        <font metrics-url="Arialuni-Bold.xml" kerning="yes"
              embed-url="file:/Library/Fonts/Arialuni-Bold.ttf">
            <font-triplet name="Arialuni" style="normal"
                  weight="bold"/>
        </font>
        <font metrics-url="Arialuni-Italic.xml" kerning="yes"
              embed-url="file:/Library/Fonts/Arialuni-Italic.ttf">
            <font-triplet name="Arialuni" style="italic"
                  weight="normal"/>
        </font>
    </fonts>
  ...
</fop>
```

More details about the FOP configuration file are available on the FOP website.

b) Set the FOP configuration file in **Preferences**.

Go to menu **Options** > **Preferences** > **XML** > **XSLT/FO/XQuery** > **FO Processors** and enter the path of the FOP configuration file in the **Configuration file for the built-in FOP** text field.

4. Set the font on the document content.

This is usually done with XSLT stylesheet parameters and depends on the document type processed by the stylesheet.

For DocBook documents, you can start with the predefined scenario called **DocBook PDF**, *edit the XSLT parameters*, and set the font name (in our example **Arialuni**) to the parameters body.font.family and title.font.family.
For TEI documents, you can start with the predefined scenario called **TEI PDF**, *edit the XSLT parameters*, and set the font name (in our example **Arialuni**) to the parameters bodyFont and sansFont.
For DITA to PDF transformations using DITA-OT modify the following two files:

- `${frameworks}/dita/DITA-OT/plugins/org.dita.pdf2/cfg/fo/font-mappings.xml` - the `font-face` element included in each element `physical-font` having the `attribute char-set="default"` must contain the name of the font (*Arialuni* in our example)
- `${frameworks}/dita/DITA-OT/plugins/org.dita.pdf2/fop/conf/fop.xconf` - an element `font` must be inserted in the element `fonts` which is inside the element `renderer` having the attribute `mime="application/pdf"`:

```
<renderer mime="application/pdf">
  . . .
   <fonts>
       <font metrics-url="Arialuni.xml" kerning="yes"
           embed-url="file:/Library/Fonts/Arialuni.ttf">
           <font-triplet name="Arialuni" style="normal"
               weight="normal"/>
       </font>
   </fonts>
  . . .
</renderer>
```

Adding Libraries to the Built-in FOP

You can extend the functionality of the built-in FO processor by dropping additional libraries in the `[oXygen install folder]/lib/fop` directory.

Hyphenation

To add support for hyphenation:

1. download the pre-compiled JAR from *OFFO* ;
2. place the JAR in `[oXygen install folder]/lib/fop`;
3. restart the Oxygen XML Author.

Chapter 11

Querying Documents

Topics:

This chapter shows how to query XML documents in Oxygen XML Author with XPath expressions and the XQuery language.

Running XPath Expressions

This section covers the views, toolbars, and dialogs in Oxygen XML Author, dedicated to 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 an SQL query used to select records from a database.

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.

- `child::*` - Selects all children of the root node.
- `.//name` - Selects 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, go to *http://www.w3.org/TR/xpath*.

Oxygen XPath Toolbar

XPath is a query language for selecting nodes from an XML document. To use XPath expressions effectively, you need a good understanding of *the XPath Core Function Library*. Oxygen XML Author provides an XPath toolbar to let you query XML documents fast and easy using XPath expressions.

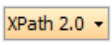
You can execute an XPath expression (XPath 1.0, XPath 2.0, XPath 2.0 SA, XPath 3.0, XPath 3.0 SA) either from the **XPath** toolbar, or from the **XPath/XQuery Builder** view.

You can use the XPath toolbar to execute both XPath 2.0 basic and XPath 2.0 schema aware expressions. XPath 2.0 schema aware takes into account the Saxon EE *XML Schema version* option.

Note: The results returned by XPath 2.0 SA and XPath 3.0 SA have a location limited to the line number of the start element (there are no column information and no end specified).

Note: Oxygen XML Author uses Saxon to execute XPath 3.0 expressions, but implements a part of the 3.0 functions. When using a function that is not implemented, Oxygen XML Author can return a compilation error.

Syntax highlight is available in the XPath toolbar and allows you to identify the components of an XPath expression. To customize the colors of the components of an XPath expression, go to **Options** > **Preferences** > **Editor** > **Colors**.

The **Content Completion Assistant** is also available in the XPath toolbar. It offers context-dependent proposals and takes into account the cursor position in the document you are editing. The set of XPath functions proposed by the **Content Completion Assistant** also depends on the XPath version. Select the XPath version from this drop-down menu 

on the XPath toolbar.

In the following figure, the **Content Completion Assistant** offers element names from the current document and all XPath 2.0 functions:

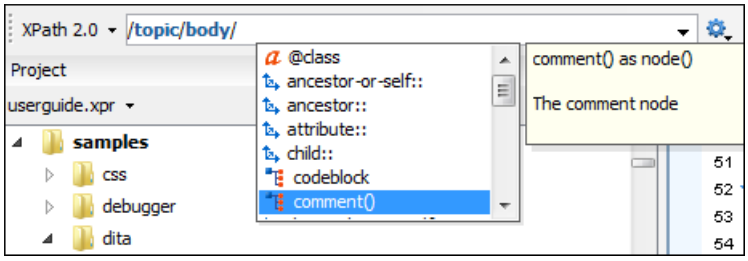


Figure 187: Content Completion in the XPath toolbar

When Oxygen XML Author evaluates an XPath expression, it uses *XML catalogs* to resolve the location of documents referred in the expression. To configure XML catalogs, go to **Options** > **Preferences** > **XML** > **XML catalog**.

An example is evaluating the `collection(URIofCollection)` function (XPath 2.0). To resolve the references from the files returned by the `collection()` function with an XML catalog, specify the class name of the XML catalog enabled parser for parsing these collection files. The class name is `ro.sync.xml.parser.CatalogEnabledXMLReader`. Specify it as it follows:

```
let $docs := collection(iri-to-uri(
    "file:///D:/temp/test/XQuery-catalog/mydocsdir?recurse=yes;select=*.xml;
    parser=ro.sync.xml.parser.CatalogEnabledXMLReader"))
```

Enable **XPath update on caret move.** to display the XPath expression at the current cursor position in the XPath toolbar, when you navigate through a document.

When you run an XPath expression, Oxygen XML Author displays the results of its execution in the **Results View***The Results View* on page 56. This view contains five columns:

- Description - holds the result that Oxygen XML Author displays when you run an XPath expression;
- XPath location - holds the path to the matched node;
- Resource - holds the name of the document on which you run the XPath expression;
- System ID - holds the path to the document itself;
- Location - holds the - holds the location of the result in the document.

To arrange the results depending on a column click on its header. To group the results by their resource, or by their system id, right click the header of any column in the results view and select **Group by "Resource"** or **Group by "System ID"**. If no information regarding location is available, Oxygen XML Author displays **Not available** in the **Location** column. Oxygen XML Author displays the results in a valid XPath expression format.

```
- /node[value]/node[value]/node[value] -
```

Note: You can stop the current execution of an XPath expression by using the toolbar or by executing another XPath expression. This is valid when you execute XPath 2.0 and Xpath 3.0 expressions.

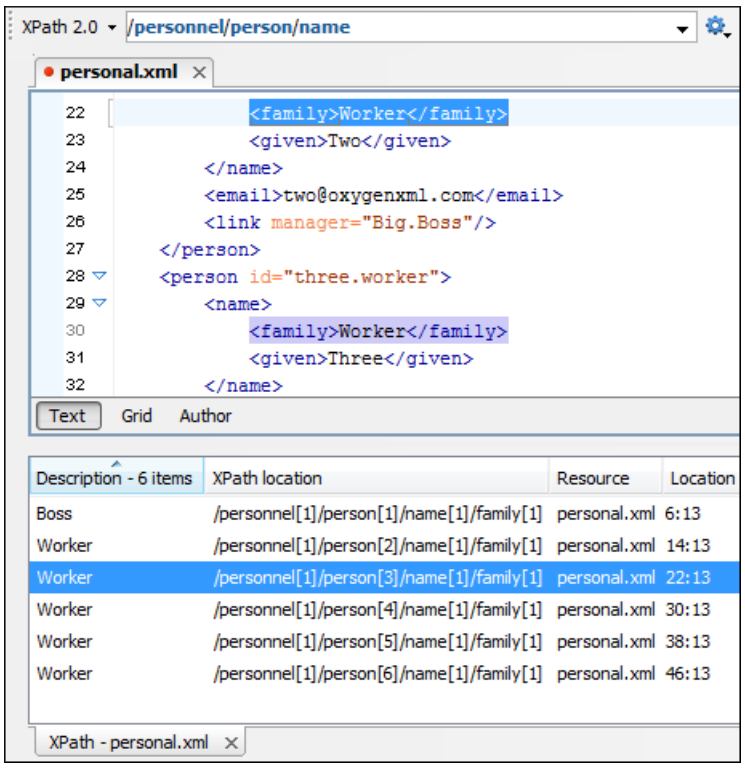


Figure 188: XPath results highlighted in editor panel with character precision

If you use the *grid editor*, when you click a record in the **Results View**, Oxygen XML Author highlights the entire node.

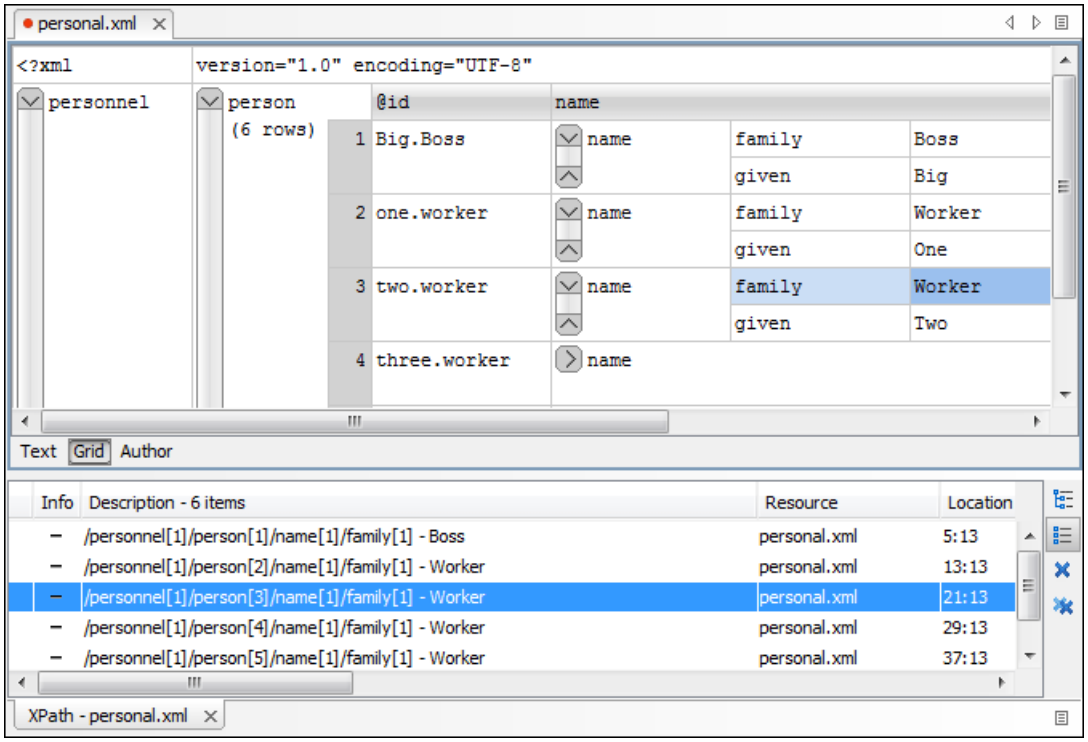


Figure 189: XPath results highlighted in the Grid Editor

When you type expressions longer than 60 characters, a dialog pops up and offers you the possibility to switch to the *XPath builder* view. The XPath builder view is specially designed to assist you with typing and testing complex XPath 1.0 / 2.0 expressions.

Using XPath with DocBook DTD

The following examples are taken from a DocBook book based on the DocBook XML DTD. The book contains a number of chapters. To return all the chapter nodes of the book, enter `//chapter` in the XPath expression field and press **(Enter)**. This action returns all the `chapter` nodes of the DocBook book in the **Results View**. Click a record in the **Results View** to locate and highlight its corresponding chapter element and all its children nodes in the document you are editing.

To find all `example` nodes contained in the `sect2` nodes of a DocBook XML document, use the following XPath expression: `//chapter/sect1/sect2/example`. Oxygen XML Author adds a result in the **Results View** for each `example` node found in any `sect2` node.

For example, if the result of the above XPath expression is:

```
- /chapter[1]/sect1[3]/sect2[7]/example[1]
```

it means that in the edited file the `example` node is located in the first chapter, third section level one, seventh section level 2.

Important: If you define a default namespace, Oxygen XML Author binds this namespace to the first free prefix from the list: `default`, `default1`, `default2`, and so on. For example, if you define the default namespace `xmlns="something"` and the prefix `default` is not associated with another namespace, you can match tags without prefix in an XPath expression typed in the XPath toolbar by using the prefix `default`. To find all the `level` elements when you define a default namespace in the root element, execute this expression: `//default:level` in the XPath toolbar.

To define default mappings between prefixes (that you can use in the XPath toolbar) and namespace URIs *go to* ***XPath Options*** *preferences panel* and enter the mappings in the **Default prefix-namespace mappings** table. The same preferences panel allows you to configure the default namespace used in XPath 2.0 expressions. Different results tabs are created for each executed XPath query.

To apply an XPath expression relative to the element on which the caret is positioned, use the following actions:

- **Document** > **XML Document** > **Copy XPath (Ctrl (Meta on Mac OS)+Alt+.)** copies the XPath expression of the current element or attribute to the clipboard;
- **Paste** - pastes this expression in the toolbar;
- add your relative expression in the toolbar and execute the resulting complete expression.

The XPath/XQuery Builder View

The **XPath/XQuery Builder** view allows you to compose complex XPath and XQuery expressions and execute them over the currently edited XML document. For XPath 2.0 / 3.0, or XQuery expressions, you are able to use the `doc()` function to specify the source file over which the expressions are executed. When you connect to a database, the expressions are executed over that database. If you are using the **XPath/XQuery Builder** view and the current file is an XSLT document, Oxygen XML Author executes the expressions over the XML document in the associated scenario.

To open the **XPath/XQuery Builder** view, go to **Window** > **Show View** > **XPath/XQuery Builder**.

The upper part of the view contains the following actions:

- a drop-down list that allows you to select the type of the expression you want to execute. You can choose between:
  - XPath 1.0 (Xerces-driven);
  - XPath 2.0, XPath 2.0SA, Xpath 3.0, Xpath 3.0SA, XQuery 1.0, XQuery 3.0, Saxon-HE XQuery, Saxon-PE XQuery, or Saxon-EE XQuery (all of them are Saxon-driven);
  - a custom connection to XML databases that can execute XQuery expressions.

Note: The results returned by XPath 2.0 SA and XPath 3.0 SA have a location limited to the line number of the start element (there are no column information and no end specified).

Note: Oxygen XML Author uses Saxon to execute XPath 3.0 expressions. Because Saxon implements a part of the 3.0 functions, when using a function that is not implemented, Oxygen XML Author returns a compilation error.

- an **Execute XPath** button. Press this button to start the execution of the XPath or XQuery expression you are editing. The result of the execution is displayed in the ***Results*** *view* in a separate tab;
- a **Favorites** button which allows you to save certain expressions that you can later reuse. To add an expression as favorite, press the star button and enter a name under which the expression is saved. The star turns yellow to confirm that the expression was saved. Expand the drop-down list next to the star button to see all your favorites. Oxygen XML Author automatically groups favorites in folders named after the method of execution;
- a **Clear content** button that you can use to clear the editing area of the view;
- a **History** drop-down that keeps a list of the last 15 executed XPath or XQuery expressions;
- a **Settings** drop-down menu which contains three options:
  - **Update on caret move** - select this option to allow the **XPath/XQuery Builder** view to display the XPath expression at the current cursor position when you navigate through the document;
  - **Evaluate as you type** - select this option to allow the **XPath/XQuery Builder** view to evaluate in real time the expression you are composing;

    Note: The **Evaluate as you type** option and the automatic validation are disabled when you edit *huge documents.*

  - **Options** - opens the Preferences page of the currently selected method.

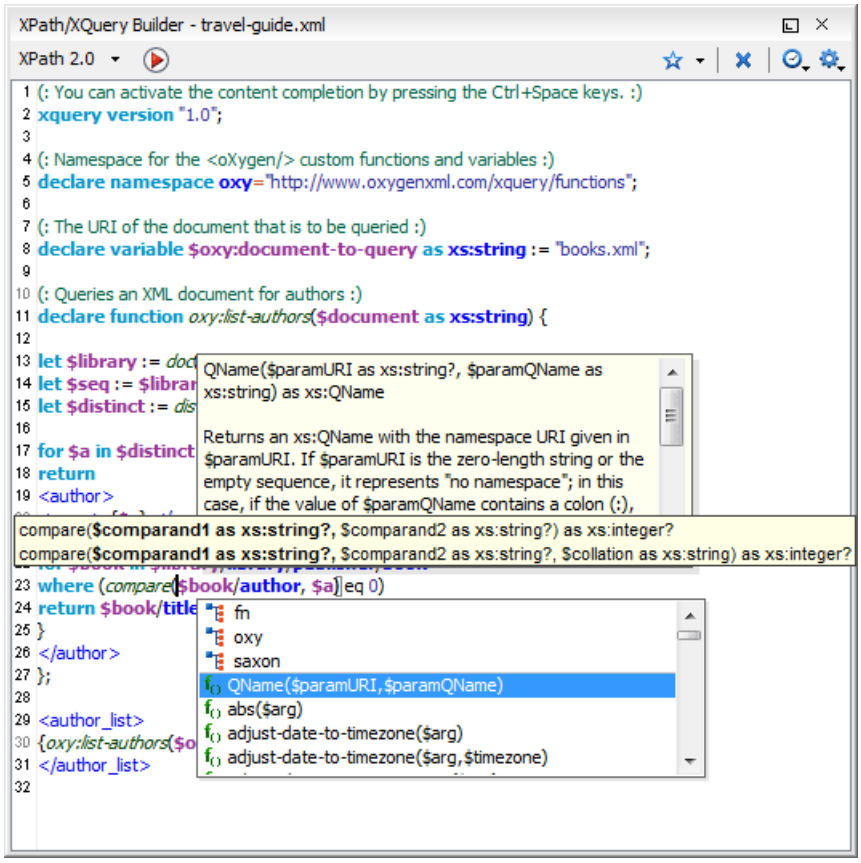


Figure 190: The XPath/XQuery Builder View

When you hover your cursor over the XPath/XQuery version icon 1.0 2.0, a tooltip is displayed to let you know what engine Oxygen XML Author currently uses.

While you edit an XPath or XQuery expression, Oxygen XML Author assists you with the following features:

- ***Content Completion Assistant***;
- syntax highlight;
- automatic validation of the expression as you type;

  Note: When you type invalid syntax in the XPath/XQuery builder, a red serrated line underlines the invalid fragments.

- method signature balloon, when the cursor is located inside an XQuery function.

The evaluation of the XPath expression tries to resolve the locations of documents referred in the expression through the *XML catalogs*. These catalogs are *configured in the Preferences* pages and *the current XInclude preferences*. For example, these preferences are used when evaluating the `XPath 2.0 collection(URIofCollection)` function.

The *usual edit actions* **Cut**, **Copy**, **Paste**, **Select All**, **Undo**, **Redo** are available in the pop-up menu of the top editable part of the view.

Working with XQuery

This section explains how to edit and run XQuery queries in Oxygen XML Author.

What is XQuery

XQuery is the query language for XML and is officially defined by *a W3C Recommendation document*. 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.

Transforming XML Documents Using XQuery

XQueries are similar with the XSL stylesheets, both being capable of transforming an XML input into another format. You specify the input URL when you *define the transformation scenario*. 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, are *exported* together with the XSLT scenarios and can be managed in *the **Configure Transformation Scenario** dialog* ,or in *the **Scenarios** view*. The transformation can be performed on the XML document specified in the **XML URL** field, or, if this field is empty, the documents referred from the query expression. 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 one of the Saxon 9.5.0.1 HE, Saxon 9.5.0.1 PE, Saxon 9.5.0.1 EE processors, a database connection or any XQuery processor that provides an XQJ API implementation.

The Saxon 9.5.0.1 EE processor supports also XQuery 3.0 transformations.

Note: In case the XQuery 3.0 support is active, the XQuery Update support is no longer available.

XQJ Transformers

This section describes the necessary procedures before running an XQJ transformation.

How to Configure an XQJ Data Source

Any transformer that offers an XQJ API implementation can be used when validating XQuery or transforming XML documents. (An example of an XQuery engine that implements the XQJ API is *Zorba*.

1. In case your XQJ Implementation is native, make sure the directory containing the native libraries of the engine is added to your system environment variables: to PATH - on Windows, to LD_LIBRARY_PATH - on Linux, or to DYLD_LIBRARY_PATH - on Mac OS X. Restart Oxygen XML Author after configuring the environment variables.
2. Go to menu **Preferences** > **Data Sources**.
3. Click the **New** button in the **Data Sources** panel.
4. Enter a unique name for the data source.
5. Select **XQuery API for Java(XQJ)** in the **Type** combo box.
6. Press the **Add** button to add XQJ API-specific files.

   You can manage the driver files using the **Add**, **Remove**, **Detect**, and **Stop** buttons.

   Oxygen XML Author detects any implementation of `javax.xml.xquery.XQDataSource` and presents it in **Driver class** field.
7. Select the most suited driver in the **Driver class** combo box.
8. Click the **OK** button to finish the data source configuration.

How to Configure an XQJ Connection

The steps for configuring an XQJ connection are the following:

1. Go to menu **Preferences** > **Data Sources**.
2. Click the **New** button in the **Connections** panel.
3. Enter a unique name for this connection.
4. Select one of the previously configured *XQJ data sources* in the **Data Source** combo box.
5. Fill-in the connection details.

   The properties presented in the connection details table are automatically detected depending on the selected data source.
6. Click the **OK** button.

Display Result in Sequence View

The result of an XQuery executed on a database can be very large and sometimes only a part of the full result is needed. To avoid the long time necessary for fetching the full result, select the **Present as a sequence** option in the **Output** tab of the **Edit scenario** dialog. This option fetches only the first chunk of the result. Clicking the **More results available** label that is displayed at the bottom of the **Sequence** view fetches the next chunk of results.

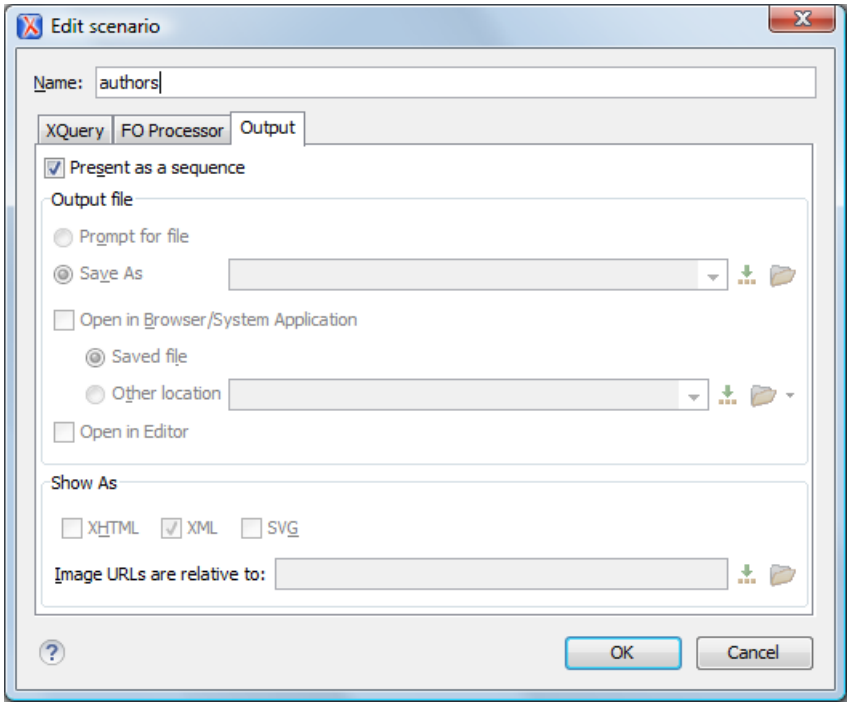


Figure 191: The XQuery transformation result displayed in Sequence view

A chunk of the XQuery transformation result is displayed in the **Sequence** view.

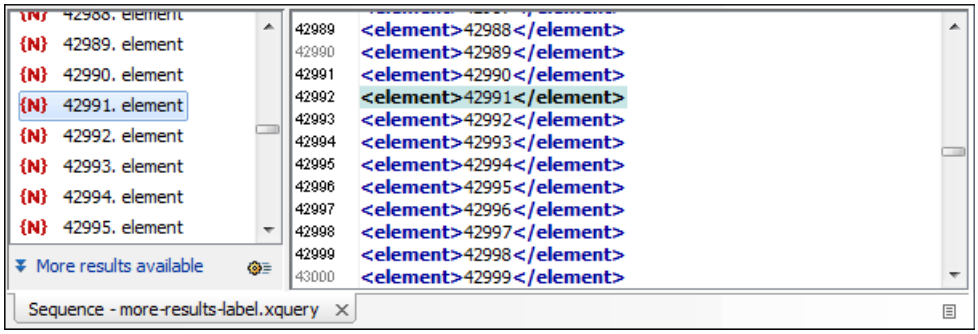


Figure 192: The XQuery transformation result displayed in Sequence view

Advanced Saxon HE/PE/EE Transform Options

The XQuery transformation scenario allows configuring advanced options specific for the Saxon HE (Home Edition) / PE (Professional Edition) / EE (Enterprise Edition) engine. The advanced options specific for Saxon HE / PE / EE are:

- **Use a configuration file** - when enabled, the specified Saxon configuration file are used for determining the Saxon advanced options;
- **Recoverable errors** - policy for handling recoverable errors in the stylesheet. Allows the user to choose how dynamic errors are handled. Either one of the following options can be selected:
  - recover silently;
  - recover with warnings;
  - signal the error and do not attempt recovery.
- **Strip whitespaces** - can have one of the following values:
  - **All** - strips all whitespace text nodes from source documents before any further processing, regardless of any `xml:space` attributes in the XML source document;

  - **Ignorable** - strips all ignorable whitespace text nodes from source documents before any further processing, regardless of any `xml:space` attributes in the XML 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.
- **Optimization level** - allows optimization to be suppressed in cases where reducing compile time is important, or where optimization gets in the way of debugging, or causes extension functions with side-effects to behave unpredictably;
- **Allow calls on extension functions** - when enabled, calling external Java functions is allowed;
- **Validation of the source file** - available only for Saxon EE. It can have three values:
  - **Schema validation** - this mode requires an XML Schema and enables parsing the source documents with schema-validation enabled;
  - **Lax schema validation** - if an XML Schema is provided, this mode enables parsing the source documents with schema-validation enabled;
  - **Disable schema validation** - this mode means parsing the source documents with schema validation disabled.
- **Validation errors in the results tree treated as warnings** - available only for Saxon EE. If checked, all validation errors are treated as warnings, otherwise they are treated as fatal;
- **Generate bytecode ("--generateByteCode:(on|off)")** - when you enable this option, Saxon-EE attempts to generate Java bytecode for evaluation of parts of a query or stylesheet that are amenable to such treatment. For further details regarding this option, go to*http://www.saxonica.com/documentation/javadoc/*.
- **Enable XQuery 3.0 support ("-qversion:(1.0|3.0)")** - if checked, Saxon EE runs the XQuery transformation with the XQuery 3.0 support;

  Note: In case the XQuery 3.0 support is active, the XQuery Update support is no longer available.
- **Backup files updated by XQuery ("-backup:(on|off)")** - if checked, backup versions for any XML files updated with XQuery Update are generated.

Updating XML Documents using XQuery

Using the bundled Saxon 9.5.0.1 EE XQuery processor Oxygen XML Author offers support for XQuery Update 1.0. The XQuery Update Facility provides expressions that can be used to make persistent changes to instances of the XQuery 1.0 and XPath 2.0 Data Model. Thus, besides querying XML documents, you can modify them using the various insert/delete/modify/create methods available in the *XQuery Update 1.0* standard.

Choose Saxon 9.5.0.1 EE as a transformer in the scenario associated with the XQuery files containing update statements and Oxygen XML Author will notify you if the update was successful.

Using XQuery Update to modify a tag name in an XML file

```
rename node doc("books.xml")//publisher[1]//book[1] as "firstBook"
```

Chapter 12

Working with Archives

Topics:

Oxygen XML Author offers the means to manipulate files directly from ZIP type archives. By manipulation one should understand opening and saving files directly in archives, browsing and modifying archive structures. The archive support is available for all ZIP-type archives, which includes:

- ZIP archives
- EPUB books
- JAR archives
- Office Open XML (OOXML) files
- Open Document Format (ODF) files
- IDML files

This means that you can modify, transform, validate files directly from OOXML or ODF packages. The structure and content of an EPUB book, OOXML file or ODF file *can be opened, edited and saved* as for any other ZIP archive.

You can transform, validate and perform many other operations on files directly from an archive. When selecting an URL for a specific operation like transformation or validation you can click the  **Browse for archived file** button to navigate and choose the file from a certain archive.

Browsing and Modifying Archive Structure

You can open an archive in the **Archives Browser** view doing one of the following:

- Open an archive from the ***Project*** *view*;
- Choose an archive in the Oxygen XML Author file chooser dialog;
- Drag an archive from the file explorer and drop it in the **Archives Browser** view.

When displaying an archive, the **Archive Browser** view locks the archive file. It is then automatically unlocked when the **Archive Browser** view is closed.

Important: If a file is not recognized by Oxygen XML Author as a supported archive type, you can add it from the *Archive preferences page*.

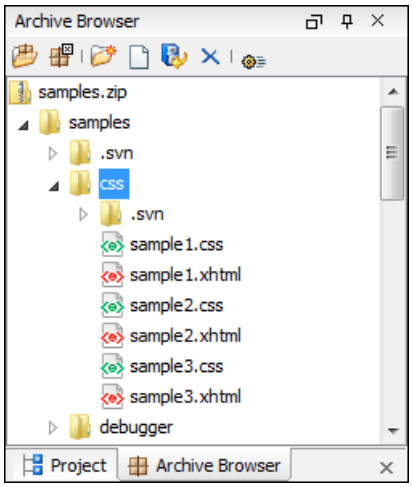


Figure 193: Browsing an Archive

The following operations are available on the **Archive Browser** toolbar:

- **Reopen** - You can use this drop-down to reopen recently edited archives. Apart from the history of the recently edited archives, the drop-down also contains the **Clear history** and **Open Archive** actions.
- **Open Archive** menu - Provides access to the **Open Archive...** action which opens a new archive in the browser. If the extension is not known as an archive extension, you will be directed to the *Archive preferences page* to add a new extension. The sub-menu keeps a list of recently open archive files and a **Clear history** action which allows you to delete the list.
- **Close** - Closes the browsed archive and unlocks the archive file.
- **New folder...** - Creates a folder as child of the selected folder in the browsed archive.
- **New file...** - Creates a file as child of the selected folder in the browsed archive.
- **Add files...** - Adds existing files as children of the selected folder in the browsed archive.

  Note:

  You can also add files in the archive by dragging them from the file browser or **Project view** and dropping them in the **Archive Browser** view.

- **Delete** - Deletes the selected resource in the browsed archive.
- **Archive Options...** - Opens the *Archive preferences page*.

The following additional operations are available from the **Archive Browser** contextual menu:

- **Open** - Opens a resource from the archive in the editor.
- **Extract...** - Extracts a resource from the archive in a specified folder.
- **New folder...** - Creates a folder as child of the selected folder in the browsed archive.
- **New file...** - Creates a file as child of the selected folder in the browsed archive.
- **Add files...** - Adds existing files as children of the selected folder in the browsed archive.

  Note: On Mac OS X, there is also available the **Add file...** action, which allows you to add one file at a time.

- **Rename** - Renames a resource in the archive.
- **Find/Replace in Files** - Allows you to search for and replace specific pieces of text inside the archive.
- **Cut** - Cut the selected archive resource
- **Copy** - Copy the selected archive resource
- **Paste** - Paste a file or folder into the archive

  Note: You can add files in the archive by copying the files from the **Project view** and paste them into the **Archive view**.

- **Delete** - Remove a file or folder from archive
- **Preview** - Previews an image contained in the archive See the *Image Preview* section for more details.
- **Copy location** - Copies the URL location of the selected resource.
- **Refresh** - Refreshes the selected resource.
- **Properties** - Views properties for the selected resource.

Working with EPUB

EPUB is a free and open electronic book standard by the International Digital Publishing Forum (IDPF). It was designed for *reflowable content*, meaning that the text display can be optimized for the particular display device used by the reader of the EPUB-formatted book. Oxygen XML Author supports both EPUB 2.0 and EPUB 3.0.

EPUB files are opened in the **Archive Browser** view, exposing all their internal components:

- document content (XHTML and image files);
- packaging files;
- container files.

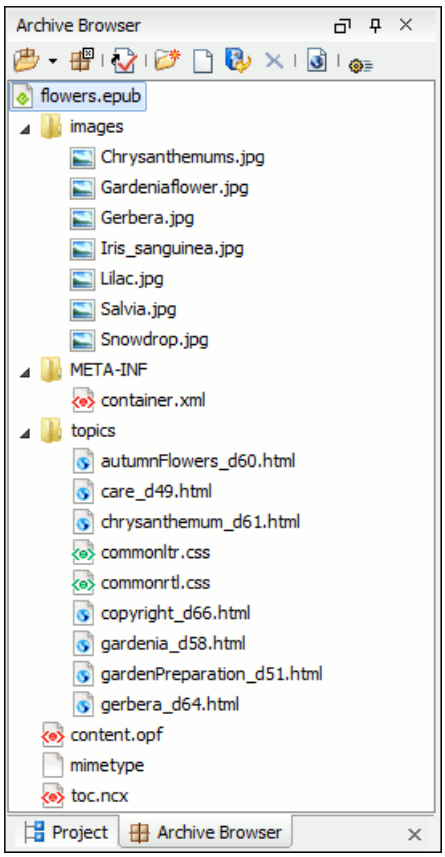


Figure 194: EPUB file displayed in the Archive Browser view

Here you can edit, delete and add files that compose the EPUB structure. To check that the EPUB file you are editing is valid, invoke the **Validate and Check for Completeness** action. Oxygen XML Author uses the open-source *EpubCheck* validator to perform the validation. This validator detects many types of errors, including OCF container structure, OPF and OPS mark-up, as well as internal reference consistency. All errors found during validation are displayed in a separate tab in the **Errors** view.

Note: Invoke the **Open in System Application** action to see how the EPUB is rendered in your system default EPUB reader application.

Note: All changes made to the structure of an EPUB, or to the contents of the files inside an EPUB are immediately saved.

To watch our video demonstration about the EPUB support in Oxygen XML Author, go to *http://oxygenxml.com/demo/Epub.html*.

Create an EPUB

To begin writing an EPUB file from scratch, do the following:

1. Go to **File** > **New** , press **Ctrl (Meta on Mac OS) + N** on your keyboard. or click **New** on the main toolbar.
2. Choose **EPUB Book** template. Click **Create**. Choose the name and location of the file. Click **Save**. A skeleton EPUB file is saved on disk and open in the **Archive Browser** view.
3. Use the **Archive Browser** view specific actions to edit, add and remove resources from the archive.
4. Use the **Validate and Check for Completeness** action to verify the integrity of the EPUB archive.

Publish to EPUB

Oxygen XML Author comes with built-in support for publishing Docbook and DITA XML documents directly to EPUB.

1. Open the **Configure Transformation Scenario(s)** dialog box and select a predefined transformation scenario. To publish from DITA, select the **DITA Map EPUB** transformation scenario. To publish from DocBook select the **DocBook EPUB** transformation scenario.
2. Click **Apply associated** to run the transformation scenario.

Editing Files From Archives

You can open and edit files directly from an archive using the **Archive Browser** view. When saving the file back to archive, you are prompted to choose if you want the application to make a backup copy of the archive before saving the new content. If you choose **Never ask me again**, you will not be asked again to make backup copies. You can re-enable the dialog pop-up from the *Messages preferences page*.

Note: All changes made to the structure of an archive, or to the contents of the files inside an archive are immediately saved.

Chapter 13

Working with Databases

Topics:

XML is a storage and interchange format for structured data and it is supported by all major database systems. Oxygen XML Author offers the means of managing the interaction with some of the widely used databases, both relational ones and Native XML Databases. By interaction, one should understand browsing, querying, SQL execution support, content editing, importing from databases, generating XML Schema from database structure.

Relational Database Support

Relational databases use a relational model and are based on tables linked by a common key. Oxygen XML Author offers support for the following relational databases: IBM DB2, JDBC-ODBC Bridge, MySQL, Microsoft SQL Server, Oracle 11g:

- browsing the tables of these types of database in the **Data Source Explorer** view
- executing SQL queries against them
- calling stored procedures with input and output parameters

To watch our video demonstration about the integration between the relational databases and Oxygen XML Author, go to *http://www.oxygenxml.com/demo/Author_Database_Integration.html*.

Configuring Database Data Sources

This section describes the procedures for configuring the data sources for relational databases.

How to Configure an IBM DB2 Data Source

Available in the Enterprise edition only.

The steps for configuring a data source for connecting to an IBM DB2 server are the following:

1. Go to **Preferences** > **Data Sources**.
2. Click the **New** button in the **Data Sources** panel.

   The dialog for configuring a data source will be opened.

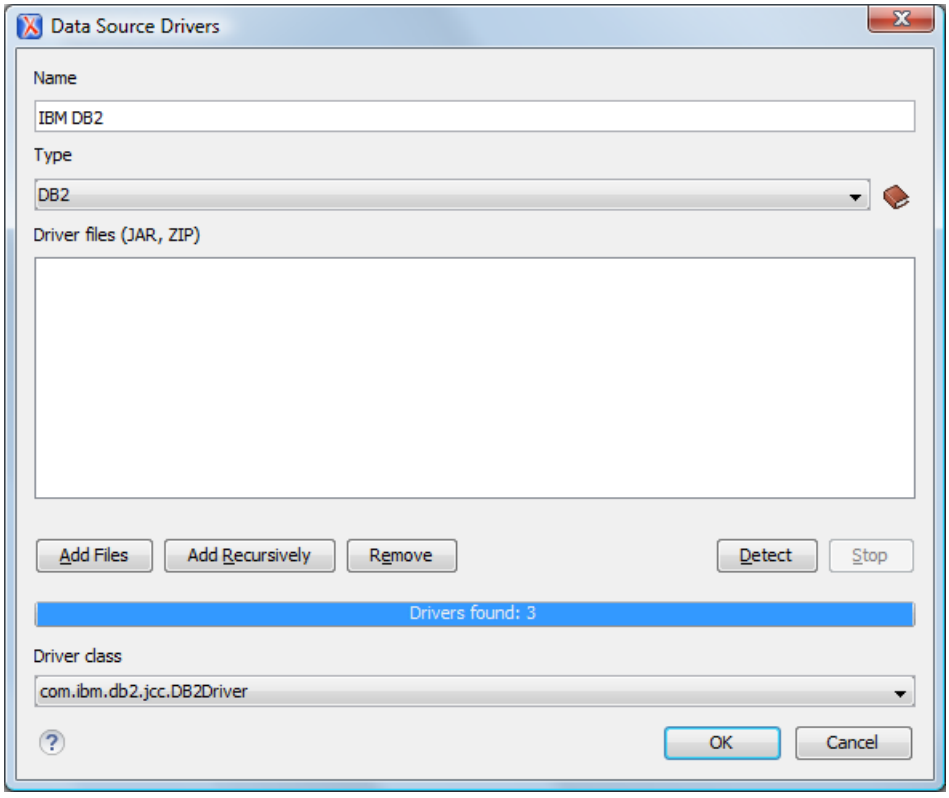


Figure 195: Data Source Drivers Configuration Dialog

3. Enter a unique name for the data source.
4. Select **DB2** in the driver type combo box.
5. Add the driver files for IBM DB2 using the **Add** button.

   The IBM DB2 driver files are:

   - db2jcc.jar;
   - db2jcc_license_cisuz.jar;
   - db2jcc_license_cu.jar.

   In the *Download links for database drivers* section there are listed the URLs from where to download the drivers necessary for accessing IBM DB2 databases in Oxygen XML Author.

6. Select the most suited **Driver class**.
7. Click the **OK** button to finish the data source configuration.

To watch our video demonstration about running XQuery against an IBM DB2 Pure XML database, go to *http://www.oxygenxml.com/demo/DB2.html*.

How to Configure a Microsoft SQL Server Data Source

Available in the Enterprise edition only.

The steps for configuring a data source for connecting to a Microsoft SQL server are the following:

1. Go to **Preferences** > **Data Sources**.
2. Click the **New** button in the **Data Sources** panel.

   The dialog for configuring a data source will be opened.

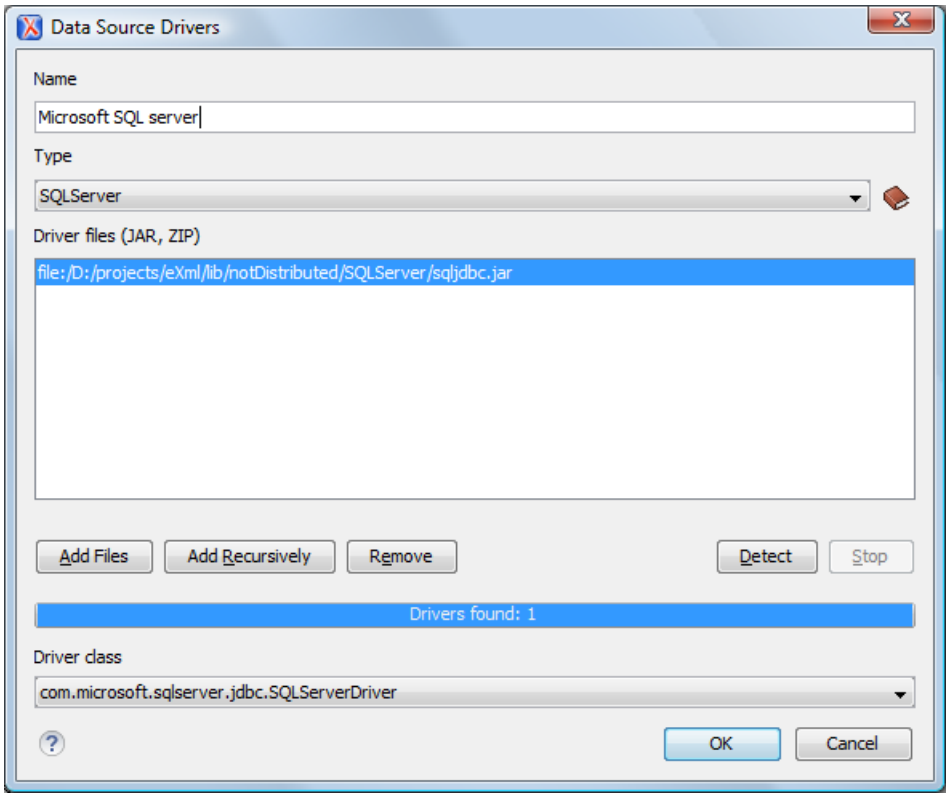


Figure 196: Data Source Drivers Configuration Dialog

3. Enter a unique name for the data source.

4. Select **SQLServer** in the driver type combo box.
5. Add the Microsoft SQL Server driver file using the **Add** button.

   The SQL Server driver file is called `sqljdbc.jar`. In the *Download links for database drivers* section there are listed the URLs from where to download the drivers necessary for accessing Microsoft SQL Server databases in Oxygen XML Author.
6. Select the most suited **Driver class**.
7. Click the **OK** button to finish the data source configuration.

How to Configure a Generic JDBC Data Source

By default, Oxygen XML Author contains a generic JDBC data source called **JDBC-ODBC Bridge**. Oxygen XML Author can display and edit XML data stored in PostgreSQL and Microsoft SQL Server databases accessible through a JDBC 4 driver. To do this, configure a **Generic JDBC** data source that uses a JDBC 4 driver. The following procedure shows you how to configure a generic JDBC data source:

1. Go to **Preferences** > **Data Sources**.
2. Click the **New** button in the **Data Sources** panel.

   The following dialog is displayed:

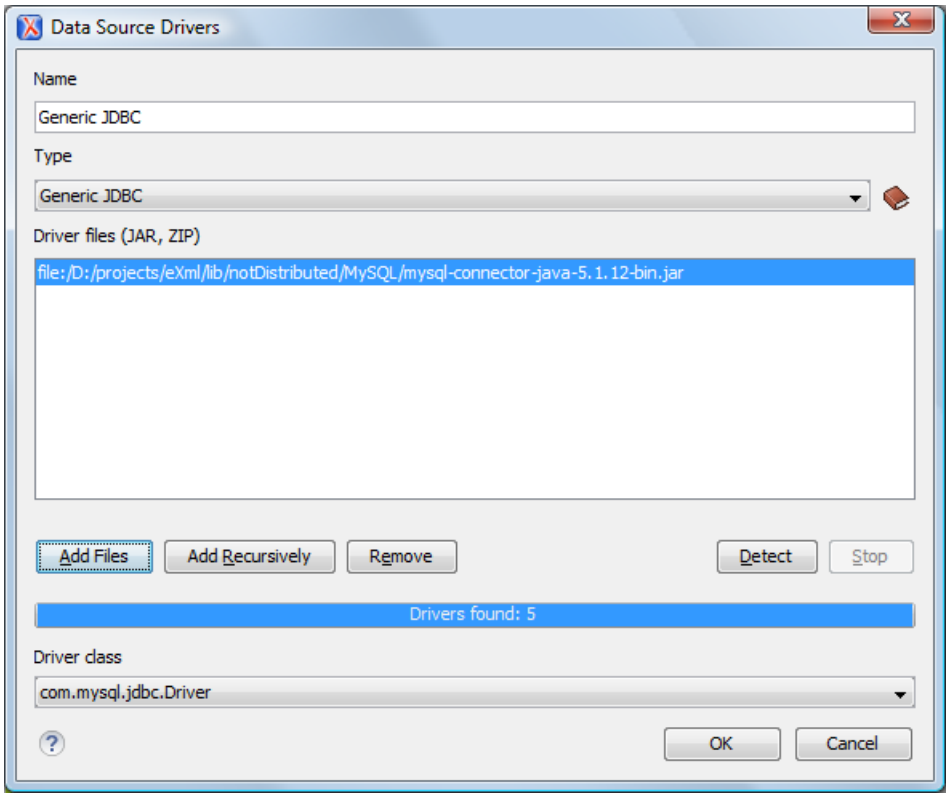


Figure 197: Data Source Drivers Configuration Dialog

3. Enter a unique name for the data source.
4. Select **Generic JDBC** in the driver type combo box.
5. Add the driver file(s) using the **Add** button.
6. Select the most suited **Driver class**.
7. Click the **OK** button to finish the data source configuration.

How to Configure a MySQL Data Source

Older versions of Oxygen XML Author (up to version 11.2) include a built-in type of data sources called **MySQL** based on the JDBC driver for the MySQL 4 server. That type of data source is still available but is marked *outdated* because it does not support more recent versions of the MySQL server (starting from version 5.0) and it will be removed in a future version of Oxygen XML Author. To connect to a MySQL server, create a data source of type Generic JDBC based on *the MySQL JDBC driver available on the MySQL website*. The following steps describe how you can configure such a data source:

1. Go to **Preferences** > **Data Sources**.
2. Click the **New** button in the **Data Sources** panel.

   The dialog for configuring a data source will be opened.

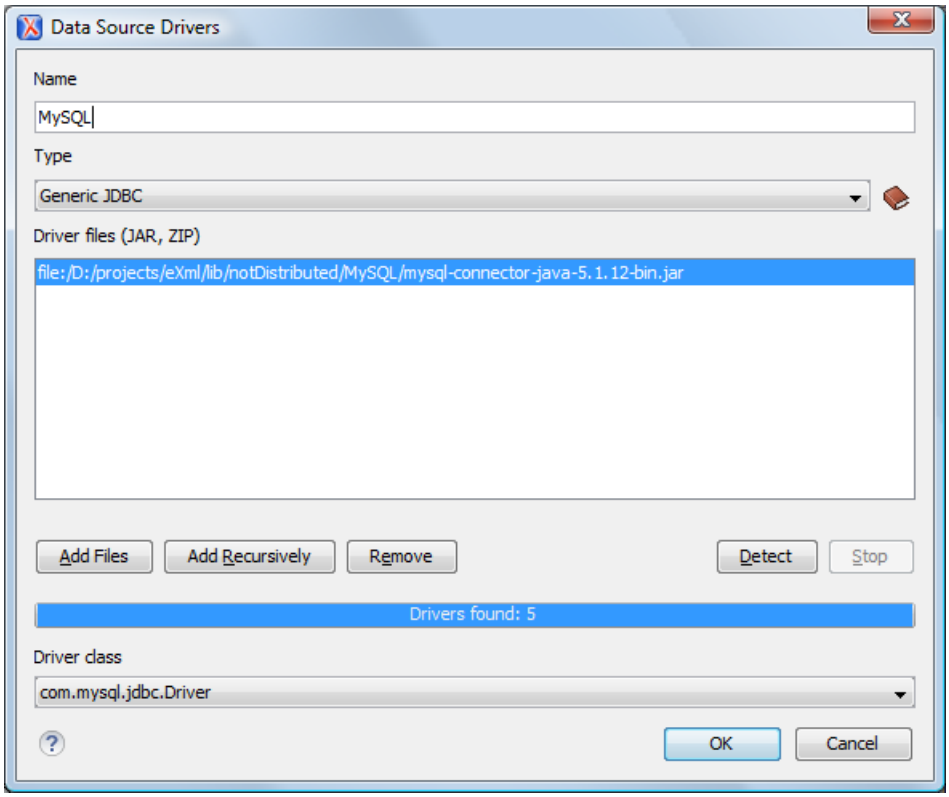


Figure 198: Data Source Drivers Configuration Dialog

3. Enter a unique name for the data source.
4. Select **Generic JDBC** in the driver type combo box.
5. Add the MySQL 5 driver files using the **Add** button.

   The driver file for the MySQL server is called `mysql-com.jar`. In the *Download links for database drivers* section there are listed the URLs from where to download the drivers necessary for accessing MySQL databases in Oxygen XML Author.
6. Select the most suited **Driver class**.
7. Click the **OK** button to finish the data source configuration.

How to Configure an Oracle 11g Data Source

Available in the Enterprise edition only.

The steps for configuring a data source for connecting to an Oracle 11g server are the following:

1. Go to **Preferences** > **Data Sources**.

2. Click the **New** button in the **Data Sources** panel.

   The dialog for configuring a data source will be opened.

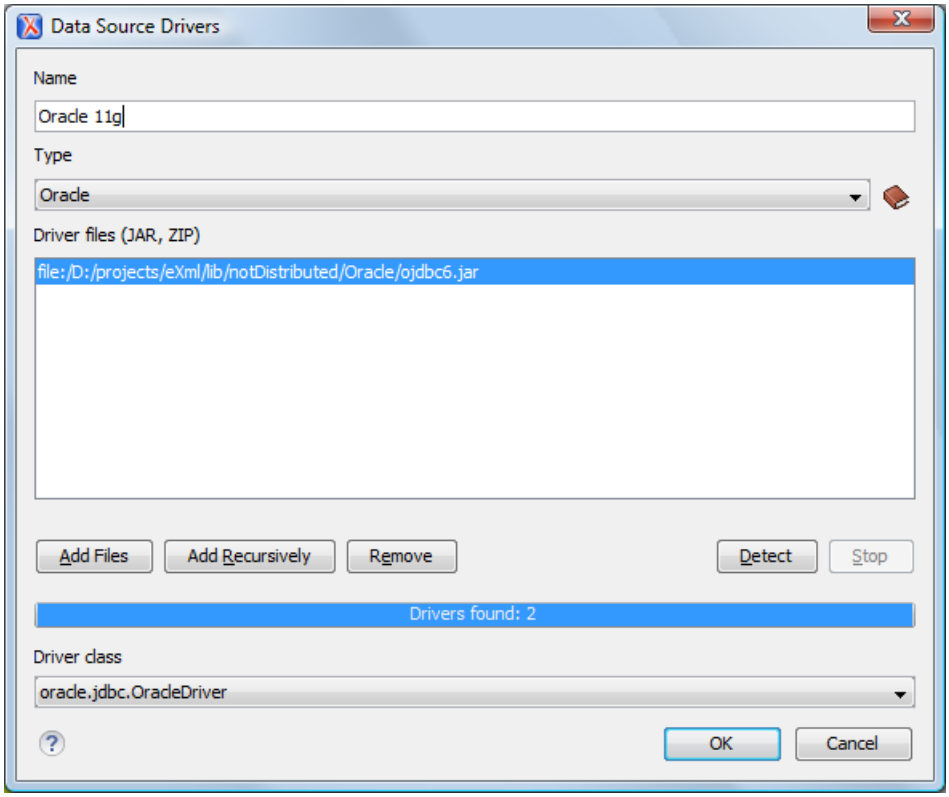


Figure 199: Data Source Drivers Configuration Dialog

3. Enter a unique name for the data source.
4. Select **Oracle** in the driver type combo box.
5. Add the Oracle driver file using the **Add** button.

   The Oracle driver file is called `ojdbc5.jar`. In the *Download links for database drivers* section there are listed the URLs from where to download the drivers necessary for accessing Oracle databases in Oxygen XML Author.
6. Select the most suited **Driver class**.
7. Click the **OK** button to finish the data source configuration.

How to Configure a PostgreSQL 8.3 Data Source

The steps for configuring a data source for connecting to a PostgreSQL server are the following:

1. Go to **Preferences** > **Data Sources**.
2. Click the **New** button in the **Data Sources** panel.

   The dialog for configuring a data source will be opened.
3. Enter a unique name for the data source.
4. Select **PostgreSQL** in the driver type combo box.
5. Add the PostgreSQL driver file using the **Add** button.

   The PostgreSQL driver file is called `postgresql-8.3-603.jdbc3.jar`. In the *Download links for database drivers* section there are listed the URLs from where to download the drivers necessary for accessing PostgreSQL databases in Oxygen XML Author.
6. Select the most suited **Driver class**.

7. Click the **OK** button to finish the data source configuration.

Configuring Database Connections

This section describes the procedures for configuring the connections for relational databases:

How to Configure an IBM DB2 Connection

The support to create an IBM DB2 connection is available in the Enterprise edition only.

To configure a connection to an IBM DB2 server, follow these steps:

1. Go to **Preferences** > **Data Sources**.
2. In the **Connections** panel, click the **New** button.

   The dialog for configuring a database connection will be displayed.

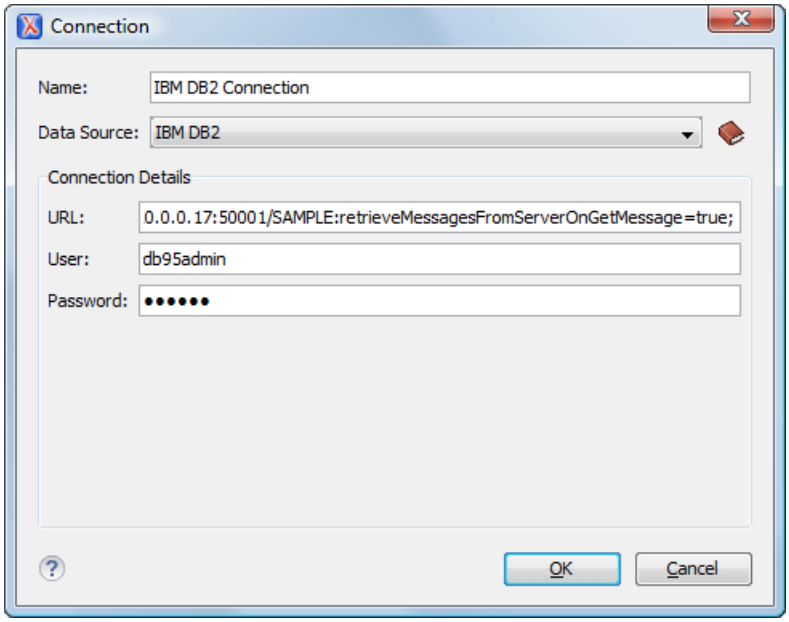


Figure 200: The Connection Configuration Dialog

3. Enter a unique name for the connection.
4. Select an IBM DB2 data sources in the **Data Source** combo box.
5. Fill-in the connection details.
   a) Fill-in the URL to the installed IBM DB2 engine.
   b) Fill-in the user name to access the IBM DB2 engine.
   c) Fill-in the password to access the IBM DB2 engine.
6. Click the **OK** button to finish the configuration of the database connection.

To watch our video demonstration about running XQuery against an IBM DB2 Pure XML database, go to *http://www.oxygenxml.com/demo/DB2.html*.

How to Configure a JDBC-ODBC Connection

To configure a connection to an ODBC data source, follow these steps:

1. Go to **Preferences** > **Data Sources**.
2. In the **Connections** panel, click the **New** button.

The dialog for configuring a database connection will be displayed.

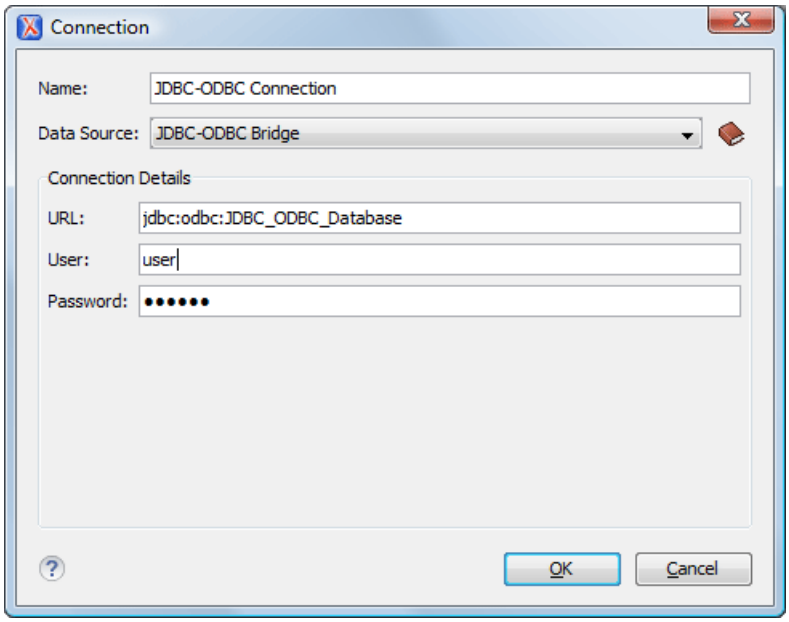


Figure 201: The Connection Configuration Dialog

3. Enter a unique name for the connection.
4. Select JDBC-ODBC bridge in the **Data Source** combo box.
5. Fill-in the connection details.
   a) Fill-in the URL of the ODBC source.
   b) Fill-in the user name of the ODBC source.
   c) Fill-in the password of the ODBC source.
6. Click the **OK** button to finish the configuration of the database connection.

How to Configure a Microsoft SQL Server Connection

The support to configure a Microsoft SQL Server Connection is available in the Enterprise edition only.

To configure a connection to a Microsoft SQL Server, follow these steps:

1. Go to **Preferences** > **Data Sources**.
2. In the **Connections** panel, click the **New** button.

   The dialog for configuring a database connection will be displayed.

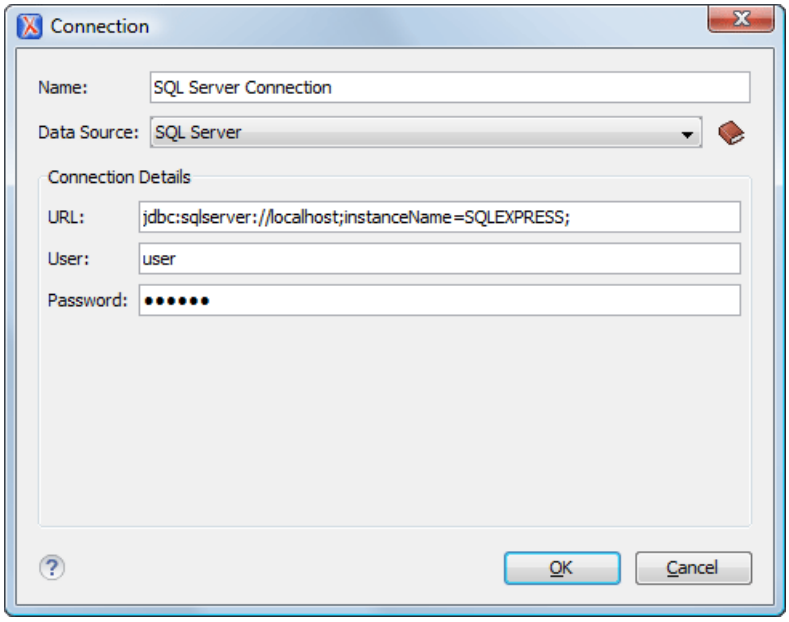


Figure 202: The Connection Configuration Dialog

3. Enter a unique name for the connection.
4. Select a SQL Server data source in the **Data Source** combo box.
5. Fill-in the connection details.
   a) Fill-in the URL of the SQL Server server.

      If you want to connect to the server using Windows integrated authentication you must add `;integratedSecurity=true` to the and of the URL, so the URL will look like:

      ```
      jdbc:sqlserver://localhost;instanceName=SQLEXPRESS;integratedSecurity=true;
      ```

      Note: For integrated authentication, leave the **User** and **Password** fields empty.

   b) Fill-in the user name for the connection to the SQL Server.
   c) Fill-in the password for the connection to the SQL Server.
6. Click the **OK** button to finish the configuration of the database connection.

How to Configure a MySQL Connection

To configure a connection to a MySQL server, follow these steps:

1. Go to **Preferences** > **Data Sources**.
2. In the **Connections** panel, click the **New** button.

   The dialog for configuring a database connection will be displayed.

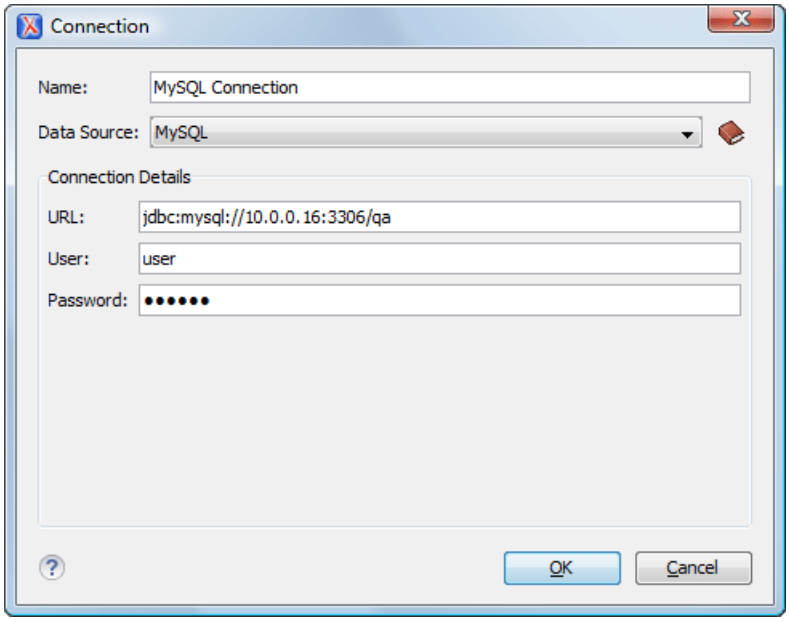


Figure 203: The Connection Configuration Dialog

3. Enter a unique name for the connection.
4. Select a MySQL data source in the **Data Source** combo box.
5. Fill-in the connection details.
   a) Fill-in the URL of the MySQL server.
   b) Fill-in the user name for the connection to the MySQL server.
   c) Fill-in the password for the connection to the MySQL server.
6. Click the **OK** button to finish the configuration of the database connection.

How to Configure a Generic JDBC Connection

To configure a connection to a generic JDBC database, follow these steps:

1. Go to **Preferences** > **Data Sources**.
2. In the **Connections** panel, click the **New** button.

   The dialog for configuring a database connection will be displayed.
3. Enter a unique name for the connection.
4. Select a generic JDBC data source in the **Data Source** combo box.
5. Fill-in the connection details.
   a) Fill-in the URL of the generic JDBC database, with the following format: `jdbc: <subprotocol>: <subname>`.
   b) Fill-in the user name for the connection to the generic JDBC database.
   c) Fill-in the password for the connection to the generic JDBC database.
6. Click the **OK** button to finish the configuration of the database connection.

How to Configure an Oracle 11g Connection

Available in the Enterprise edition only.

The steps for configuring a connection to an Oracle 11g server are the following:

1. Go to **Preferences** > **Data Sources**.

2. In the **Connections** panel, click the **New** button.

   The dialog for configuring a database connection will be displayed.

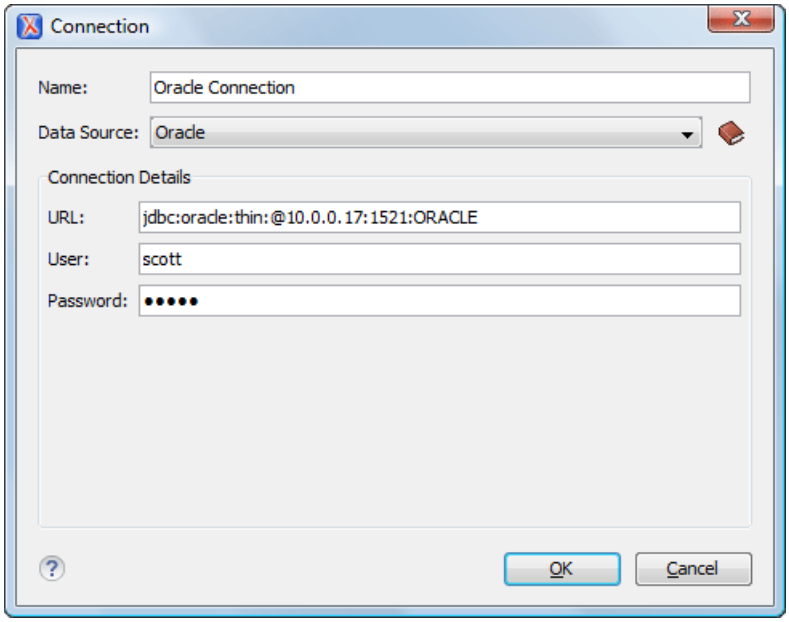


Figure 204: The Connection Configuration Dialog

3. Enter a unique name for the connection.
4. Select an Oracle 11g data source in the **Data Source** combo box.
5. Fill-in the connection details.
   a) Fill-in the URL of the Oracle server.
   b) Fill-in the user name for the connection to the Oracle server.
   c) Fill-in the password for the connection to the Oracle server.
6. Click the **OK** button to finish the configuration of the database connection.

How to Configure a PostgreSQL 8.3 Connection

The steps for configuring a connection to a PostgreSQL 8.3 server are the following:

1. Go to **Preferences** > **Data Sources**.
2. In the **Connections** panel, click the **New** button.

   The dialog for configuring a database connection will be displayed.

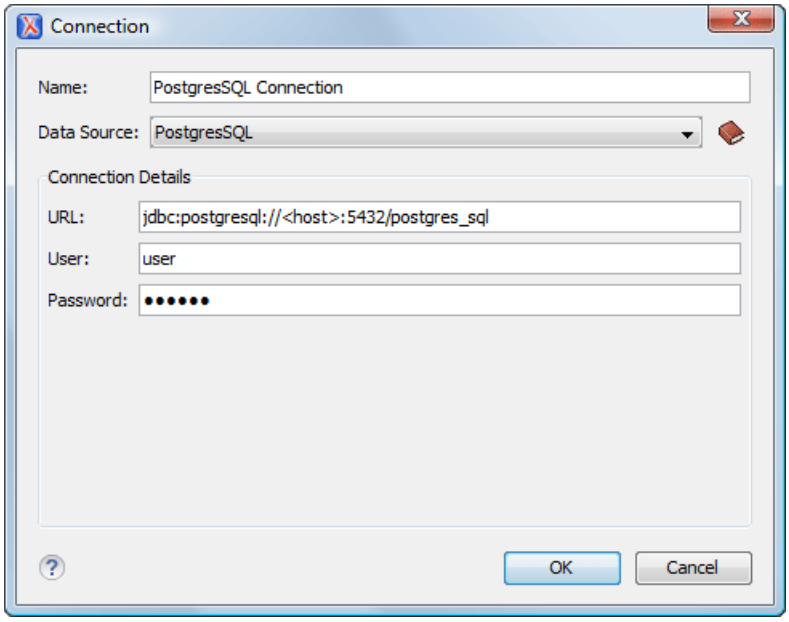


Figure 205: The Connection Configuration Dialog

3. Enter a unique name for the connection.
4. Select a PostgreSQL 8.3 data source in the **Data Source** combo box.
5. Fill-in the connection details.
   a) Fill-in the URL of the PostgreSQL 8.3 server.
   b) Fill-in the user name for the connection to the PostgreSQL 8.3 server.
   c) Fill-in the password for the connection to the PostgreSQL 8.3 server.
6. Click the **OK** button to finish the configuration of the database connection.

Resource Management

This section explains the resource management actions for relational databases.

Data Source Explorer View

This view presents in a tree-like fashion the database connections configured in the **Options** > **Preferences** > **Data Sources** preferences page. You can connect to a database simply by expanding the connection node. The database structure can be expanded up to column level. Oxygen XML Author supports multiple simultaneous database connections and the connections tree provides an easy way to browse them.

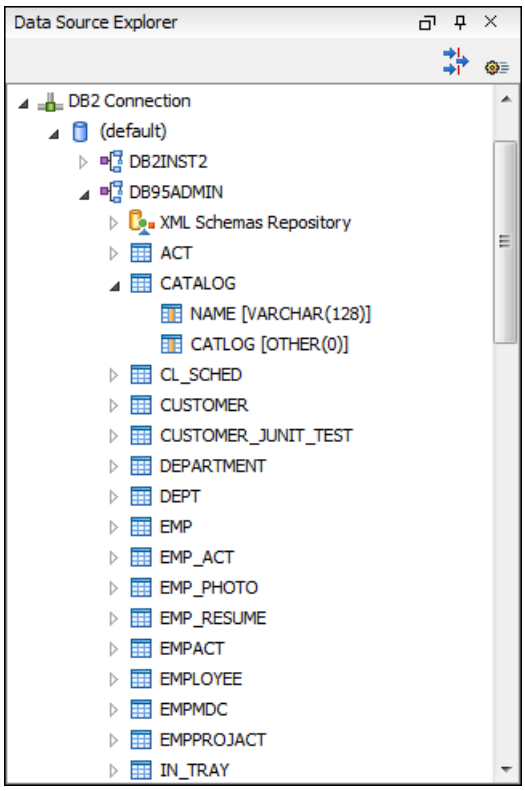


Figure 206: Data Source Explorer View

The following objects are displayed in the **Data Source Explorer** view:

- **Connection** ;
- **Catalog (Collection)**;
- **XML Schema Repository** ;
- **XML Schema Component** ;
- **Schema** ;
- **Table** ;
- **System Table** ;
- **Table Column** .

A **collection** (called *catalog* in some databases) is a hierarchical container for **resources** and further sub-collections. There are two types of resources:

- **XML resource** - an XML document or a document fragment, selected by a previously executed XPath query.
- **non XML resource**

Note: For some connections you can add or move resources into a container by dragging them from:

- **Project view**;
- the default file system application (Windows Explorer on Windows or Finder on Mac OS X, for example);
- or from another database container.

The following actions are available in the view's toolbar:

- The **Filters** button opens the **Data Sources / Table Filters** *Preferences page*, allowing you to decide which table types will be displayed in the **Data Source Explorer** view.

- The **Configure Database Sources** button opens the **Data Sources** *preferences page* where you can configure both data sources and connections.

Actions Available at Connection Level in Data Source Explorer View

The contextual menu of a **Connection** node of the tree from the **Data Source Explorer** view contains the following actions:

- **Refresh** - performs a refresh of the selected node's subtree.
- **Disconnect** - closes the current database connection. If a table is already open, you are warned to close it before proceeding.
- **Configure Database Sources** - opens the **Data Sources** *preferences page* where you can configure both data sources and connections.

Actions Available at Catalog Level in Data Source Explorer View

The contextual menu of a **Catalog** node of the tree from the **Data Source Explorer** view contains the following actions:

- **Refresh** - Performs a refresh of the selected node's subtree.

Actions Available at Schema Level in Data Source Explorer View

The contextual menu of a **Schema** node of the tree from the **Data Source Explorer** view contains the following actions:

- **Refresh** - Performs a refresh of the selected node's subtree.

Actions Available at Table Level in Data Source Explorer View

The contextual menu of a **Table** node of the tree from the **Data Source Explorer** view contains the following actions:

- **Refresh** - Performs a refresh of the selected node's subtree.
- **Edit** - Opens the selected table in the **Table Explorer** view.
- **Export to XML** - Opens the **Export Criteria** dialog .

XML Schema Repository Level

This section explains the actions available at XML Schema Repository level.

Oracle's XML Schema Repository Level

The Oracle database supports XML schema repository (XSR) in the database catalogs. The contextual menu of a **XML Schema Repository** node of the tree from the **Data Source Explorer** view contains the following actions:

- **Refresh** - Performs a refresh of the selected node's subtree.
- **Register** - Opens a dialog for adding a new schema file in the XML repository. To add an XML Schema, enter the schema URI and location on your file system. Local scope means that the schema will be visible only to the user who registers it. Global scope means that the schema is public.

  Note: Registering a schema may involve dropping/creating types. Hence you need type-related privileges such as DROP TYPE, CREATE TYPE, and ALTER TYPE. You need privileges to delete and register the XML schemas involved in the registering process. You need all privileges on XMLType tables that conform to the registered schemas. For XMLType columns, the ALTER TABLE privilege is needed on corresponding tables. If there are schema-based XMLType tables or columns in other database schemas, you need privileges such as the following:

  - CREATE ANY TABLE
  - CREATE ANY INDEX

- SELECT ANY TABLE
- UPDATE ANY TABLE
- INSERT ANY TABLE
- DELETE ANY TABLE
- DROP ANY TABLE
- ALTER ANY TABLE
- DROP ANY INDEX

To avoid having to grant all these privileges to the schema owner, Oracle recommends that the registration be performed by a DBA if there are XML schema-based XMLType table or columns in other users' database schemas.

IBM DB2's XML Schema Repository Level

The contextual menu of a **XML Schema Repository** node of the tree from the **Data Source Explorer** view contains the following actions:

- **Refresh** - Performs a refresh of the selected node's subtree.
- **Register** - Opens a dialog for adding a new schema file in the XML Schema repository. In this dialog the following fields can be set:
  - **XML schema file** - Location on your file system.
  - **XSR name** - Schema name.
  - **Comment** - Short comment (optional).
  - **Schema location** - Primary schema name (optional).

  Decomposition means that parts of the XML documents are stored into relational tables. Which parts map to which tables and columns is specified into the schema annotations.

  Schema dependencies management is done by using the **Add** and **Remove** buttons.

The actions available at **Schema** level are the following:

- **Refresh** - Performs a refresh of the selected node (and it's subtree).
- **Unregister** - Removes the selected schema from the XML Schema Repository.
- **View** - Opens the selected schema in Oxygen XML Author.

Microsoft SQL Server's XML Schema Repository Level

The contextual menu of a **XML Schema Repository** node of the tree from the **Data Source Explorer** view contains the following actions:

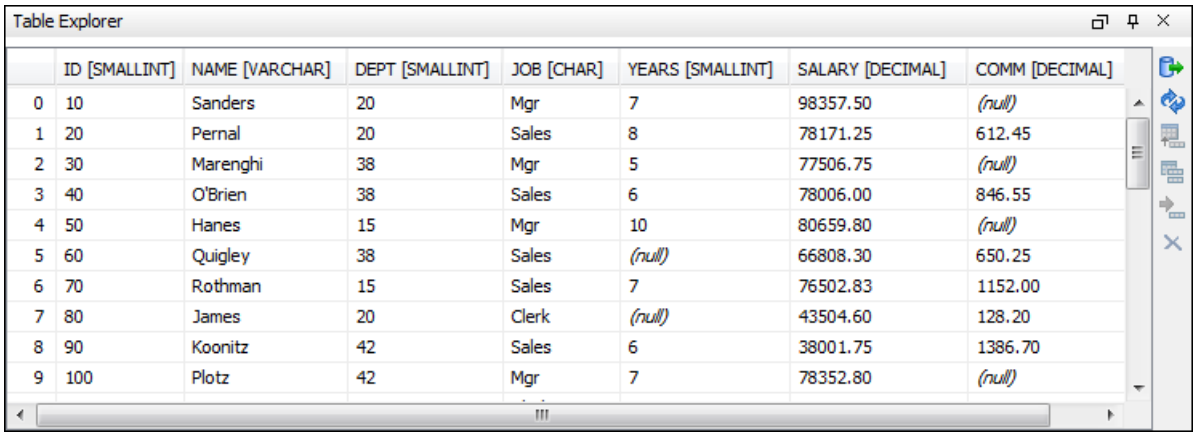
- **Refresh** - Performs a refresh of the selected node's subtree.
- **Register** - Opens a dialog for adding a new schema file in the DB XML repository. In this dialog you enter a collection name and the necessary schema files. XML Schema files management is done by using the **Add** and **Remove** buttons.

The actions available at **Schema** level are the following:

- **Refresh** - Performs a refresh of the selected node (and it's subtree).
- **Add** - Adds a new schema to the XML Schema files.
- **Unregister** - Removes the selected schema from the XML Schema Repository.
- **View** - Opens the selected schema in Oxygen XML Author.

Table Explorer View

Every table from the **Data Source Explorer** view can be displayed and edited in the **Table Explorer** view by pressing the **Edit** button from the contextual menu or by double-clicking one of its fields. To modify a cell's content, double click it and start typing. When editing is finished, Oxygen XML Author will try to update the database with the new cell content.



	ID [SMALLINT]	NAME [VARCHAR]	DEPT [SMALLINT]	JOB [CHAR]	YEARS [SMALLINT]	SALARY [DECIMAL]	COMM [DECIMAL]
0	10	Sanders	20	Mgr	7	98357.50	*(null)*
1	20	Pernal	20	Sales	8	78171.25	612.45
2	30	Marenghi	38	Mgr	5	77506.75	*(null)*
3	40	O'Brien	38	Sales	6	78006.00	846.55
4	50	Hanes	15	Mgr	10	80659.80	*(null)*
5	60	Quigley	38	Sales	*(null)*	66808.30	650.25
6	70	Rothman	15	Sales	7	76502.83	1152.00
7	80	James	20	Clerk	*(null)*	43504.60	128.20
8	90	Koonitz	42	Sales	6	38001.75	1386.70
9	100	Plotz	42	Mgr	7	78352.80	*(null)*

Figure 207: The Table Explorer View

You can sort the content of a table by one of its columns by clicking on its column header.

Note the following:

- The first column is an index (does not belong to the table structure).
- Every column header contains the field name and its data type.
- The primary key columns are marked with this symbol: .
- Multiple tables are presented in a tabbed manner

For performance issues, you can set the maximum number of cells that will be displayed in the **Table Explorer** view (the **Limit the number of cells** field from the *Data Sources* Preferences page). If a table having more cells than the value set in Oxygen XML Author's options is displayed in the **Table Explorer** view, a warning dialog will inform you that the table is only partially shown.

You will be notified if the value you have entered in a cell is not valid (and thus it cannot be updated).

- If the content of the edited cell does not belong to the data type of the column, the cell will be marked by a red square and it will remain in editing state until a correct value is inserted. For example, in the following figure `propID` contains `LONG` values. If a character or string was inserted, the cell will look like this:

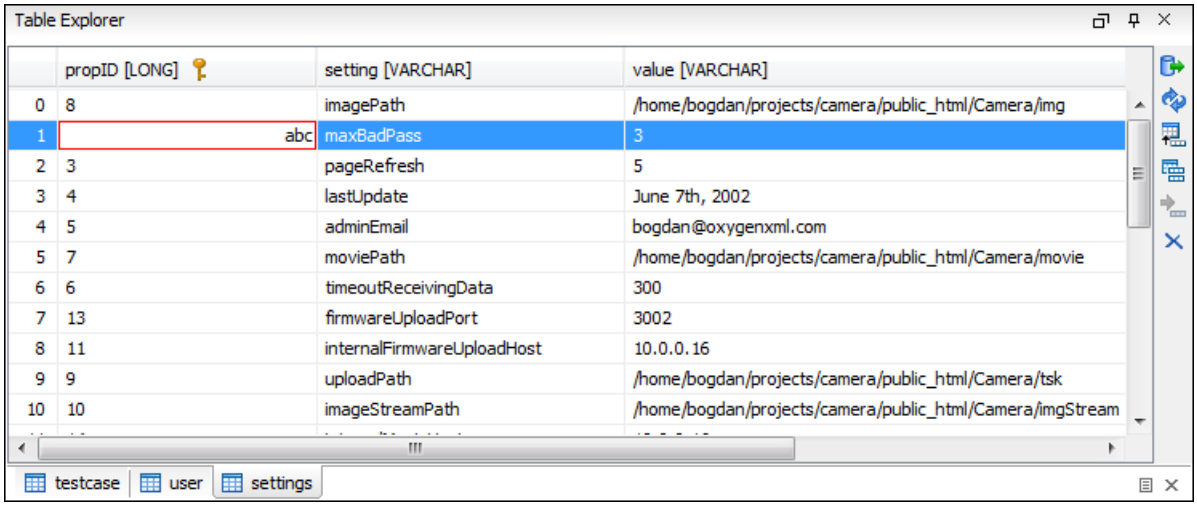


Figure 208: Cell containing an invalid value.

- If the constraints of the database are not met (like primary key constraints for example), an Information dialog will appear, notifying you of the reason the database has not been updated. For example, if you'd try to set the primary key `propID` for the second record in the table to 10 also, you would get the following message:

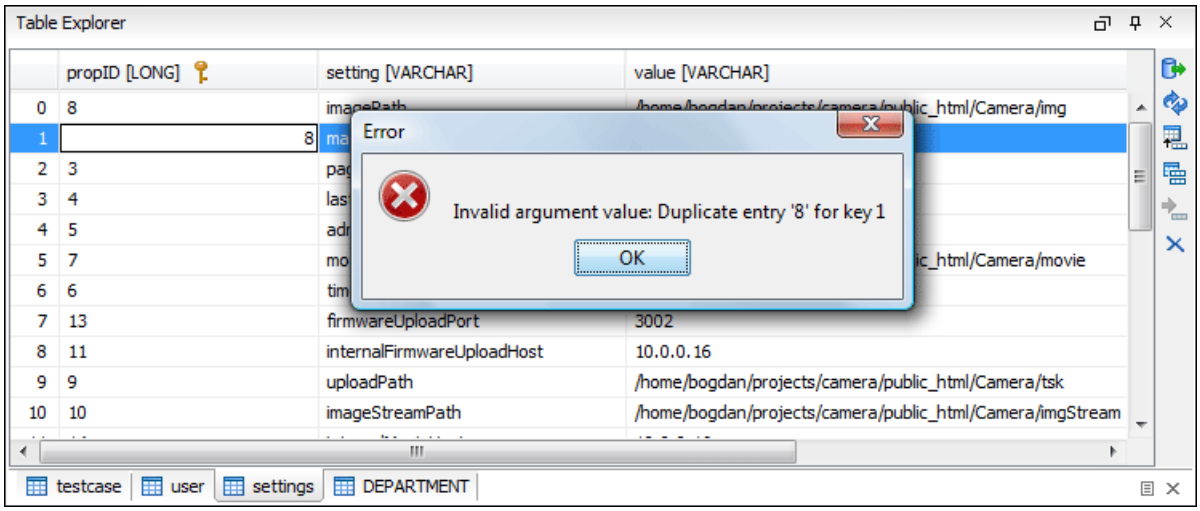


Figure 209: Duplicate entry for primary key

The usual edit actions (**Cut**, **Copy**, **Paste**, **Select All**, **Undo**, **Redo**) are available in the popup menu of the edited cell.

The contextual menu available on every cell has the following actions:

- Set NULL - Sets the content of the cell to (null). This action is disabled for columns that cannot be null.
- **Insert row** - Inserts an empty row in the table.
- **Duplicate row** - Makes a copy of the selected row and adds it in the **Table Explorer** view. You should note that the new row will not be inserted in the database table until all conflicts are solved.
- **Commit row** - Commits the selected row.
- **Delete row** - Deletes the selected row.
- **Copy** - Copies the content of the cell.
- **Paste** - Performs paste in the selected cell.

Some of the above actions are also available on the **Table Explorer** toolbar:

- **Export to XML** - Opens the **Export Criteria** dialog .

- **Refresh** - Performs a refresh of the selected node's subtree.
- **Insert row** - Inserts an empty row in the table.
- **Duplicate row** - Makes a copy of the selected row and adds it in the **Table Explorer** view. You should note that the new row will not be inserted in the database table until all conflicts are solved.
- **Commit row** - Commits the selected row.
- **Delete row** - Deletes the selected row.

SQL Execution Support

Oxygen XML Author's support for writing SQL statements includes syntax highlight, folding and drag&drop (DND) from the **Data Source Explorer** view. It also includes transformation scenarios for executing the statements and the results are displayed in the **Table Explorer** view.

Drag and Drop from Data Source Explorer View

Drag and drop(*DND*) from the **Data Source Explorer** view to the SQL editor allows creating SQL statements quickly by inserting the names of tables and columns in the SQL statements.

1. Configure a database connection (see the procedure specific for your database server).
2. Browse to the table you will use in your statement.
3. Drag the table or a column of the table into the editor where a SQL file is open.

   DND is available both on the table and on its fields. A popup menu is displayed in the SQL editor.

4. Select the type of statement from the popup menu.

   If you dragged a table depending on your choice, one of the following statements are inserted into the document:

   - SELECT `*field1*`,`*field2*`, ... FROM `*catalog*`.`*table*` (for this example: `SELECT \`DEPT\`,\`DEPTNAME\`,\`LOCATION\` FROM \`camera\`.\`cameraDesc\` )`
   - UPDATE `*catalog*`.`*table*` SET `*field1*`=, `*field2*`=,.... (for this example: `UPDATE \`camera\`.\`cameraDesc\` SET \`DEPT\`=, \`DEPTNAME\`=, \`LOCATION\`=)`
   - INSERT INTO`*catalog*`.`*table*` (`*field1*`,`*field2*`, ...) VALUES (, ,) (for this example: `INSERT INTO \`camera\`.\`cameraDesc\` (\`DEPT\`,\`DEPTNAME\`,\`LOCATION\`) VALUES (, , ))`
   - DELETE FROM `*catalog*`.`*table*` (for this example: `DELETE FROM \`camera\`.\`cameraDesc\`)`

   If you dragged a column depending on your choice, one of the following statements are inserted into the document:

   - SELECT `*field*` FROM `*catalog*`.`*table*` (for this example: `SELECT \`DEPT\` FROM \`camera\`.\`cameraDesc\` )`
   - UPDATE `*catalog*`.`*table*` SET `*field*`= (for this example: `UPDATE \`camera\`.\`cameraDesc\` SET \`DEPT\`=)`
   - INSERT INTO`*catalog*`.`*table*` (`*field1*) VALUES () (for this example: `INSERT INTO \`camera\`.\`cameraDesc\` (\`DEPT\`) VALUES ())`
   - DELETE FROM `*catalog*`.`*table*` (for this example: `DELETE FROM \`camera\`.\`cameraDesc\` WHERE \`DEPT\`=)`

SQL Validation

Currently, SQL validation support is offered for IBM DB2. Please note that if you choose a connection that doesn't support SQL validation you will receive a warning when trying to validate. The SQL document will be validated using the connection from the associated transformation scenario.

Executing SQL Statements

The steps for executing an SQL statement on a relational database are the following:

1. Configure a *transformation scenario* from the **Configure Transformation Scenario** button from the **Transformation** toolbar.

   A SQL transformation scenario needs a database connection. You can configure a connection from the **Preferences** button from the scenario dialog.

   The dialog that appears contains the list of existing scenarios that apply to SQL documents.
2. Set parameter values for SQL placeholders from the **Parameters** button from the scenario dialog.
   For example in `SELECT * FROM `test`.`department` where DEPT = ? or DEPTNAME = ?` two parameters can be configured for the place holders (?) in the transformation scenario.

   When the SQL statement will be executed, the first placeholder will be replaced with the value set for the first parameter in the scenario, the second placeholder will be replaced by the second parameter value and so on.

   Restriction: When a stored procedure is called in an SQL statement executed on an SQL Server database mixing in-line parameter values with values specified using the **Parameters** button of the scenario dialog is not recommended. It is due to a limitation of the SQL Server driver for Java applications. An example of stored procedure call that is not recommended is: `call dbo.Test(22, ?)`.
3. Execute the SQL scenario from the **Transform now** button of the scenario dialog.

   The result of a SQL transformation will be *displayed in a view* at the bottom of the Oxygen XML Author window.
4. View more complex return values of the SQL transformation in a separate editor panel.

   A more complex value returned by the SQL query (for example an XMLTYPE value or a CLOB one) cannot be displayed entirely in the result table.

   a) Right click on the cell containing the complex value.
   b) Select the action **Copy cell** from the popup menu.
      The action will copy the value in the clipboard.
   c) Paste the value where you need it.
      For example you can paste the value in an opened XQuery editor panel of Oxygen XML Author.

Native XML Database (NXD) Support

Native XML databases have an XML-based internal model and their fundamental unit of storage is XML. Oxygen XML Author offers support for the following native XML databases:

- Berkeley DB XML;
- eXist;
- MarkLogic;
- Documentum xDb (X-Hive/DB) 10;
- Oracle XML DB.

To watch our video demonstration about the integration between the XML native databases and Oxygen XML Author, go to *http://www.oxygenxml.com/demo/Author_Database_XML_Native.html*.

Configuring Database Data Sources

This section describes the procedures for configuring the data sources for native databases.

How to Configure a Berkeley DB XML Data Source

The latest instructions on how to configure Berkeley DB XML support in Oxygen XML Author can be found on our *website*.

Oxygen XML Author supports Berkeley DB XML versions 2.3.10, 2.4.13, 2.4.16 & 2.5.16.

1. Go to menu **Preferences** > **Data Sources**.
2. Click the **New** button in the **Data Sources** panel.
3. Enter a unique name for the data source.
4. Select *Berkeley DBXML* from the **Driver type** combo box.
5. Press the **Add** button to add the Berkeley DB driver files.

   The driver files for the Berkeley DB database are the following:

   - 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`)

   Where `DBXML_DIR` is the Berkeley DB XML database root directory. For example on Windows it is: `C:\Program Files\Oracle\Berkeley DB XML <version>`.
6. Click the **OK** button to finish the data source configuration.

How to Configure an eXist Data Source

The latest instructions on how to configure eXist support in Oxygen XML Author can be found on our *website*.

Oxygen XML Author supports eXist database server versions 1.3, 1.4 and 1.5.

1. Go to menu **Preferences** > **Data Sources**.
2. Click the **New** button in the **Data Sources** panel.
3. Enter a unique name for the data source.
4. Select *eXist* from the **Driver type** combo box.
5. Press the **Add** button to add the eXist driver files.

   The following driver files should be added in the dialog box for setting up the eXist datasource. They are found in the installation directory of the eXist database server. Please make sure you copy the files from the installation of the eXist server where you want to connect from Oxygen.

   - `exist.jar`
   - `lib/core/xmldb.jar`
   - `lib/core/xmlrpc-client-3.1.x.jar`
   - `lib/core/xmlrpc-common-3.1.x.jar`
   - `lib/core/ws-commons-util-1.0.x.jar`

   Note: For eXist database server version 1.5 and 2.0, the following driver files must also be added in the dialog box for setting up the datasource:

   - `lib/core/slf4j-api-1.x.x.jar`
   - `lib/core/slf4j-log4j12-1.x.x.jar`

   The version number from the driver file names may be different for your eXist server installation.
6. Click the **OK** button to finish the connection configuration.

   To watch our video demonstration about running XQuery against an eXist XML database, go to *http://www.oxygenxml.com/demo/eXist_Database.html*.

How to Configure a MarkLogic Data Source

Available in the Enterprise edition only.

Note: Oxygen XML Author supports MarkLogic version 4.0 or later.

The latest instructions on how to configure MarkLogic support in Oxygen XML Author can be found on our *website*.

1. Go to menu **Preferences** > **Data Sources**.

2. Click the **New** button in the **Data Sources** panel.
3. Enter a unique name for the data source.
4. Select *MarkLogic* from the **Type** combo box.
5. Press the **Add** button to add the MarkLogic driver file (`marklogic-xcc-{server_version}`, where *{server_version}* is the MarkLogic server version.)

   You can download the driver file from: *http://community.marklogic.com/download*.
6. Click the **OK** button to finish the data source configuration.

How to Configure a Documentum xDb (X-Hive/DB) 10 Data Source

Available in the Enterprise edition only.

The latest instructions on how to configure support for Documentum xDb (X-Hive/DB) 10 (X-Hive/DB version 9) in Oxygen XML Author can be found on our *website*.

1. Go to menu **Preferences** > **Data Sources**.
2. Click the **New** button in the **Data Sources** panel.
3. Enter a unique name for the data source.
4. Select *XHive* from the **Driver type** combo box.
5. Press the **Add** button to add the XHive driver files.

   The driver files for the Documentum xDb (X-Hive/DB) 10 database are found in the Documentum xDb (X-Hive/DB) 10 lib directory from the server installation folder:

   - `antlr-runtime.jar`
   - `aspectjrt.jar`
   - `icu4j.jar`
   - `xhive.jar`
   - `google-collect.jar`
6. Click the **OK** button to finish the data source configuration.

Configuring Database Connections

This section describes the procedures for configuring the connections for native databases.

How to Configure a Berkeley DB XML Connection

Oxygen XML Author supports Berkeley DB XML versions 2.3.10, 2.4.13, 2.4.16 & 2.5.16. The steps for configuring a connection to a Berkeley DB XML database are the following:

1. Go to menu **Preferences** > **Data Sources**.
2. Click the **New** button in the **Connections** panel.
3. Enter a unique name for the connection.
4. Select one of the previously configured data sources from the **Data Source** combo box.
5. Fill-in the connection details.
   a) Set the path to the Berkeley DB XML `database` directory in the **Environment home directory field**. Use a directory with write access. Do NOT use the installation directory where Berkeley DB XML is installed if you do not have write access to that directory.
   b) Select the **Verbosity** level: DEBUG, INFO, WARNING, or ERROR.
   c) Optionally, you can select the check-box **Join existing environment**.

      If checked, an attempt is made to join an existing environment in the specified home directory and all the original environment settings are preserved. If that fails, try reconfiguring the connection with this option unchecked.

6. Click the **OK** button to finish the connection configuration.

How to Configure an eXist Connection

The steps for configuring a connection to an eXist database are the following:

1. Go to menu **Preferences** > **Data Sources**.
2. Click the **New** button in the **Connections** panel.
3. Enter a unique name for the connection.
4. Select one of the previously configured data sources from the **Data Source** combo box.
5. Fill-in the connection details.
   a) Set the URI to the installed eXist engine in the **XML DB URI** field.
   b) Set the user name in the **User** field.
   c) Set the password in the **Password** field.
   d) Enter the start collection in the **Collection** field.

      eXist organizes all documents in hierarchical collections. Collections are like directories. They are used to group related documents together. This text field allows the user to set the default collection name.

6. Click the **OK** button to finish the connection configuration.

   To watch our video demonstration about running XQuery against an eXist XML database, go to *http://www.oxygenxml.com/demo/eXist_Database.html*.

The Create eXist-db XML connection Dialog

A quick way to create an eXist connection is to use the dedicated **Create eXist-db XML connection** dialog. Go to **Options** > **Preferences** > **Data Sources** and click **Create eXist-db XML connection**. After you fill in the fields in this dialog, click **OK** and go to **Window** > **Show View** > **Data Source Explorer** to view your connection.

To create an eXist connection using this dialog, Oxygen XML Author expects the `exist/webstart/exist.jnlp` path to be accessible at the **Host** and **Port** provided.

How to Configure a MarkLogic Connection

Available in the Enterprise edition only.

Note: Oxygen XML Author supports MarkLogic version 4.0 or later.

The steps for configuring a connection to a MarkLogic database are the following:

1. Go to menu **Preferences** > **Data Sources**.
2. Click the **New** button in the **Connections** panel.
3. Enter a unique name for the connection.
4. Select one of the previously configured data sources from the **Data Source** combo box.
5. Fill-in the connection details.
   a) The host name or IP address of the installed MarkLogic engine in the **XDBC Host** field.

      Oxygen XML Author uses XCC connector to interact with MarkLogic XDBC server and requires the basic authentication schema to be set. Starting with version MarkLogic 4.0 the default authentication method when you create a HTTP or WebDAV Server is digest, so make sure to change it to basic.

   b) Set the port number of the MarkLogic engine in the **Port** field. A MarkLogic XDBC application server must be configured on the server on this port. This XDBC server will be used to execute XQuery expressions against the server. Later on, if you want to change the XDBC server, instead of editing the configuration just use the ***Use it to execute queries*** action from Data Source Explorer.
   c) Set the user name to access the MarkLogic engine in the **User** field.
   d) Set the password to access the MarkLogic engine in the **Password** field.

e) Optionally set the URL used for browsing the MarkLogic database in the **Data Source Explorer** view in the **WebDAV URL** field.

The **Database** field specifies the database over which the XQuery expressions are executed. In case you set this option to default, the database associated to the application server of the configured port is used.

6. Click the **OK** button to finish the connection configuration.

How to Configure an Documentum xDb (X-Hive/DB) 10 Connection

The steps for configuring a connection to a Documentum xDb (X-Hive/DB) 10 database are the following.

Note: The bootstrap type of X-Hive/DB connections is not supported in Oxygen XML Author. The following procedure explains the *xhive://* protocol connection type.

1. Go to menu **Preferences** > **Data Sources**.
2. Click the **New** button in the **Connections** panel.
3. Enter a unique name for the connection.
4. Select one of the previously configured data sources from the **Data Source** combo box.
5. Fill-in the connection details.
   a) Set the URL property of the connection in the **URL** field.

   If the property is a URL of the form *xhive://host:port*, the Documentum xDb (X-Hive/DB) 10 connection will attempt to connect to a Documentum xDb (X-Hive/DB) 10 server running behind the specified TCP/IP port.

   b) Set the user name to access the Documentum xDb (X-Hive/DB) 10 engine in the **User** field.
   c) Set the password to access the Documentum xDb (X-Hive/DB) 10 engine in the **Password** field.
   d) Set the name of the database to access from the Documentum xDb (X-Hive/DB) 10 engine in the **Database** field.
   e) Check the checkbox **Run XQuery in read / write session (with committing)** if you want to end the session with a commit, otherwise the session ends with a rollback.
6. Click the **OK** button to finish the connection configuration.

Data Source Explorer View

This view presents in a tree-like fashion the database connections configured in the **Options** > **Preferences** > **Data Sources** preferences page. You can connect to a database simply by expanding the connection node. The database structure can be expanded up to column level. supports multiple simultaneous database connections and the connections tree provides an easy way to browse them.

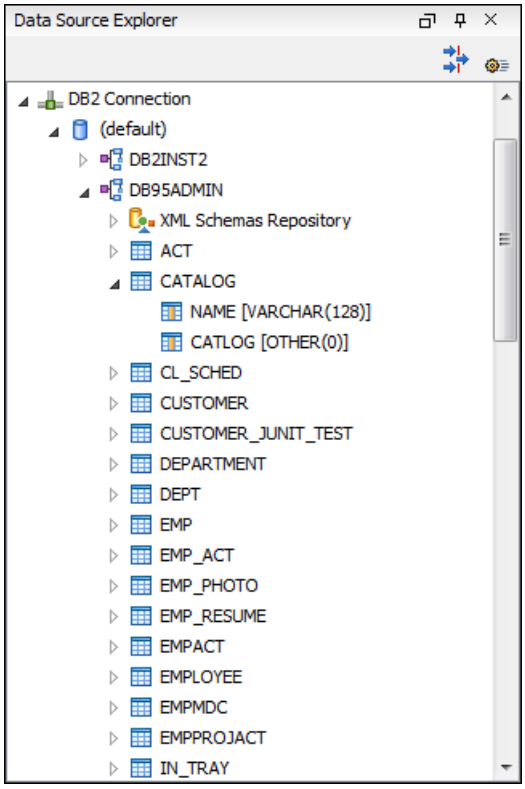


Figure 210: Data Source Explorer View

The following objects are displayed in the **Data Source Explorer** view:

- **Connection** ;
- **Catalog (Collection)**;
- **XML Schema Repository** ;
- **XML Schema Component** ;
- **Schema** ;
- **Table** ;
- **System Table** ;
- **Table Column** .

A **collection** (called *catalog* in some databases) is a hierarchical container for **resources** and further sub-collections. There are two types of resources:

- **XML resource** - an XML document or a document fragment, selected by a previously executed XPath query.
- **non XML resource**

Note: For some connections you can add or move resources into a container by dragging them from:

- **Project view**;
- the default file system application (Windows Explorer on Windows or Finder on Mac OS X, for example);
- or from another database container.

The following actions are available in the view's toolbar:

- The **Filters** button opens the **Data Sources / Table Filters** *Preferences page*, allowing you to decide which table types will be displayed in the **Data Source Explorer** view.

- The **Configure Database Sources** button opens the **Data Sources** *preferences page* where you can configure both data sources and connections.

Oracle XML DB Browser

Oracle XML DB is a feature of the Oracle database. It provides a high-performance, native XML storage and retrieval technology. Oxygen XML Author allows the user to browse the native Oracle XML Repository and perform various operations on the resources in the repository.

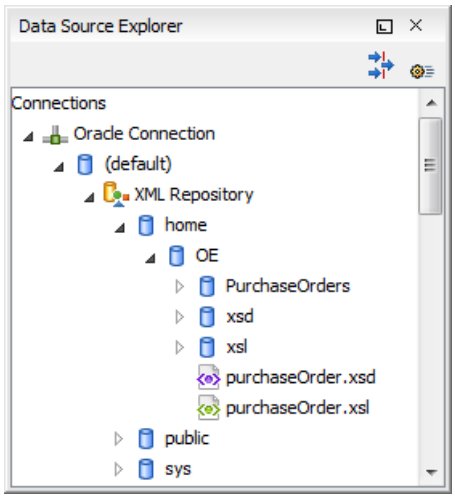


Figure 211: Browsing the Oracle XML DB Repository

The actions available at XML Repository level are the following:

- **Refresh** - Performs a refresh of the XML Repository.
- **Add container** - Adds a new child container to the XML Repository
- **Add resource** - Adds a new resource to the XML Repository.

The actions available at container level are the following:

- **Refresh** - Performs a refresh of the selected container.
- **Add container** - Adds a new child container to the current one
- **Add resource** - Adds a new resource to the folder.
- **Delete** - Deletes the current container.
- **Properties** - Shows various properties of the current container.

The actions available at resource level are the following:

- **Refresh** - Performs a refresh of the selected resource.
- **Open** - Opens the selected resource in the editor.
- **Rename** - Renames the current resource.
- **Move** - Moves the current resource to a new container (also available through drag and drop).
- **Delete** - Deletes the current resource.
- **Copy location** - Allows you to copy to clipboard an application specific URL for the resource which can then be used for various actions like opening or transforming the resources.
- **Properties** - Shows various properties of the current resource.
- **Compare** - This action is available in the contextual menu of two selected resources. Select this action to compare the resources using Diff Files.

For running XQuery transformation on collections from XML Repository please see *a tutorial from Oracle*.

PostgreSQL Connection

Oxygen XML Author allows the user to browse the structure of the PostgreSQL database in the **Data Source Explorer** view and open the tables in the **Table Explorer** view.

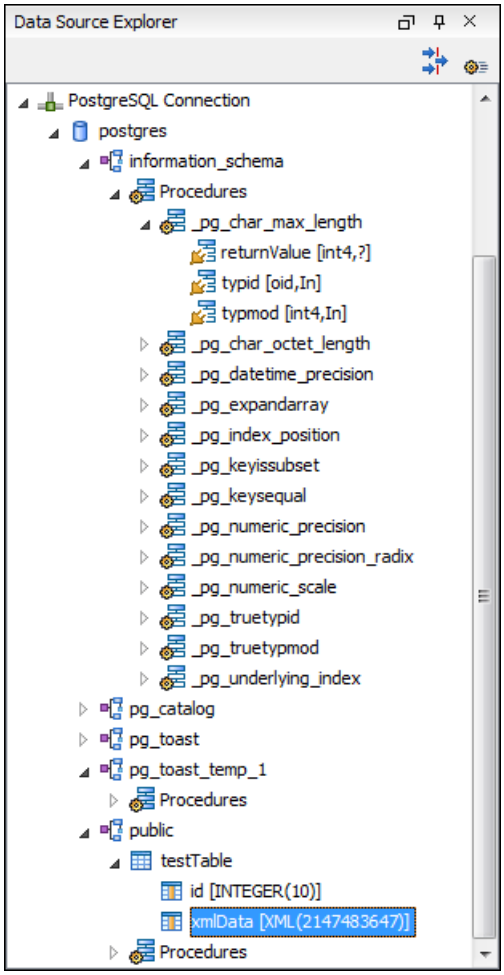


Figure 212: Browsing a PostgreSQL repository

The actions available at container level are the following:

- **Refresh** - Performs a refresh of the selected container.

The actions available at resource level are the following:

- **Refresh** - Performs a refresh of the selected database table.
- **Edit** - Opens the selected database table in the **Table Explorer** view.
- **Compare** - This action is available in the contextual menu of two selected resources. Select this action to compare the resources using Diff Files.

Berkeley DB XML Connection

This section explains the actions that are available on a Berkeley DB XML connection.

Actions Available at Connection Level

In a Berkeley DB XML repository the actions available at connection level in the **Data Source Explorer** view are the following:

- **Refresh** - Performs a refresh of the selected node's subtree.

- **Disconnect** - Closes the current database connection.
- **Configure Database Sources** - Opens *the **Data Sources** preferences page* where you can configure both data sources and connections.
- **Add container** - Adds a new container in the repository with the following attributes.
  - **Name** - The name of the new container.
  - **Container type** - At creation time, every container must have a type defined for it. This container type identifies how XML documents are stored in the container. As such, the container type can only be determined at container creation time; you cannot change it on subsequent container opens. Containers can have one of the following types specified for them:
    - **Node container** - XML documents are stored as individual nodes in the container. That is, each record in the underlying database contains a single leaf node, its attributes and attribute values if any, and its text nodes, if any. Berkeley DB XML also keeps the information it needs to reassemble the document from the individual nodes stored in the underlying databases. This is the default, and preferred, container type.
    - **Whole document container** - The container contains entire documents. The documents are stored without any manipulation of line breaks or whitespace.
  - **Allow validation** - If checked it causes documents to be validated when they are loaded into the container. The default behavior is to not validate documents.
  - **Index nodes** - If checked it causes indices for the container to return nodes rather than documents. The default is to index at the document level. This property has no meaning if the container type is whole document container.
- **Properties** - Shows a dialog containing a list of the Berkeley connection properties: version, home location, default container type, compression algorithm, etc.

Actions Available at Container Level

In a Berkeley DB XML repository the actions available at container level in the **Data Source Explorer** view are the following:

- **Add Resource** - Adds a new XML resource to the selected container.
- **Rename** - Allows you to specify a new name for the selected container.
- **Delete** - Removes the selected container from the database tree.
- **Edit indices** - Allows you to edit the indices for the selected container.
- **Refresh** - Performs a refresh of the selected node's subtree.
- **Properties** - Displays a dialog with a list of properties of the Berkeley container like: container type, auto indexing, page size, validate on load, compression algorithm, number of documents, etc.

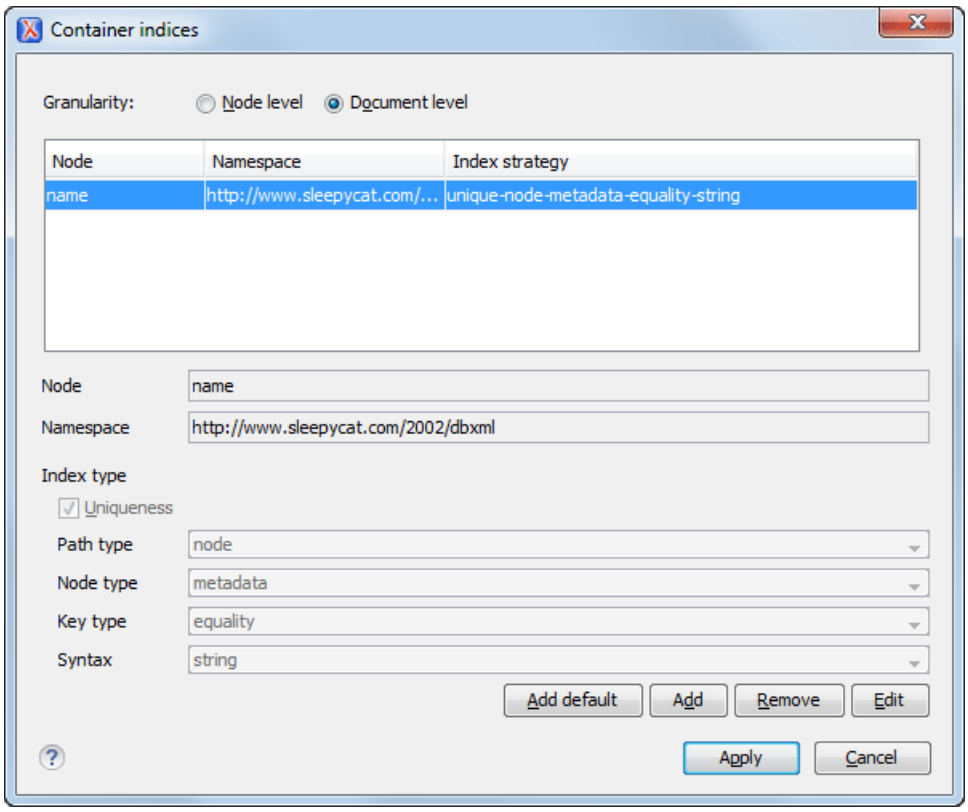
- 

Figure 213: Container indices

The fields of the dialog are the following:

- Granularity:
  - **Document level** granularity is good for retrieving large documents.
  - **Node level** granularity is good for retrieving nodes from within documents.
- Add / Edit indices:
  - **Node** - The node name.
  - **Namespace** - The index namespace
  - Index strategy:
    - **Index type**:
      - **Uniqueness** - Indicates whether the indexed value must be unique within the container
      - **Path type**:
        - **node** - Indicates that you want to index a single node in the path
        - **edge** - Indicates that you want to index the portion of the path where two nodes meet
      - **Node type**:
        - **element** - An element node in the document content.
        - **attribute** - An attribute node in the document content.
        - **metadata** - A node found only in a document's metadata content.
      - **Key type**:
        - **equality** - Improves the performances of tests that look for nodes with a specific value
        - **presence** - Improves the performances of tests that look for the existence of a node regardless of its value

- **substring** - Improves the performance of tests that look for a node whose value contains a given substring

- **Syntax types** - The syntax describes what sort of data the index will contain and is mostly used to determine how indexed values are compared.

Actions Available at Resource Level

In a Berkeley DB XML repository the actions available at resource level in the **Data Source Explorer** view are the following:

- **Refresh** - Performs a refresh of the selected resource.
- **Open** - Opens the selected resource in the editor.
- **Rename** - Allows you to change the name of the selected resource.
- **Move** - Allows you to move the selected resource in a different container in the database tree (also available through drag and drop).
- **Delete** - Removes the selected resource from the container.
- **Copy location** - Allows you to copy to clipboard an application specific URL for the resource which can then be used for various actions like opening or transforming the resources.
- **Compare** - This action is available in the contextual menu of two selected resources. Select this action to compare the resources using Diff Files.

eXist Connection

This section explains the actions that are available on an eXist connection.

Actions Available at Connection Level

For an eXist database the actions available at connection level in the **Data Source Explorer** view are the following:

- **Configure Database Sources** - Opens the **Data Sources** *preferences page* where you can configure both data sources and connections.
- **Disconnect** - Closes the current database connection.
- **Refresh** - Performs a refresh of the selected node's subtree.

Actions Available at Container Level

For an eXist database the actions available at container level in the **Data Source Explorer** view are the following:

- **New File** - Creates a file in the selected container
- **New Collection** - Creates a collection
- **Import Folders** - Adds recursively the content of specified folders from the local filesystem
- **Import Files** - Adds a set of XML resources from the local filesystem
- **Cut** - Cuts the selected containers
- **Copy** - Copies the selected containers

  Note: You can add or move resources into container by dragging them from Project view, the default file system application (Windows Explorer on Windows or Finder on Mac OS X, for example) or from another database container.

- **Paste** - Paste resources into selected container
- **Rename** - Allows you to change the name of the selected collection
- **Delete** - Removes the selected collection
- **Refresh** - Performs a refresh of the selected container

- **Properties** - Allows the user to view various useful properties associated with the container, like: name, creation date, owner, group, permissions.

Actions Available at Resource Level

For an eXist database the actions available at resource level in the **Data Source Explorer** view are the following:

- **Refresh** - Performs a refresh of the selected resource.
- **Open** - Opens the selected resource in the editor.
- **Rename** - Allows you to change the name of the selected resource.
- **Cut** - Cuts the selected resources
- **Copy** - Copies the selected resources.

  Note: You can add or move resources into container by dragging them from Project view, the default file system application (Windows Explorer on Windows or Finder on Mac OS X, for example) or from another database container.

- **Paste** - Pastes the copied resources.
- **Delete** - Removes the selected resource from the collection.
- **Copy location** - Allows you to copy to clipboard an application-specific URL for the resource which can then be used for various actions like opening or transforming the resources.
- **Properties** - Allows the user to view various useful properties associated with the resource.
- **Save As** - Allows you to save the name of the selected binary resource as a file on disk.
- **Compare** - This action is available in the contextual menu of two selected resources. Select this action to compare the resources using Diff Files.

MarkLogic Connection

Once you configure a MarkLogic connection, you can use the **Data Source Explorer** view to display all the application servers configured on the server. You can expand each application server and view all the modules that it is configured to use. The **Data Source Explorer** view allows you to open and edit these modules.

Note: To browse modules located in a database, directory properties must be associated with them. These directory properties are generated automatically if the *directory creation* property of the database is set to automatic. In case this property is set to *manual* or *manual-enforced*, add the directory properties of the modules manually, using the XQuery function `xdmp:directory-create()`.

Manually Adding Directory Properties

For two documents with the `/code/modules/main.xqy` and `/code/modules/imports/import.xqy` IDs, run this query:

```
(xdmp:directory-create('/code/modules/'),
xdmp:directory-create('/code/modules/imports/')).
```

For further information about directory properties go to: *http://blakeley.com/blogofile/2012/03/19/directory-assistance/*

When you execute or debug XQuery files opened from this view, the imported modules are better identified by the MarkLogic server. In a module, you are also able to add breakpoints that the debugger takes into account.

Note: Add breakpoints in the modules of the application server that executes the debugging.

Note: Open XQuery modules from the application server involved in the debugging or execution process.

In the **Requests** container of each application server Oxygen XML Author presents both the queries stopped for debugging and the queries that are still running. At the end of your session, to clean up the entire **Requests** container, right click it an use the **Cancel all running requests** action.

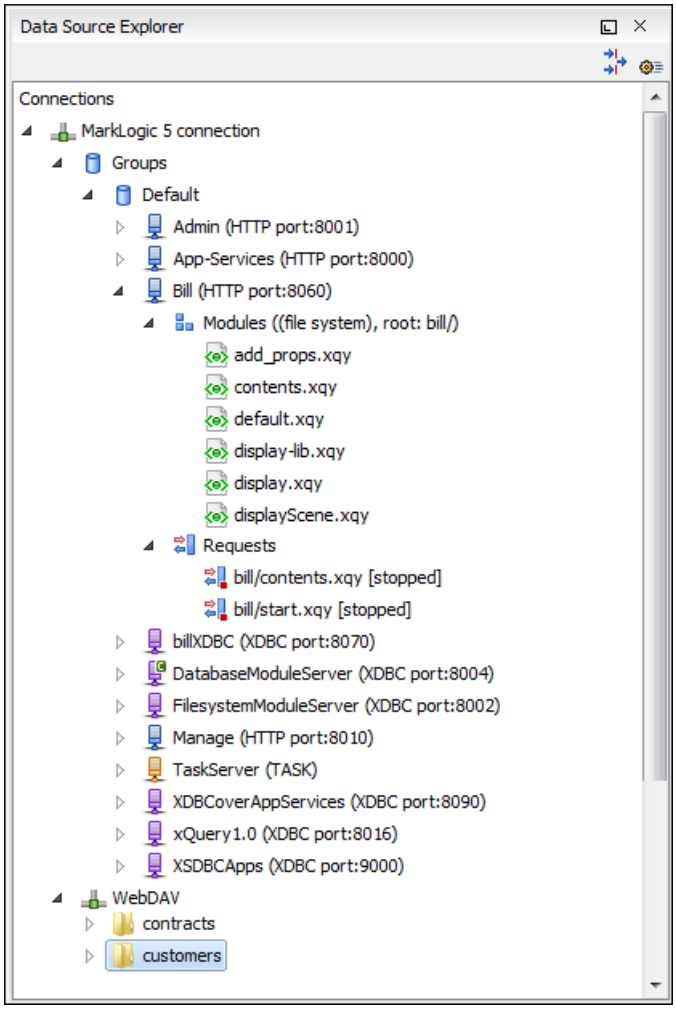


Figure 214: MarkLogic Connection in Data Source Explorer

The **Data Source Explorer** view presents all the application servers available on the MarkLogic server. To change the XDBC application server that Oxygen XML Author uses to execute XQuery expressions, select the **Use it to execute queries** option from its contextual menu.

To manage resources for a MarkLogic database through WebDAV, configure a WebDAV URL in *the MarkLogic connection*.

The following actions are available in the contextual menu of the WebDAV connection:

- connection level actions:
  - **Configure Database Sources...** - opens the **Data Sources** *preferences page*. Here you can configure both data sources and connections;
  - **New Folder...** - creates a new folder on the server;
  - **Import Files...** - allows you to add a new file on the server;
  - **Refresh** - performs a refresh of the connection;
  - **Find/Replace in Files...** - Allows you to find and replace text in multiple files from the server.
- folder level actions:
  - **New File** - creates a new file on the server in the current folder;
  - **New Folder...** - creates a new folder on the server;
  - **Import Folders...** - imports folders on the server;

- **Import Files** - allows you to add a new file on the server in the current folder;
- **Cut** - removes the current selection and places it in the clipboard;
- **Copy** - copies the current selection;
- **Rename** - allows you to change the name of the selected folder;
- **Delete** - removes the selected folder;
- **Refresh** - refreshes the sub-tree of the selected node;
- **Find/Replace in Files...** - Allows you to find and replace text in multiple files from the server.

- file level actions:
  - **Open** - Allows you to open the selected file in the editor;
  - **Cut** - removes the current selection and places it in the clipboard;
  - **Copy** - copies the current selection;
  - **Copy Location** - copies an application specific URL for the selected resource to the clipboard. You can use this URL for various actions like opening or transforming the resources;
  - **Rename** - allows you to change the name of the selected file;
  - **Delete** - removes the selected file;
  - **Refresh** - performs a refresh of the selected node;
  - **Properties** - displays the properties of the current file in a dialog;
  - **Find/Replace in Files...** - Allows you to find and replace text in multiple files from the server;
  - **Compare** - This action is available in the contextual menu of two selected resources. Select this action to compare the resources using Diff Files.

Documentum xDb (X-Hive/DB) Connection

This section explains the actions that are available on a Documentum xDb (X-Hive/DB) 10 connection.

Actions Available at Connection Level

For a Documentum xDb (X-Hive/DB) 10 database the actions available at connection level in the **Data Source Explorer** view are the following:

- **Refresh** - Performs a refresh of the selected node's subtree.
- **Disconnect** - Closes the current database connection.
- **Configure Database Sources** - Opens the **Data Sources** *preferences page* where you can configure both data sources and connections.
- **Add library** - Allows you to add a new library.
- **Insert XML Instance** - Allows you to add a new XML resource directly into the database root. See *Documentum xDb (X-Hive/DB) 10 Parser Configuration* for more details.
- **Insert non XML Instance** - Allows you to add a new non XML resource directly into the database root.
- **Properties** - Displays the connection properties.

Actions Available at Catalog Level

For a Documentum xDb (X-Hive/DB) 10 database the actions available at catalog level in the **Data Source Explorer** view are the following:

- **Refresh** - Performs a refresh of the selected catalog.
- **Add AS models** - Allows you to add a new abstract schema model to the selected catalog.
- **Set default schema** - Allows you to set a default DTD to be used for parsing. It is not possible to set a default XML Schema.

- **Clear default schema** - Allows you to clear the default DTD. The action is available only if there is a DTD set as default.
- **Properties** - Displays the catalog properties.

Actions Available at Schema Resource Level

For a Documentum xDb (X-Hive/DB) 10 database the actions available at schema resource level in the **Data Source Explorer** view are the following:

- **Refresh** - Performs a refresh of the selected schema resource.
- **Open** - Opens the selected schema resource in the editor.
- **Rename** - Allows you to change the name of the selected schema resource.
- **Save As** - Allows you to save the selected schema resource as a file on disk.
- **Delete** - Removes the selected schema resource from the catalog
- **Copy location** - Allows you to copy to clipboard the URL of the selected schema resource.
- **Set default schema** - Allows you to set the selected DTD to be used as default for parsing. The action is available only for DTD.
- **Clear default schema** - Allows you to unset the selected DTD. The action is available only if the selected DTD is the current default to be used for parsing.

Actions Available at Library Level

For a Documentum xDb (X-Hive/DB) 10 database the actions available at library level in the **Data Source Explorer** view are the following:

- **Refresh** - Performs a refresh of the selected library.
- **Add library** - Adds a new library as child of the selected library.
- **Add local catalog** - Adds a catalog to the selected library. By default, only the root-library has a catalog, and all models would be stored there.
- **Insert XML Instance** - Allows you to add a new XML resource to the selected library. See *Documentum xDb (X-Hive/DB) 10 Parser Configuration* for more details.
- **Insert non XML Instance** - Allows you to add a new non XML resource to the selected library.
- **Rename** - Allows you to specify a new name for the selected library.
- **Move** - Allows you to move the selected library to a different one (also available through drag and drop).
- **Delete** - Removes the selected library.
- **Properties** - Displays the library properties.

Actions Available at Resource Level

When an XML instance document is added For a Documentum xDb (X-Hive/DB) 10 database the actions available at resource level in the **Data Source Explorer** view are the following:

- **Refresh** - Performs a refresh of the selected resource.
- **Open** - Opens the selected resource in the editor.
- **Rename** - Allows you to change the name of the selected resource.
- **Move** - Allows you to move the selected resource in a different library in the database tree (also available through drag and drop).

  Note: You can copy or move resources by dragging them from another database catalog.

- **Save As** - Allows you to save the selected binary resource as a file on disk.
- **Delete** - Removes the selected resource from the library.
- **Copy location** - Allows you to copy to clipboard the URL of the selected resource.
- **Add AS model** - Allows you to add an XML schema to the selected XML resource.
- **Set AS model** - Allows you to set an active AS model for the selected XML resource.

- **Clear AS model** - Allows you to clear the active AS model of the selected XML resource.
- **Properties** - Displays the resource properties. Available only for XML resources.
- **Compare** - This action is available in the contextual menu of two selected resources. Select this action to compare the resources using Diff Files.

Validation of an XML resource stored in an Documentum xDb (X-Hive/DB) 10 database is done against the schema associated with the resource in the database.

Documentum xDb (X-Hive/DB) 10 Parser Configuration for Adding XML Instances

When an XML instance document is added to a Documentum xDb (X-Hive/DB) 10 connection or library it is parsed with an internal XML parser of the database server. The following options are available for configuring this parser:

- DOM Level 3 parser configuration parameters. More about each parameter can be found here: *DOM Level 3 Configuration*.
- Documentum xDb (X-Hive/DB) 10 specific parser parameters (for more information please consult the Documentum xDb (X-Hive/DB) 10 manual):
  - **xhive-store-schema** - If checked, the corresponding DTD's or XML schemas are stored in the catalog during validated parsing.
  - **xhive-store-schema-only-internal-subset** - Stores only the internal subset of the document (not any external subset). This options modifies the **xhive-store-schema** one (only has a function when that parameter is set to true, and when DTD's are involved). Select this option this option if you only want to store the internal subset of the document (not the external subset).
  - **xhive-ignore-catalog** - Ignores the corresponding DTD's and XML schemas in the catalog during validated parsing.
  - **xhive-psvi** - Stores **psvi** information on elements and attributes. Documents parsed with this feature turned on, give access to **psvi** information and enable support of data types by XQuery queries.
  - **xhive-sync-features** - Convenience setting. With this setting turned on, parameter settings of `XhiveDocumentIf` are synchronized with the parameter settings of `LSParser`. Note that parameter settings **xhive-psvi** and **schema-location** are always synchronized.

Troubleshooting

Cannot save the file. DTD factory class `org.apache.xerces.impl.dv.dtd.DTDDVFactoryImpl` does not extend from `DTDDVFactory`

I am able to access my XML Database in the Data Source Explorer and open files for reading but when I try to save changes to a file, back into the database, I receive the following error:"Cannot save the file. DTD factory class `org.apache.xerces.impl.dv.dtd.DTDDVFactoryImpl` does not extend from `DTDDVFactory`." How can I fix this?

Answer:

xhive.jar contains a MANIFEST.MF with a classpath:

```
Class-Path: core/antlr-runtime.jar core/aspectjrt.jar core/fastutil-shrinked.jar
             core/google-collect.jar core/icu4j.jar core/lucene-regex.jar core/lucene.jar
             core/serializer.jar core/xalan.jar core/xercesImpl.jar
```

Because the driver was configured to use `xhive.jar` directly from the *xDB* installation(where many other jars are located), `core/xercesImpl.jar` from the *xDB* installation directory is loaded even though it is not specified in the list of jars from the data source driver configuration(it is in the classpath from `xhive.jar`'s *MANIFEST.MF*).A simple workaround for this issue is to copy **ONLY** the jar files used in the driver configuration to a separate folder and configure the data source driver to use them from there.

WebDAV Connection

This section explains how to work with a WebDAV connection in the **Data Source Explorer** view.

How to Configure a WebDAV Connection

By default Oxygen XML Author is configured to contain a WebDAV data source connection called **WebDAV (S)FTP**. Based on this data source you can create a WebDAV connection for browsing and editing data from a database that provides a WebDAV interface. The connection will be available in *the **Data Source Explorer** view*. The steps for configuring a WebDAV connection are the following:

1. Go to menu **Preferences** > **Data Sources**.
2. In the **Connections** panel click the **New** button.
3. Enter a unique name for the connection.
4. Select one of the WebDAV data sources in the **Data Source** combo box.
5. Fill-in the connection details:
   a) Set the URL to the WebDAV repository in the field **WebDAV URL**.
   b) Set the user name to access the WebDAV repository in the field **User**.
   c) Set the password to access the WebDAV repository in the field **Password**.
6. Click the **OK** button.

   To watch our video demonstration about the WebDAV support in Oxygen XML Author, go to *http://www.oxygenxml.com/demo/WebDAV_Support.html*.

WebDAV Connection Actions

This section explains the actions that are available on a WebDAV connection in the **Data Source Explorer** view.

Actions Available at Connection Level

The contextual menu of a WebDAV connection in the **Data Source Explorer** view contains the following actions:

- **Configure Database Sources...** - opens the **Data Sources** *preferences page*. Here you can configure both data sources and connections;
- **Disconnect** - stops the connection;
- **Import Files...** - allows you to add a new file on the server;
- **New Folder...** - creates a new folder on the server;
- **Refresh** - performs a refresh of the connection;
- **Find/Replace in Files...** - Allows you to find and replace text in multiple files from the server.

Actions Available at Folder Level

The contextual menu of a folder node in a WebDAV connection in the **Data Source Explorer** view contains the following actions:

- **New File** - creates a new file on the server in the current folder;
- **New Folder...** - creates a new folder on the server;
- **Import Folders...** - imports folders on the server;
- **Import Files** - allows you to add a new file on the server in the current folder;
- **Cut** - removes the current selection and places it in the clipboard;
- **Copy** - copies the current selection;
- **Paste** - pastes the copied selection;
- **Rename** - allows you to change the name of the selected folder;
- **Delete** - removes the selected folder;

- **Refresh** - refreshes the sub-tree of the selected node;
- **Find/Replace in Files...** - Allows you to find and replace text in multiple files from the server.

Actions Available at File Level

The contextual menu of a file node in a WebDAV connection in the **Data Source Explorer** view contains the following actions:

- **Open** - Allows you to open the selected file in the editor;
- **Cut** - removes the current selection and places it in the clipboard;
- **Copy** - copies the current selection;
- **Copy Location** - copies an application specific URL for the selected resource to the clipboard. You can use this URL for various actions like opening or transforming the resources;
- **Rename** - allows you to change the name of the selected file;
- **Delete** - removes the selected file;
- **Refresh** - performs a refresh of the selected node;
- **Properties** - displays the properties of the current file in a dialog;
- **Find/Replace in Files...** - Allows you to find and replace text in multiple files from the server.

BaseX Support

This section explains how to configure the BaseX XML database support. The BaseX support is composed of two parts:

- Resource management in the **Data Source Explorer** view;
- XQuery execution.

Resource management

Resource management is available by creating an WebDAV connection to the BaseX server.

First of all, make sure the BaseX HTTP Server is started. For details about starting the BaseX HTTP Server, go to *http://docs.basex.org/wiki/Startup#BaseX_HTTP_Server*. The configuration file for the HTTP server is named `.basex` and is located in the BaseX installation directory. This file might help you to find out the port on which the HTTP server is running. The default port for BaseX WebDAV is 8984.

To ensure everything is functioning, open an WebDAV URL inside a browser and check if it works. For example, the following URL gets a document from a database named TEST:
`http://localhost:8984/webdav/TEST/etc/factbook.xml`.

Once you are sure that the BaseX WebDAV service is working, you can configure the WebDAV connection in Oxygen XML Author as described in *How to Configure a WebDAV Connection* on page 553. The WebDAV URL should resemble this: `http://{hostname }:{port}/webdav/`. If the BaseX server is running on your own machine and it has the default configuration, the data required by the WebDAV connection is:

- WebDAV URL: `http://localhost:8984/webdav`;
- User: `admin`;
- Password: `admin`.

Once the WebDAV connection is created you can start browsing using *the **Data Source Explorer** view*.

XQuery Execution

XQuery execution is possible through an XQJ connection.

BaseX XQJ Data Source

First of all, create an XQJ data source as described in *How to Configure an XQJ Data Source* on page 510. The BaseX XQJ API-specific files that must be added in the configuration dialog are `xqj-api-1.0.jar`, `xqj2-0.1.0.jar` and `basex-xqj-1.2.3.jar` (the version names of the JAR file may differ). These libraries can be downloaded from *xqj.net/basex/basex-xqj-1.2.3.zip*. As an alternative, you can also find the libraries in the BaseX installation directory, in the **lib** subdirectory.

BaseX XQJ Connection

The next step is to create an XQJ connection as described in *How to Configure an XQJ Connection* on page 510.

For a default BaseX configuration, the following connection details apply (please modify them when necessary):

- *Port*: 1984
- *serverName*: localhost
- *user*: admin
- *password*: admin

XQuery execution

Now that the XQJ connection is configured, open in Oxygen XML Author the XQuery file you wish to execute and create a *Transformation Scenario* as described in *XQuery Transformation* on page 483. In the **Transformer** combo box, select the name of the XQJ connection you created. Apply the transformation scenario and the XQuery will be executed.

Chapter 14

Importing Data

Topics:

This chapter describes how you can import data stored in text format, Excel sheet, or relational database tables, into XML documents.

Introduction

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 different types of applications.

This is why Oxygen XML Author offers support for importing text files, MS Excel files, Database Data, and HTML files into XML documents. The XML documents can be further converted into other formats using the *Transform features*.

Import from Database

This section explains how to import data from a database into Oxygen XML Author.

Import Table Content as XML Document

The steps for importing the data from a relational database table are the following:

1. Clicking this action opens a dialog with all the defined database connections:
2. Select the connection to the database that contains the data.

   Only connections configured on relational data sources can be used to import data.
3. If you want to edit, delete or add a data source or connection click on the **Configure Database Sources** button. The **Preferences**/**Data Sources** option page is opened.
4. Click **Connect**.
5. From the catalogs list, click on a schema and choose the required table.
6. Click the **OK** button.

   The **Import Criteria** dialog opens next, with a default query string in the **SQL Query** pane:

   The dialog contains the following items:

   - **SQL Preview** - If the **SQL Preview** button is pressed, it shows the labels that are used in the XML document and the first five lines from the database into the **Import settings** panel. All data items in the input are converted by default to element content, but this can be overridden by clicking the individual column headers. Clicking once on a column header (ex **Heading0**) causes the data from this column to be used as attribute values of the row elements. Click a second time and the column's data is ignored when generating the XML file. You can cycle through these three options by continuing to click the column header. The following symbols decorate the column header to indicate the type of content that column is converted to:
     - <> symbols for data columns converted to element content
     - = symbol for data columns converted to attribute content
     - *x* symbol for ignored data
   - **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 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**.
   - **Save in file** - If checked, the new XML document is saved at the specified path.

     Note: If only **Open in editor** is checked, the newly created document is open in the editor, but as an unsaved file.

- **Generate XML Schema** - Allows you to specify the path of the generated XML Schema file.

7. Click the **SQL Preview** button.

   The **SQL Query** string is editable. You can specify which fields are considered.

   Use aliases if the following are true:

   - the query string represents a join operation of two or more tables
   - columns selected from different tables have the same name

   The use of aliases avoids the confusion of two columns being 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  ...
```

   The input data is displayed in a tabular form in the **Import Settings** panel. The **XML Import Preview** panel contains an example of what the generated XML looks like.

Convert Table Structure to XML Schema

The structure of a table from a relational database can be imported in Oxygen XML Author as an XML Schema. This feature is activated by the **Generate XML Schema** option from the **Import criteria** dialog used in *the procedure for importing table data* as an XML instance document.

Import from MS Excel Files

Oxygen XML Author offers support for importing MS Excel Files. To import Excel files, go to **File** > **Import** > **MS Excel file** and in the **Import** dialog box select the file you want to import. In the **Available Sheets** section of this dialog, the sheets of the document you are importing are presented. Select a sheet and click next to move on to the second **Import** dialog box.

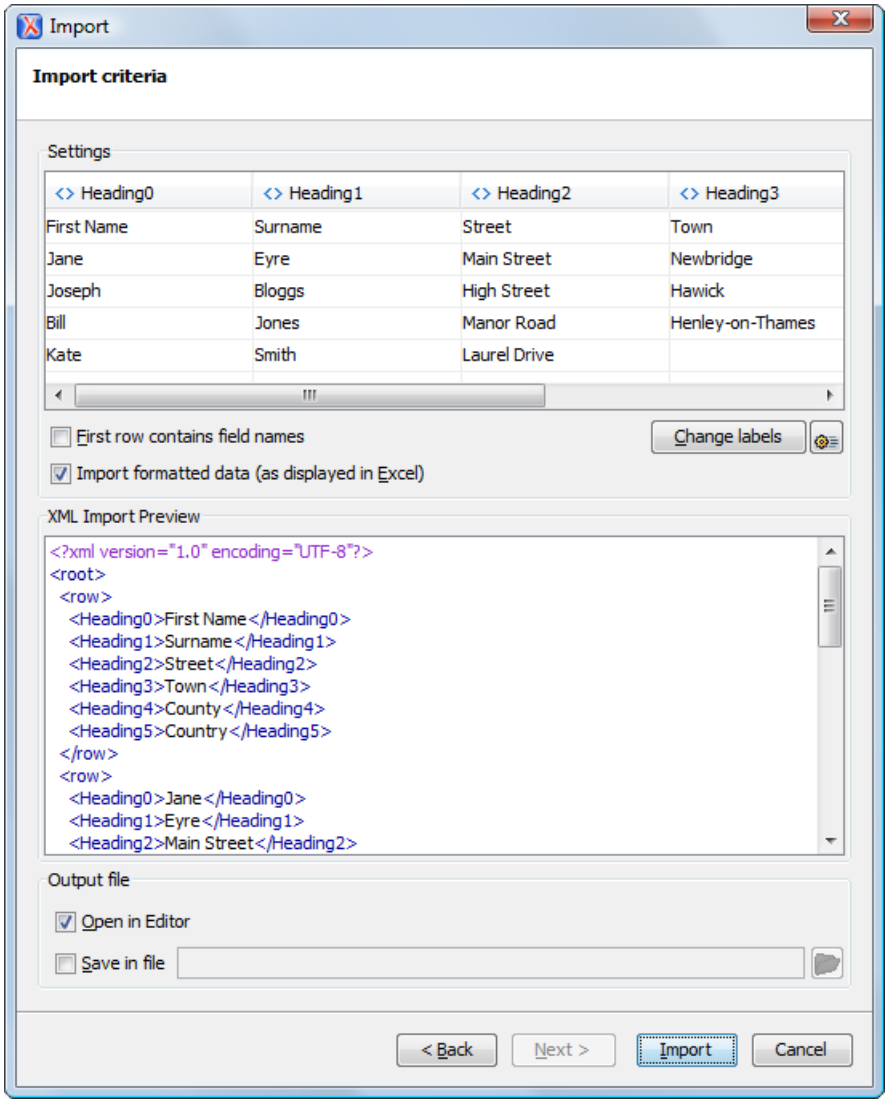


Figure 215: The "Import" Dialog Box - Import Criteria

The **Settings** section presents the data from the Excel sheet in a tabular form. It also contains the following options:

- **First row contains field names** - uses the content from the first row to name the columns;
- **Import formatted data (as displayed in Excel)** - keeps the Excel styling;
- **Change labels** - opens the **Presentation Names** dialog box;

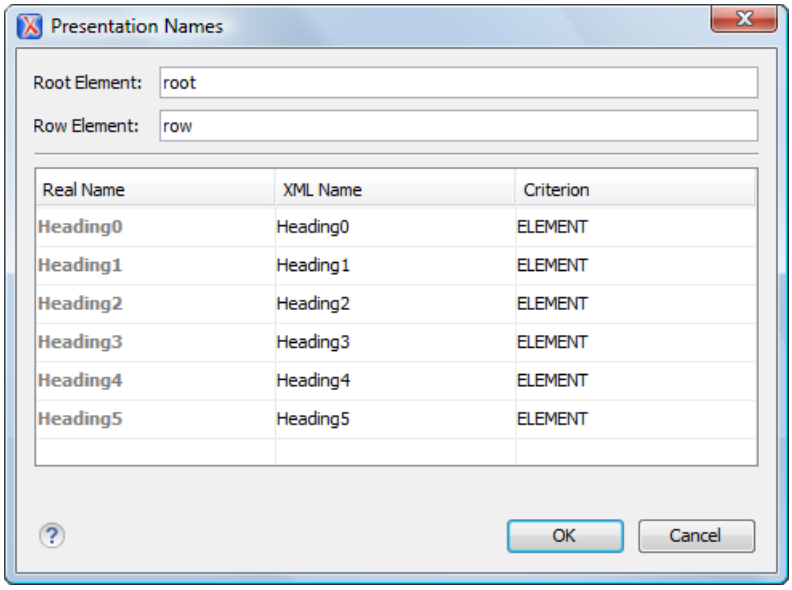


Figure 216: The "Presentation Names" Dialog Box

The following options are available in this dialog:

- **Root Element** - allows you to edit the name of the Root element;
- **Row Element** - allows you to edit the name of the Row element;
- **Real Name** - contains the original name of each Heading;
- **XML Name** - allows you to modify the names of the Headings;
- **Criterion** - allows you to transform the Heading elements to attributes of the Root element.

- **Import settings** - opens the XML / Import preferences page.

The **XML Import Preview** section displays the Excel document in an XML format.

The **Output File** section contains the following options:

- **Open in Editor** - opens the imported document in the Editor;
- **Save in File** - saves the imported documented in the specified location.

When you finish configuring the options in these dialogs, click **Import**.

Import from MS Excel 2007-2010 (*.xlsx*)

You need to add additional JAR libraries to Oxygen XML Author To import XML from Excel 2007-2010 (*.xlsx*) documents.

First you need to download the latest stable release of the Apache POI project from *http://poi.apache.org/download.html*.

From the downloaded project locate and add the following `.jar` files in the `lib` directory of the installation folder of Oxygen XML Author :

- `dom4j-1.6.1.jar;`
- `poi-ooxml-3.8-20120326.jar;`
- `poi-ooxml-schemas-3.8-20120326.jar;`
- `xmlbeans-2.3.0.jar.`

Import from HTML Files

HTML is one of the formats that can be imported as an XML document. The steps needed are:

1. Go to menu **File** > **Import** > **HTML File ...**.
2. Enter the URL of the HTML document.
3. Select the type of the result XHTML document:
   - XHTML 1.0 Transitional
   - XHTML 1.0 Strict
4. Click the **OK** button.

The resulted document is an XHTML file containing a DOCTYPE declaration referring to the XHTML DTD definition on the Web. The parsed content of the imported file is transformed to XHTML Transitional or XHTML Strict depending on what radio button you chose when performing the import operation.

Import from Text Files

The steps for importing a text file into an XML file are the following:

1. Go to menu **File** > **Import** > **Text File...**
   The **Select text file** dialog box is displayed.
2. Select the URL of the text file.
3. Select the encoding of the text file.
4. Click the **OK** button.

   The **Import Criteria** dialog box is displayed:

   The input data is displayed in a tabular form. The **XML Import Preview** panel contains an example of what the generated XML document looks like. The names of the XML elements and the transformation of the first five lines from the text file are displayed in the **Import settings** section. All data items in the input are converted by default to element content, but this can be overridden by clicking the individual column headers. Clicking once a column header causes the data from this column to be used as attribute values of the row elements. Click the second time and the column's data is ignored when generating the XML file. You can cycle through these three options by continuing to click the column header. The following symbols decorate the column header to indicate the type of content that column is converted to:

   - <> symbols for data columns converted to element content
   - = symbol for data columns converted to attribute content
   - *x* symbol for ignored data
5. Select the field delimiter for the import settings:
   - Comma;
   - Semicolon;
   - Tab;
   - Space;
   - Pipe.
6. Set other optional settings of the conversion.

   The dialog offers the following settings:

   - **First row contains field names -** If the option is enabled, you will notice that the table has moved up. The default column headers are replaced (where such information is available) 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 settings (where the first row is interpreted as containing data and not fields names), simply uncheck the option.

- **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 the desired item and entering the required label. The conversion criterion can also be modified by selecting one of the drop-down list options: **ELEMENT**, **ATTRIBUTE**, or **SKIPPED**.

Chapter 15

Content Management System (CMS) Integration

Topics:

This chapter explains how you can integrate Oxygen XML Author with a content management system (CMS), to edit the data stored in the CMS directly in Oxygen XML Author. Oxygen XML Author offers support for Documentum CMS and Microsoft SharePoint, but other CMSs can use the *plugin support* for similar integrations.

Integration with Documentum (CMS)

Oxygen XML Author provides support for browsing and managing Documentum repositories in the Data Source Explorer. You can easily create new resources on the repository, copy and move them using contextual actions or the drag and drop support, edit and transform the documents in the editor. The operations that can be performed on repository resources are described in the *Documentum (CMS) actions* section.

Oxygen XML Author supports Documentum (CMS) version 6.5 or later with *Documentum Foundation Services 6.5* or later installed.

Attention:

It is recommended to use the latest 1.6.x Java version. It is possible that the Documentum (CMS) support will not work properly if you use other Java versions.

Configure Connection to Documentum Server

This section explains how to configure a connection to a Documentum server.

How to Configure a Documentum (CMS) Data Source

Available in the Enterprise edition only.

To configure a Documentum (CMS) data source you need the Documentum Foundation Services Software Development Kit (*DFS SDK*) corresponding to your server version. The *DFS SDK* can be found in the Documentum (CMS) server installation kit or it can be downloaded from *EMC Community Network*.

Note: The *DFS SDK* can be found in the form of an archive named, for example, *emc-dfs-sdk-6.5.zip* for Documentum (CMS) 6.5.

1. Go to menu **Preferences** > **Data Sources**.
   The **Preferences** dialog is opened at the **Data Sources** panel.
2. In the **Data Sources** panel click the **New** button.
3. Enter a unique name for the data source.
4. Select **Documentum (CMS)** from the driver type combo box.
5. Press the **Choose DFS SDK Folder** button.
6. Select the folder where you have unpacked the *DFS SDK* archive file.

   If you have indicated the correct folder the following Java libraries (jar files) will be added to the list (some variation of the library names is possible in future versions of the *DFS SDK*):

   - `lib/java/emc-bpm-services-remote.jar`
   - `lib/java/emc-ci-services-remote.jar`
   - `lib/java/emc-collaboration-services-remote.jar`
   - `lib/java/emc-dfs-rt-remote.jar`
   - `lib/java/emc-dfs-services-remote.jar`
   - `lib/java/emc-dfs-tools.jar`
   - `lib/java/emc-search-services-remote.jar`
   - `lib/java/ucf/client/ucf-installer.jar`
   - `lib/java/commons/*.jar` (multiple jar files)
   - `lib/java/jaxws/*.jar` (multiple jar files)
   - `lib/java/utils/*.jar` (multiple jar files)

Note: If for some reason the jar files are not found, you can add them manually by using the **Add Files** and **Add Recursively** buttons and navigating to the `lib/java` folder from the *DFS SDK*.

7. Click the **OK** button to finish the data source configuration.

How to Configure a Documentum (CMS) Connection

Available in the Enterprise edition only.

The steps for configuring a connection to a Documentum (CMS) server are the following:

1. Go to menu **Preferences** > **Data Sources**.
2. In the **Connections** panel click the **New** button.
3. Enter a unique name for the connection.
4. Select one of the previously configured Documentum (CMS) data sources in the **Data Source** combo box.
5. Fill-in the connection details:
   - **URL** - The URL to the Documentum (CMS) server: `http://<hostname>:<port>`
   - **User** - The user name to access the Documentum (CMS) repository.
   - **Password** - The password to access the Documentum (CMS) repository.
   - **Repository** - The name of the repository to log into.
6. Click the **OK** button to finish the configuration of the connection.

Known Issues

The following are known issues with the Documentum (CMS):

1. Please note that there is a known problem in the UCF Client implementation for Mac OS X from Documentum 6.5 which prevents you from viewing or editing XML documents from the repository on Mac OS X. The UCF Client is the component responsible for file transfer between the repository and the local machine. This component is deployed automatically from the server. Documentum 6.6 and later versions do not exhibit this problem.

   Note: This issue was reproduced with Documentum 6.5 SP1. In Documentum 6.6 this is no longer reproducing.

2. In order for the Documentum driver to work faster on Linux, you need to specify to the JVM to use a weaker random generator, instead of the very slow native implementation. This can be done by modifying in the Oxygen XML Author startup scripts (or in the *.vmoptions file) the system property:

   ```
   -Djava.security.egd=file:/dev/./urandom
   ```

Documentum (CMS) Actions in the Data Source Explorer View

Oxygen XML Author allows you to browse the structure of a Documentum repository in the **Data Source Explorer** view and perform various operations on the repository resources.

You can drag and drop folders and resources to other folders to perform move or copy operations with ease. If the drag and drop is between resources (drag the child item to the parent item) you can create a relationship between the respective resources.

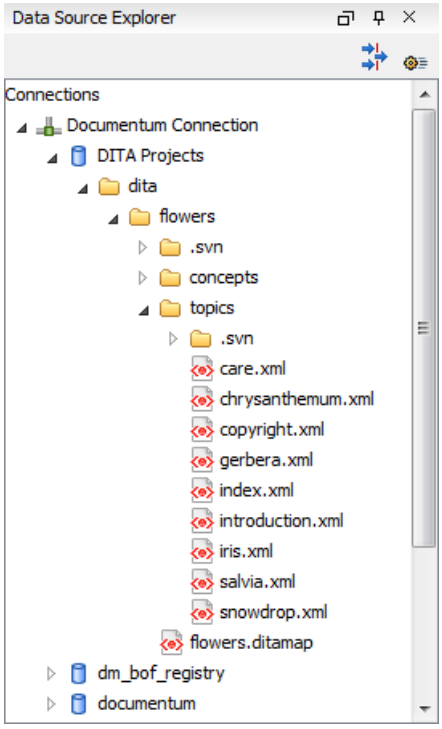


Figure 217: Browsing a Documentum repository

Actions Available on Connection

The actions available on a Documentum (CMS) connection in the **Data Source Explorer** view are the following:

- **Configure Database Sources** - Opens the *Data Sources* *preferences page* where you can configure both data sources and connections.
- **New Cabinet** - Creates a new cabinet in the repository. The cabinet properties are:
  - **Type** - The type of the new cabinet (default is **dm_cabinet**).
  - **Name** - The name of the new cabinet.
  - **Title** - The title property of the cabinet.
  - **Subject** - The subject property of the cabinet.
- **Refresh** - Refreshes the connection.

Actions Available on Cabinets / Folders

The actions available on a Documentum (CMS) cabinet in the **Data Source Explorer** view are the following:

- **New Folder** - Creates a new folder in the current cabinet / folder. The folder properties are the following:
  - **Path** - Shows the path where the new folder will be created.
  - **Type** - The type of the new folder (default is **dm_folder**).
  - **Name** - The name of the new folder.
  - **Title** - The title property of the folder.
  - **Subject** - The subject property of the folder.
- **New Document** - Creates a new document in the current cabinet / folder. The document properties are the following:
  - **Path** - Shows the path where the new document will be created.
  - **Name** - The name of the new document.
  - **Type** - The type of the new document (default is **dm_document**).

    - **Format** - The document content type format.
- **Import** - Imports local files / folders in the selected cabinet / folder of the repository. Actions available in the import dialog:
    - **Add Files** - Shows a file browse dialog and allows you to select files to add to the list.
    - **Add Folders** - Shows a folder browse dialog that allows you to select folders to add to the list. The subfolders will be added recursively.
    - **Edit** - Shows a dialog where you can change the properties of the selected file / folder from the list.
    - **Remove** - Removes the selected files / folders from the list.
- **Rename** - Changes the name of the selected cabinet / folder.
- **Copy** - Copies the selected folder to a different location in the tree (available only upon folders). This action can also be performed with drag and drop while holding the **(Ctrl (Meta on Mac OS))** key pressed.
- **Move** - Moves the selected folder to a different location in the tree (available only upon folders). This action can also be performed with drag and drop.
- **Delete** - Deletes the selected cabinet / folder from the repository. The following options are available:
    - **Folder(s)** - Allows you to delete only the selected folder or to delete recursively the folder and all subfolders and objects.
    - **Version(s)** - Allows you to specify what versions of the resources will be deleted.
    - **Virtual document(s)** - Here you can specify what happens when virtual documents are encountered. They can be either deleted either by themselves or together with their descendants.
- **Refresh** - Performs a refresh of the selected node's subtree.
- **Properties** - Displays the list of properties of the selected cabinet / folder.

Actions Available on Resources

The actions available on a Documentum (CMS) resource in the **Data Source Explorer** view are the following:

- **Edit** - Checks out (if not already checked out) and opens the selected resource in the editor.
- **Edit with** - Checks out (if not already checked out) and opens the selected resource in the specified editor / tool.
- **Open (Read-only)** - Opens the selected resource in the editor. The resources are marked as read-only in the editor using a lock icon on the file tab. If you want to edit those resources, enable the *Can edit read only files* option.
- **Open with** - Opens the selected resource in the specified editor / tool.
- **Check Out** - Checks out the selected resource from the repository. The action is not available if the resource is already checked out.
- **Check In** - Checks in the selected resource (commits changes) into the repository. The action is only available if the resource is checked out.

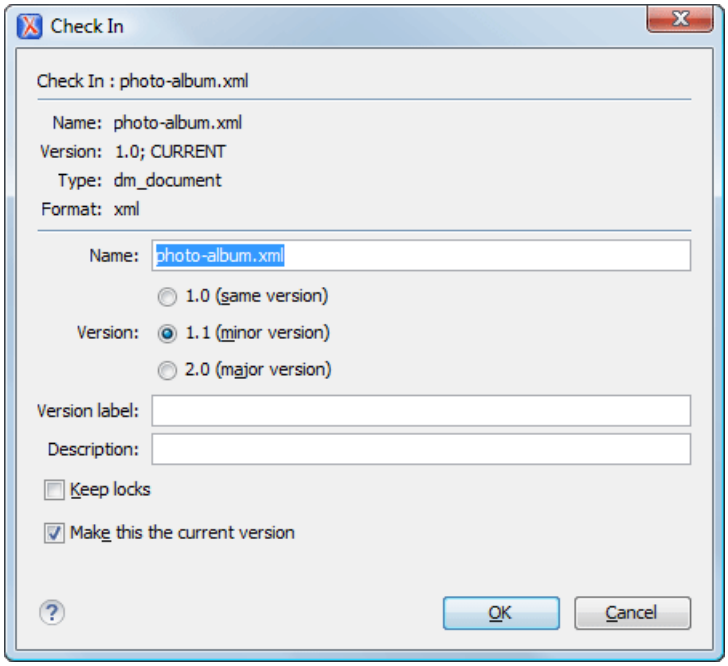


Figure 218: Check In Dialog

The following resource properties are available:

- **Name** - The resource name in the repository.
- **Version** - Allows you to choose what version the resource will have after being checked in.
- **Version label** - The label of the updated version.
- **Description** - An optional description of the resource.
- **Keep Locks** - When this option is enabled, the updated resource is checked into the repository but it also keeps it locked.
- **Make this the current version** - Makes the updated resource the current version (will have the *CURRENT* version label).

- **Cancel Checkout** - Cancels the checkout process and loses all modifications since the checkout. Action is only available if the resource is checked out.
- **Export** - Allows you to export the resource and save it locally.
- **Rename** - Changes the name of the selected resource.
- **Copy** - Copies the selected resource in a different location in the tree. Action is not available on virtual document descendants. This action can also be performed with drag and drop while holding the **(Ctrl (Meta on Mac OS))** key pressed.
- **Move** - Moves the selected resource in a different location in the tree. Action is not available on virtual document descendants and on checked out resources. This action can also be performed with drag and drop.
- **Delete** - Deletes the selected resource from the repository. Action is not available on virtual document descendants and on checked out resources.
- **Add Relationship** - Adds a new relationship for the selected resource. This action can also be performed with drag and drop between resources.
- **Convert to Virtual Document** - Allows you to convert a simple document to a virtual document. Action is available only if the resource is a simple document.
- **Convert to Simple Document** - Allows you to convert a virtual document to a simple document. Action is available only if the resource is a virtual document with no descendants.
- **Copy location** - Allows you to copy to clipboard an application-specific URL for the resource which can then be used for various actions like opening or transforming the resources.
- **Refresh** - Performs a refresh of the selected resource.

- **Properties** - Displays the list of properties of the selected resource.

Transformations on DITA Content from Documentum (CMS)

Oxygen XML Author comes with the DITA Open Toolkit which is able to transform a DITA map to various output formats. However DITA Open Toolkit requires local DITA files so first you need to check out a local version of your DITA content. Once you have a local version of a DITA map just load it in *the DITA Maps Manager view* and run one of the DITA transformations that are predefined in Oxygen XML Author or a customization of such a predefined DITA transformation.

Integration with Microsoft SharePoint

This section explains how to work with a SharePoint connection in the **Data Source Explorer** view.

Note: The SharePoint connection is available in the Enterprise edition.

Note: You can access documents stored on SharePoint Online for Office 365.

To watch our video demonstration about connecting to a repository located on a SharePoint server and using SharePoint, go to *http://www.oxygenxml.com/demo/SharePoint_Support.html*.and SharePoint Online for Office 365

How to Configure a SharePoint Connection

By default Oxygen XML Author is configured to contain a SharePoint data source connection called **SharePoint**. Based on this data source you create a SharePoint connection to a SharePoint server. The connection will be available in *the **Data Source Explorer** view*. The steps for configuring a SharePoint connection are the following:

1. Go to menu **Preferences** > **Data Sources**.
2. In the **Connections** panel click the **New** button.
3. Enter a unique name for the connection.
4. Select SharePoint in the **Data Source** combo box.
5. Fill-in the connection details:
   a) Set the URL to the SharePoint repository in the field **SharePoint URL**.
   b) Set the server domain in the **Domain** field.
   c) Set the user name to access the SharePoint repository in the **User** field.
   d) Set the password to access the SharePoint repository in the **Password** field.

   To watch our video demonstration about connecting to repository located on a SharePoint server, go to *http://www.oxygenxml.com/demo/SharePoint_Support.html*.

SharePoint Connection Actions

This section explains the actions that are available on a SharePoint connection in the **Data Source Explorer** view.

Actions Available at Connection Level

The contextual menu of a SharePoint connection in the **Data Source Explorer** view contains the following actions:

- **Configure Database Sources...** - opens the **Data Sources** *preferences page*. Here you can configure both data sources and connections;
- **Disconnect** - stops the connection;

- **New Folder...** - creates a new folder on the server;
- **Import Files...** - allows you to add a new file on the server;
- **Refresh** - performs a refresh of the connection;
- **Find/Replace in Files...** - Allows you to find and replace text in multiple files from the server.

Actions Available at Folder Level

The contextual menu of a folder node in a SharePoint connection in the **Data Source Explorer** view contains the following actions:

- **New File** - creates a new file on the server in the current folder;
- **New Folder...** - creates a new folder on the server
- **Import Folders...** - imports folders on the server;
- **Import Files** - allows you to add a new file on the server in the current folder;
- **Cut** - removes the current selection and places it in the clipboard;
- **Copy** - copies the current selection;
- **Paste** - pastes the copied selection;
- **Rename** - allows you to change the name of the selected folder;
- **Delete** - removes the selected folder;
- **Refresh** - refreshes the sub-tree of the selected node;
- **Find/Replace in Files...** - Allows you to find and replace text in multiple files from the server.

Actions Available at File Level

The contextual menu of a file node in a SharePoint connection in the **Data Source Explorer** view contains the following actions:

- **Open** - Allows you to open the selected file in the editor;
- **Cut** - removes the current selection and places it in the clipboard;
- **Copy** - copies the current selection;
- **Copy Location** - copies an application specific URL for the selected resource to the clipboard. You can use this URL for various actions like opening or transforming the resources;
- **Check Out** - checks out the selected document on the server;
- **Check In** - checks in the selected document on the server. This action opens the **Check In** dialog. In this dialog, the following options are available:
  - **Minor Version** - increments the minor version of the file on the server;
  - **Major Version** - increments the major version of the file on the server;
  - **Overwrite** - overwrites the latest version of the file on the server;
  - **Comment** - allows you to comment on a file that you check in;
- **Discard Check Out** - discards the previous checkout operation, making the file available for editing to other users;
- **Rename** - allows you to change the name of the selected file;
- **Delete** - removes the selected file;
- **Refresh** - performs a refresh of the selected node;
- **Properties** - displays the properties of the current file in a dialog;
- **Find/Replace in Files...** - Allows you to find and replace text in multiple files from the server;

Note: The **Check In**, **Check Out**, and **Discard Check Out** options are available in the Enterprise edition only.

Chapter 16

Tools

Topics:

Oxygen XML Author ships with a set of tools oriented to XML related tasks. You gave access to a revision control system, a comparing and merging solution and also to other tools like a large file viewer and a hex viewer.

Syncro SVN Client

Syncro SVN is a client for the Apache Subversion™ version control system compatible with Subversion 1.6 servers. 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.

To start Syncro SVN Client, go to **Tools** > **SVN Client**.

Main Window

This section explains the main window of Syncro SVN Client.

Views

The main window consists of the following views:

- ***Repositories** view* - Allows you to define and manage Apache Subversion™ repository locations.
- ***Working Copy** view* - Allows you to manage with ease the content of the working copy.
- ***History** view* - Displays information (author name, revision number, commit message) about the changes made to a resource during a specified period of time.
- ***Editor** view* - Allows you to edit different types of text files, with full syntax-highlight.
- ***Annotations** view* - Displays a list with information regarding the structure of a document (author and revision for each line of text).
- ***Compare** view* - Displays the differences between two revisions of a text file from the working copy.
- ***Image Preview*** - Allows you to preview standard image files supported by Syncro SVN Client: JPG, GIF and PNG.
- ***Compare Images** view* - Displays two images side by side.
- ***Properties** view* - Displays the SVN properties of a resource under version control.
- ***Console** view* - Displays information about the currently running operation, similar with the output of the Subversion command line client.
- ***Help** view* - Shows information about 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 Syncro SVN Client is composed of the following menus:

- **File** menu:
  - **New** submenu:
    - **New File** - This operation creates a file in the working copy and adds it to version control. If the selected path is not under version control, the newly created file is added to the repository only by an explicit action. Creating a file in the working copy does not add it automatically to the repository. This action works only for selected paths in the **Working Copy** tree.
    - **New Folder (Ctrl (Meta on Mac OS) + Shift + F)** - This operation creates a new folder as child of the selected folder from the ***Repositories** view* tree or from the ***Working Copy** view* tree, depending on which view was focused last when performing this action. For the ***Working Copy** view*, the folder is added to version control only if the selected path is under version control, otherwise the newly created directory is not added to version control.
    - **New External Folder (Ctrl (Meta on Mac OS) + Shift + W)** - This operation sets a folder name in the property `svn:externals` of the selected folder. The repository URL to the folder to which the new external

folder points and the revision number of that repository URL can be selected easily with the **Browse** and **History** buttons of the dialog. This action works only for selected paths in the ***Working Copy*** tree.

Subversion 1.5 clients and higher support relative external URLs. You can specify the repository URLs to which the external folders point using the following relative formats:

- **../** - Relative to the URL of the directory on which the `svn:externals` property is set.
- ^/ - Relative to the root of the repository in which the `svn:externals` property is versioned.
- // - Relative to the scheme of the URL of the directory on which the `svn:externals` property is set.
- / - Relative to the root URL of the server on which the `svn:externals` property is versioned.

- **Open (Ctrl (Meta on Mac OS) + O)** - This action opens the selected file in an editor where you can modify it. The action is active only when a single item is selected. The action opens a file with the internal editor or the external application associated with that file type. In case of a folder the action opens the selected folder with the system application for folders (for example Windows Explorer on Windows, Finder on Mac OS X, etc). Folder opening is available only for folders selected in the ***Working Copy*** *view*. This action works on any file selection from the ***Repositories*** *view*, ***Working Copy*** *view*, ***History*** *view* or ***Directory Change Set*** *view*, depending on which view was last focused when invoking it.
- **Open with(Ctrl (Meta on Mac OS) + Shift + O)** - Displays the ***Open with*** dialog for specifying the editor in which the selected file is opened. In case multiple files are selected only external applications can be used to open the files. This action works on any file selection from ***Repositories*** *view*, ***Working Copy*** *view*, ***History*** *view* or ***Directory Change Set*** *view*, depending on which view was last focused when invoking it.
- **Show in Explorer**/**Show in Finder** - Opens the parent directory of the selected working copy file and selects the file.

- **Save (Ctrl (Meta on Mac OS) + S)** - Saves the local file currently opened in the editor or the **Compare** view.
- **Save as** - Saves locally any file selected in the **Repositories**, **History**, and **Directory Change Sets** view.
- **Copy URL Location (Ctrl (Meta on Mac OS) + Alt + U)** - Copies to clipboard the URL location of the resource currently selected in the **Repositories** view.
- **Copy to** - Copies to a specified location the currently selected resource(s) either in **Repositories** or **Working copy** view.

  Note: This action can also be used from **History** and **Directory Change Set** views to recover older versions of a repository item.

- **Move to (Ctrl (Meta on Mac OS) + M)** - Moves to a specified location the currently selected resource(s) either in **Repositories** or **Working copy** view.
- **Rename (F2)** - Renames the resource currently selected either in **Repositories** or **Working copy** view.
- **Delete (Delete)** - Deletes the resource currently selected either in **Repositories** or **Working copy** view.
- **Locking**:
  - **Scan for locks (Ctrl (Meta on Mac OS) + L)** - 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 *Scanning for locks*.
  - **Lock (Ctrl (Meta on Mac OS) + K)** - 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 see *Locking a file*.
  - **Unlock (Ctrl (Meta on Mac OS) + Alt + K)** - Releases the exclusive access to a file from the repository. You can also choose to unlock it by force (*break the lock*).

- **Show SVN Properties (Ctrl (Meta on Mac OS) + Shift + P)** - Brings up the ***Properties*** *view* and displays the SVN properties for a selected resource from ***Repositories*** *view* or ***Working Copy*** *view*, depending on which view was last focused when invoking it.
- **File Information (Ctrl (Meta on Mac OS) + I)** - Provides additional information for a selected resource from the ***Working Copy*** *view*. For more details please see the section *Obtain information for a resource*.
- **Exit (Ctrl (Meta on Mac OS) + Q)** - Closes the application.

- **Edit** menu:
  - **Undo (Ctrl (Meta on Mac OS) + Z)** - Undo edit changes in the local file currently opened in the editor or the **Compare** view.
  - **Redo (Ctrl (Meta on Mac OS) + Y)** - Redo edit changes in the local file currently opened in the editor or the **Compare** view.
  - **Cut (Ctrl (Meta on Mac OS) + X)** - Cut selection to clipboard from the local file currently opened in the editor view or the **Compare** view.
  - **Copy (Ctrl (Meta on Mac OS) + C)** - Copy selection to clipboard from the local file currently opened in the editor or the **Compare** view.
  - **Paste (Ctrl (Meta on Mac OS) + V)** - Paste selection from clipboard in the local file currently opened in editor or the **Compare** view.
  - **Find/Replace (Ctrl (Meta on Mac OS) + F)** - Perform find / replace operations in the local file currently opened in the editor or the **Compare** view.
  - **Find Next (F3)** - Go to the next find match using the same find options of the last find operation. The action runs in the editor panel and in any non-editable text area, for example the **Console** view.
  - **Find Previous (Shift + F3)** - Go to the previous find match using the same find options of the last find operation. The action runs in the editor panel and in any non-editable text area, for example the **Console** view.
- **Repository** menu:
  - **New Repository Location** (**Ctrl (Meta on Mac OS) + Alt + N**) - Displays the **Add SVN Repository** dialog. This dialog allows you to define a new repository location.

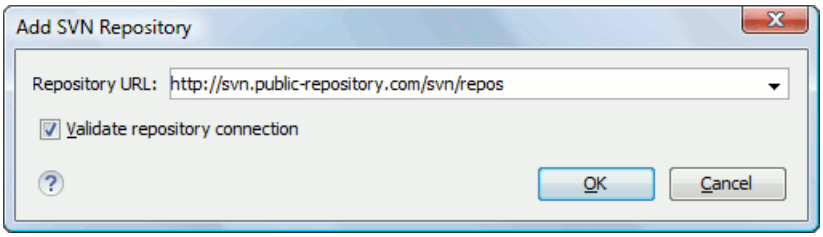


Figure 219: Add SVN Repository Dialog Box

If the **Validate repository connection** option is selected, the URL connection is validated before being added to the **Repositories** view.

  - **Edit Repository Location** (**Ctrl (Meta on Mac OS) + Alt + E**) - Context-dependent action that allows you to edit the selected repository location using the **Edit SVN Repository** dialog. It is active only when a repository location root is selected.
  - **Change the Revision to Browse** (**Ctrl (Meta on Mac OS) + Alt + Shift + B**) - Context-dependent action that allows you to change the selected repository revision using the **Change the Revision to Browse** dialog. It is active only when a repository location root is selected.
  - **Remove Repository Location** (**Ctrl (Meta on Mac OS) + Alt + Shift + R**) - 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.
  - **Refresh** - Refreshes the resource selected in the **Repositories** view.

- **Check out** (**Ctrl (Meta on Mac OS) + Alt + Shift + C**) - Allows you to create a working copy from a repository directory, on your local file system. To read more about this operation, see the section *Check out a working copy*.
- **Export** - Exports a folder from the repository to the local file system.
- **Import** sub-menu:
  - **Import Folder Content** (**Ctrl (Meta on Mac OS) + Alt + Shift + M**) - Depending on the selected folder from a repository, allows you to import the contents of a specified folder from the file system into it. To read more about this operation, see the section *Importing resources into a repository*.

    Note: The difference between **Import Folder Content** and **Share project** actions is that the latter one also converts the selected directory into a working copy.

  - **Import File(s)** (**Ctrl (Meta on Mac OS) + Alt + I**) - Imports the files selected from the files system into the selected folder from the repository.

- **Working Copy** menu:
  - (on Mac OS X) **Working Copies Manager** - Opens dialog with a list of working copies that the Apache Subversion™ client is aware of. In this dialog you can add existing working copies or remove no longer needed ones.
  - **Switch to** - Selects one of the following view modes: **All Files**, **Modified**, **Incoming**, **Outgoing**, or **Conflicts**.
  - **Refresh (F5)** - Refreshes the state of the selected resources or of the entire working copy if there is no selection.
  - **Synchronize (Ctrl (Meta on Mac OS) + Shift + S)** - Connects to the repository and determines the working copy and repository changes made to the selected resources. The application switches to **Modified** view mode if the *Always switch to 'Modified' mode* option is selected.
  - **Update (Ctrl (Meta on Mac OS) + U)** - Updates all the selected resources that have incoming changes to the HEAD revision. If one of the selected resources is a directory then the update for that resource will be recursive.
  - **Update to revision/depth** - Allows you to update the selected resources from the working copy to an earlier revision from the repository. You can also select the update *depth* for the current folder. You can find out more about the *depth* term in the *sparse checkouts* section.
  - **Commit** - Collects the outgoing changes from the selected resources in the working copy and allows you to choose exactly what to commit by selecting or not resources. A directory will always be committed recursively. The unversioned resources will be deselected by default. In the commit dialog you can also enter a commit comment before sending your changes to the repository.
  - **Update all (Ctrl (Meta on Mac OS) + Shift + U)** - Updates all resources from the working copy that have incoming changes. It performs a recursive update on the synchronized resources.
  - **Commit all** - Commits all the resources with outgoing changes. It is disabled when **Incoming** mode is selected or the synchronization result does not contain resources with outgoing changes. It performs a recursive commit on the synchronized resources.
  - **Revert (Ctrl (Meta on Mac OS) + Shift + V)** - Undoes all local changes for the selected resources. It does not contact the repository, the files are obtained from Apache Subversion™ pristine copy. It is enabled only for modified resources. See *Revert your changes* for more information.
  - **Edit conflict (Ctrl (Meta on Mac OS) + E)** - Opens the **Compare** editor, allowing you to modify the content of the currently conflicting resources. For more information on editing conflicts, see *Edit conflicts*.
  - **Mark Resolved (Ctrl (Meta on Mac OS) + Shift + R)** - Instructs the Subversion system that you resolved a conflicting resource. For more information, see *Merge conflicts*.

- **Mark as Merged (Ctrl (Meta on Mac OS) + Shift + M)** - Instructs the Subversion system that you resolved the pseudo-conflict by merging the changes and you want to commit the resource. Read the *Merge conflicts* section for more information about how you can solve the pseudo-conflicts.
- **Override and Update** - Drops any outgoing change and replaces the local resource with the HEAD revision. Action available on resources with outgoing changes, including the conflicting ones. See the *Revert your changes* section.
- **Override and Commit** - Drops any incoming changes and sends your local version of the resource to the repository. Action available on conflicting resources. See also the section *Drop incoming modifications*.
- **Mark as copied** - You can use this action to mark an item from the working copy as a copy of an other item under version control, when the copy operation was performed outside of an SVN client. The **Mark as copied** action is available when you select two items (both the new one and the source one) and depends on the state of the source item.

  Note: If you use an SVN 1.6 working copy or older, this action does not apply for directories.

- **Mark as moved** - You can use this action to mark an item from the working copy as being moved from another location of the working copy, when the move operation was performed outside of an SVN client. The **Mark as moved** action is available when you select two items from different locations (both the new one and the source one (usually reported as *missing*)) and depends on the state of the source item.

  Note: If you use an SVN 1.6 working copy or older, this action does not apply for directories.

- **Mark as renamed** - You can use this action to mark an item from the working copy as being renamed outside of an SVN client. The **Mark as renamed** action is available when you select two items from the same directory (both the new one and the source one (usually reported as *missing*)) and depends on the state of the source item.

  Note: If you use an SVN 1.6 working copy or older, this action does not apply for directories.

- **Add to "svn:ignore" (Ctrl (Meta on Mac OS) + Alt + I)** - Allows you to keep inside your working copy files that should not participate to the version control operations. This action can only be performed on resources not under version control. It actually modifies the value of the *svn:ignore* property of the resource's parent directory. Read more about this in the *Ignore Resources Not Under Version Control* section.
- **Add to version control (Ctrl (Meta on Mac OS) + Alt + V)** - Allows you to schedule for addition resources that are not under version control. For further details, see *Add Resources to Version Control* section.
- **Remove from version control** - Schedules selected items for deletion from repository upon the next commit. The items are not removed from the file system after committing.
- **Clean up (Ctrl (Meta on Mac OS) + Shift + C)** - 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.
- **Expand all (Ctrl (Meta on Mac OS) + Alt + X)** - Displays all descendants of the selected folder. You can obtain a similar behavior by double-clicking on a collapsed folder.
- **Collapse all (Ctrl (Meta on Mac OS) + Alt + Z)** - Collapses all descendants of the selected folder. The same behavior is obtained by double-clicking on a expanded folder.

- **Compare** menu:
  - **Perform Files Differencing** - performs a comparison between the source and target files;
  - **Next Block of Changes** - jumps to the next block of changes. This action is disabled when the cursor is positioned on the last change block or when there are no changes in the document;
  - **Previous Block of Changes** - jumps to the previous block of changes. This action is disabled when the cursor is positioned on the first change block or when there are no changes in the document;

- **Next Change** - jumps to the next change from the current block of changes. When the last change from the current block of changes is reached, it highlights the next block of changes. This action is disabled when the cursor is positioned on the last change;
- **Previous Change** - jumps to the previous change from the current block of changes. When the first change from the current block of changes is reached, it highlights the previous block of changes. This action is disabled when the cursor is positioned on the first change;
- **Last Change** - jumps to the last change from the current file;
- **First Change** - jumps to the first change from the current file;
- **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.
- **Copy Change from Right to Left (Ctrl (Meta on Mac OS) + Shift + Comma)** - This action copies the selected change from the right editor to the left editor.
- **Show Word Level Details** - provides a word-level comparison of the selected change;
- **Show Character Level Details** - provides a character-level comparison of the selected change.
- **Ignore Whitespaces** - Enables or disables the whitespace ignoring feature. Ignoring whitespace means that before the strings are compared they are first normalized and then the whitespace at the beginning and the end of the strings is trimmed.

- **History** menu:
  - **Show History (Ctrl (Meta on Mac OS) + H)** - Displays the history for a SVN resource at a given revision. The resource can be one selected from the **Repositories** view, **Working Copy** view, or from the **Affected Paths** table from the **History** view, depending on which view was last focused when this action was invoked.
  - **Show Annotation** (**Ctrl (Meta on Mac OS) + Shift + A**) - Complex action that does the following operations:
    - opens the selected resource in the **Annotations** editor;
    - displays corresponding annotations list in the **Annotations** view;
    - displays the history of the selected resource.
  - This operation is available for any resource selected from **Repositories** view, **Working Copy** view, **History** view or **Directory Change Sets** view, depending on which view was last focused when this action was invoked.
  - **Revision Graph (Ctrl (Meta on Mac OS) + Shift + G)** - This action allows you to see the graphical representation of a resource's history. For more details about a resource's revision graph see the section *Revision Graph*. This operation is enabled for any resource selected into the **Repositories** view or **Working Copy** view.
- **Tools** menu:
  - **Share project** - Allows you to *share a new project* using an SVN repository. The local project is automatically converted into an SVN working copy.
  - **Branch / Tag** - Allows you to copy the selected resource from the **Repositories** view or **Working Copy** view to a branch or tag into the repository. To read more about this operation, see the section *Creating a Branch / Tag*.
  - **Merge (Ctrl (Meta on Mac OS) + J)** - Allows you to merge the changes made on one branch back into the trunk, or vice versa, using the selected resource from the working copy. To read more about this operation, see the section *Merging*.
  - **Switch (Ctrl (Meta on Mac OS) + Alt + W)** - Allows you to change the repository location of a working copy or only of a versioned item of the working copy within the same repository. It is available when the selected item of the working copy is a versioned resource, except an external folder. To read more about this action, see the section *Switching the Repository Location*.
  - **Relocate** - Allows you to change the base URL of the root folder of the working copy to a new URL, when the base URL of the repository changed, for example the repository itself was relocated to a different server. This

operation is available for a selected item of the working copy tree that is a versioned folder. To read more about this operation, see the section *Relocate a Working Copy*.

- **Create patch (Ctrl (Meta on Mac OS) + Alt + P)** - Allows you to create a file containing all the differences between two resources, based on the `svn diff` command. To read more about creating patches, see *the section about patches*.
- **Working copy format** - this submenu contains the following two operations:
  - **Upgrade** - Allows you to upgrade the format of the current working copy to the newest one known by Syncro SVN Client, to allow you to benefit of all the new features of the client.
  - **Downgrade** - Allows you to downgrade the format of the current working copy to an older format. The formats allowed to downgrade to are SVN 1.5 and SVN 1.4. This is useful in case you wish to use older SVN clients with the current working copy, or, by mistake, you have upgraded the format of an older working copy by using a newer SVN client.

    Note: SVN 1.7 working copies cannot be downgraded to older formats.

  See the section *Working Copy Format* to read more about this subject.

- **Options** menu:
  - **Preferences** - Opens the **Preferences** dialog.
  - **Menu Shortcut Keys** - Opens the **Preferences** dialog directly on the **Menu Shortcut Keys** option page, where users can configure in one place the keyboard shortcuts available for menu items available in Syncro SVN Client.
  - **Global Run-Time Configuration** - Allows you to configure SVN general options, that should be used by all the SVN clients you may use:
    - **Edit 'config' file** - In this file you can configure various SVN client-side behaviors.
    - **Edit 'servers' file** - In this file you can configure various server-specific protocol parameters, including HTTP proxy information and HTTP timeout settings.
  - **Export Options** - Allows you to export the current options to a file.
  - **Import Options** - Allows you to import options you have previously exported.
  - **Reset Options** - Resets all your options to the default ones.
  - **Reset Authentication** - Resets the Subversion authentication information.
- **Window** menu:
  - **Show View** - Allows you to select the view you want to bring to front.
  - **Show Toolbar** - Allows you to select the toolbar you want to be visible.
  - **Enable flexible layout** - Toggles between a fixed and a flexible layout. When the flexible layout is enabled, you can move and dock the internal views to adapt the application to different viewing conditions and personal requirements.
  - **Reset Layout** - Resets all the views to their default position.
- **Help** menu:
  - **Help (F1)** - Opens the **Help** dialog.
  - **Dynamic Help** - Shows the **Dynamic Help** view.
  - **Check for New Versions** - Checks the availability of new Syncro SVN Client versions.
  - **Register** - Opens the registration dialog.
  - **Improvement Program Options** - Allows you to activate or deactivate the Syncro Soft Product Improvement Program.
  - **Report Problem** - Opens a dialog that allows the user to write the description of a problem that was encountered while using the application.
  - **Support Center** - Opens the Support Center web page in a browser.

Main Toolbar

The toolbar of the SVN Client SVN Repositories window contains the following actions:

- **Check out** - Checks out a working copy from a repository. The repository URL and the working copy format must be specified.
- **Synchronize** - Synchronizes the current working copy with the repository.
- **Update All** - Updates all resources of the working copy that have an older revision that repository.
- **Commit All** - Commits all resources of working copy that have a newer version compared to that of the repository.
- **Refresh** - Refreshes the whole content of the current working copy from disk starting from the root folder. At the end of the operation, the modified files and folders that were not committed to repository yet, are displayed in the **Working Copy** view.
- **Compare** - The selected resource is compared with:
  - the *BASE* revision, when the selected resource is:
    - locally modified and the **All Files** view mode is currently selected (no matter if there are incoming changes);
    - locally modified and there are no incoming changes when any other view mode is selected.
  - the remote version of the same resource, when remote information is available after a **Synchronize** operation (only when one of **Modified**, **Incoming**, **Outgoing** and **Conflicts** view modes is selected).
  - the working copy revision, when the selected resource is from the **History** view;
- **Show History** - Displays the history of the selected resource (from the **Working Copy** or **Repository** views) in the **History** view.
- **Show Annotation** - Displays the annotations of the selected resource. The selected resource can be in the **Working Copy** or the **History** views.
- **Revision Graph** - Displays the revision graph of the selected resource. The selected resource can be in the **Working Copy** or the **Repositories** views.
- **Enable/Disable flexible layout** - Toggles between a fixed and a flexible layout. When the flexible layout is enabled, you can move and dock the internal views to adapt the application to different viewing conditions and personal requirements.

Status Bar

The status bar of the Syncro SVN Client window displays important details of the current status of the application. This information is available only in the **Working Copy** view.

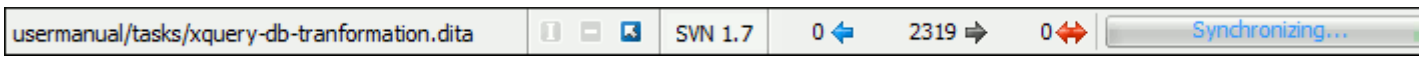


Figure 220: Status bar

The status bar is composed of the following areas:

- the path of the currently processed file from the current working copy (during an operation like **Check out** or **Synchronize**) or the result of the last operation;
- the current status of the following working copy options:

- Show ignored files ( );
- Show deleted files ( );
- Process `svn:externals` definitions ( ).

The options for ignored and deleted files are switched on and off from *the **Settings** menu* of the **Working Copy** panel;

- the format of the currently loaded working copy;
- the current numbers of incoming changes ( ), outgoing changes ( ) and conflicting changes ( );
- a progress bar for the currently running SVN operation and a button ( ) that allows you to stop it.

Getting Started

This section explains the basic operations that can be done in Syncro SVN Client.

SVN Repository Location

This section explains how to add and edit the repository locations in Syncro SVN Client.

Add / Edit / Remove Repository Locations

Usually, team members do all of their work separately, in their own working copy, and must share their work. This is done using an Apache Subversion™ repository. Syncro SVN Client supports versions 1.4, 1.5, 1.6, 1.7 and 1.8 of the SVN repository format.

Note: SVN 1.8 FSFS-backed repositories (accessed through `file://` protocol) are not supported.

Before you can begin working with a Subversion repository, define a repository location in the ***Repositories** view*.

To create a repository location, click the **New Repository Location** toolbar button or right click inside the view and select **New Repository Location...** from the popup menu. On Windows, the context menu can be displayed on a right click with the mouse or with the keyboard by pressing the special context menu key available on Windows keyboards. This action opens the **Add SVN Repository** dialog which prompts 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 prompts you for a new password only when your password changes.

Once you enter the repository URL Syncro SVN Client tries to contact the server and get the content of the repository for displaying it in the ***Repositories** view*. If the server does not respond in the timeout interval set in preferences, an error is reported. If you do not want to wait until the timeout expires, you can end the waiting process with the **Stop** button from the toolbar of the view.

To edit a repository location, click the **Edit Repository Location** toolbar button or right click inside the view on a repository root 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 shows the previously defined repositories URLs and it allows 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 is displayed to make sure that you do not accidentally remove locations.

The order of the repositories can be changed in the **Repositories** view at any time with the two buttons on the toolbar of the view, the up arrow and the down arrow . For example, pressing the up arrow once moves up the selected repository in the list with one position.

To set the reference revision number of an SVN repository right-click on the repository in the list displayed in the ***Repositories** view* and select the **Change the Revision to Browse...** action. The revision number of the repository is used for displaying the contents of the repository when it is viewed in the ***Repositories** view*. Only the files and folders that were present in the repository at the moment when this revision number was generated on the repository are displayed

as contents of the repository tree. Also this revision number is used for all the file open operations executed directly from the ***Repositories** view*.

Authentication

Five protocols are supported: *HTTP*, *HTTPS*, *SVN*, *SVN + SSH* and *FILE*. If the repository that you are trying to access is password protected, the **Enter authentication data** dialog requests a user name and a password. If the **Store authentication data** checkbox is checked, the credentials are stored in Apache Subversion™ default directory:

- on Windows - `%HOME%\Application Data\Subversion\auth`. Example: `C:\Documents and Settings\John\Application Data\Subversion\auth`
- on Linux and Mac OS X - `$HOME/.subversion/auth`. Example: `/home/John/.subversion/auth`

There is 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 causes Subversion to forget all your credentials. When you reset the authentication data, restart Syncro SVN Client for the change to take effect.

Tip: The *FILE* protocol is recommended if the SVN repository and Syncro SVN Client are located on the same computer as it ensures faster access to the SVN repository compared with other protocols.

For HTTPS connections where client authentication is required by your SSL server, you must choose the certificate file and enter the corresponding certificate password which is used to protect your certificate.

When using a secure HTTP (HTTPS) protocol for accessing a repository, a **Certificate Information** dialog pops up and asks you whether you accept the certificate permanently, temporarily or simply deny it.

If the repository has SVN+SSH protocol, the SSH authentication can also be made with a private key and a pass phrase.

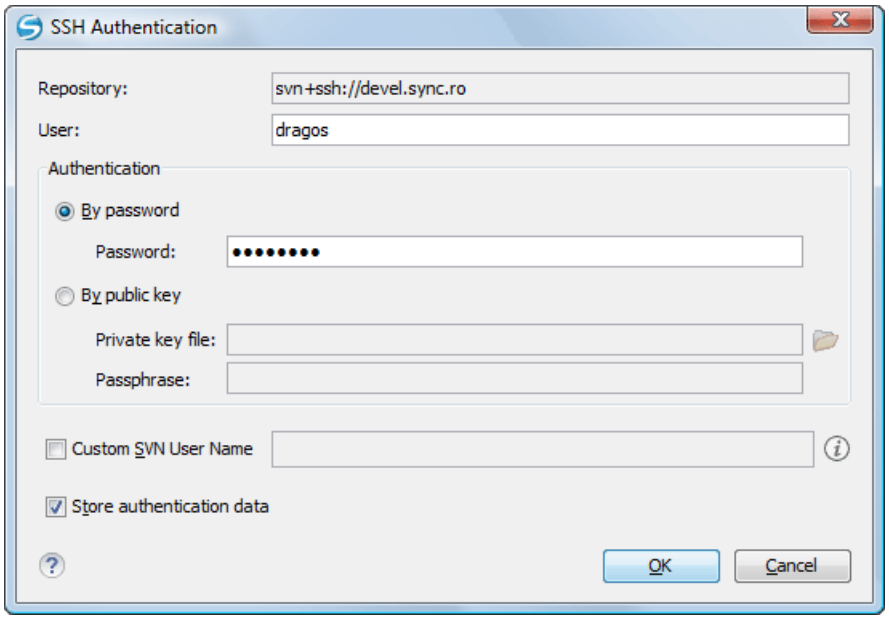


Figure 221: User & Private key authentication dialog

After the SSH authentication dialog, another dialog pops up for entering the SVN user name that accesses the SVN repository. The SVN user name is recorded as the *committer* in SVN operations.

When connecting for the first time to a Subversion repository through SVN+SSH protocol, you will be asked to confirm if you trust the SSH host. The same dialog box is also displayed when the server changed the SSH key or when the key was deleted from the local Subversion cache folder.

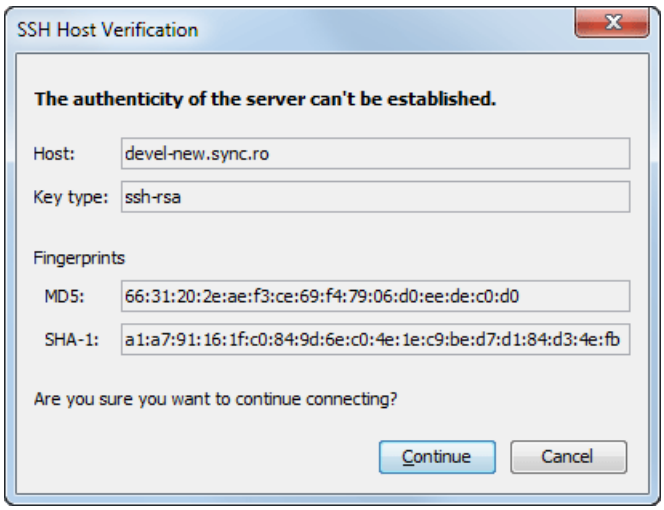


Figure 222: SSH server name and key fingerprint

Share a Project

Even if you start developing a new project or you want to migrate an existing one to Subversion, Syncro SVN Client allows you to share it easily with the rest of your team. The **Share project** action helps you do this by providing a simplified interface:

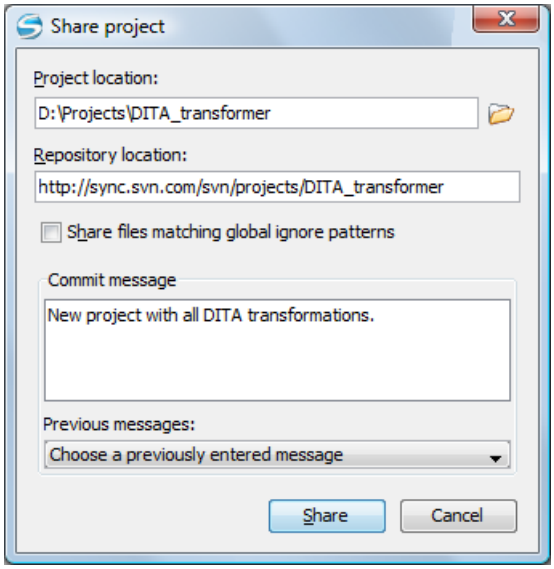


Figure 223: Share Project Dialog Box

To share a project, set the following:

- **Project location** box - enter the location of the project on the local disk.

  Note: The root directory of the project is not imported in the repository, only its content is imported.

- **Repository location** box - type the repository address of the new project. If the address does not exist, it is created automatically. If it does exist, make sure that it is an empty location to avoid mixing your project content with other files.
- **Share files matching global ignore patterns** check box - file names that match the patterns defined under the `global-ignores` property, in the Subversion clients configuration file, are also imported in the repository.

The shared project directory is automatically converted to a working copy and added under Syncro SVN Client management.

Defining a Working Copy

An Apache 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.

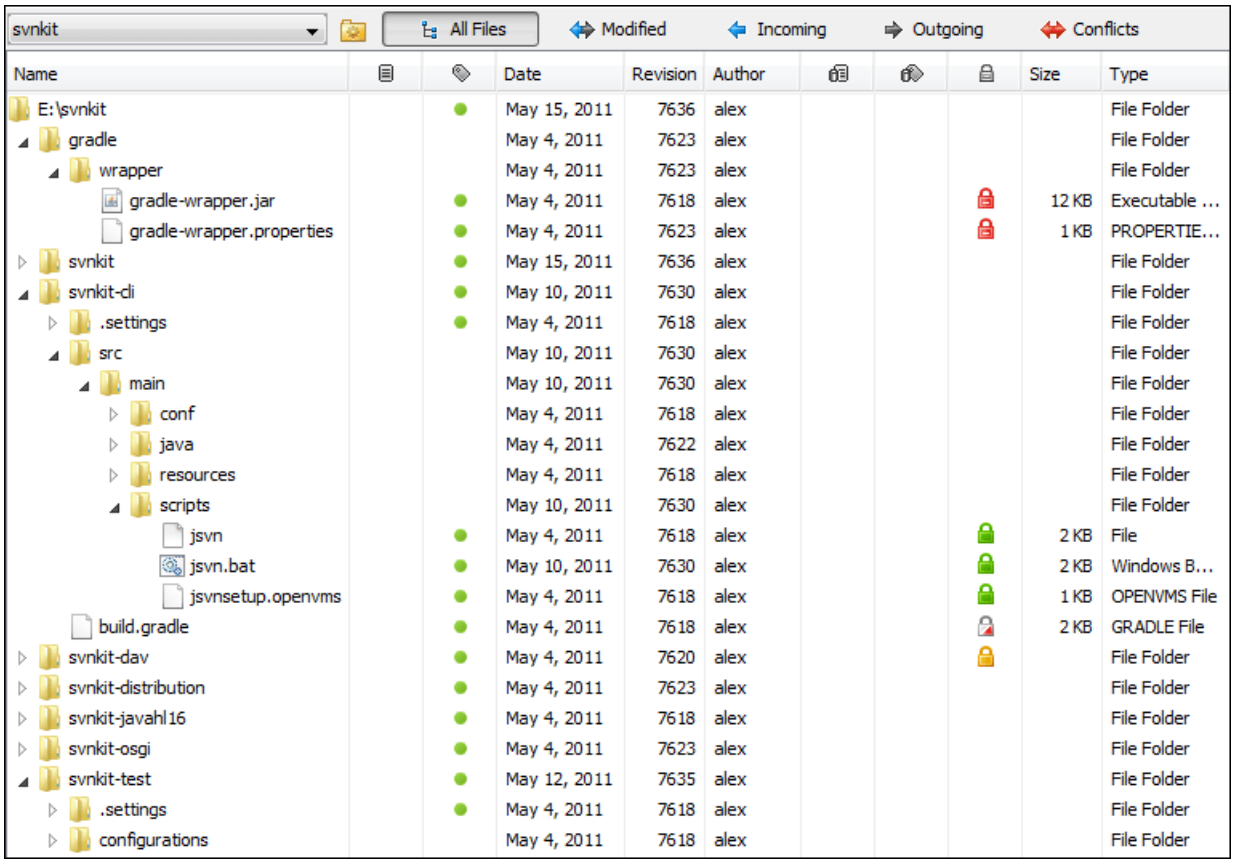


Figure 224: Working Copy View

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 file system tree. In this arrangement, a user's working copy usually corresponds to a particular subtree of the repository.

Check Out a Working Copy

Check Out means making a copy of a project from a repository into your local file system. This copy is called a *working copy*. An Apache Subversion™ working copy is a specially formatted directory structure which contains additional `.svn` directories that store Subversion information, as well as a pristine copy of each item that is checked out.

To check out a working copy, go to the ***Repositories** view*. In case no connections to your repository are available, *add a new repository location*and follow these steps to check out a working copy:

1. Navigate to the desired repository directory in the **Repositories** view.
2. Right click on the directory and select **Check Out...** from the popup menu.

The **Check Out** dialog box is displayed:

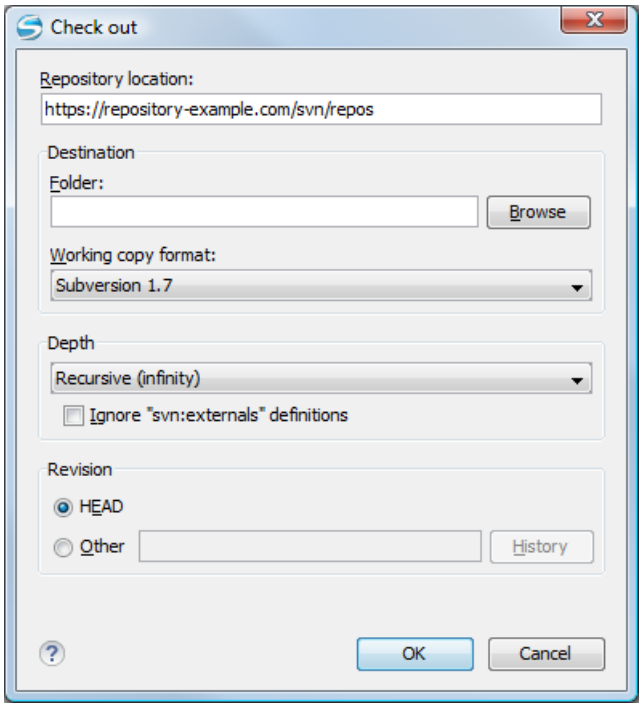


Figure 225: Check Out Dialog

3. Click the **Browse** button.
4. Select the location where the working copy is created.
5. Select the version of the working copy format: SVN 1.4, SVN 1.5, SVN 1.6 or SVN 1.7.
6. Select the depth to be used when checking out the working copy;

   This allows you to specify the recursion level into child resources. The depth is used if you want to check out only a part of the selected repository directory and bring in a future update the rest of the files and subdirectories. You can find out more about the check out depth in the *sparse checkouts* section.
7. Select the revision number that is checked out.

   By default the last (HEAD) revision is checked out. If you need another revision, you have to specify the revision number or click the **History** button which opens *the **History** dialog*.

After a check out, the new working copy will be added to the list in the ***Working Copy** view* and loaded automatically.

The History Dialog

The **History** dialog presents a list of revisions for a resource. It is opened from the dialogs that require setting an SVN revision number like *the **Check Out** dialog* or *the **Branch / Tag** dialog* to name just a few. It presents information about revision, commit date, author, and commit comment.

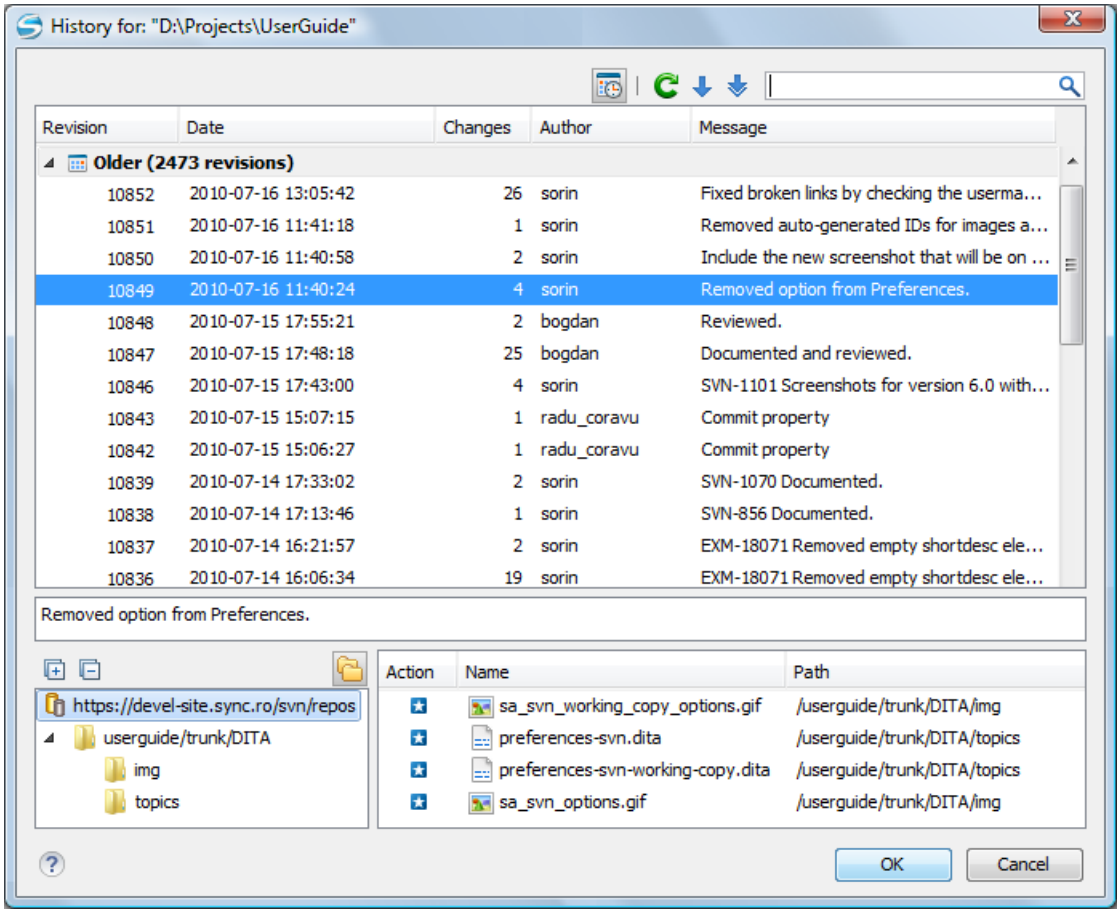


Figure 226: History Dialog

The initial number of entries in the list is 50. Additional revisions can be added to the list using the **Get next 50** and **Get all** buttons. The list of revisions can be refreshed at any time with the **Refresh** button. You can group revisions in predefined time frames (today, yesterday, this week, this month), by pressing the **Group by date** button from the toolbar.

The **Affected Paths** area displays all paths affected by the commit of the revision selected in history. You can see the changes between the selected revision and the file's previous state using the **Compare with previous version** action, available in the contextual menu.

Use an Existing Working Copy

Using an existing working copy is the process of taking a working copy that exists on your file system and connecting it to Apache Subversion™ repository. If you have a brand new project that you want to import into your repository, then see the section *Import resources into the repository*. The following procedure assumes that you have an existing valid working copy on your file system.

1. Click the **Working Copies Manager** toolbar button (on Mac OS X) in the ***Working Copy** view*. This action opens the **Working copies list** dialog.
2. Press the **Add** button.
3. Select the working folder copy from the file system.

Note:

With SVN 1.6 and earlier, you can use any directory located in a working copy as a standalone working copy. This helps you avoid loading a whole working copy when needing to work only on a small part of it.

Starting with SVN 1.7, all the internal information of a working copy is kept only in the root directory. To track outside changes properly, Syncro SVN Client needs to load the whole working copy.

4. Optionally you can press the **Edit** button to change the name of the working copy that is displayed in the **Working Copy** view.

   The name is useful to differentiate between working copies located in folders with the same name. The default name is the name of the root folder of the working copy.

   To change the working copies order, use the two arrow buttons which move the selected working copy one position up or down.

5. Press the **OK** button.

The selected working copy is loaded and presented in the ***Working Copy** view*.

Manage Working Copy Resources

This section explains how to work with the resources that are displayed in the **Working Copy** view.

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 contextual menu.

Please note that only one file can be edited at a time. If you try to open another file, it is opened in the same editor window. The editor has syntax highlighting for known file types, meaning that a different color is used for each type of recognized token in the file. If the selected file is an image, then it is previewed in the editor, with no access to modifying it.

After modifying and saving a file from a working copy, a modified marker - an asterisk (*) - will be added to the file's icon in the ***Working Copy** view*. The asterisk marks the files that have local modifications that were not committed to the repository.

Add Resources to Version Control

To share new files and folders (created in your working copy), add them to version control using the **Add to version control** option from the ***Working Copy** view*.

You can easily spot resources not under version control by the (*unversioned*) icon displayed in the **Local file status** column. Resources scheduled for addition (*added*) are displayed with this icon in the **Working Copy** view and are added in the repository after you commit them.

Note: Do not make a confusion between and icons. The former icon stands for resources that are actually copies of resources already committed in the repository, meaning they are *scheduled for addition with history*.

When you use the **Add to version control** option on a directory, its entire structure is scanned and all the resources that can be added under version control are presented.

Though it is not mandatory to add resources under version control explicitly, it is recommended. If you forgot to add a resource, when you *commit your changes*, the resource is presented in the commit dialog, but not selected. When you commit and *unversioned* resource, it is automatically added under version control before starting the commit operation.

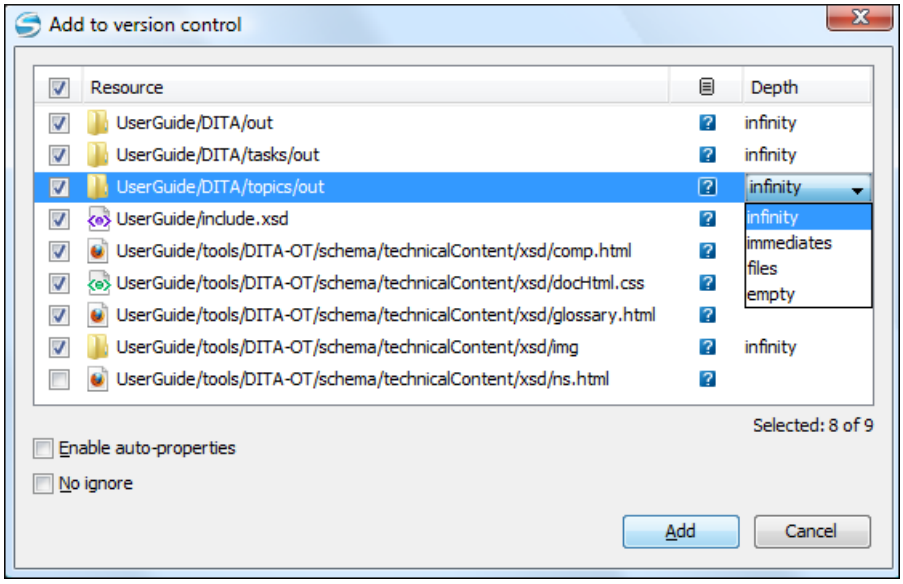


Figure 227: "Add to version control" dialog box

Note: *Ignored* ( ) items can also be added under version control.

The **Depth** column is displayed only when directories are also presented in the dialog. For any directory, you can use one of the available values to instruct Subversion to limit the scope of the operation to a particular tree depth.

Note: The initial value of the **Depth** field can have the following values, depending on the *listing mode of the items in the working copy view*:

- *infinity* - when the working copy items are presented as a tree;
- *files* - when the working copy items are presented compressed;
- *empty* - when the working copy items are presented flat.

When you add unversioned or ignored directories, the initial value of the **Depth** field also depends on the state of the **Show unversioned directories content** and **Show ignored directories content** options. In case these options are enabled, the value is based on the listing mode of the items in the working copy view. When they are disabled, the value is *empty* .

The following options are available in this dialog box:

- **Enable auto-properties** or **Disable auto-properties** - enables or disables automatic property assignment (per runtime configuration rules), overriding the `enable-auto-props` runtime configuration directive, defined in the `config` file of the Subversion configuration directory.

  Note:

  This option is available only when there are defined properties to be applied automatically for resources newly added under version control. You can define these properties in the `config` file of the Subversion configuration directory, in the `auto-props` section.

  Based on the value of the `enable-auto-props` runtime configuration directive, the presented option is either **Enable auto-properties**, or **Disable auto-properties**.

- **No ignore** - when you enable this option, file-name patterns defined to ignore *unversioned* resources do not apply. Resources that are located inside an *unversioned* directory selected for addition, and match these patterns, are also scheduled for addition in the repository.

  Note:

  This option is available only when directories are also presented in the dialog.

You can define file-name patterns to ignore *unversioned* resources in one of the following locations:

- in the `config` file of the Subversion configuration directory (the `global-ignores` option from the `miscellany` section);
- in the Syncro SVN Client options: **Options** > **Preferences** > **SVN** > **Working copy** > **Application global ignores**.

Each of the above two options is activated only when you select an item for which the option can be applied.

Ignore Resources Not Under Version Control

Some resources inside your working copy do not need to be subject to version control. These resources can be files created by the compiler, `*.obj`, `*.class`, `*.lst`, or output folders used to store temporary files. Whenever you *commit changes*, Apache Subversion™ shows your modified files but also the unversioned files, which fill up the file list in the commit dialog. Though the unversioned files are 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 are never displayed in the commit dialog and only genuine unversioned files which must be committed are shown.

You can choose to ignore a resource by using the **Add to svn:ignore** action in the contextual menu of the ***Working Copy** 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 the following wildcard characters:

- * - Matches any string of characters of any size, including the empty string.
- ? - Matches any single character.

For example, you can choose to ignore all text documents by using the pattern: **.txt*.

The action **Add to svn:ignore** 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 is visible in the **Working Copy** view. The ignored resources are represented with grayed icons.

Delete Resources

The **Delete** action is available in the contextual menu of the ***Working Copy** view*. When you delete an item from the working copy, it is marked as *deleted* (scheduled for deletion from repository upon the next commit) and removed from the file system. Depending on the state of each item, you are prompted to confirm the operation.

Note: For SVN 1.6 working copies, the delete action does not remove from the file system the directories under version control, it only marks them as *deleted*. This is because they also contain the pristine copy of that directory content. In the ***Working Copy** view*, this behaviour is transparent as all resources have the deleted mark (). The directories are removed from the file system when you *commit* them to the repository.

If a resource is deleted from the file system without Subversion's knowledge, the resource is marked as *missing* () in your working copy. You can decide what you want to do with a *missing* item:

- in case of a commit, any *missing* item is first deleted automatically and then committed.

  Note: Not any *missing* item can be committed as *deleted*, and removed from the repository. For example, you cannot commit an item that no longer exists on the disk and that was scheduled for addition () previously, since this item does not exist in the repository, but you can use the **Delete** action instead.

- in case you want to recover *missing* items, either *update* the items themselves or one of their parent directories. This fetches their latest version from the repository.

You can also delete conflicting items (file content conflicts, property conflicts, tree-conflicts) and Syncro SVN Client automatically marks them as resolved.

Note: It is recommended that you resolve conflicts manually to avoid loosing any important remote modifications.

Finally, you can change your mind and *revert* the deleted items to their initial, pristine, state.

Copy Resources

You can copy several resources from different locations of the working copy. You select them in the ***Working Copy** view* and then use **Copy to** from the contextual menu. This is not a simple file system copy, but an Apache 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.

Based on the selected items, the **Copy to** action is enabled only if it can be performed. Even if the operation would not normally be possible in SVN (due to some invalid local file states against copy), Syncro SVN Client performs the copy operation as a simple file system operation. This means no SVN versioning meta-data is affected.

Note:

- In case you copy an item to a directory that is *not under version control* (*unversioned* or *ignored*), the history of the item is not preserved. For example, when copying directories, all items inside them will also be copied without history.
- In case you copy a directory that contains *external* items, these are not copied. This is specific for SVN 1.7 working copies only. To fetch the *external* items, use the **Update** operation on the copied directory.

In the **Copy to** dialog you can navigate through the working copy directories in order to choose a target directory, to copy inside it. If you try to copy a single resource you are also able to change that resource's name. For *versioned* items, you can select **Ignore resource history** to copy them without their history (similar to a simple file system copy).

Note: The **Copy to** dialog only presents all the local directories that are a valid destination against the copy operation, based on their local file status. Also, the *working copy settings* are taken into account.

In 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 move several resources at once. Select the resources in the ***Working Copy** view* and choose the **Move to** action from the contextual 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*.

Note: *External* items cannot be moved using the **Move to** action, because they cannot be deleted. Instead, you should edit the *svn:externals* property defining the *external* item.

Rename Resources

The **Rename** action is available in the contextual menu of the ***Working Copy** view* and can be performed on a single resource. This action acts as a move command with the destination directory being the same as the original location of the resource. A copy of the original item is created with the new name, also keeping its history. The original item is marked as *deleted*.

Note: For SVN 1.6 working copies, renaming items by changing only letter cases is not permitted on case-insensitive platforms (like Windows and some Mac OS file systems).

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 modify 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.

An SVN 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 demands 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 is not 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.

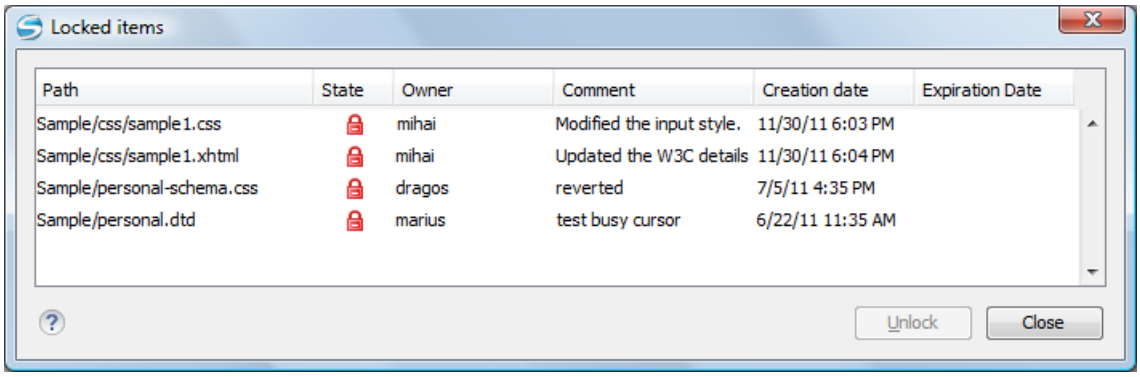


Figure 228: The locked items dialog

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:

- - shown when:
  - another user has locked the file in the repository;
  - the file was locked by the same user from another working copy;
  - the file was locked from the **Repositories** view.
- - displayed after you have locked a file from the current working copy.
- - a file already locked from your working copy is no longer locked in the repository (it was unlocked by another user).
- - a file already locked from your working copy is being locked by another user. Now the owner of the file lock is the user who stole the lock from you.

You can unlock a resource by selecting it and pressing the **Unlock** button.

Locking a File

By locking a file you have exclusive write access over it in the repository.

You can lock a file from your working copy or directly from the **Repositories** view. Note that you can lock only files, but no directories. This is a restriction imposed by Apache Subversion™.

The **Lock** dialog allows you to write a comment when you set a lock or when you steal an existing one. Note that you should steal a lock only 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, as it may not allow you to do this if certain conditions are not met.

The lock stays in place until you unlock the file or until someone breaks it. There is also the possibility that the lock expires after a period of time specified in the Subversion server policy.

Unlocking a File

A file can be unlocked from the contextual menu of 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 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 **Incoming** and **Outgoing** modes of *the **Working Copy** view* was designed for, to help you send and receive modifications from the repository.

The **Incoming** and **Outgoing** modes of this view focus on incoming and outgoing changes. The incoming changes are the changes that other users have committed in the repository 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** action 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.

The text files are compared using a built-in ***Compare** view* which uses a line differencing algorithm or a specified external diff application if such an application is *set in the SVN preferences*. 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 of the internal compare view 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*.

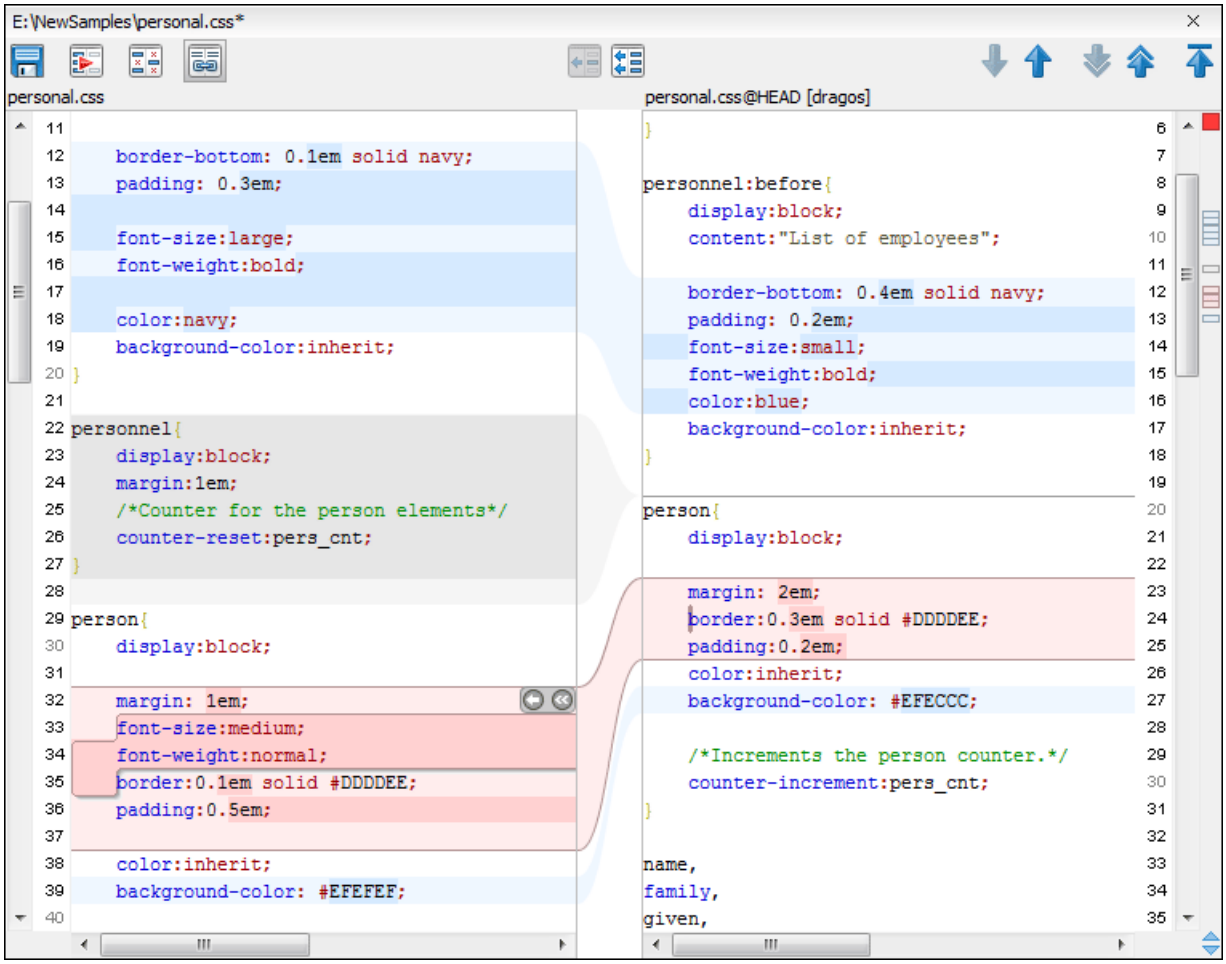


Figure 229: Compare View

At the top of each of the two editors, there are presented the name of the opened file, the corresponding SVN revision number (for remote resources) and the author who committed the associated revision.

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** and **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 action **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 when you double click on the middle divider of a difference: **Word Details** and **Character Details**.

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 in the *SVN Preferences* which allows you to enable or disable the white space ignoring feature of the compare algorithm.

Conflicts

A file 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 Mergeable Conflicts

There are two types of conflicts:

- *real conflict* (decorator in *Name* column) - Syncro SVN Client considers the following resource states to be real conflicts:
  - *conflicted* state - a file reported by SVN as being in this state is obtained after it was updated/merged while having incoming and outgoing content or property changes at the same time, changes which could not be merged. A content conflict (symbol in *Local file status* column) is reported when the modified file has binary content or it is a text file and both local and remote changes were found on the same line. A properties conflict (symbol in *Local properties status* column) is reported when a property's value was modified both locally and remotely;
  - *tree conflicted* state (symbol in *Local file status* column) - obtained after an update or merge operation, while having changes at the directory structure level (for example, file is locally modified and remotely deleted or locally scheduled for deletion and remotely modified);
  - *obstructed* state (symbol in *Local file status* column) - obtained after a resource was versioned as one kind of object (file, directory, symbolic link), but has been replaced outside Syncro SVN Client by a different kind of object.
- *pseudo-conflict* (decorator in *Name* column) - a file is considered to be in *pseudo-conflict* when it contains both incoming and outgoing changes. When incoming and outgoing changes do not intersect, an update operation may automatically merge the incoming file content into the existing locally one. In this case, the *pseudo-conflict* marker is removed. This marker is used only as a warning which should prevent you to run into a real conflict.

Note:

- A conflicting resource cannot be committed to repository. You have to resolve it first, by using **Mark Resolved** action (after manually editing/merging file contents) or by using **Mark as Merged** action (for pseudo-conflicts).
- and decorators are presented only when one of the following view modes is selected: **Modified**, **Incoming**, **Outgoing**, **Conflicts**.
- The marker is used also for folders to signal that they contain a file in real conflict or pseudo-conflict state.

Content Conflicts vs Property Conflicts

A *Content 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, Apache 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 HEAD 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.

A *Property conflict* is 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 you 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.

Edit Real Content Conflicts

The conflicts of a file in the conflicted state (a file with the red double arrow icon) can be edited visually with the **Compare** view (the built-in file diff tool) or with an *external diff application*. Resolving the conflict means deciding for each conflict if the local version of the change will remain or the remote one instead of the special conflict markers inserted in the file by the SVN server.

The **Compare** view (or the external diff application *set in Preferences*) is opened with the action **Edit Conflict** which is available on the contextual menus of *the **Working Copy** view* and is enabled only for files in the conflicted state (an update operation was executed but the differences could not be merged without conflicts). The external diff application is called with 3 parameters because it is a 3-way diff operation between the local version of the file from the working copy and the HEAD version from the SVN repository with the BASE version from the working copy as common ancestor.

If *the option **Show warning dialog when edit conflicts** is enabled* you will be warned at the beginning of the operation that the operation will overwrite the conflict version of the file received from the SVN server (the version which contains the conflict markers <<<<<<<, =======, >>>>>>>) with the original local version of the file that preceded the update operation. If you press the OK button the visual conflict editing will proceed and a backup file of the conflict version received from the SVN server is created in the same working copy folder as the file with the edited conflicts. The name of the backup file is obtained by appending the extension `.sync.bak` to the file as stored on the SVN server. If you press the **Cancel** button the visual editing will be aborted.

The usual operations on the differences between two versions of a file are available on the toolbar of this view:

- **Save** - Saves the modifications of the local version of the file displayed in the left side of the view.
- **Perform Files Differencing** - Applies the diff operation on the two versions of the file displayed in the view. It is useful after modifying the local version displayed in the left side of the view.
- **Go to First Modification** - Scrolls the view to the topmost difference.
- **Go to Previous Modification** - Scrolls the view to the previous difference. The current difference is painted with a darker color than the other ones.
- **Go to Next Modification** - Scrolls the view to the next difference. The current difference is painted with a darker color than the other ones.
- **Go to Last Modification** - Scrolls the view to the last difference.
- **Copy All Non Conflicting Changes from Left to Right** - Not applicable for editing conflicts so it is disabled.
- **Copy Change from Left to Right** - Not applicable for editing conflicts so it is disabled.
- **Copy Change from Right to Left** - Copies the current difference from the left side to the right side by replacing the highlighted text of the current difference from the left side with the one from the right side.
- **Copy All Non Conflicting Changes from Right to Left** - Applies the previous operation for all the differences.
- **Show Modification Details at Word Level** - Displays a more detailed version of the current difference computed at word level.

- **Show Modification Details at Char Level** - Displays a more detailed version of the current difference computed at character level.
- **Ignore Whitespaces** - The text nodes are normalized before computing the difference so that if two text nodes differ only in whitespace characters they are reported as equal.

The operation begins by overwriting the conflict version of the file received from the SVN server (the version which contains the conflict markers <<<<<<<, =======, >>>>>>>) with the original local version of the file before running the update action which created the conflict. After that the differences between this original local version and the repository version are displayed in the **Compare** view.

If you want to edit the conflict version of the file directly in a text editor instead of the visual editing offered by the **Compare** view you should work on the local working copy file after the update operation without running the action **Edit Conflict**. If you decide that you want to edit the conflict version directly after running the action **Edit Conflict** you have to work on the `.sync.bak` file.

If you did not finish editing the conflicts in a file at the first run of the action **Edit Conflict** you can run the action again and you will be prompted to choose between resuming the editing where the previous run left it and starting again from the conflict file received from the SVN server.

After the conflicts are edited and saved in the local version of the file you should run:

- either the action **Mark Resolved** on the file so that the result of the conflict editing process can be committed to the SVN repository,
- or the action **Revert** so that the repository version overwrites all the local modifications.

Both actions remove the backup file and other temporary files created with the conflict version of the local file.

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 contextual 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 the repository file. This can be achieved either by editing directly the file or by using the action **Copy change from right to left** from the ***Compare** view toolbar*. After editing the conflicting file you have to run the action **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.

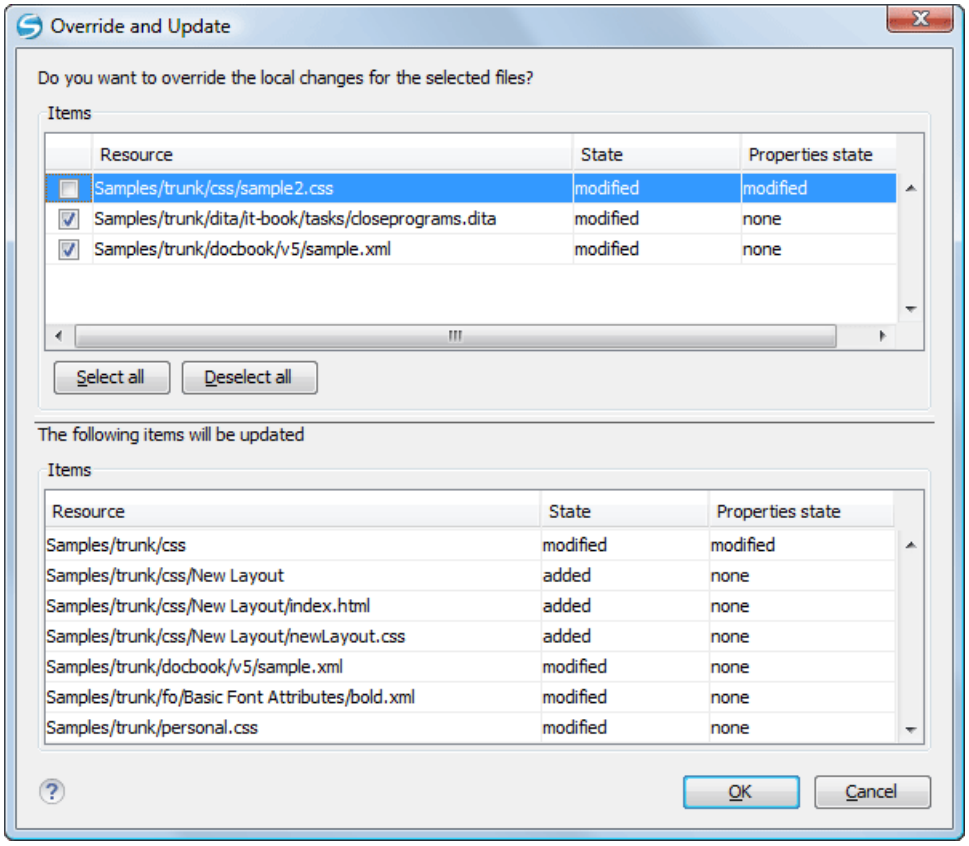


Figure 230: Override and update dialog

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 are 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 should open the file in the compare editor and decide which incoming changes need to be copied locally and 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 use the **Mark as merged** action. When you want to override completely the remote file with the local file you should run the action **Override and commit** which drops any remote changes and commits your file.

In general it is much safer to analyze all incoming and outgoing changes using the **Compare** view and only after to update and commit.

Tree Conflicts

A *tree conflict* is a conflict at the directory tree structure level and occurs when the user runs an update action on a resource that:

- it is locally modified and the same resource was deleted from the repository (or deleted as a result of being renamed or moved);
- it was locally deleted (or deleted as a result of being renamed or moved) and the same resource is incoming as modified from the repository.

The same conflict situation can occur after a merge or a switch action. The action ends with an error and the folder containing the file that is now in the tree conflict state is also marked with a conflict icon.

Such a conflict can be resolved in one of the following ways which are available when the user double clicks on the conflicting resource or when running the **Edit conflict** action:

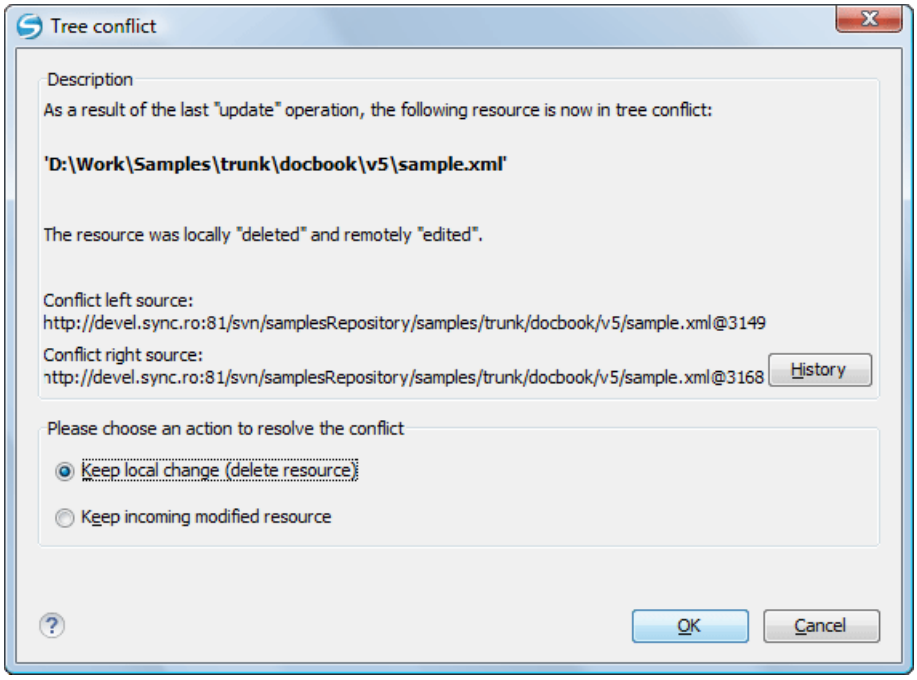


Figure 231: Resolve a tree conflict

- Keep the local modified file - If there is a renamed version of the file committed by other user that will be added to the working copy too.
- Delete the local modified file - Keeps the incoming change that comes from the repository.

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 from ***Working Copy** view*. It updates the selected resources to the last synchronized revision (if remote information is available) or to the *HEAD* revision of the repository.

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 of text. Not applicable to binary resources (for example multimedia files, PDFs, executable program files)

- *Conflicting* - A conflicting change occurs when one or more of the same lines of a text file have been changed both remotely and locally.

If the resource contains only incoming changes or the outgoing changes do not intersect with incoming ones then the update will end normally and the Subversion system will merge incoming changes into the local file. In the case of a conflicting situation the update will have as result a file with conflict status.

The Syncro SVN 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 the **Update to revision/depth** action from the **Working Copy** view (**All Files** view mode) or the **Update to revision** action from the ***History*** *view* contextual menu.

If you select multiple files and folders and then you perform an **Update** operation, all of those files and folders are updated one by one. The Subversion client makes sure that all files and 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 check out a newly versioned file, and found that an unversioned file with the same name already exists in your working folder. Subversion will never overwrite an unversioned file unless you specifically do this with an **Override and update** action. 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 from your local working copy to the repository. The **Commit** dialog box presents all the items that you are able to commit.

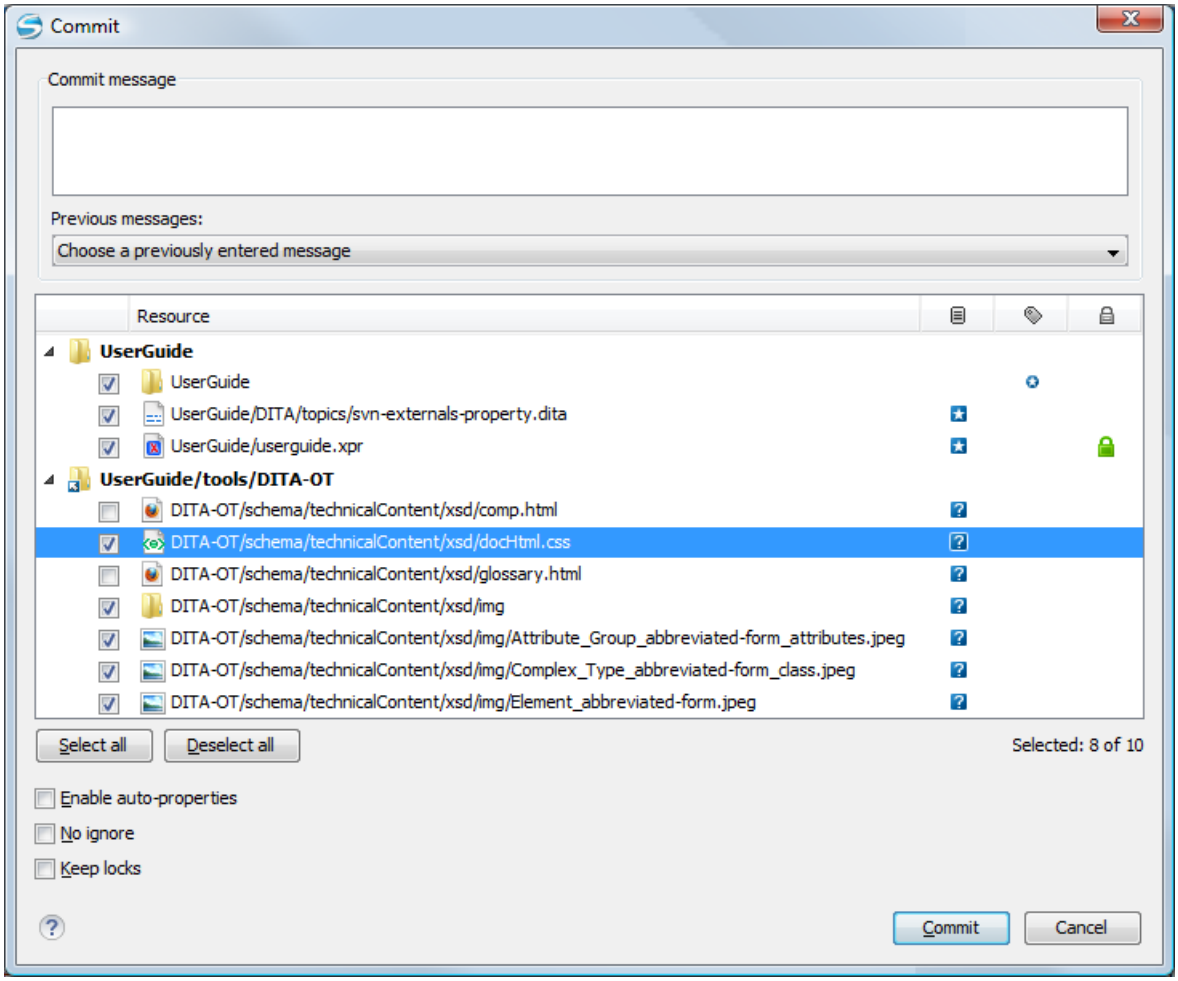


Figure 232: Commit dialog box

Enter a message to associate with the commit, or choose a previous message from the **Previous messages** list (the last 10 commit messages will be remembered even after restarting the SVN client application).

An item that can be committed has one of the following states: *added*, *modified* (content or properties), *replaced*, and *deleted*. All items that have one of these states are selected in the dialog box by default. If you do not want to commit one of the items, uncheck it.

Besides the items that have one of the mentioned states, Syncro SVN Client also includes the files being *unversioned* or *missing*. In order to be committed, these items are handled automatically:

- *unversioned* items are added under version control;
- *missing* items are deleted.

Note: In case the **Show unversioned directories content** is disabled, the **Commit** dialog box does not display the items inside an *unversioned*directory.

Unversioned or *missing* items are not selected by default in the **Commit** dialog box, unless you have selected them explicitly when issuing the commit command.

Note: In some cases, items that have one of the above states are not presented in the **Commit** dialog.

For example:

- items that have been *added* or *replaced* previously, but now are presented as *missing* after being removed from the file system, outside of an SVN client. Such items do not exist in the repository and you should use the **Delete** action to remove them from your working copy;

- items that have incoming changes from the repository, after a synchronization. You need to have your working copy up-to-date before committing your changes;
- files that, after a synchronization, appear as locked by other users or from other locations than the current working copy.

Note: Due to dependencies between items, when you select or clear an *unversioned* (?) or *added* (+) item in the **Commit** dialog box, other items with one of these states can be selected or cleared automatically.

The modifications that will be committed for each file can be reviewed in the compare editor window by double clicking a file in the **Commit** dialog box, or by right clicking and selecting the **Show Modifications** action from the contextual menu. This option is available to review only file content changes, not property changes.

The **Local file status** column indicates the actual state of the items and the **Local properties status** column indicates whether the properties of an item are modified.

The **Lock information** column is displayed in case at least one of the files in the **Commit** dialog box has lock information associated with it, valid against the commit operation.

The following options are available in this dialog box:

- **Enable auto-properties** or **Disable auto-properties** - enables or disables automatic property assignment (per runtime configuration rules), overriding the `enable-auto-props` runtime configuration directive, defined in the `config` file of the Subversion configuration directory.

  Note:

  This option is available only when there are defined properties to be applied automatically for resources newly added under version control. You can define these properties in the `config` file of the Subversion configuration directory, in the `auto-props` section.

  Based on the value of the `enable-auto-props` runtime configuration directive, the presented option is either **Enable auto-properties**, or **Disable auto-properties**.

- **Keep locks** - selecting the **Keep locks** option preserves any locks you set on various files.

  Note: This option is available only when files that you locked are presented in the dialog box.

Each of the above options is activated only when you select an item for which the option can be applied.

Your working copy must be up-to-date with respect to the resources you commit. 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.

Committing to Multiple Locations

Although Subversion does not support committing to different locations at once, Syncro SVN Client offers this functionality regarding *external* items.

If items to be committed belong to different *external* definitions found in the working copy, they are grouped under the corresponding item that indicates their repository origin. Each parent item is rendered bold and its corresponding repository location is presented when hovering it. Parent items are decorated with a small arrow (↗) if they are *external* definitions. The working copy root directory is never decorated and is not presented if there are no *external* items listed (all items belong to the main working copy). Each child item is presented relative to the parent item.

Note: When an *external* directory has modifications of its own, it is presented both as a parent item and as an item that you can select and commit. This is always the case for *external* files.

For SVN 1.6 working copies, each set of items belonging to an *external* definition is committed independently, resulting multiple revisions (one for each set).

For SVN 1.7 working copies, the sets of items belonging to *external* definitions from the same repository are committed together, resulting a single revision. So, the number of revisions can be smaller than the number of *externals*. External

definitions are considered from the same repository if they have the same protocol, server address, port, and repository address within the server.

Note: *External* files are always from the same repository as the parent directory which defines them, so they are always committed together with the changes from their parent directory.

Integration with Bug Tracking Tools

Users of bug tracking systems can associate the changes they make in the repository resources with a specific ID in their bug tracking system. The only requirement is that the user includes the bug ID in the commit message that he enters in the **Commit** dialog. The format and the location of the ID in the commit message are configured with SVN properties.

To make the integration possible Syncro SVN Client needs some data about the bug tracking tool used in the project. You can configure this using the following *SVN properties* which must be set on the folder containing resources associated with the bug tracking system. Usually they are set recursively on the root folder of the working copy.

- **bugtraq:message** - A string property. If it is set *the **Commit** dialog* will display a text field for entering the bug ID. It must contain the string *%BUGID%*, which is replaced with the bug number on commit.
- **bugtraq:label** - A string property that sets the label for the text field configured with the **bugtraq:message** property.
- **bugtraq:url** - A string property that is the URL pointing to the bug tracking tool. The URL string should contain the substring *%BUGID%* which Syncro SVN Client replaces with the issue number. That way the resulting URL will point directly to the correct issue.
- **bugtraq:warnifnoissue** - A boolean property with the values *true*/*yes* or *false*/*no*. If set to *true*, the Syncro SVN Client will warn you if the bug ID text field is left empty. The warning will not block the commit, only give you a chance to enter an issue number.
- **bugtraq:number** - A boolean property with the value *true* or *false*. If this property is set to *false*, then any character can be entered in the bug ID text field. If the property is set to *true* or is missing then only numbers are allowed as the bug ID.
- **bugtraq:append** - A boolean property. If set to *false*, then the bug ID is inserted at the beginning of the commit message. If *yes* or not set, then it's appended to the commit message.
- **bugtraq:logregex** - This property contains one or two regular expressions, separated by a newline. If only one expression is set, then the bug ID's must be matched in the groups of the regular expression string, for example `[Ii]ssue #?(\d+)` If two expressions are set, then the first expression is used to find a string which relates to a bug ID but may contain more than just the bug ID (e.g. `Issue #123` or `resolves issue 123`). The second expression is then used to extract the bug ID from the string extracted with the first expression. An example: if you want to catch every pattern `issue #XXX` and `issue #890, #789` inside a log message you could use the following strings:
  - `[Ii]ssue #?(\d+)(,? ?#?(\d+))+`
  - `(\d+)`

The data configured with these SVN properties is stored on the repository when a revision is committed. A bug tracking system or a statistics tools can retrieve from the SVN server the revisions that affected a bug and present the commits related to that bug to the user of the bug tracking system.

If the **bugtraq:url** property was filled in with the URL of the bug tracking system and this URL includes the *%BUGID%* substring as specified above in the description of the **bugtraq:url** property then *the **History** view* presents the bug ID as a hyperlink in the commit message. A click on such a hyperlink in the commit message of a revision opens a Web browser at the page corresponding to the bug affected by that commit.

Obtain Information for a Resource

This section explains how to obtain information for a SVN 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 want more detailed information about a given resource you can use the **Information** action from the **Working Copy** view *contextual menu*. A dialog called **SVN Information** 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
- local file status
- local properties status
- remote file status
- remote properties status
- file size, etc.

The value of a property of the resource displayed in the dialog can be copied by right clicking on the property and selecting the **Copy** action.

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.

Request History for a Resource

In Apache 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 *Repositories view*, *Working Copy view*, *Revision Graph*, or *Directory Change Set view*. From the **Working copy view** you can display the history of local versioned resources.

Management of SVN Properties

In the *Properties view* you can read and set the Apache 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.

If you want to change the properties of a given resource you need to select that resource from the ***Working Copy** view* and run 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 containing:

- **Name** - 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** - 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.

If you want to change the value for a previously set property you can use the **Edit property** action which will display a dialog where you can set:

- **Name** - Property name (cannot be changed).
- **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 the **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.

Branches and 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 Apache 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* or in the ***Repositories** view*, select the resource which you want to copy to a branch or tag, then select the command *Branch / Tag...* from the **Tools** menu.

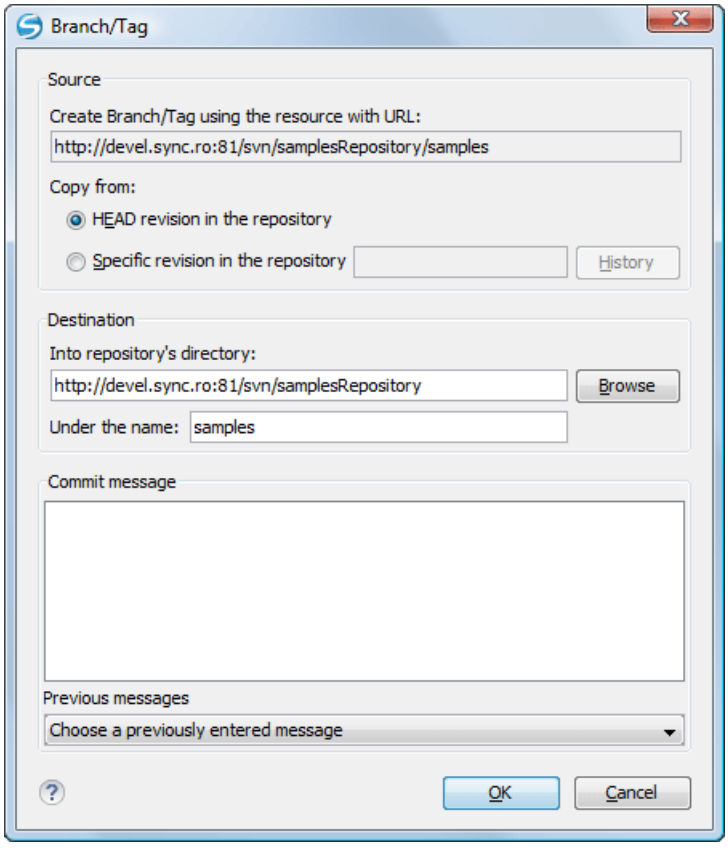


Figure 233: The Branch / Tag dialog

The default target URL for the new branch / tag will be the repository URL of the selected resource from your working copy, divided in two: the URL of the parent and the selected resource's name. You may specify other resource name if you want to make a branch / tag using a different name than the one of the selected resource, by modifying the field labeled **Under the name:**. The new branch / tag will be created as child of the specified repository directory URL and having the new provided name. To change the parent directory URL to the new path for your branch / tag, click on the **Browse** button and choose a repository target directory for your resource.

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.

Merging

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** action can be found in the **Tools** menu of Syncro SVN Client. The directory selected when you issued the command will be the result directory of the merge operation.

There are three common types of merging which are handled in different ways:

- merge revisions - integrate the modifications from a branch into the trunk or a different branch, when the branches are created from the same trunk;
- reintegrate a branch - integrate the modifications from a branch into the trunk;
- merge two different trees - the general case of integrating some changes between two different branches.

Merge Revisions

This is the case when you have made one or more revisions to a branch (or to the trunk) and you want to port those changes across to a different branch or trunk. An example of such operation can be the following: calculate the changes necessary to get (from) revision 17 of branch B1 (to) revision 25 of branch B1, and apply those changes to my working copy, of the trunk or another branch.

1. Go to menu **Tools** > **Merge ...**
   The **Merge** wizard is opened:

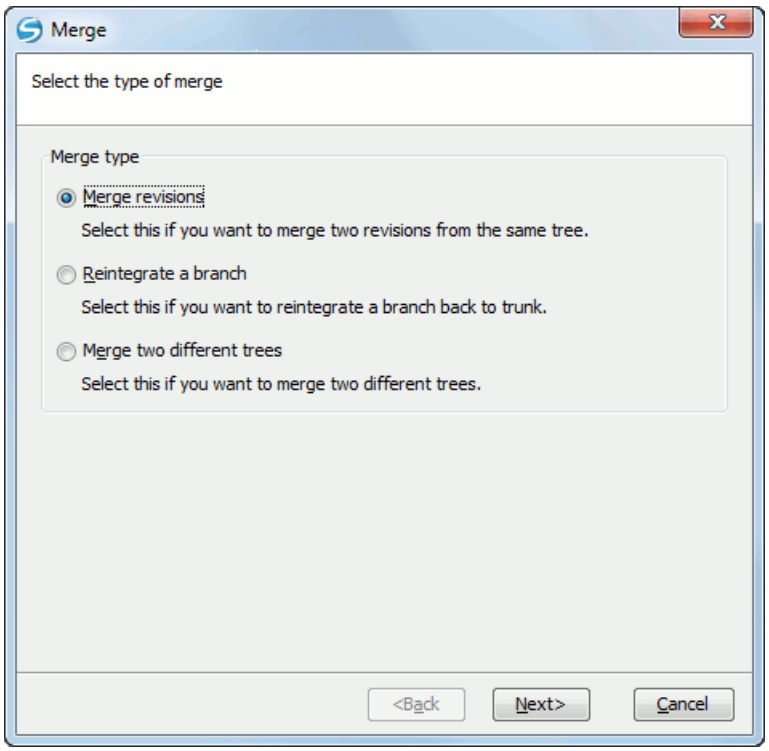


Figure 234: The Merge Wizard - The Merge Type

2. Select the option **Merge revisions**.
3. Press the **Next** button.
   The second step of the **Merge** wizard is displayed:

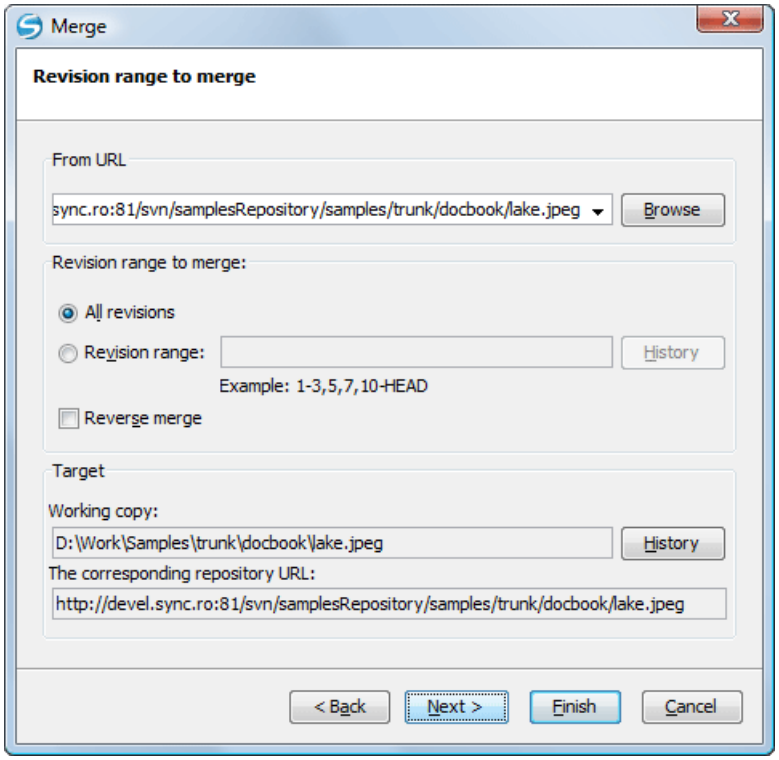


Figure 235: The Merge Wizard - Revisions Range

4. In the **From URL** field enter the folder URL of the branch or tag containing the changes that you want to port into your working copy.

   You may also click the **Browse** button to browse the repository and find the desired branch. If you have merged from this branch before, then just use the drop down list which shows a history of previously used URLs.

5. Select the revision range.

   a) Choose between all revisions and a revision range.

      In the **Revision range to merge** section you can choose to merge all revisions or enter the list of revisions you want to merge in the **Revision range** field. This can be a single revision, a list of comma separated specific revisions, or a range of revisions separated by a dash, or any combination of these.

      The **History** button opens the *the **History** dialog* which allows selecting the list of revisions to be merged in the easiest way. One or several revisions can be selected in that dialog.

      Be careful about using the HEAD revision. It may not refer to the revision you think it does if someone else made a commit after your last update.

   b) Check the **Reverse merge** box (optional).

      If you want to merge changes back out of your working copy, to revert a change which has already been committed, select the revisions to revert and check the **Reverse merge** box.

6. Specify the target where the changes of the branch will be integrated.

   a) Enter the working copy folder in the **Working copy** field.

      By default the root folder of the current working copy from the **Working Copy** view is set in this field.

      If you have already merged some changes from this branch and you remember the last merged revision, you can select that revision for the working copy using the **History** button. For example, if you have merged revisions 27 to 33 last time, then the start point for this merge operation should be revision 33.

   b) Specify the URL of the target branch that will receive the changes.

      By default the URL of the repository of the current working copy from the **Working Copy** view is set in this field.

      Apache Subversion™ has merge tracking features and automatically records the last merged revision so you do not need to remember when you performed the last merge.

7. Press the **Next** button.
   The **Merge Options** step of the wizard is opened:

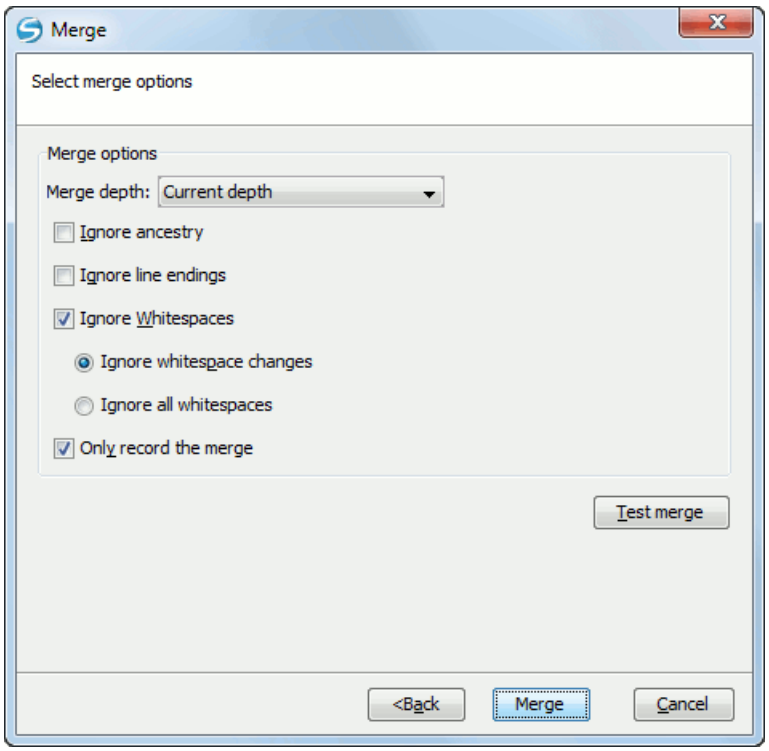


Figure 236: The Merge Wizard - Advanced Options

8. Set advanced options if necessary before starting the merge process.
   a) Set the depth of the merge operation in the **Merge depth** combo box.

      You can specify how far down into your working copy the merge should go by selecting one of the following values:

      - Current depth
      - Recursive (infinity)
      - Immediate children (immediates)
      - File children only (files)
      - This folder only (empty)

      The *depth* term is described in the *Sparse checkouts* section. The default depth is the depth of the current working copy.

   b) Check the **Ignore ancestry** checkbox (optional).

      The **Ignore ancestry** checkbox allows a merge to be applied between a branch and the trunk or between two branches even if they do not share a common ancestry. Normally the branch and the trunk or the two branches that are merged must have a common ancestor revision in the same repository. In case the two merged trees were imported in the repository they are not related in the sense of a common ancestor tree and the merge operation is possible by ignoring the missing common ancestry of the two merged trees.

   c) Check the **Ignore line endings** checkbox (optional).
   d) Check the **Ignore Whitespaces** checkbox (optional).

      The **Ignore line endings** and **Ignore whitespaces** checkboxes allow you to specify how the line endings and whitespace changes should be handled. If they are checked the changes due only to the line endings and whitespaces are ignored. The default behavior is to treat all whitespace and line-end differences as real changes to be merged. **Ignore whitespace changes** excludes changes which are caused by a change in the amount or type of whitespace, for example changing the indentation or changing tabs to spaces. Adding whitespace where there was none before, or removing a whitespace completely is still shown as a change. If **Ignore all whitespaces** is checked all whitespace-only changes are excluded.

e) Check the **Only record the merge** checkbox (optional).

If you are using merge tracking support and you want to mark a revision as having been merged, without actually doing the merge here, check the **Only record the merge** checkbox. You might want to do this for two possible reasons. You make the changes by hand, then mark the change as merged so that the merge tracking algorithm is aware of it. Or you might want to prevent a particular revision from being merged by marking it as already merged. This will prevent future merging.

f) Press the **Test merge** button (optional).

By pressing the **Test merge** button you 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 may occur.

9. Press the **Merge** button.
The merge operation is executed.

10. Optionally resolve the conflicts that were created by the merge operation.

After the merge operation is finished it is possible to have some resources in conflict. This means that some incoming modifications for a resource could not be merged with the current modifications from the working copy. If there are such conflicts, the following dialog will appear presenting you the resources that are in conflict. In this dialog you can choose a way in which every conflict should be resolved.

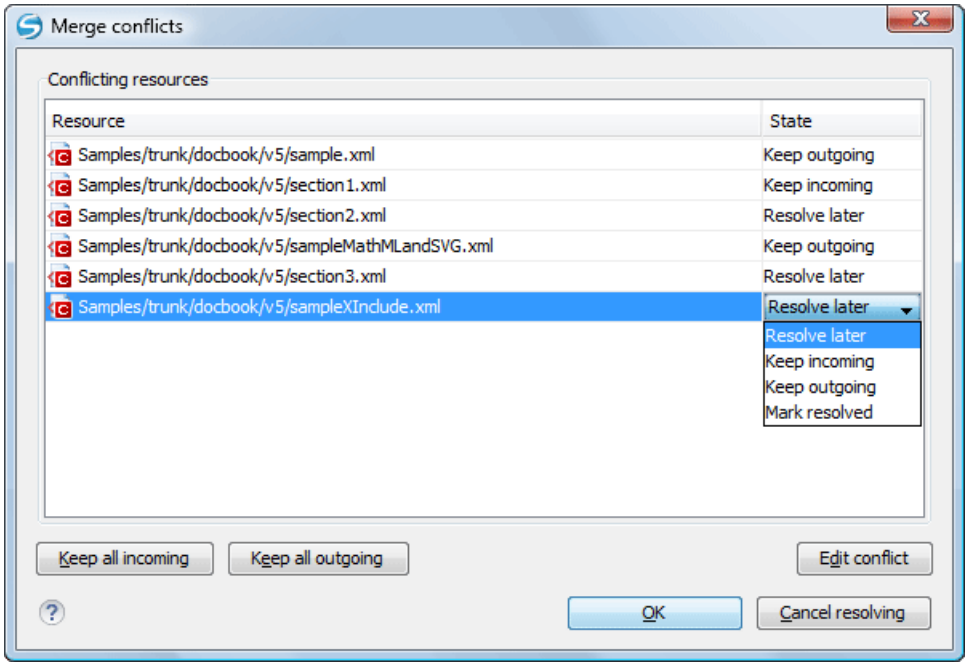


Figure 237: Merge Conflicts Dialog

The options to resolve a conflict are:

- **Resolve later** - Used to leave the conflict as it is for manual resolving it later.
- **Keep incoming** - This option keeps all the incoming modifications, discarding all current ones from your working copy.
- **Keep outgoing** - This option keeps all current modifications from your working copy, discarding all incoming ones.
- **Mark resolved** - You should chose this option after you have manually edited the conflict. To do that, use the **Edit conflict** button, which will bring to you a dialog presenting the conflicting resource's content for current working copy version and the one with the incoming modifications. After manually resolving the conflict, the resource will be marked as resolved.

When the merge is completed it's a good idea to look at the result of the merge in the specified working copy and see if it meets your expectations. Because merging is sometimes complicated, when there are major changes, *conflicts may appear*.

Reintegrate a Branch

There are some conditions which apply to a reintegrate merge: Firstly, the server must support merge tracking. The working copy must be of depth infinite (no sparse checkouts), and it must not have any local modifications, switched items or items that have been updated to revisions other than HEAD. All changes to trunk made during branch development must have been merged across to the branch (or marked as having been merged).

- The server must support merge tracking.
- The working copy must be of depth infinite (no sparse checkouts), and it must not have any local modifications, switched items or items that have been updated to revisions other than HEAD.
- All changes to trunk made during branch development must have been merged across to the branch (or marked as having been merged).

This method covers the case when you have made a feature branch. All trunk changes have been ported to the feature branch, and now you want to merge it back into the trunk. Because you have kept the feature branch synchronized with the trunk, the latest versions of branch and trunk will be absolutely identical except for your branch changes. These changes can be reintegrated into the trunk by this method.

It uses the merge-tracking features of Apache Subversion™ to calculate the correct revision ranges and to perform additional checks which ensure that the branch has been fully updated with trunk changes. The range of revisions to merge will be calculated automatically. This ensures that you don't accidentally undo work that others have committed to trunk since you last synchronized changes. After the merge, all branch development has been completely merged back into the main development line. The branch is now redundant and can be deleted.

1. Go to menu **Tools** > **Merge ...**
   The **Merge** wizard is opened:

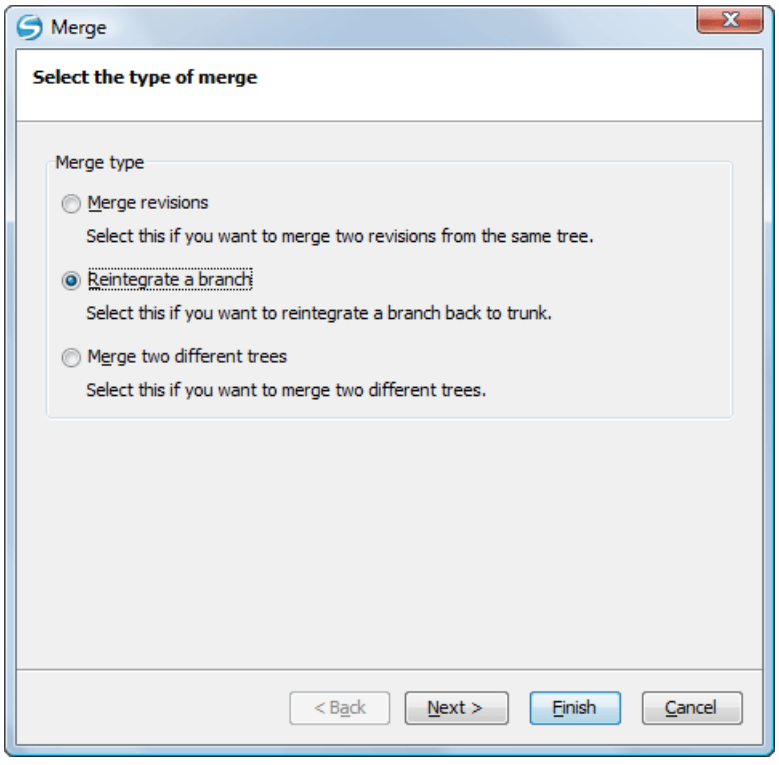


Figure 238: The Merge Wizard - The Merge Type

2. Select the option **Reintegrate a branch**.
3. Press the **Next** button.
   The second step of the **Merge** wizard is displayed:

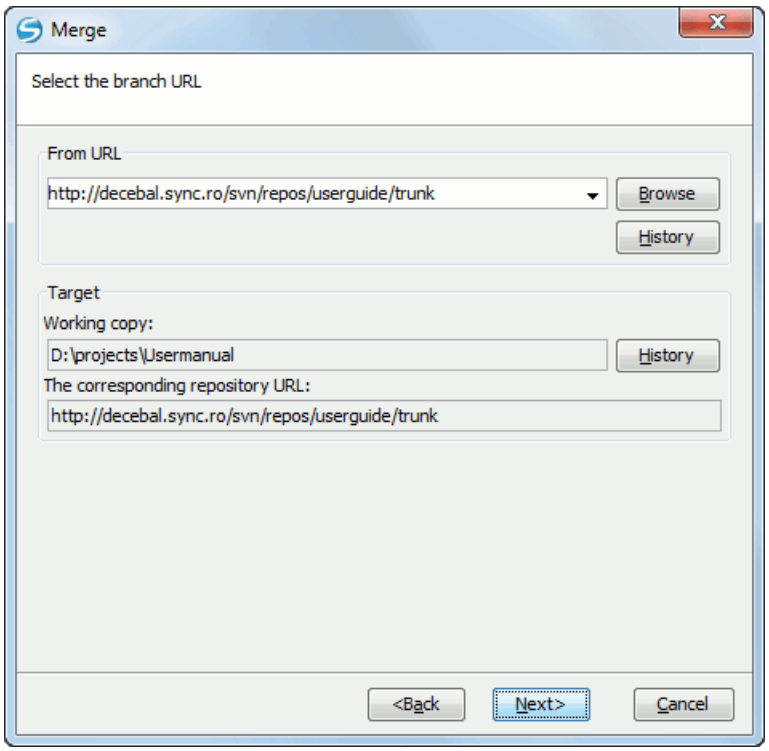


Figure 239: The Merge Wizard - Reintegrate Branch

4. In the **From URL** field enter the folder URL of the branch or tag containing the changes that you want to integrate.

   You may also click the **Browse** button to browse the repository and find the desired branch. If you have merged from this branch before, then just use the drop down list which shows a history of previously used URLs.

   The History button opens *the **History** dialog* which allows you to select a revision number of the repository with the changes.

5. Select the target of the operation.
   a) Select the path of the working copy.
   b) Select the URL of the repository corresponding to the working copy.

   The target panel of the dialog reminds you the location of the target resource from the working copy where the merge result will be saved and its corresponding repository URL.

6. Press the **Next** button.
   The **Merge Options** step of the wizard is opened:

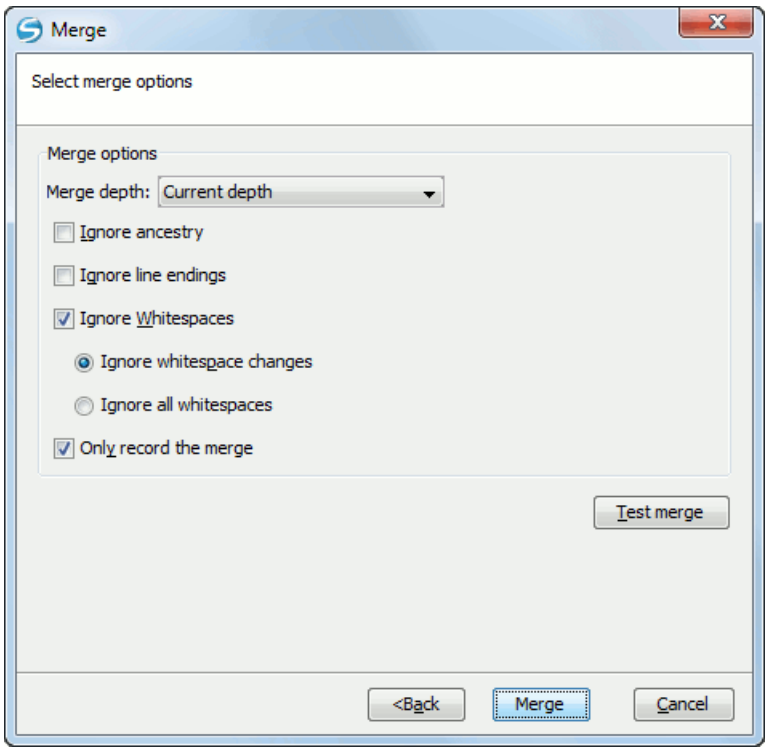


Figure 240: The Merge Wizard - Advanced Options

7. Set advanced options if necessary before starting the merge process.
   a) Set the depth of the merge operation in the **Merge depth** combo box.

      You can specify how far down into your working copy the merge should go by selecting one of the following values:

      - Current depth
      - Recursive (infinity)
      - Immediate children (immediates)
      - File children only (files)
      - This folder only (empty)

      The *depth* term is described in the *Sparse checkouts* section. The default depth is the depth of the current working copy.

   b) Check the **Ignore ancestry** checkbox (optional).

      The **Ignore ancestry** checkbox allows a merge to be applied between a branch and the trunk or between two branches even if they do not share a common ancestry. Normally the branch and the trunk or the two branches that are merged must have a common ancestor revision in the same repository. In case the two merged trees were imported in the repository they are not related in the sense of a common ancestor tree and the merge operation is possible by ignoring the missing common ancestry of the two merged trees.

   c) Check the **Ignore line endings** checkbox (optional).
   d) Check the **Ignore Whitespaces** checkbox (optional).

      The **Ignore line endings** and **Ignore whitespaces** checkboxes allow you to specify how the line endings and whitespace changes should be handled. If they are checked the changes due only to the line endings and whitespaces are ignored. The default behavior is to treat all whitespace and line-end differences as real changes to be merged. **Ignore whitespace changes** excludes changes which are caused by a change in the amount or type of whitespace, for example changing the indentation or changing tabs to spaces. Adding whitespace where there was none before, or removing a whitespace completely is still shown as a change. If **Ignore all whitespaces** is checked all whitespace-only changes are excluded.

e) Check the **Only record the merge** checkbox (optional).

If you are using merge tracking support and you want to mark a revision as having been merged, without actually doing the merge here, check the **Only record the merge** checkbox. You might want to do this for two possible reasons. You make the changes by hand, then mark the change as merged so that the merge tracking algorithm is aware of it. Or you might want to prevent a particular revision from being merged by marking it as already merged. This will prevent future merging.

f) Press the **Test merge** button (optional).

By pressing the **Test merge** button you 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 may occur.

8. Press the **Merge** button.
The merge operation is executed.
9. Optionally resolve the conflicts that were created by the merge operation.

After the merge operation is finished it is possible to have some resources in conflict. This means that some incoming modifications for a resource could not be merged with the current modifications from the working copy. If there are such conflicts, the following dialog will appear presenting you the resources that are in conflict. In this dialog you can choose a way in which every conflict should be resolved.

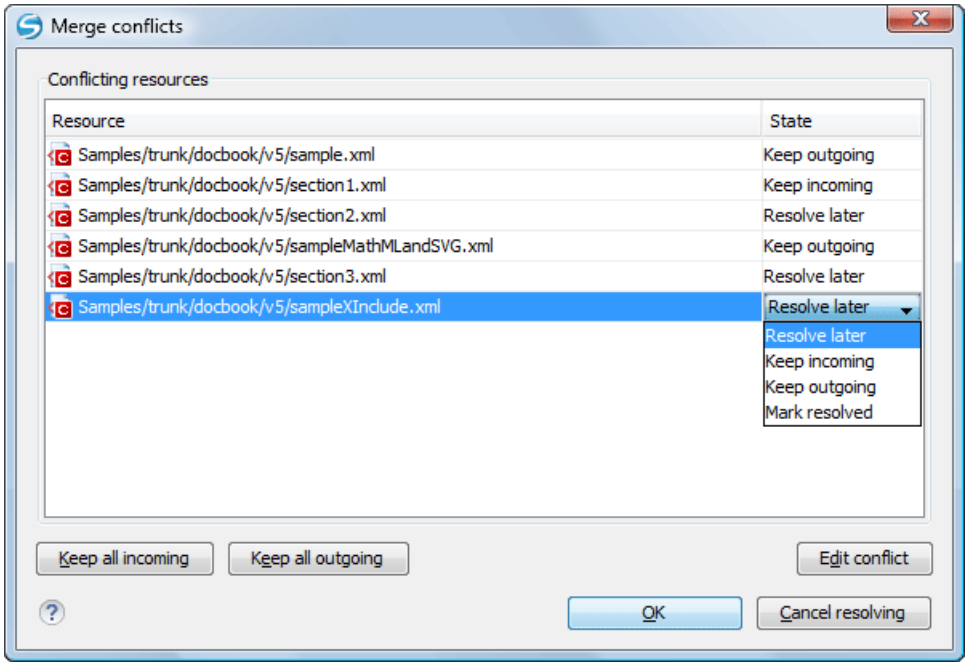


Figure 241: Merge Conflicts Dialog

The options to resolve a conflict are:

- **Resolve later** - Used to leave the conflict as it is for manual resolving it later.
- **Keep incoming** - This option keeps all the incoming modifications, discarding all current ones from your working copy.
- **Keep outgoing** - This option keeps all current modifications from your working copy, discarding all incoming ones.
- **Mark resolved** - You should chose this option after you have manually edited the conflict. To do that, use the **Edit conflict** button, which will bring to you a dialog presenting the conflicting resource's content for current working copy version and the one with the incoming modifications. After manually resolving the conflict, the resource will be marked as resolved.

When the merge is completed it's a good idea to look at the result of the merge in the specified working copy and see if it meets your expectations. Because merging is sometimes complicated, when there are major changes, *conflicts may appear*.

Merge Two Different Trees

This is a general case of the reintegrate method. You can consider the following example: calculate the changes necessary to get (from) the HEAD revision of the trunk (to) the HEAD revision of the branch, and apply those changes to my working copy (of the trunk). The result is that trunk will be identical with the branch.

Note: If the server does not support merge-tracking then this is the only way to merge a branch back to trunk.

1. Go to menu **Tools** > **Merge ...**
   The **Merge** wizard is opened:

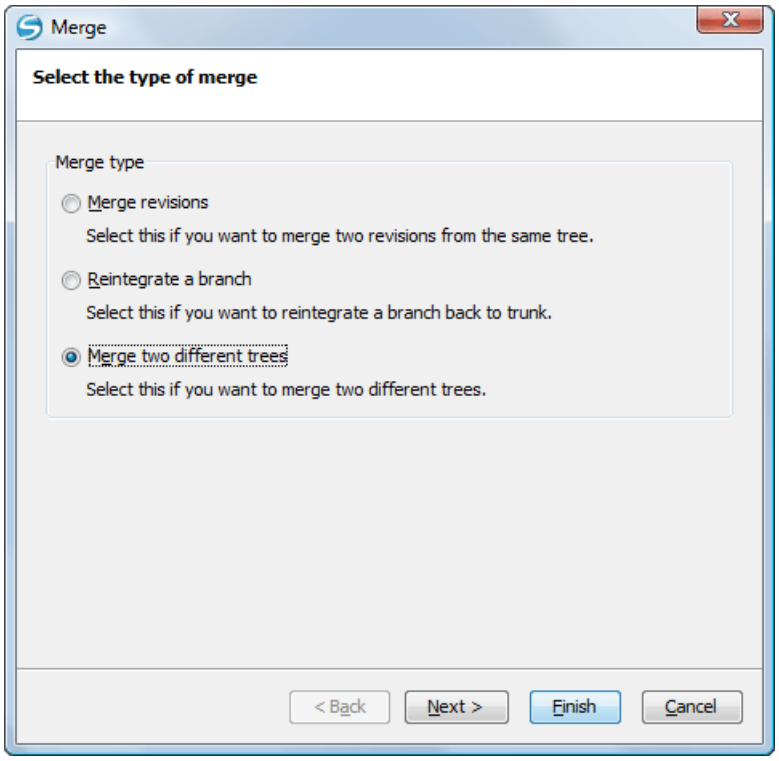


Figure 242: The Merge Wizard - The Merge Type

2. Select the option **Merge two different trees**.
3. Press the **Next** button.
   The second step of the **Merge** wizard is displayed:

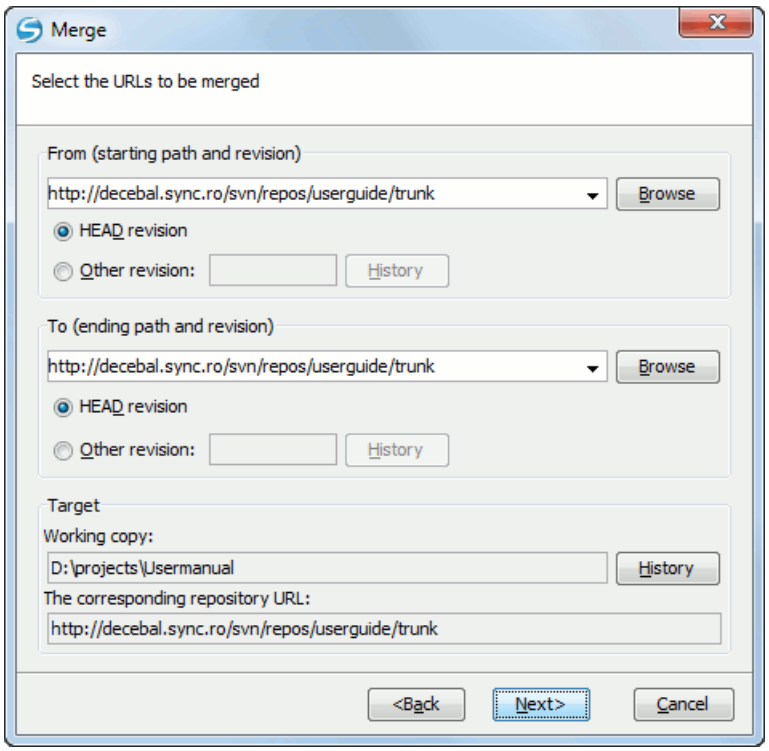


Figure 243: The Merge Wizard - Merge Two Different Trees

4. Specify the URL of the first tree in the **From** field.

   If you are using this method to merge a feature branch back to trunk, you need to start the merge wizard from within a working copy of trunk. In the **From** field enter the full folder URL of the trunk. This may sound wrong, but remember that the trunk is the start point to which you want to add the branch changes. In the **To** field enter the full folder URL of the feature branch.

   By default the start URL will be the URL of the selected file in the working copy. If you want to specify a different URL you should browse the repository and select a start URL and a revision.

   a) Select a URL in the **From** field.
   b) Select a revision of the repository from the **From** field.

      In the **Revision** field enter the last revision number at which the two trees were synchronized. If you are sure no-one else is making commits you can use the HEAD revision in both cases. If there is a chance that someone else may have made a commit since that synchronization, use the specific revision number to avoid losing more recent commits.

      By default the HEAD revision is selected. If you want a previous revision you have to select the **Other revision** option and press *the **History** button* to see a list of all revisions.

5. Specify the URL of the second tree in the **To** field.
   a) Select a URL in the **To** field.
   b) Select a revision of the repository from the **To** field.

      By default the HEAD revision is selected. If you want a previous revision you have to select the **Other revision** option and press *the **History** button* to see a list of all revisions.

6. Specify the target of the merge operation in the **Target** panel.

   The **Target** panel of the dialog reminds you the location of the target resource from the working copy where the merge result will be saved and its corresponding repository URL.

   a) Specify the working copy path in the **Working copy** field.

b) Specify the repository URL corresponding to the working copy.

7. Press the **Next** button.
The **Merge Options** step of the wizard is opened:

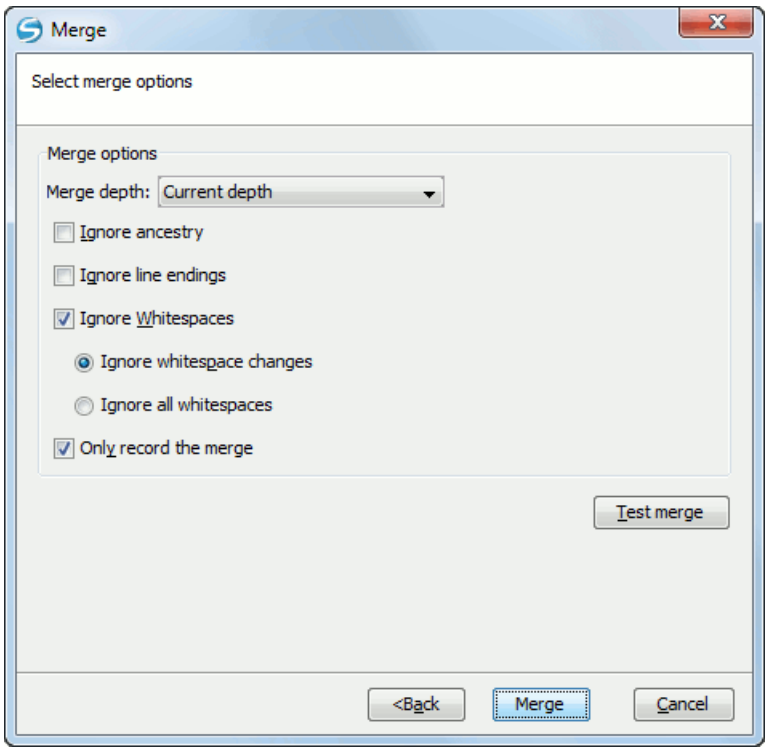


Figure 244: The Merge Wizard - Advanced Options

8. Set advanced options if necessary before starting the merge process.
   a) Set the depth of the merge operation in the **Merge depth** combo box.

      You can specify how far down into your working copy the merge should go by selecting one of the following values:

      - Current depth
      - Recursive (infinity)
      - Immediate children (immediates)
      - File children only (files)
      - This folder only (empty)

      The *depth* term is described in the *Sparse checkouts* section. The default depth is the depth of the current working copy.

   b) Check the **Ignore ancestry** checkbox (optional).

      The **Ignore ancestry** checkbox allows a merge to be applied between a branch and the trunk or between two branches even if they do not share a common ancestry. Normally the branch and the trunk or the two branches that are merged must have a common ancestor revision in the same repository. In case the two merged trees were imported in the repository they are not related in the sense of a common ancestor tree and the merge operation is possible by ignoring the missing common ancestry of the two merged trees.

   c) Check the **Ignore line endings** checkbox (optional).

   d) Check the **Ignore Whitespaces** checkbox (optional).

      The **Ignore line endings** and **Ignore whitespaces** checkboxes allow you to specify how the line endings and whitespace changes should be handled. If they are checked the changes due only to the line endings and whitespaces are ignored. The default behavior is to treat all whitespace and line-end differences as real changes to be merged. **Ignore whitespace changes** excludes changes which are caused by a change in the amount or type of whitespace,

for example changing the indentation or changing tabs to spaces. Adding whitespace where there was none before, or removing a whitespace completely is still shown as a change. If **Ignore all whitespaces** is checked all whitespace-only changes are excluded.

e) Check the **Only record the merge** checkbox (optional).

If you are using merge tracking support and you want to mark a revision as having been merged, without actually doing the merge here, check the **Only record the merge** checkbox. You might want to do this for two possible reasons. You make the changes by hand, then mark the change as merged so that the merge tracking algorithm is aware of it. Or you might want to prevent a particular revision from being merged by marking it as already merged. This will prevent future merging.

f) Press the **Test merge** button (optional).

By pressing the **Test merge** button you 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 may occur.

9. Press the **Merge** button.
The merge operation is executed.

10. Optionally resolve the conflicts that were created by the merge operation.

After the merge operation is finished it is possible to have some resources in conflict. This means that some incoming modifications for a resource could not be merged with the current modifications from the working copy. If there are such conflicts, the following dialog will appear presenting you the resources that are in conflict. In this dialog you can choose a way in which every conflict should be resolved.

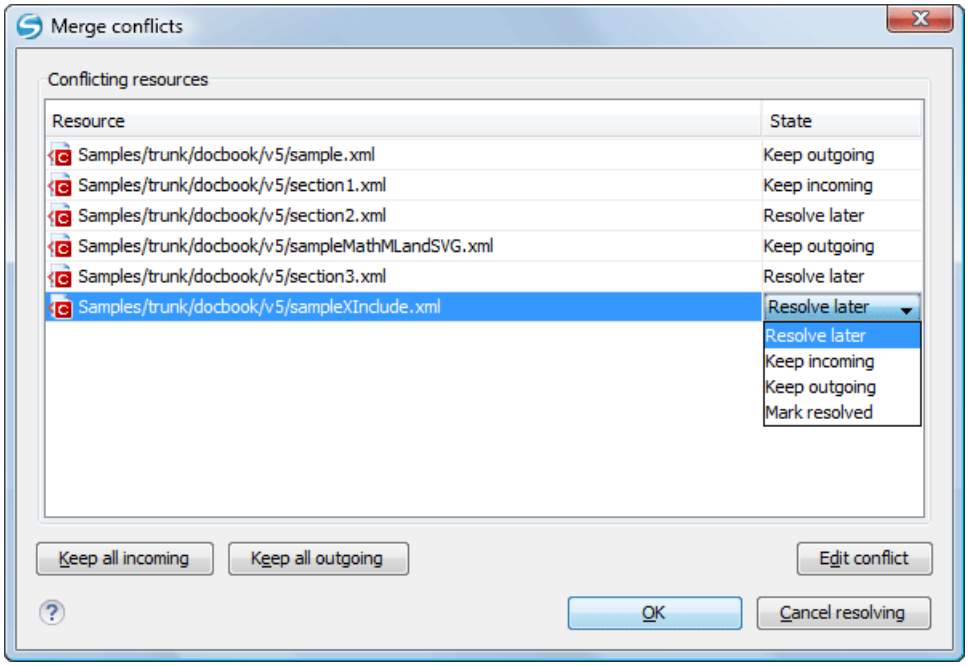


Figure 245: Merge Conflicts Dialog

The options to resolve a conflict are:

- **Resolve later** - Used to leave the conflict as it is for manual resolving it later.
- **Keep incoming** - This option keeps all the incoming modifications, discarding all current ones from your working copy.
- **Keep outgoing** - This option keeps all current modifications from your working copy, discarding all incoming ones.
- **Mark resolved** - You should chose this option after you have manually edited the conflict. To do that, use the **Edit conflict** button, which will bring to you a dialog presenting the conflicting resource's content for current working copy version and the one with the incoming modifications. After manually resolving the conflict, the resource will be marked as resolved.

Merge Options

1. Press the **Next** button.
   The **Merge Options** step of the wizard is opened:

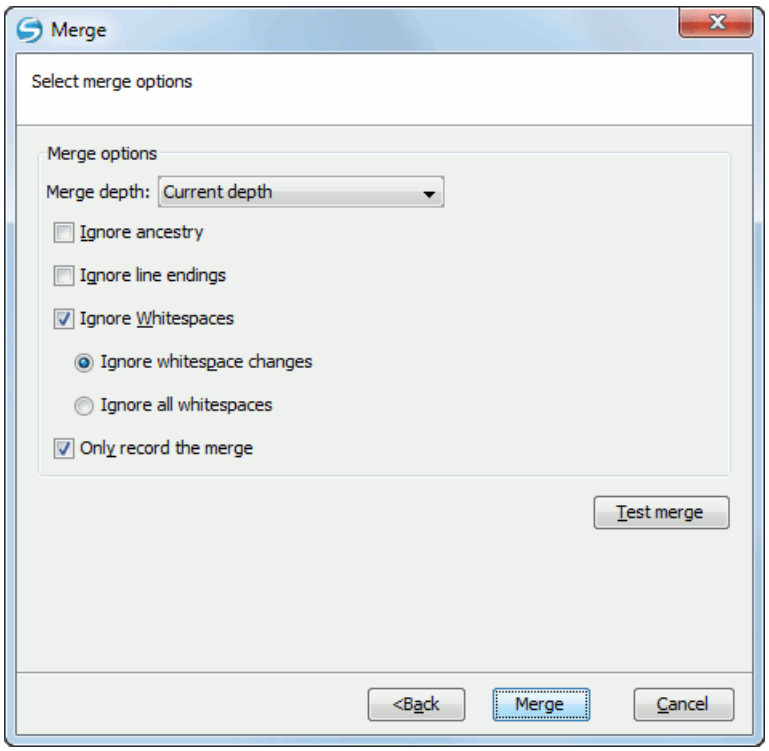


Figure 246: The Merge Wizard - Advanced Options

2. Set advanced options if necessary before starting the merge process.
   a) Set the depth of the merge operation in the **Merge depth** combo box.

      You can specify how far down into your working copy the merge should go by selecting one of the following values:

      - Current depth
      - Recursive (infinity)
      - Immediate children (immediates)
      - File children only (files)
      - This folder only (empty)

      The *depth* term is described in the *Sparse checkouts* section. The default depth is the depth of the current working copy.

   b) Check the **Ignore ancestry** checkbox (optional).

      The **Ignore ancestry** checkbox allows a merge to be applied between a branch and the trunk or between two branches even if they do not share a common ancestry. Normally the branch and the trunk or the two branches that are merged must have a common ancestor revision in the same repository. In case the two merged trees were imported in the repository they are not related in the sense of a common ancestor tree and the merge operation is possible by ignoring the missing common ancestry of the two merged trees.

   c) Check the **Ignore line endings** checkbox (optional).

   d) Check the **Ignore Whitespaces** checkbox (optional).

      The **Ignore line endings** and **Ignore whitespaces** checkboxes allow you to specify how the line endings and whitespace changes should be handled. If they are checked the changes due only to the line endings and whitespaces are ignored. The default behavior is to treat all whitespace and line-end differences as real changes to be merged. **Ignore whitespace changes** excludes changes which are caused by a change in the amount or type of whitespace,

for example changing the indentation or changing tabs to spaces. Adding whitespace where there was none before, or removing a whitespace completely is still shown as a change. If **Ignore all whitespaces** is checked all whitespace-only changes are excluded.

e) Check the **Only record the merge** checkbox (optional).

If you are using merge tracking support and you want to mark a revision as having been merged, without actually doing the merge here, check the **Only record the merge** checkbox. You might want to do this for two possible reasons. You make the changes by hand, then mark the change as merged so that the merge tracking algorithm is aware of it. Or you might want to prevent a particular revision from being merged by marking it as already merged. This will prevent future merging.

f) Press the **Test merge** button (optional).

By pressing the **Test merge** button you 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 may occur.

3. Press the **Merge** button.
The merge operation is executed.

When the merge is completed it's a good idea to look at the result of the merge in the specified working copy and see if it meets your expectations. Because merging is sometimes complicated, when there are major changes, *conflicts may appear*.

Merge Branches Task - First Step

Go to menu **Tools** > **Merge ...**
The **Merge** wizard is opened:

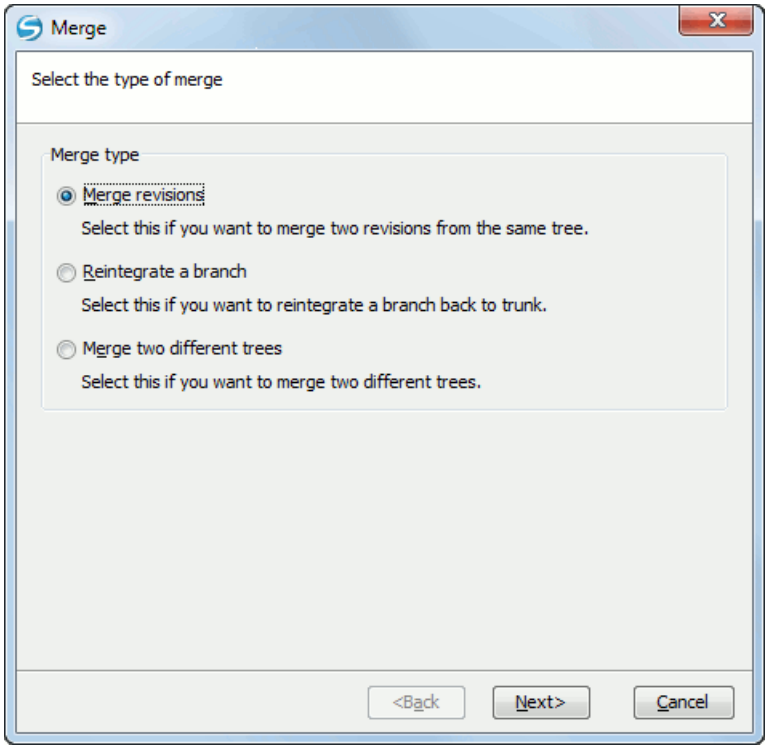


Figure 247: The Merge Wizard - The Merge Type

Resolve Merge Conflicts

Optionally resolve the conflicts that were created by the merge operation.

After the merge operation is finished it is possible to have some resources in conflict. This means that some incoming modifications for a resource could not be merged with the current modifications from the working copy. If there are such conflicts, the following dialog will appear presenting you the resources that are in conflict. In this dialog you can choose a way in which every conflict should be resolved.

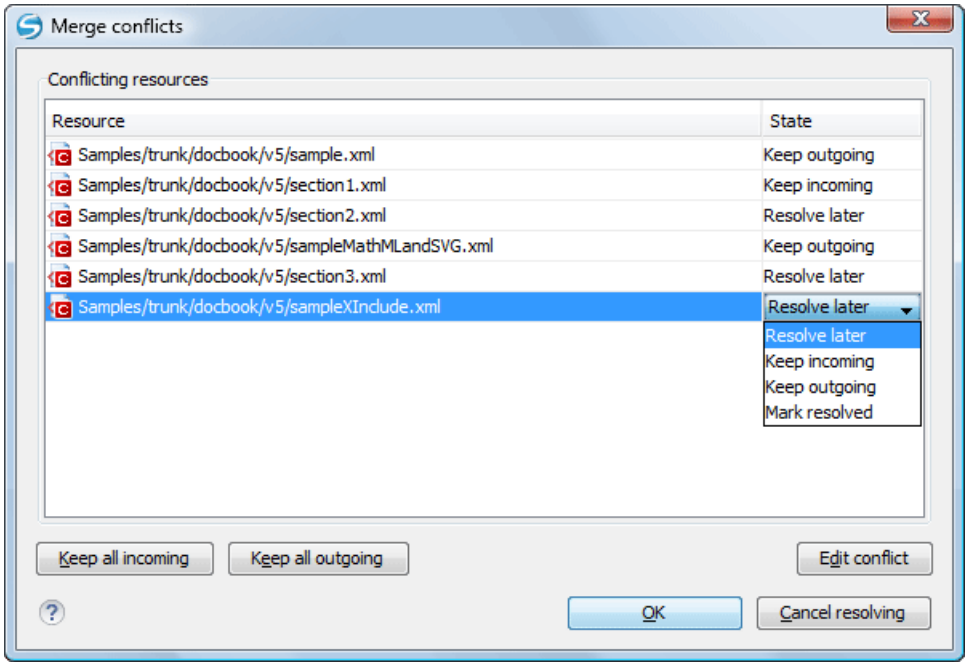


Figure 248: Merge Conflicts Dialog

The options to resolve a conflict are:

- **Resolve later** - Used to leave the conflict as it is for manual resolving it later.
- **Keep incoming** - This option keeps all the incoming modifications, discarding all current ones from your working copy.
- **Keep outgoing** - This option keeps all current modifications from your working copy, discarding all incoming ones.
- **Mark resolved** - You should chose this option after you have manually edited the conflict. To do that, use the **Edit conflict** button, which will bring to you a dialog presenting the conflicting resource's content for current working copy version and the one with the incoming modifications. After manually resolving the conflict, the resource will be marked as resolved.

Switch the Repository Location

The **Switch** action is useful when the repository location of a working copy or only of a versioned item of the working copy must be changed within the same repository. The action is available on the **Tools** menu when a versioned resource is selected in the current working copy that is displayed in *the **Working Copy** view*.

Relocate a Working Copy

Sometimes the base URL of the repository is changed after a working copy is checked out from that URL, for example the repository itself is relocated to a different server. In such cases you do not have to check out again a working copy from the new repository location. It is easier to change the base URL of the root folder of the working copy to the new URL of the repository. This action is called **Relocate** and is available on the **Tools** menu when the selected item in *the **Working Copy** view* is a versioned folder.

If the selected item is not the root folder of the working copy then the effect is the same as for *the **Switch** action* applied on the same selected item.

Patches

This section explains how to work with patches in Syncro SVN Client.

What Is a Patch

Let's suppose you are working to a set of XML files, that you distribute to other people. From time to time you are tagging the project and distribute the releases. If you continue working for a period correcting problems, you may find yourself in the situations to notify your users that you have corrected a problem. In this case you may prefer to distribute them a patch, a collection of differences that applied over the last distribution would correct the problem. The SVN client creates the patch in *the Unified Diff format*.

Creating a patch in Apache Subversion™ implies the access to two states (revisions) of a project:

- the current working copy and a revision from the repository - if you have not committed yet your current working copy and prefer not to do it, you create a patch between the current working copy and a revision from the repository;
- two repository revisions - if both states are two revisions already committed to the repository.

Create a Patch Between Working Copy and Repository Revision

When the changes that must be included in a patch were not committed to the repository the patch should be created with the differences between the selected item(s) of the working copy and a repository revision. The steps are the following:

1. Go to menu **Tools** > **Create patch**.
   This opens the **Create patch** wizard:

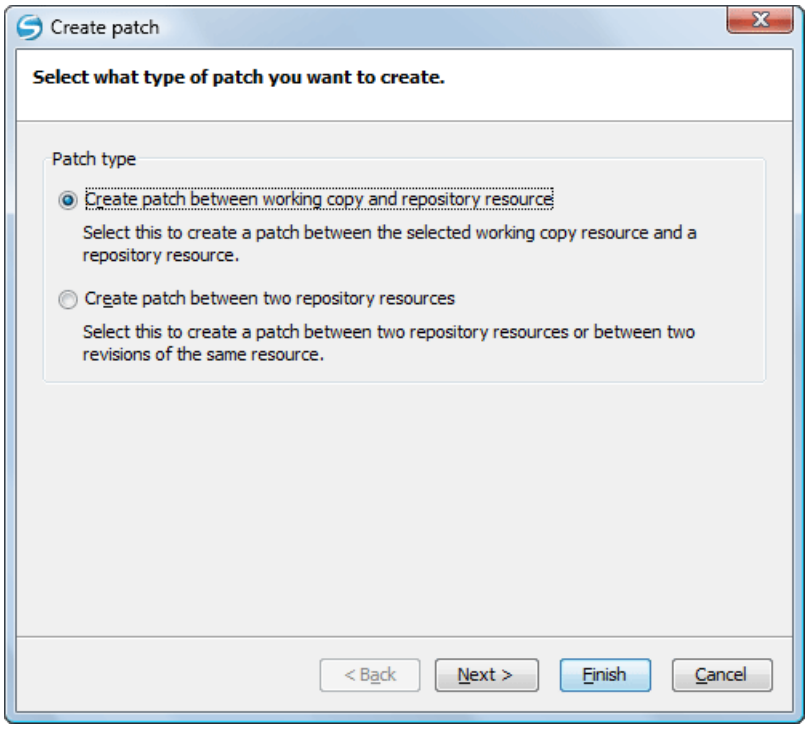


Figure 249: The Create Patch Wizard - Patch Type

2. Select the first option in the dialog.
3. Press the **Next** button.
   The second step of the wizard is opened:

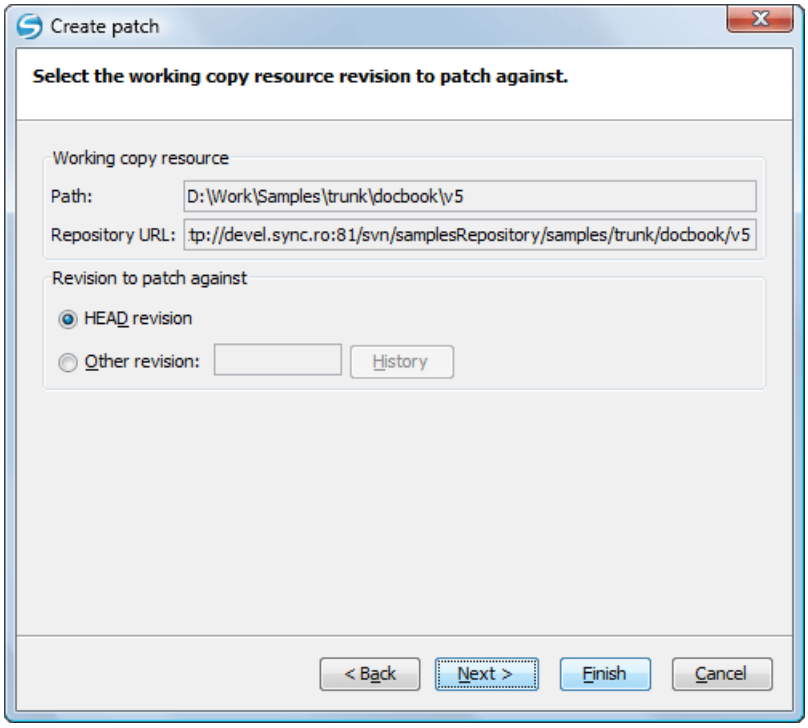


Figure 250: The Create Patch Wizard - Step 2

4. Specify the working copy resource.
   a) Specify the local file path of the working copy resource.
   b) Specify the repository URL corresponding to the working copy resource.
5. Select the repository revision.

   You have the option of choosing between the HEAD revision and a specific revision number. For the second option you should press *the **History** button* to display a list of the repository revisions.
6. Press the **Next** button.
   The next step of the wizard is displayed:

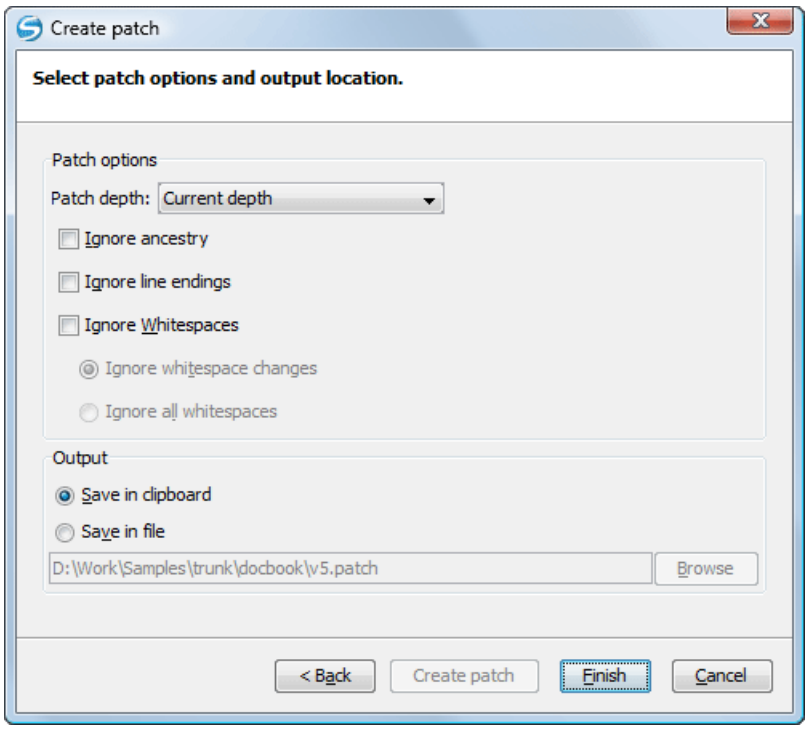


Figure 251: The Create Patch Wizard - Options

7. Select the depth of the patch operation.

   In case of a file resource the depth is always zero. In case of a folder resource the depth has one of the following values:

   - **Current depth** - The depth of going into the folder for creating the patch is the same as the depth of that folder in the working copy.
   - **Recursive (infinity)** - The patch is created on all the files and folders contained in the selected folder.
   - **Immediate children (immediates)** - The patch is created only on the child files and folders without going in subfolders.
   - **File children only (files)** - The patch is created only on the child files.
   - **This folder only (empty)** - The patch is created only on the selected folder (that is no child file or folder is included in the patch).

8. Select the **Ignore ancestry** checkbox (optional).

   If checked, the SVN ancestry that exists when the two URLs have a common SVN history is ignored.

9. Select the **Ignore line endings** checkbox (optional).

   If checked, the differences in line endings are ignored when the patch is created.

10. Select the **Ignore whitespaces** checkbox (optional).

    If checked, the differences in whitespaces are ignored when the patch is created.

11. Select the output location.

    - **Save in clipboard** - The patch will be created and saved in clipboard. This is useful when you do not want to save the patch in a file on disk.
    - **Save in file** - The patch will be created and saved in the specified file.

12. Press the **Next** button.

    This will go to the final step of the wizard:

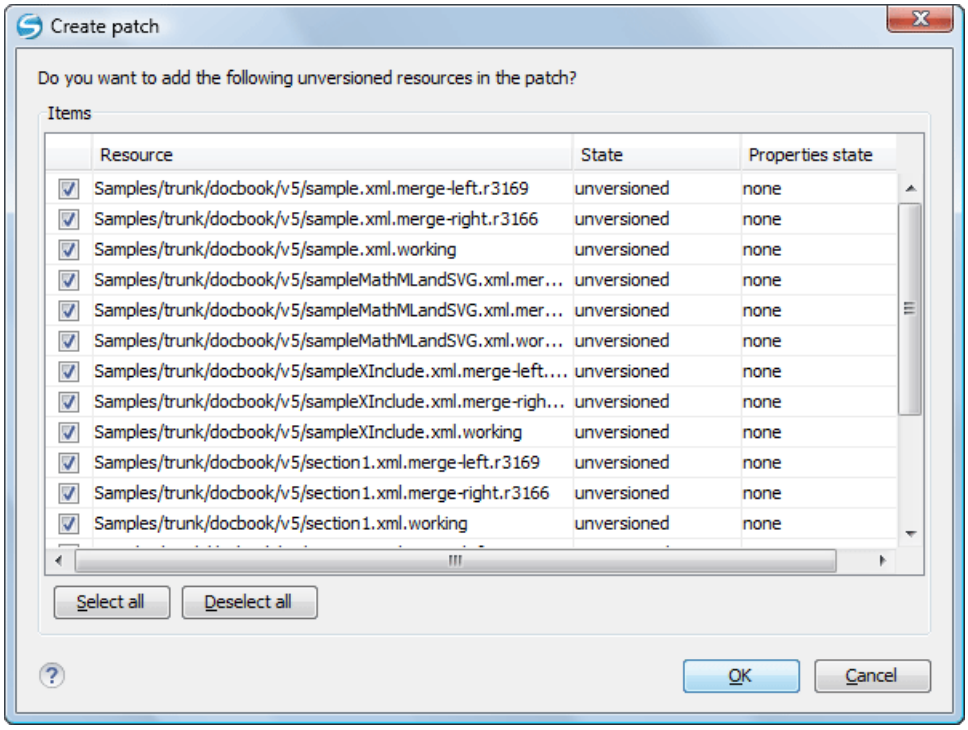


Figure 252: The Patch Wizard - Add Unversioned Resources

13. Select the unversioned files that will be included in the patch.

    If the patch is applied on a folder of the working copy and that folder contains unversioned files this step of the wizard offers the option of selecting the ones that will be included in the patch.

14. Press the OK button.
    The patch is created by applying all the specified options.

Create a Patch Between Two Repository Revisions

When a patch must include the differences between two repository revisions, in the same repository or in two different repositories, the steps for creating the patch are the following:

1. Go to menu **Tools** > **Create patch**.
   This opens the **Create patch** wizard:

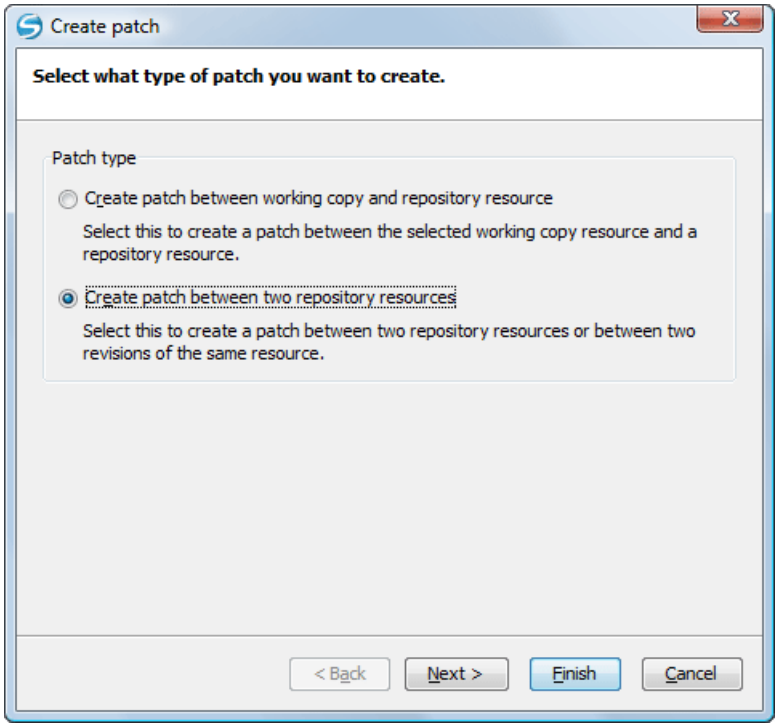


Figure 253: The Create Patch Wizard - Patch Type

2. Select the second option in the dialog.
3. Press the **Next** button.
   The second step of the wizard is opened:

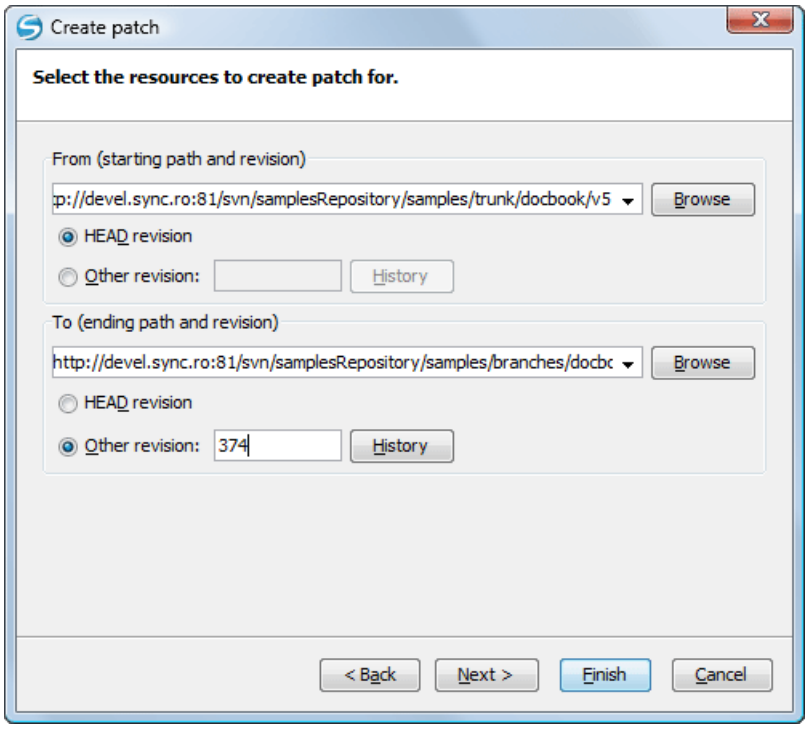


Figure 254: The Create Patch Wizard - Step 2

4. Select the first repository revision in the **From** panel.
5. Select the second repository revision in the **To** panel.

For both revisions you have the option of choosing between the HEAD revision and a specific revision number. For a specific number you should press *the **History** button* to display a list of the repository revisions.

6. Press the **Next** button.
   The next step of the wizard is displayed:

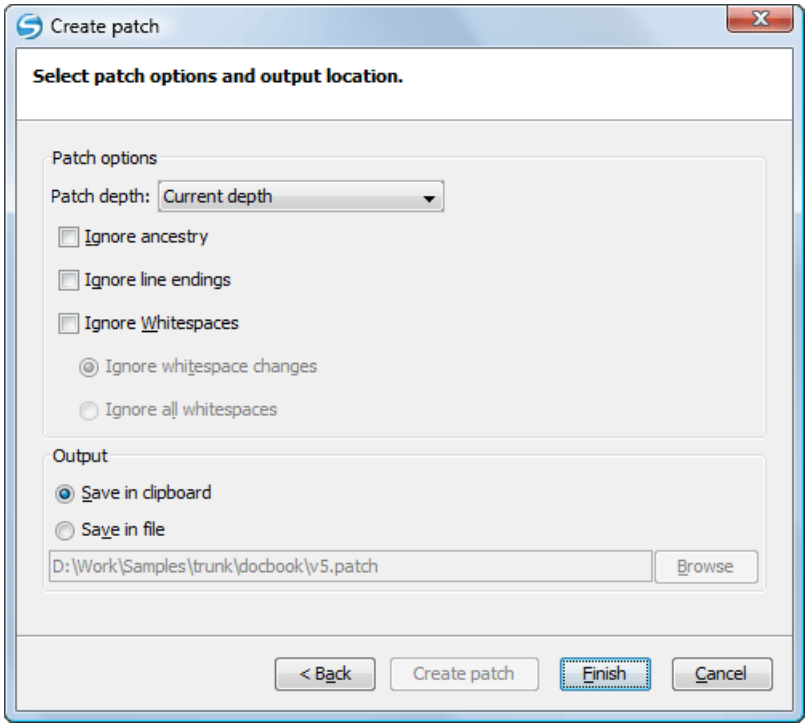


Figure 255: The Create Patch Wizard - Options

7. Select the depth of the patch operation.
   In case of a file resource the depth is always zero. In case of a folder resource the depth has one of the following values:
   - **Current depth** - The depth of going into the folder for creating the patch is the same as the depth of that folder in the working copy.
   - **Recursive (infinity)** - The patch is created on all the files and folders contained in the selected folder.
   - **Immediate children (immediates)** - The patch is created only on the child files and folders without going in subfolders.
   - **File children only (files)** - The patch is created only on the child files.
   - **This folder only (empty)** - The patch is created only on the selected folder (that is no child file or folder is included in the patch).
8. Select the **Ignore ancestry** checkbox (optional).
   If checked, the SVN ancestry that exists when the two URLs have a common SVN history is ignored.
9. Select the **Ignore line endings** checkbox (optional).
   If checked, the differences in line endings are ignored when the patch is created.
10. Select the **Ignore whitespaces** checkbox (optional).
    If checked, the differences in whitespaces are ignored when the patch is created.
11. Select the output location.
    - **Save in clipboard** - The patch will be created and saved in clipboard. This is useful when you do not want to save the patch in a file on disk.
    - **Save in file** - The patch will be created and saved in the specified file.

12. Press the **Next** button.
This will go to the final step of the wizard:

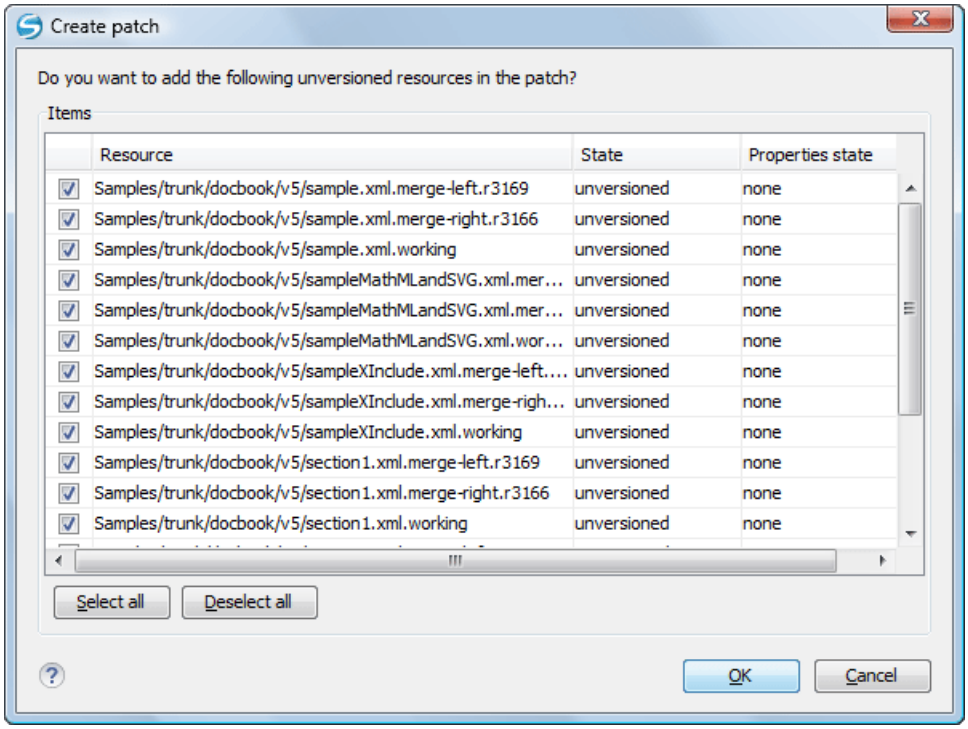


Figure 256: The Patch Wizard - Add Unversioned Resources

13. Select the unversioned files that will be included in the patch.

If the patch is applied on a folder of the working copy and that folder contains unversioned files this step of the wizard offers the option of selecting the ones that will be included in the patch.

14. Press the OK button.
The patch is created by applying all the specified options.

Working with Repositories

This section explains how to locate and browse SVN repositories in Syncro SVN Client.

Importing Resources Into a Repository

This is the process of taking a project and importing it into a repository so that it can be managed by an Apache Subversion™ server. 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 *using an existing working copy*.

This process is started from menu **Repository** > **Import** > **Import Folder Content**. The same action is available in the **Repositories** view contextual menu. 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.

Exporting Resources From a 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.

The export dialog is very similar to the check out dialog:

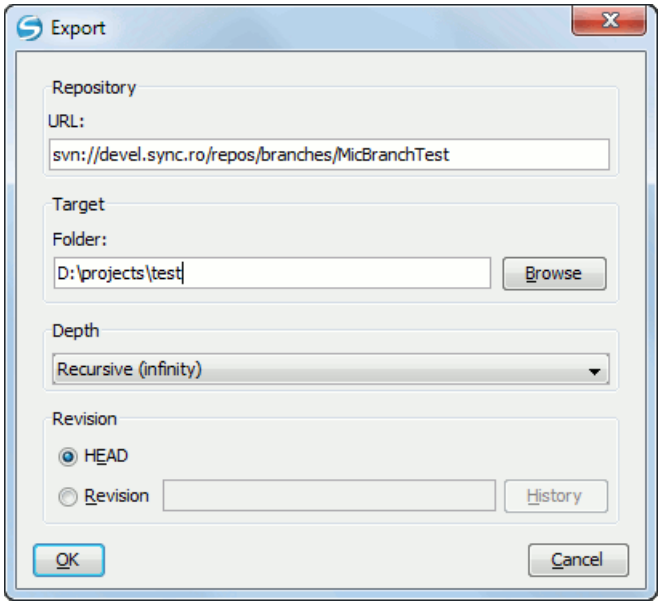


Figure 257: Export from Repository

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 a Repository

Once you have a location defined in the ***Repositories** 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 to** and **Move to** action allows you to copy and move individual or multiple resources to a specific directory from the *HEAD* revision of the repository.

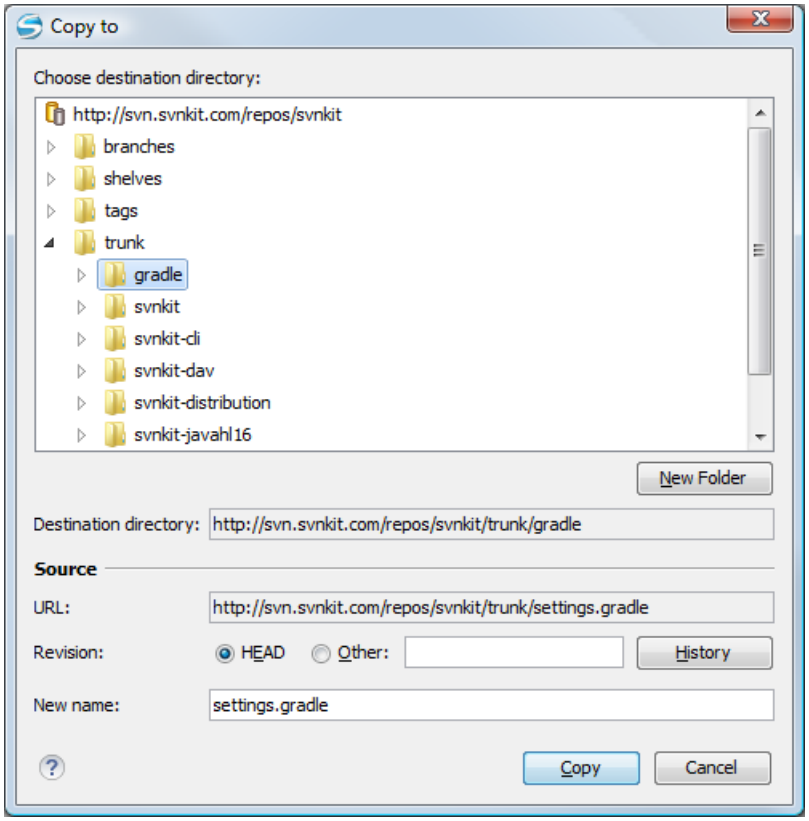


Figure 258: Copy/Move Items in Repository

The dialog box used to copy or move items allows you to browse the *HEAD* revision of the repository and select the destination of the items, presenting its repository URL below the tree view.

The **Source** section presents relevant options regarding the item(s) that you move or copy:

- **URL** - this field is displayed only if you copy/move a single item;
- **Revision** - presents the revision from which you copy one or more items, allowing you to also choose another revision;

  Note: Since only items from the HEAD revision can be moved, the **Revision** options are not presented for the **Move to** action.

  Note: When you copy a single item while browsing a revision other than *HEAD*, the **Revision** options present this revision but does not allow you to change it. The same applies if copying multiple items.

- **New name** - This option is presented when you copy or move a single item, allowing you to also rename it.

Another useful action is **Delete**, allowing you to erase resources directly from the repository.

All three actions are commit operations and you will be prompted with the **Commit message** dialog.

Sparse Checkout

Sometimes you need to check out only certain parts of a directory tree. For this you can check out the top directory (*the action **Check out** from the **Repositories** view*) and then update recursively only the needed directories (*the action **Update** from the **Working Copy** view*). Now, each directory has a depth set to it, which has four possible values:

- **Recursive (*infinity*)** - Updates all descendant directories and files recursively.
- **Immediate children (*immediates*)** - Updates the directory, including direct child directories and files, but does not populate the child directories.
- **File children only (*files*)** - Updates the directory, including only child files without the child directories.

- **This folder only (*empty*)** - Updates only the selected directory, without updating any children.

For some operations, you can use as depth the current depth registered on the directories from the working copy (the value **Current depth**). This is the depth value defined in a previous check out or update operation.

The sparse checked out directories are presented in the ***Working Copy** view* with a marker corresponding to each depth value, in the top left corner, as follows:

- - **Recursive (*infinity*)** - This is the default value and it is has no mark. The directory has no limiting depth.
- - **Immediate children (*immediates*)** - The directory is limited to direct child directories (without contents) and files.
- - **File children only (*files*)** - The directory is limited to direct child files only.
- - **This folder only (*empty*)** - The directory has *empty* depth set.

A depth set on a directory means that some operations process only items within the specified depth range. For example, **Synchronize** on a working copy directory reports the repository modified items within the depth set on the directory and those existing in the working copy outside of this depth.

The depth information is also presented in the **SVN Information** dialog box and in the tool tip displayed when hovering a directory in the **Working Copy** view.

This feature requires the SVN client to support SVN 1.5 or above and will work most efficiently if the server is 1.5 or above. The client will work also with a 1.4 server or lower but will be less efficient.

Syncro SVN Client Views

The main working area occupies the center of the application window, which contains the most important views:

- *Repositories View*
- *Working Copy View*
- *History View*
- *Console View*

The other views that support the main working area are also presented in this section.

Repositories View

The **Repositories** view allows you to define and manage Apache Subversion™ repository locations and browse repositories. 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 repository. More information about each resource is displayed in a tabular form:

- **Date** - Date when the resource was last modified;
- **Revision** - The revision number at which the resource was last time modified;
- **Author** - Name of the person who made the last modification on the resource;
- **Size** - Resource size on disk;
- **Lock information** - Information about the lock status of a file. When a repository file is locked by a user the icon is displayed in this column. If no icon is displayed the file is not locked. The tooltip of this column displays the details about lock:
  - owner - the name of the user who created the lock;
  - date - the date when the user locked the file;
  - expires on - date when the lock expires. Lock expiry policy is set in the repository options, on the server side;
  - comment - the message attached when the file was locked.
- **Type** - Contains the resource type or file extension.

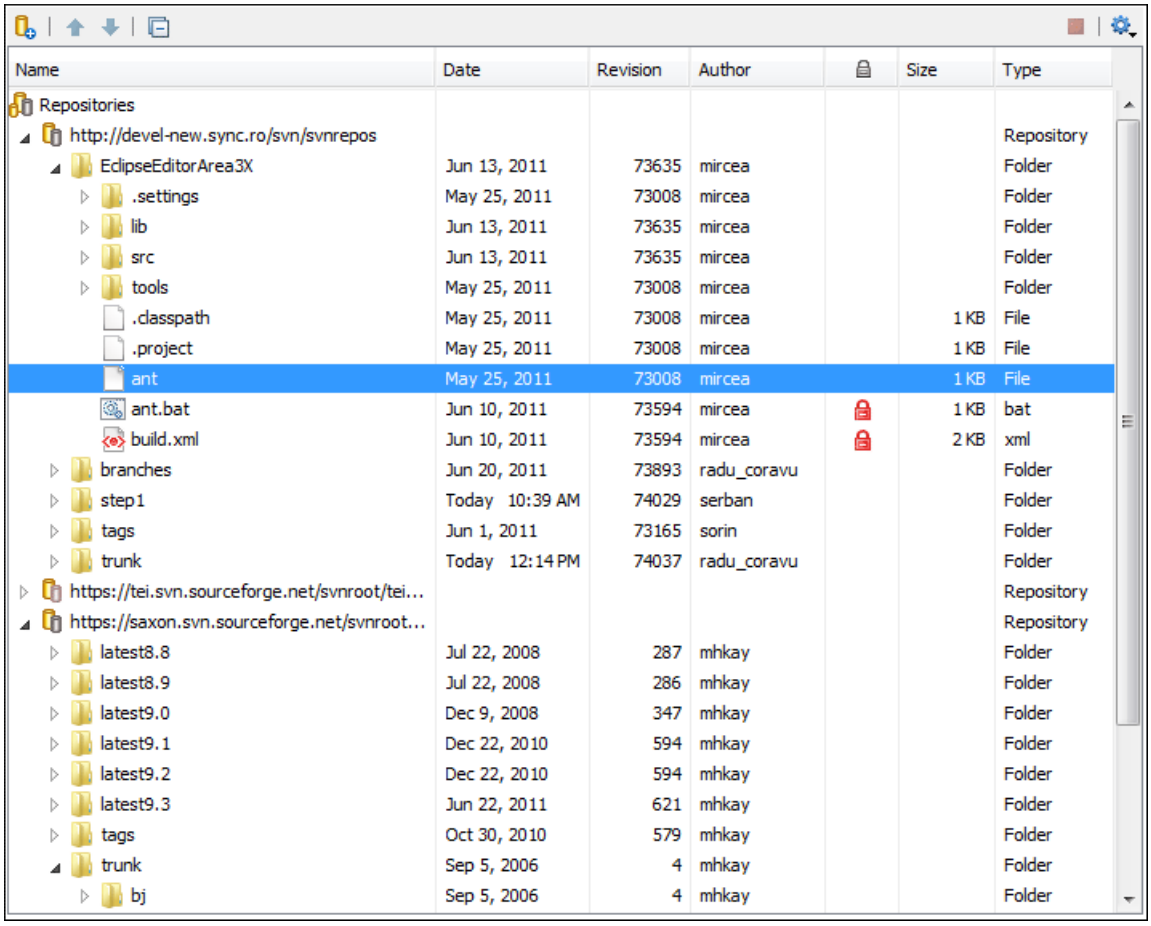


Figure 259: Repositories View

Toolbar

The **Repositories** view's toolbar contains the following buttons:

- **New Repository Location** - Allows you to enter a new repository location by means of the **Add SVN Repository** dialog.
- **Move Up** - Move the selected repository up one position in the list of repositories in the **Repositories** view.
- **Move Down** - Move the selected repository down one position in the list of repositories in the **Repositories** view.
- **Collapse all** - Collapses all repository trees.
- **Stop** - Stops the current repository browsing operation executed when a repository node is expanded. This is useful when the operation takes too long or the server is not responding.
- **Settings** - Allows you to configure the resource table appearance.

Contextual Menu Actions

The **Repositories** view contextual menu contains different actions depending on the selected item. If a repository location is selected, the following management actions are available:

- **New Repository Location** (**Ctrl (Meta on Mac OS) + Alt + N**) - Displays the **Add SVN Repository** dialog. This dialog allows you to define a new repository location.

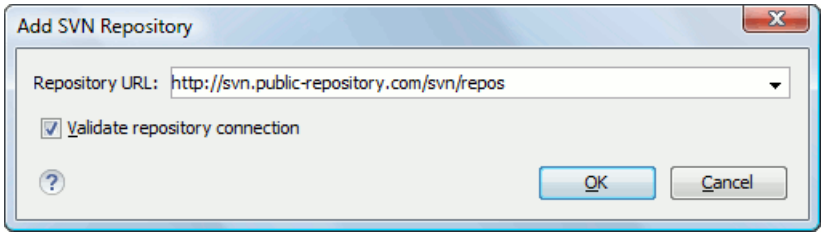


Figure 260: Add SVN Repository Dialog Box

If the **Validate repository connection** option is selected, the URL connection is validated before being added to the **Repositories** view.

- **Edit Repository Location** (**Ctrl (Meta on Mac OS) + Alt + E**) - Context-dependent action that allows you to edit the selected repository location using the **Edit SVN Repository** dialog. It is active only when a repository location root is selected.
- **Change the Revision to Browse** (**Ctrl (Meta on Mac OS) + Alt + Shift + B**) - Context-dependent action that allows you to change the selected repository revision using the **Change the Revision to Browse** dialog. It is active only when a repository location root is selected.
- **Remove Repository Location** (**Ctrl (Meta on Mac OS) + Alt + Shift + R**) - 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.

The following actions are common to all repository resources:

- **Open** - Opens the selected file in the Editor view in read-only mode.
- **Open with** - Displays the *Open with...* dialog to specify the editor in which the selected file is opened. In case multiple files are selected, only external applications can be used to open the files.
- **Save as** - Saves the selected files locally, as they are in the browsed revision.
- **Refresh** - Refreshes the resource selected in the **Repositories** view.
- **Check out** (**Ctrl (Meta on Mac OS) + Alt + Shift + C**) - Allows you to create a working copy from a repository directory, on your local file system. To read more about this operation, see the section *Check out a working copy*.
- **Branch/Tag** - Allows you to create a branch or a tag from the selected folder in the repository. To read more about how to create a branch/tag, see the *Creation and management of Branches/Tags* section.
- **Share project** - Allows you to *share a new project* using an SVN repository. The local project is automatically converted into an SVN working copy.
- **Import** sub-menu:
  - **Import Folder Content** (**Ctrl (Meta on Mac OS) + Alt + Shift + M**) - Depending on the selected folder from a repository, allows you to import the contents of a specified folder from the file system into it. To read more about this operation, see the section *Importing resources into a repository*.

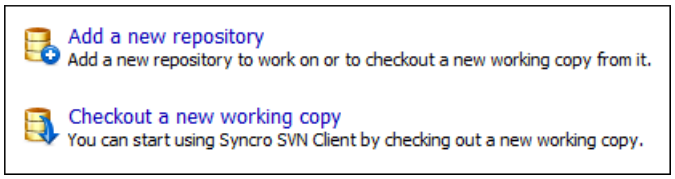
    Note: The difference between **Import Folder Content** and **Share project** actions is that the latter one also converts the selected directory into a working copy.

  - **Import File(s)** (**Ctrl (Meta on Mac OS) + Alt + I**) - Imports the files selected from the files system into the selected folder from the repository.
- **Export** - Exports a folder from the repository to the local file system.
- **Show History** (**Ctrl (Meta pn Mac OS) + H**) - Displays the history of the selected resource. At the start of the operation, you can set filtering options.
- **Show Annotation** (**Ctrl (Meta on Mac OS) + Shift + A**) - Complex action that does the following operations:
  - opens the selected resource in the **Annotations** editor;
  - displays corresponding annotations list in the **Annotations** view;

  - displays the history of the selected resource.
- **Revision Graph** (**Ctrl (Meta on Mac OS) + Shift + G**) - This action allows you to see the graphical representation of a resource history. For more details about a resource revision graph see the section *Revision Graph*. This operation is enabled for any resource selected into the **Repositories** view or **Working Copy** view.
- **Copy URL Location** (**Ctrl (Meta on Mac OS) + Alt + U**) () - Copies to clipboard the URL location of the selected resource.
- **Copy to** - Copies to a specified location the currently selected resource(s). This action is also available when you browse other revisions than the latest one (*HEAD*), to allow restoring previous versions of an item.
- **Move to** (**Ctrl + (Meta on Mac OS) + M**) - Moves to a specified location the currently selected resource(s).
- **Rename** (**(F2)**) - Renames the selected resource.
- **Delete** (**(Delete)**) - Deletes selected items from the repository via an immediate commit.
- **New Folder** - Allows you to create a folder in the selected repository path (available only for folders).
- **Locking** (available only for files):
  - **Lock** (**Ctrl + (Meta on Mac OS) + K**) - Allows you to lock certain files for which you need exclusive access. For more details on the use of this action, see *Locking a file*.
  - **Unlock** (**Ctrl + (Meta on Mac OS) + Shift + K**) - Releases the exclusive access to a file from the repository. You can also choose to unlock it by force (*break the lock*).
- **Show SVN Properties** (**Ctrl + (Meta on Mac OS) + Shift + P**) - Brings up the *Properties view* displaying the SVN properties for the selected resource. This view does not allow adding, editing, or removing SVN properties of a repository resource. These operations are allowed only for working copy resources.
- **File Information** (**Ctrl + (Meta on Mac OS) + I**) - provides additional information for the selected resource. For more details, see the section *Information view*.

Assistant Actions

When there is no repository configured, the **Repositories** view mode lists the following two actions:



Drag and Drop Operations

The structure of the files tree can be changed with drag and drop operations inside the **Repositories** view. These operations behave in the same way with the **Copy to**/**Move to** operations.

Working Copy View

The **Working Copy** view allows you to manage the content of an SVN working copy.

The toolbar contains:

- the list of defined working copies
- a set of view modes that allow you to filter the content of the working copy based on the resource status (like incoming or outgoing changes)
- **Settings** menu

If you click any of the view modes (**All Files**, **Modified**, **Incoming**, **Outgoing**, **Conflicts**), the information displayed changes as follows:

- **All Files** - Resources (files and folders) are presented in a hierarchical structure 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.

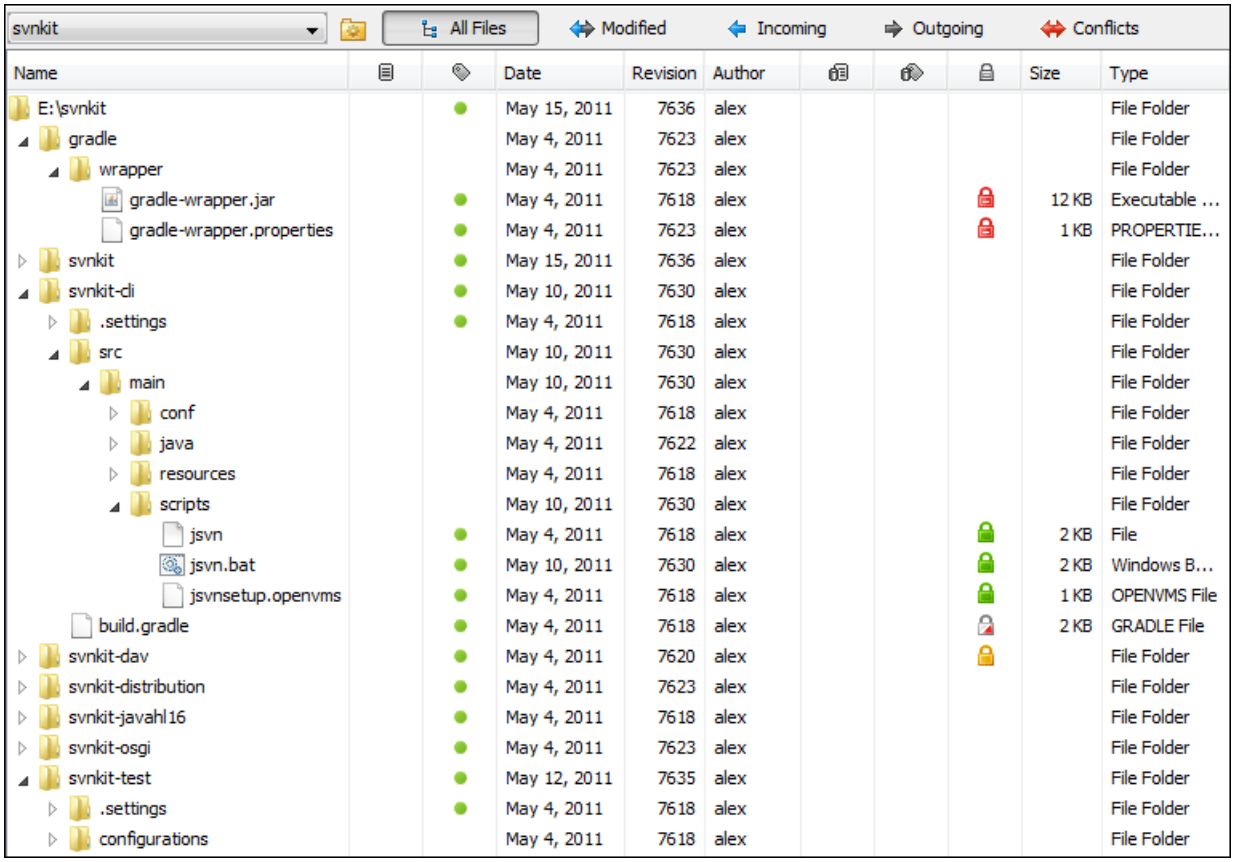


Figure 261: Working Copy View - All Files View Mode

- **Modified** - The resource tree presents resources modified locally (including those with conflicting content) and remotely. Decorator icons are used to differentiate between various resource states:
  - - incoming modification from repository:
    - - file content or properties modified remotely;
    - - new file added remotely;
    - - file deleted remotely;
  - - outgoing modification to repository:
    - - file content or properties modified locally;
    - - new file added locally;
    - - file deleted locally;
  - - pseudo-conflict state - a resource being locally and remotely modified at the same time, or a parent directory of such a resource.
  - - real conflict state - a resource that had both incoming and outgoing changes and not all the differences could be merged automatically through the update operation (manually editing the local file is necessary for resolving the conflict).

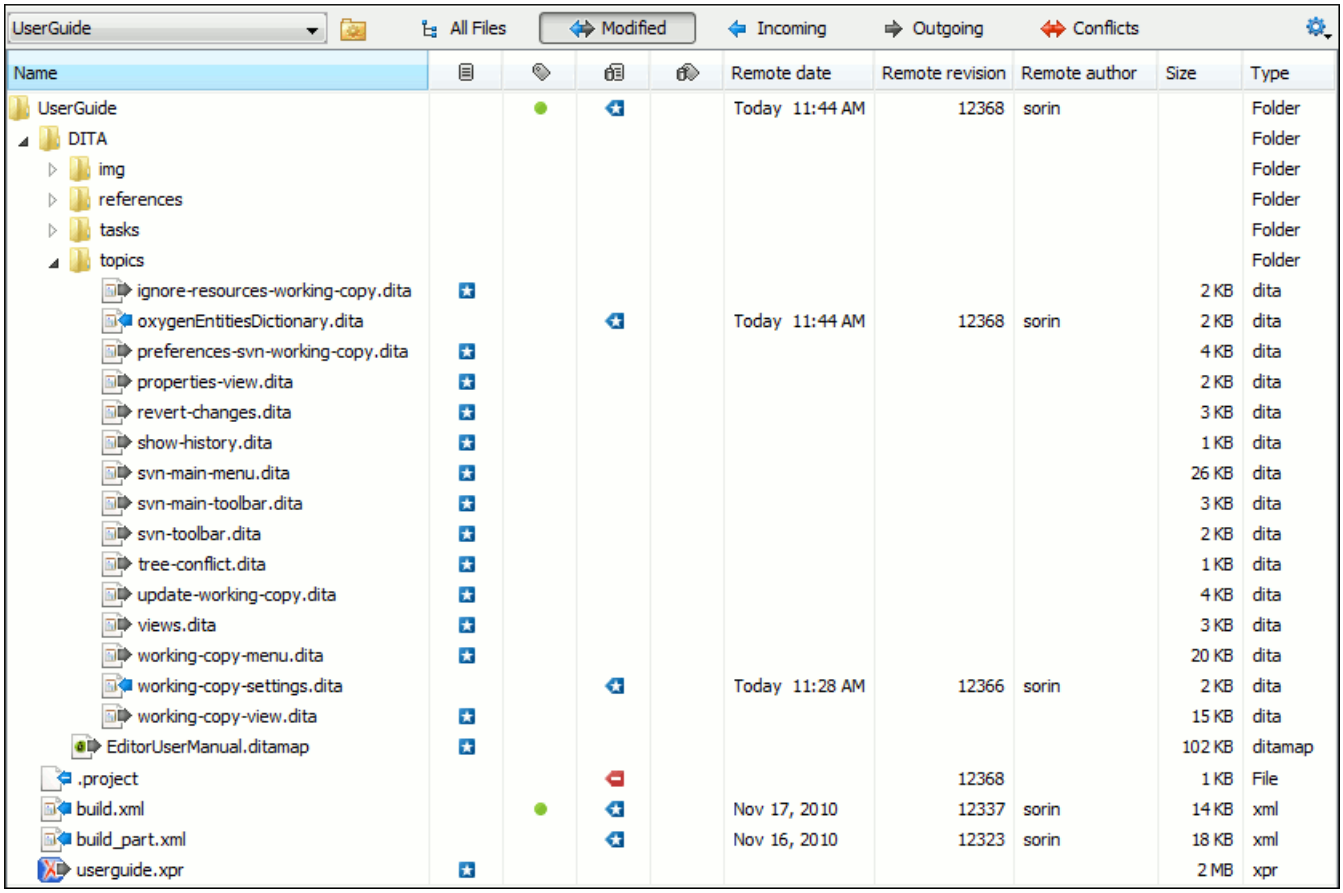


Figure 262: Working Copy View - Modified View Mode

- **Incoming** - The resource tree presents only incoming changes.
- **Outgoing** - The resource tree presents only outgoing changes.
- **Conflicts** - The resource tree presents only conflicting changes (real conflicts, pseudo-conflicts, and files in *the Name conflict state*).

The following columns provide information about the resources:

- **Name** - Resource name. Resource icons can have the following decorator icons:
  - Additional status information:
    - **Propagated modification marker** - A folder marked with this icon indicates that the folder itself presents some changes (like modified properties) or a child resource has been modified.
    - **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 and it indicates a working copy not directly related with the parent working copy that defines it.
    - **Switched** - This indicates a resource that has been switched from the initial repository location to a new location within the same repository. The resource goes to this state as a result of *the Switch action* executed from the contextual menu of the Working Copy view.
    - *Grayed* - A resource with a grayed icon but no overlaid icon is an ignored resource. It is obtained with the **Add to svn:ignore** action.
  - Current SVN depth of a folder:

- **Immediate children (immediates)** (a variant of *sparse checkout*) - The directory contains only direct file and folder children. Child folders ignore their content.
- **File children only (files)** (a variant of *sparse checkout*) - The directory contains only direct file children, disregarding any child folders.
- **This folder only (empty)** (a variant of *sparse checkout*) - The directory discards any child resource.

Note:

- Any folder not marked with one of the depth icons, has recursive depth (*infinity*) set by default (presents all levels of child resources).
- Although folders not under version control can have no depth set, Syncro SVN Client presents *unversioned* and *ignored* folders with *empty* depth when **Show unversioned directories content** or **Show ignored directories content** options are disabled.

- **Local file status** - Shows the changes of working copy resources that were not committed to the repository yet. The following icons are used to mark resource status:
  - - Resource is *not under version control* (*unversioned*).
  - - Resource is being *ignored* because it is not under version control and its name matches a file name pattern defined in one of the following places:
    - *global-ignores* section in the SVN client-side *'config' file*;
    - ***Application global ignores** option* of Syncro SVN Client;
    - the value of a *svn:ignore property* set on the parent folder of the resource being ignored.
  - - Marks a newly created resource, *scheduled for addition* to the version control system.
  - - Marks a resource *scheduled for addition*, created by copying a resource already under version control and inheriting all its SVN history.
  - - The content of the resource has been *modified*.
  - - Resource has been *replaced* in your working copy (the file was scheduled for deletion, and then a new file with the same name was scheduled for addition in its place).
  - - Resource is *deleted*(scheduled for deletion from **Repository** upon the next commit).
  - - The resource is *incomplete* (as a result of an interrupted *check out* or *update* operation).
  - - The resource is *missing* because it was moved or deleted without using an SVN-aware application.
  - - The contents of the resource is in *real conflict state*.
  - - Resource is in *tree conflict* state after an update operation because:
    - Resource was locally modified and incoming deleted from repository;
    - Resource was locally scheduled for deletion and incoming modified.
  - - Resource is *obstructed* (versioned as one kind of object: file, directory, or symbolic link, but has been replaced outside Syncro SVN Client by a different kind of object).
  - - Resource is in *name conflict* state (only on case insensitive systems like Windows). This happens when two files having the same name (ignoring letter-cases) exist in the same repository folder (for example `file.txt` and `File.txt`). The two files were added to repository from a case-sensitive operating system like Linux or Mac OS X. This state is reported after an *update* operation and most of the Apache Subversion™ operations cannot be performed over such files. The solution is to rename one of the files from a case-sensitive operating system or directly from the **Repositories** view in order to have the files with completely different names.
- **Local properties status** - Marks the resources that have SVN properties, with the following possible states:
  - - The resource has SVN properties set.
  - - The resource properties have been modified.
  - - Properties for this resource are in *real conflict* with property updates received from the repository.

- **Revision** - The current revision number of the resource.
- **Date** - Date when the resource was last time modified on the disk.
- **BASE Revision** - The revision number of the pristine version of the resource.
- **BASE Date** - Date when the pristine version of the resource was last time committed in the repository.
- **Author** - Name of the person who made the last modification on the pristine version of the resource.
- **Remote file status** - Shows changes of resources recently modified in the repository. The following icons are used to mark incoming resource status:
  - - Resource is newly added in repository.
  - - The content of the resource has been modified in repository.
  - - Resource was replaced in repository.
  - - Resource was deleted from repository.
- **Remote properties status** - Resources marked with the icon have incoming modified properties from the repository.
- **Remote revision** - Revision number of the resource latest committed modification.
- **Remote date** - Date of the resource latest modification committed on the repository.
- **Remote author** - Name of the author who committed the latest modification on the repository.
- **Lock information** - Shows the lock state of a resource. The lock mechanism is a convention intended to help you signal other users that you are working with a particular set of files. It minimizes the time and effort wasted in solving possible conflicts generated by clashing commits. A lock gives you exclusive rights over a file, only if other users follow this convention and they do not try to bypass the lock state of a file.

  A folder can be locked only by the SVN client application, completely transparent to the user, if an operation in progress was interrupted unexpectedly. As a result, folders affected by the operation are marked with the symbol. To clear the locked state of a folder, use the **Clean up** action.

  Note: Users can lock only files.

  The following lock states are displayed:

  - *no lock* - the file is not locked. This is the default state of a file in the SVN repository;
  - *remotely locked* () - shown when:
    - another user has locked the file in the repository;
    - the file was locked by the same user from another working copy;
    - the file was locked from the **Repositories** view.

    If you try to commit a new revision of the file to the repository, the server does not allow you to bypass the file lock.

    Note: To commit a new revision, you need to wait for the file to be unlocked. Ultimately, you might try to *break* or *steal* the lock, but this is not what other users expect. Use these actions carefully, especially when you are not the file lock owner.

  - *locked* () - displayed after you have locked a file from the current working copy. Now you have exclusive rights over the corresponding file, being the only one who can commit changes to the file in the repository.

    Note: Working copies keep track of their locked files, so the locks are presented between different sessions of the application. Synchronize your working copy with the repository to make sure that the locks are still valid (not *stolen* or *broken*).

  - *stolen* () - a file already locked from your working copy is being locked by another user. Now the owner of the file lock is the user who stole the lock from you.
  - *broken* () - a file already locked from your working copy is no longer locked in the repository (it was unlocked by another user).

Note: To remove the *stolen* or *broken* states from your working copy files, you have to **Update** them.

If one of your working copy files is locked, hover the mouse pointer over the lock icon to see more information:

- lock type - current file lock state;
- owner - the name of the user who created the lock;
- date - the date when the user locked the file;
- expires on - date when the lock expires. Lock expiry policy is set in the repository options, on the server side;
- comment - the message attached when the file was locked.

- **Size** - Resource size on disk;
- **Type** - Contains the resource type or file extension.

Note: The working copy table allows you to show or hide any of its columns and also to sort its contents by any of the displayed columns. The table header provides a contextual menu which allows you to customize the displayed information.

The toolbar allows you to switch between two working copies:

- Drop down list - Contains all the working copies Syncro SVN Client is aware of. When you select another working copy from the list, the newly selected working copy content is scanned and displayed in the **Working Copy** view.
- (on Mac OS X) **Working Copies Manager** - opens a dialog box that displays the working copies Syncro SVN Client is aware of. In this dialog box, you can add existing working copies or remove those you no longer need. If you try to add a folder which is not a valid Subversion working copy, Syncro SVN Client warns you that the selected directory is not under version control.

  Note: Removing a working copy from this dialog does NOT remove it from your file system; you will have to do that manually.

Working Copy Settings

The **Settings** button from the toolbar of the **Working Copy** view provides the following options:

- **Show unversioned directories content** - displays the content of unversioned directories;

  Note: In case this option is disabled, it will be ignored for items that, after a synchronize, are reported as incoming from the repository. This applies for all working copy modes, except **All Files**.

- **Show ignored items** - displays the ignored resource when **All Files** mode is selected;
- **Show ignored directories content** - displays the content of ignored directories when **All Files** mode is selected;

  Note: Although *ignored* items are not presented in the **Modified**, **Incoming**, and **Conflicts** modes, they will be if, after a synchronize, they are reported as incoming from the repository.

- **Show deleted items** - displays the deleted resource when **All Files** mode is selected. All other modes always display deleted resources, disregarding this option;
- **Tree** / **Compressed** / **Flat** - affect the way information is displayed inside the **Modified**, **Incoming**, **Outgoing**, and **Conflicts** view modes;
- **Configure columns** - allows you to customize the structure of the **Working Copy** view data. This action opens the following dialog box:

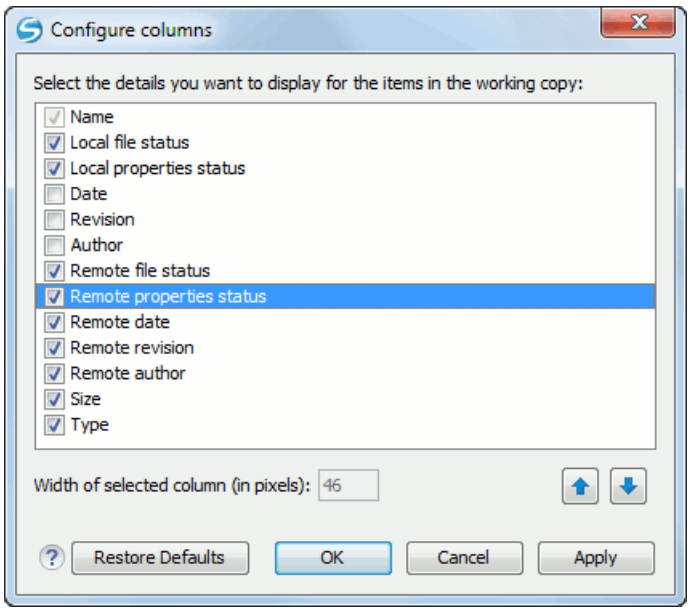


Figure 263: Configure Columns of Working Copy View

The order of the columns can be changed with the two arrow buttons. The column size can be edited in the **Width of selected column** field. The **Restore Defaults** button reverts all columns to the default order, width and enabled/disabled state from the installation of the application.

Working Copy Format

When an SVN working copy is loaded, Syncro SVN Client first checks the format of the working copy. If the format is older than SVN 1.7, a dialog box asks you whether you want to upgrade to the latest known working copy format - that is SVN 1.7.

In case you select the **Never ask me again** check box, your choice is used as default for similar situations. You can change how working copy formats are handled from **Options** > **Preferences** > **SVN** > **Working copy**, in the ***Administrative area*** section.

Note:

- The format of the working copy can be downgraded or upgraded at any time with the **Upgrade** and **Downgrade** actions available in the **Tools** menu. These actions allow switching between SVN 1.4, SVN 1.5 and SVN 1.6 working copy formats.
- SVN 1.7 working copies cannot be downgraded to older formats.

Refresh a Working Copy

A refresh is a frequent operation triggered automatically when you switch between two working copies using the toolbar selector of the **Working Copy** view and when you switch between Syncro SVN Client and other applications.

The **Working Copy** view features a fast refresh mechanism: the content is cached locally when loading the working copy for the first time. Later on, when the same working copy is displayed again, the application uses this cache to detect the changes between the cached content and the current content found on disk. The refresh operation is run on these changes only, thus improving the response time. improvement is noticeable especially when working with large working copies.

Contextual Menu Actions

The contextual menu in the Working Copy view contains the following actions:

- **Edit conflict (Ctrl (Meta on Mac OS) + E)** - Opens the **Compare** editor, allowing you to modify the content of the currently conflicting resources. For more information on editing conflicts, see *Edit conflicts*.
- **Open in Compare Editor (Ctrl (Meta on Mac OS) + Alt + C)** - Displays changes made in the currently selected file.
- **Open (Ctrl (Meta on Mac OS) + O)** - Opens the selected resource from the working copy. Files are opened with an internal editor or an external application associated with that file type, while folders are opened with the default file system browsing application (e.g. Windows Explorer on Windows, Finder on Mac OS X, etc).
- **Open with** submenu that allows you to open the selected resource either with <oXygen/> XML or with another application.
- **Show in Explorer**/**Show in Finder** - Opens the parent directory of the selected working copy file and selects the file.
- **Expand all (Ctrl (Meta on Mac OS) + Alt + X)** - Displays all descendants of the selected folder. You can obtain a similar behavior by double-clicking on a collapsed folder.
- **Refresh (F5)** - Re-scans the selected resources recursively and refreshes their status in the working copy view.
- **Synchronize (Ctrl (Meta on Mac OS) + Shift + S)** - Connects to the repository and determines the working copy and repository changes made to the selected resources. The application switches to **Modified** view mode if the *Always switch to 'Modified' mode* option is selected.
- **Update (Ctrl (Meta on Mac OS)+ U)** - Updates the selected resources to the *HEAD* revision (latest modifications) from the repository. If the selection contains a directory, it will be updated depending on its *depth*.
- **Update to revision/depth** - Allows you to update the selected resources from the working copy to an earlier revision from the repository. You can also select the update *depth* for the current folder. You can find out more about the *depth* term in the *sparse checkouts* section.
- **Commit** - Collects the outgoing changes from the selected resources in the working copy and allows you to choose exactly what to commit by selecting or not resources. A directory will always be committed recursively. The unversioned resources will be deselected by default. In the commit dialog you can also enter a commit comment before sending your changes to the repository.
- **Revert (Ctrl (Meta on Mac OS) + Shift + V)** - Undoes all local changes for the selected resources. It does not contact the repository, the files are obtained from Apache Subversion™ pristine copy. It is enabled only for modified resources. See *Revert your changes* for more information.
- **Override and Update** - Drops any outgoing change and replaces the local resource with the HEAD revision. Action available on resources with outgoing changes, including the conflicting ones. See the *Revert your changes* section.
- **Override and Commit** - Drops any incoming changes and sends your local version of the resource to the repository. Action available on conflicting resources. See also the section *Drop incoming modifications*.
- **Mark Resolved (Ctrl (Meta on Mac OS) + Shift + R)** - Instructs the Subversion system that you resolved a conflicting resource. For more information, see *Merge conflicts*.
- **Mark as Merged (Ctrl (Meta on Mac OS) + Shift + M)** - Instructs the Subversion system that you resolved the pseudo-conflict by merging the changes and you want to commit the resource. Read the *Merge conflicts* section for more information about how you can solve the pseudo-conflicts.
- **Create patch (Ctrl (Meta on Mac OS) + Alt + P)** - Allows you to create a file containing all the differences between two resources, based on the `svn diff` command. To read more about creating patches, see *the section about patches*.
- **Compare with**:
  - **Latest from HEAD (Ctrl (Meta on Mac OS) + Alt + H)** - Performs a 3-way diff operation between the selected file and the *HEAD* revision from the repository and displays the result in the **Compare view**. The common ancestor of the 3-way diff operation is the *BASE* version of the file from the local working copy.

- **BASE revision (Ctrl (Meta on Mac OS) + Alt + C)** - Compares the working copy file with the BASE revision file (the so-called *pristine copy*).
- **Revision (Ctrl (Meta on Mac OS) + Alt + R)** - Shows the **History view** containing the log history of that resource.
- **Branch/Tag** - Compares the working copy file with a revision of the file from a branch or tag. The revision is specified by URL (selected with a repository browser dialog) and revision number (selected with a revision browser dialog).
- **Each other** - Compares two selected files with each other.

These *compare* actions are enabled only if the selected resource is a file.

- **Replace with**:
  - **Latest from HEAD** - Replaces the selected resources with their versions from the *HEAD* revision of the repository.
  - **BASE revision** - Replace the selected resources with their versions from the pristine copy (the BASE revision).

  Note: In some cases it is impossible to replace the current selected resources with their versions from the *BASE/HEAD* revision:
  - for **Replace with BASE revision** action, the resources being unversioned or added have no *BASE* revision, so they cannot be replaced. However, they will be deleted if the action is invoked on a parent folder. The action will never work for missing folders or for obstructing files (folders being obstructed by a file), because you cannot recover a tree of folders;
  - for **Replace with latest from HEAD** action, you must be aware that there are cases when resources will be completely deleted or reverted to BASE revision and after that updated to HEAD revision, in order to avoid conflicts. These cases are:
    - the resource is *unversioned*, *added*, *obstructed* or *modified*;
    - the resource is affected by a *svn:ignore* or *svn:externals* property which is locally added on the parent folder and not yet committed to the repository.

- **Show History (Ctrl (Meta on Mac OS) + H)** - Displays the **History view** where the log history for the selected resource will be presented. For more details about resource history see the sections about *the resource history view* and *requesting the history for a resource*.
- **Show Annotation (Ctrl (Meta on Mac OS) + Shift + A)** - It will display the **Annotations view** where all the users that modified the selected resource will be presented together with the specific lines and revision numbers modified by each user. For more details about resource annotations see *Annotations View*.
- **Revision Graph (Ctrl (Meta on Mac OS) + Shift + G)** - This action allows you to see the graphical representation of a resource's history. For more details about a resource's revision graph see *Revision Graph*.
- **Copy URL Location (Ctrl (Meta on Mac OS) + Alt + U)** - Copies the encoded URL of the selected resource from the Working Copy to the clipboard.
- **Mark as copied** - You can use this action to mark an item from the working copy as a copy of an other item under version control, when the copy operation was performed outside of an SVN client. The **Mark as copied** action is available when you select two items (both the new one and the source one) and depends on the state of the source item.

  Note: If you use an SVN 1.6 working copy or older, this action does not apply for directories.
- **Mark as moved** - You can use this action to mark an item from the working copy as being moved from another location of the working copy, when the move operation was performed outside of an SVN client. The **Mark as**

moved action is available when you select two items from different locations (both the new one and the source one (usually reported as *missing*)) and depends on the state of the source item.

Note: If you use an SVN 1.6 working copy or older, this action does not apply for directories.

- **Mark as renamed** - You can use this action to mark an item from the working copy as being renamed outside of an SVN client. The **Mark as renamed** action is available when you select two items from the same directory (both the new one and the source one (usually reported as *missing*)) and depends on the state of the source item.

  Note: If you use an SVN 1.6 working copy or older, this action does not apply for directories.

- **Copy to** - Copies to a specified location the currently selected resource(s).
- **Move to (Ctrl (Meta on Mac OS)+ M)** - Moves to a specified location the currently selected resource(s).
- **Rename (F2)** - You can only rename one 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.
- **Delete (Delete)** - Schedules selected items for deletion upon the next commit, removing them from the disk. Depending on the state of each item, you are prompted to confirm the operation.
- **New**:
  - **New File** - Creates a new file inside the selected folder. The newly created file will be added under version control only if the parent folder is already versioned.
  - **New Folder (Ctrl (Meta on Mac OS)+ Shift + F)** - Creates a child folder inside the selected folder. The newly created folder will be added under version control only if its parent is already versioned.
  - **New External Folder (Ctrl (Meta on Mac OS) + Shift + W)** - Creates a new folder inside the selected folder, having the contents of a target folder from the current working copy's repository. The application does this by setting a *svn:externals* property on the selected folder and updating the folder in order to bring all the newly pointed resources inside your current working copy. The operation shows a dialog which allows you to specify the new folder's name and easily select the target folder by browsing the repository's contents.

    Subversion 1.5 and higher clients support relative external URLs. You can specify the repository URLs to which the external folders point using the following relative formats:

    - **../** - Relative to the URL of the directory on which the *svn:externals* property is set.
    - ^/ - Relative to the root of the repository in which the *svn:externals* property is versioned.
    - // - Relative to the scheme of the URL of the directory on which the *svn:externals* property is set.
    - / - Relative to the root URL of the server on which the *svn:externals* property is versioned.

- **Add to version control (Ctrl (Meta on Mac OS) + Alt + V)** - Allows you to schedule for addition resources that are not under version control. For further details, see *Add Resources to Version Control* section.
- **Remove from version control** - Schedules selected items for deletion from repository upon the next commit. The items are not removed from the file system after committing.
- **Add to "svn:ignore" (Ctrl (Meta on Mac OS) + Alt + I)** - Allows you to keep inside your working copy files that should not participate to the version control operations. This action can only be performed on resources not under version control. It actually modifies the value of the *svn:ignore* property of the resource's parent directory. Read more about this in the *Ignore Resources Not Under Version Control* section.
- **Clean up (Ctrl (Meta on Mac OS) + Shift + C)** - 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.

- **Locking**:
  - **Scan for locks (Ctrl (Meta on Mac OS) + L)** - 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 *Scanning for locks*.
  - **Lock (Ctrl (Meta on Mac OS) + K)** - 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 see *Locking a file*.
  - **Unlock (Ctrl (Meta on Mac OS) + Alt + K)** - Releases the exclusive access to a file from the repository. You can also choose to unlock it by force (*break the lock*).
- **Show SVN Properties (Ctrl (Meta on Mac OS) + P)** - Brings up the *Properties view* and displays the SVN properties for the selected resource.
- **File Information (Ctrl (Meta on Mac OS) + I)** - Provides additional information for the selected resource from the working copy. For more details please see *Obtain information for a resource*.

Drag and Drop Operations

The structure of the files tree can be changed with drag and drop operations inside the **Working Copy** view. These operations behave in the same way with the **Copy to**/**Move to** operations.

Also, files and folders can be added to the file tree of the view as *unversioned* resources by drag and drop operations from other applications (for example from Windows Explorer or Mac OS X Finder). In this case, the items from the file system are only copied, without removing them from their original location.

Attention: When you drag items from the working copy to a different application, the performed operation is controlled by that application. This means that the moved items are left as *missing* in the working copy (items are moved in the file system only, but no SVN versioning meta-data is changed).

Assistant Actions

To ensure a continuous and productive work flow, when a view mode has no files to present, it offers a set of guiding actions with some possible paths to follow.

Initially, when there is no working copy configured the **All Files** view mode lists the following two actions:

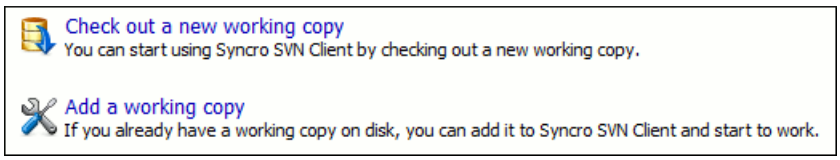


Figure 264: All Files Panel

For **Modified**, **Incoming**, **Outgoing**, **Conflicts** view modes, the following actions may be available, depending on the current working copy state in different contexts:

- Information message - Informs you why there are no resources presented in the currently selected view mode;
- **Synchronize with Repository** - Available only when there is nothing to present in the **Modified** and **Incoming** view modes;
- **Switch to Incoming** - Selects the **Incoming** view mode.
- **Switch to Outgoing** - Selects the **Outgoing** view mode.
- **Switch to Conflicts** - Selects the **Conflicts** view mode.

- **Show all changes/incoming/outgoing/conflicts** - Depending on the currently selected view mode, this action presents the corresponding resources after a synchronize operation was executed only on a part of the working copy resources.

History View

In Apache 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 *Repositories view*, *Working Copy view*, *Revision Graph*, or *Directory Change Set view*. From the **Working copy view** you can display the history of local versioned resources.

The view consists of four distinct areas:

- The table showing details about each revision, like: revision number, commit date and time, number of changes (more details available in the tooltip), author's name, and a fragment of the commit message.

  Some revisions may be highlighted to emphasize:

  - the current revision of the resource for which the history is displayed - a bold font revision;
  - the last revision in which the content or properties of the resource were modified - blue font revision.

  Note: Both font highlights may be applied for the same revision.

- The complete commit message for the selected revision;
- A tree structure showing the folders where the modified resources are located. You can compress this structure to a more compact form that focuses on the folders that contain the actual modifications;
- The list of resources modified in the selected revision. For each resource, the type of action done against it is marked with one of the following symbols:
  - - A newly created resource;
  - - A newly created resource, copied from another repository location;
  - - The content/properties of the resource were *modified*;
  - - Resource was *replaced* in the repository;
  - - Resource was deleted from the repository.

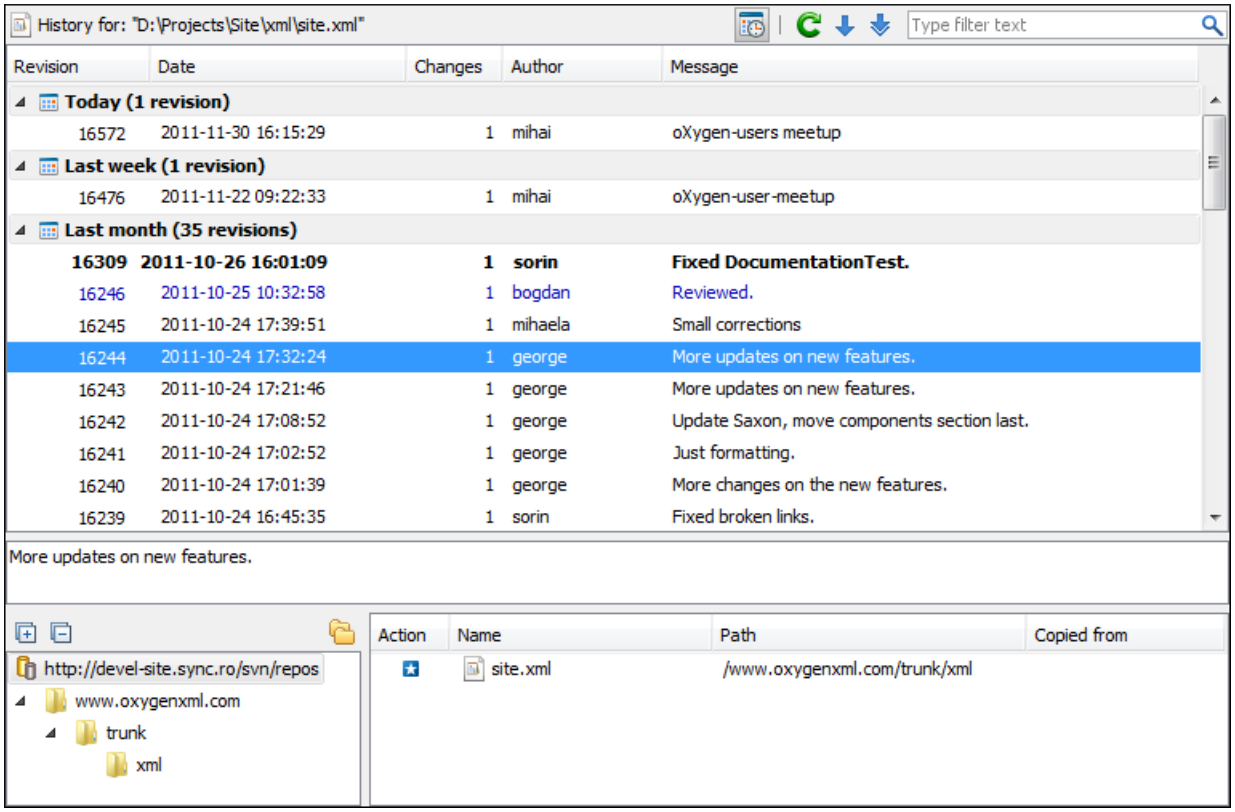


Figure 265: History View

You can group revisions in predefined time frames (today, yesterday, this week, this month), by pressing the **Group by date** button from the toolbar.

The History Filter Dialog

The **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. That is why you can specify the criteria for the revisions displayed in the **History view** by selecting one of several options presented in the **History** dialog which is displayed when you invoke the **Show History** action.

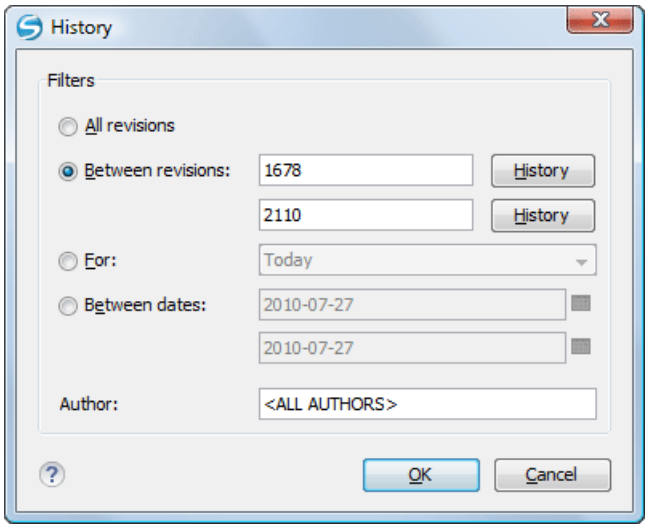


Figure 266: History Filters Dialog

Options for the set of revisions presented in the History view are:

- all revisions of the selected resource;
- only revisions between a start revision number and an end revision number;
- only revisions added in a period of time like today, last week, last month, etc.;
- only revisions between a start and an end date;
- only revisions committed by a specified SVN user.

The toolbar of the **History view** has two buttons for extending the set of revisions presented in the view: **Get next 50** and **Get all**.

The History Filter Field

When only the history entries which contain a specified substring need to be displayed in the **History view** the filter field displayed at the top of this view is the perfect fit. Just enter the search string in the field next to the label **Find**. Only the items with an author name, commit message, revision number or date which match the search string are kept in the **History view**. The filter action is executed and the content of the table is updated when the button  **Search** is pressed.

Features

Single selection actions:

- **Compare with working copy** - Compares the selected revision with your working copy file. It is enabled only when you select a file.
- **Open** - Opens the selected revision of the file into the Editor. This is enabled only for files.
- **Open with** - Displays the *Open with...* dialog to specify the editor in which the selected file will be opened.
- **Get Contents** - Replaces the current version from the working copy with the contents of the selected revision from the history of the file. The *BASE* version of the file is not changed in the working copy so that after this action the file will appear as modified in a synchronization operation, that is newer than the *BASE* version, even if the contents is from an older version from history.
- **Save as** - Allows you to save the contents of a file as it was committed at a certain revision. This option is available only when you access the history of a file.
- **Copy to** - Copies to the repository the item whose history is displayed, using the selected revision. This option is active only when presenting the history for a repository item (URL).

   **Note:** This action can be used to resurrect deleted items also.

- **Revert changes from this revision** - Reverts changes which were made in the selected revision. The changes are reverted only in your working copy file, so it does not affect the repository file. It does not replace your working copy file with the entire file at the earlier revision, but only rolls-back earlier changes when other unrelated changes have been made since the date of the revision. This action is enabled when the resource history was launched for a local working copy resource.
- **Update to revision** - Updates your working copy resource to the selected revision. This is useful if you want your working copy to 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 is inconsistent and you are unable to commit your changes.
-  **Check out** - Checks out a new working copy of the directory for which the history is presented, from the selected revision.
-  **Show Annotation** - Computes the latest revision number and author name that modified each line of the file up to the selected revision, that is no modification later than the selected revision is taken into account.

- **Change** - Allows you to change commit data for a file:
  - *Author* - Changes the name of the SVN user that committed the selected revision.
  - *Message* - Changes the commit message of the selected revision.

When two resources are selected in the **History** view, the contextual menu contains the following actions:

- **Compare revisions** - When the resource is a file, the action compares the two selected revisions using the **Compare** view. When the resource is a folder, the action displays the set of all resources from that folder that were changed between the two revision numbers.
- **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.

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*

Directory Change Set View

The result of comparing two reference revisions from the history of a folder resource is a set with all the resources changed between the two revision numbers. The changed resources can be contained in the folder or in a subfolder of that folder. These resources are presented in a tree format. For each changed resource all the revisions committed between the two reference revision numbers are presented.

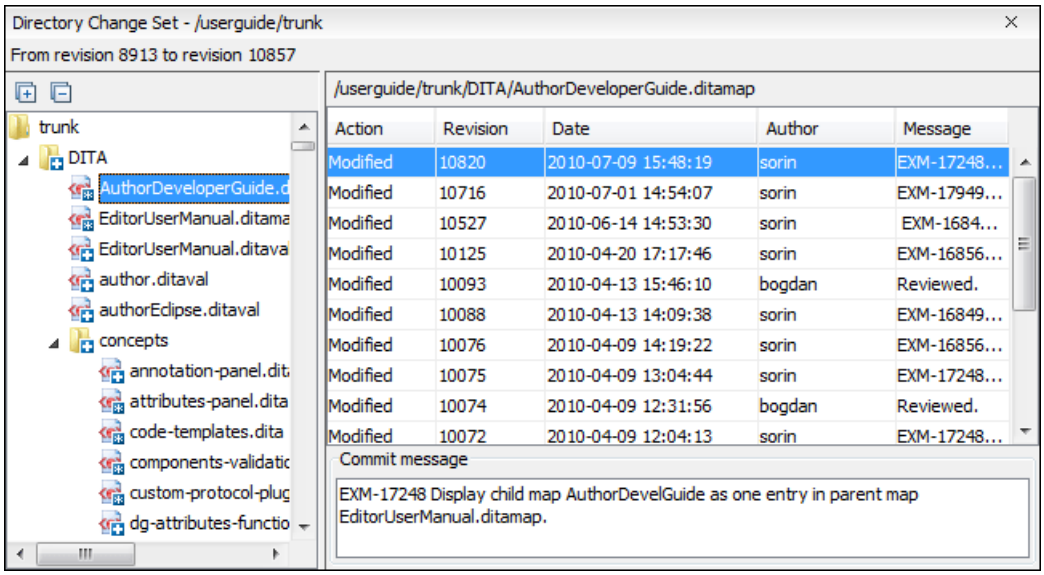


Figure 267: Directory Change Set View

The set of changed resources displayed in the tree is obtained by running the action **Compare revisions** available on the context menu of the **History** view when two revisions of a folder resource are selected in the **History** view.

The left side panel of the view contains the tree hierarchy with the names of all the changed resources between the two reference revision numbers. The right side panel presents the list with all the revisions of the resource selected in the left side tree. These revisions were committed between the two reference revision numbers. Selecting one revision in the list displays the commit message of that revision in the bottom area of the right side panel.

A double click on a file listed in the left side tree performs a diff operation between the two revisions of the file corresponding to the two reference revisions. A double click on one of the revisions displayed in the right side list of the view performs a diff operation between that revision and the previous one of the same file.

The context menu of the right side list contains the following actions:

- **Compare with previous version** - Performs a diff operation between the selected revision in the list and the previous one.
- **Open** - Opens the selected revision in the associated editor type.
- **Open with** - *Displays a dialog* with the available editor types and allows the user to select the editor type for opening the selected revision.
- **Save as** - Saves the selected file as it was in the selected revision.
- **Copy to** - Copies to the repository the item whose history is displayed, using the selected revision.

  Note: This action can be used to resurrect deleted items also.

- **Check out** - Checks out a new working copy of the selected directory, from the selected revision.
- **Show Annotation** - Requests the annotations of the file and *displays them in the **Annotations** view*.

The Editor Panel of SVN Client

You can open a file for editing in an internal built-in editor. There are default associations between frequently used file types and the internal editors in *the File Types preferences panel*.

The internal editor can be accessed either from the *Working copy view* or from the *History view*. No actions that modify the content are allowed when the editor is opened with a revision from history.

Only one file at a time can be edited in an internal editor. If you try to open another file it will be opened in the same editor window. The editor provides syntax highlighting for known file types. This means that a different color will be used for each recognized token type found in the file. If the file's content type is unknown you will be prompted to choose the proper way the file should be opened.

After editing the content of the file in an internal editor you can save it to disk by using the **Save** action from the *File* menu or the **Ctrl (Meta on Mac OS) + S** key shortcut. After saving your file you can see the file changed status in *the **Working Copy** view*.

If the internal editor associated with a file type is not the XML Editor, then the encoding set in *the preference Encoding for non XML files* is used for opening and saving a file of that type. This is necessary because in case of XML files the encoding is usually declared at the beginning of the XML file in a special declaration or it assumes the default value UTF-8 but in case of non XML files there is no standard mechanism for declaring the file's encoding.

Annotations View

Sometimes you need to know not only what was changed in a file, but also who made those changes. This view displays the author and the revision that changed every line in a file. Just click on a line in the editor panel where the file is opened to see the revision that edited that line last time highlighted in the **History view** and to see all the lines changed by that revision highlighted in the editor panel. Also the entries of the **Annotations view** corresponding to that revision are highlighted. So the **Annotations view**, the **History view** and the editor panel are synchronized. Clicking on a line in one of them highlights the corresponding lines in the other two.

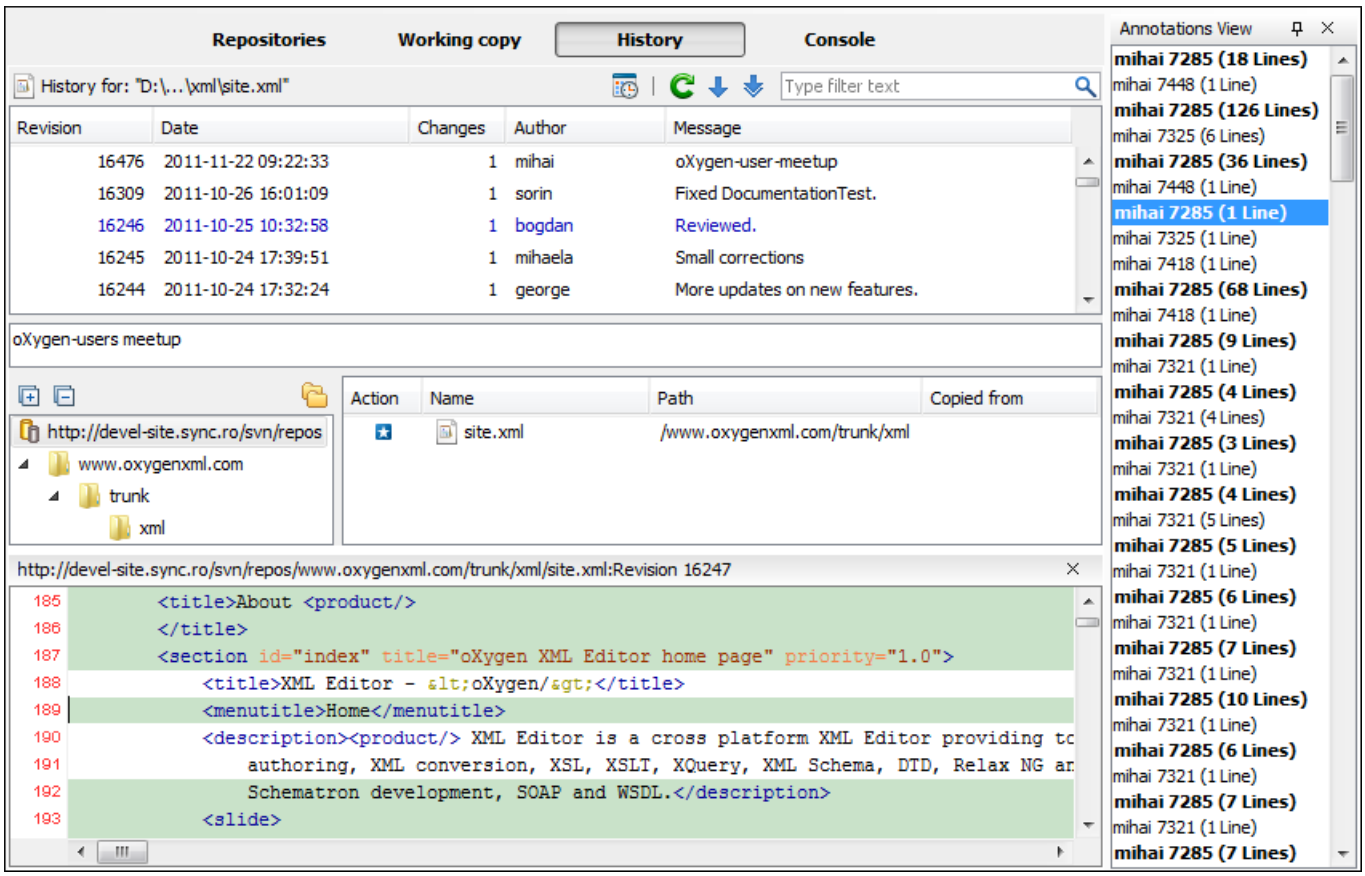


Figure 268: The Annotations View

The annotations of a file are computed with the **Show Annotation** action available on the right click menu of *the History view* and *the Repository view*.

If the file has a very long history, the computation of the annotation data can take long. If you want only the annotations of a range of revisions you can specify the start revision and the end revision of the range in a dialog similar with *the History filter dialog* that will be displayed in *the History view*. The action is called **Show Annotation** and is available on the right click menu of *the Working Copy view*.

Compare View

In the Syncro SVN Client there are three types of files that can be checked for differences: text files, image files and binary files. For the text files and image files you can use the built-in **Compare view**.

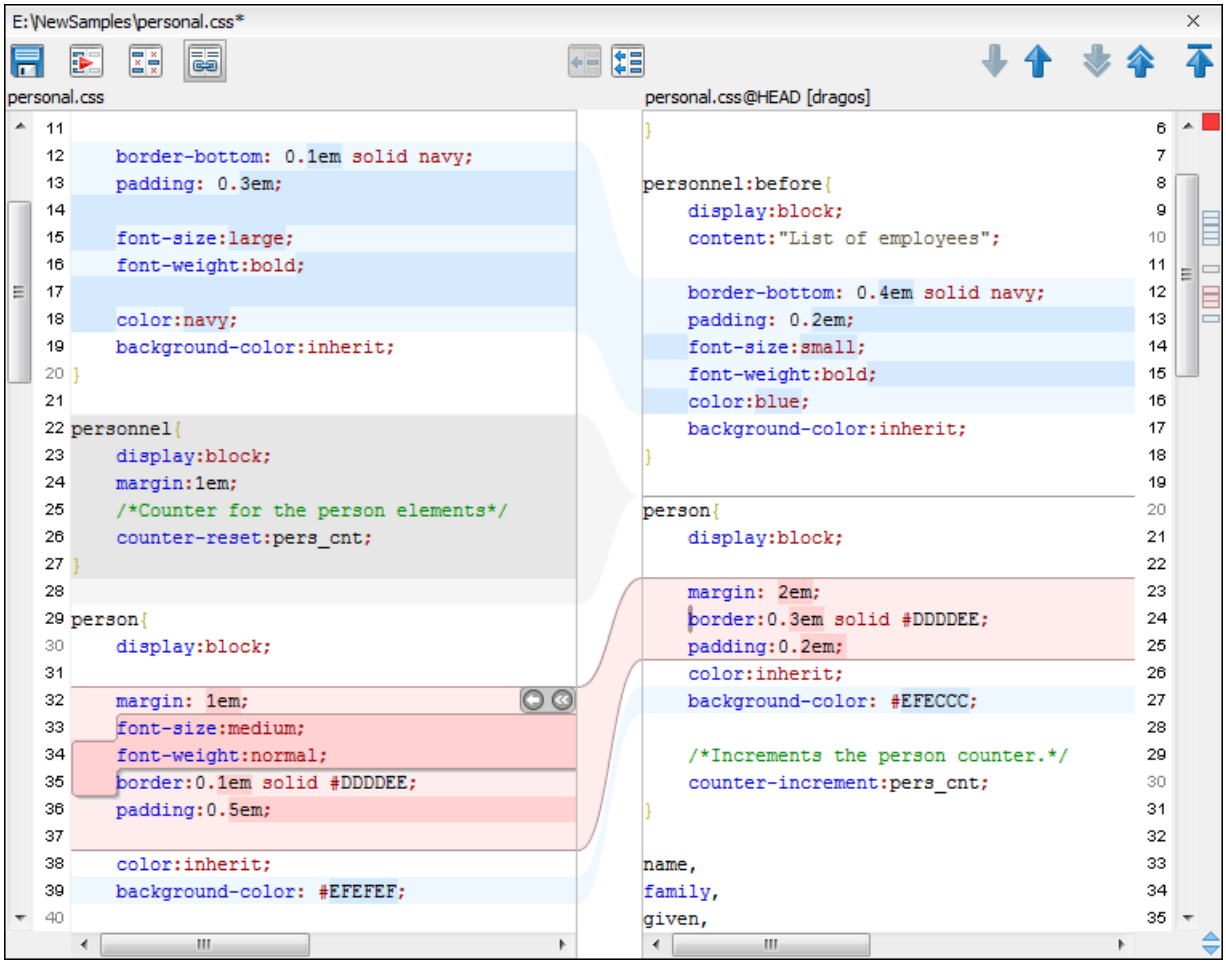


Figure 269: Compare View

At the top of each of the two editors, there are presented the name of the opened file, the corresponding SVN revision number (for remote resources) and the author who committed the associated revision.

When comparing text, 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 *HEAD* 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.

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 see *View differences*.

Toolbar

The list of actions available in the toolbar consists of:

- **Save action** - Saves the content of the left editor when it can be edited.
- **Perform Files Differencing** - performs a comparison between the source and target files;

- **Ignore Whitespaces** - Enables or disables the whitespace ignoring feature. Ignoring whitespace means that before performing the comparison, the application normalizes the content and trims its leading and trailing whitespaces.
- **Synchronized scrolling** - Synchronizes scrolling of the two open files, so that a selected difference can be seen on both sides of the application window. This action enables/disables the previous described behavior.
- **Next Block of Changes** - jumps to the next block of changes. This action is disabled when the cursor is positioned on the last change block or when there are no changes in the document;
- **Previous Block of Changes** - jumps to the previous block of changes. This action is disabled when the cursor is positioned on the first change block or when there are no changes in the document;
- **Next Change** - jumps to the next change from the current block of changes. When the last change from the current block of changes is reached, it highlights the next block of changes. This action is disabled when the cursor is positioned on the last change;
- **Previous Change** - jumps to the previous change from the current block of changes. When the first change from the current block of changes is reached, it highlights the previous block of changes. This action is disabled when the cursor is positioned on the first change;
- **First Change** - jumps to the first change from the current file;
- **Copy change from right to left** - Copies the selected change from the right editor to the left editor.
- **Copy all non-conflicting changes from right to left** - 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.

These actions are available also from the *Compare* menu.

Image Preview

You can view your local files by using the built-in **Image preview** component. The view can be accessed from the *Working copy view* or from the *Repository view*. It can also be used from the *History view* to view a selected revision of a image file.

Only one image file can be opened at a time. If an image file is opened in the *Image preview* and you try to open another one it will be opened in the same window. Supported image types are *GIF*, *JPEG/JPG*, *PNG*, *BMP*. Once the image is displayed in the **Image 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).

Compare Images View

The images are compared using the Compare images view. The images are presented in the left and right part of the view, scaled to fit the view's available area. You can use the contextual menu actions to scale the images at their original size or scale them down to fit the view's available area.

The supported image types are: *GIF*, *JPG / JPEG*, *PNG*, *BMP*.

Properties View

The properties view presents Apache Subversion™ properties for the currently selected resource from either the **Working Copy** view or the **Repositories** view.

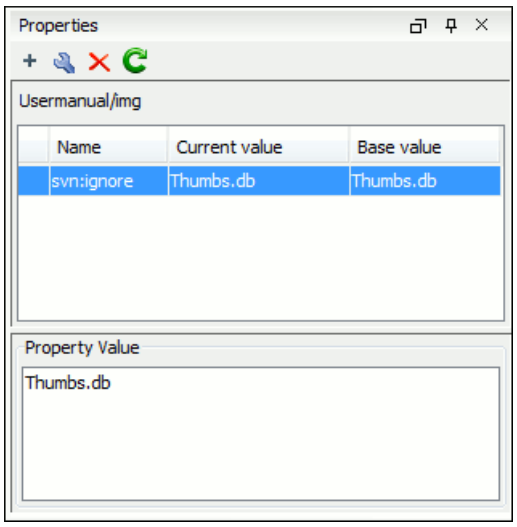


Figure 270: The Properties View

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 sign) - new property;
  - -(minus sign) - removed property.
- **Name** - the property name.
- **Current value** - the current value of the property.
- **Base value** - the base(original) value of the property.

The `svn:externals` Property

The `svn:externals` property can be set on a folder or a file. In the first case it stores *the URL of a folder from other repository*.

In the second case it stores the URL of a file from other repository. The external file will be added into the working copy as a versioned item. There are a few differences between directory and file externals:

- The path to the file external must be in a working copy that is already checked out. While directory externals can place the external directory at any depth and it will create any intermediate directories, file externals must be placed into a working copy that is already checked out.
- The external file URL must be in the same repository as the URL that the file external will be inserted into; inter-repository file externals are not supported.
- While commits do not descend into a directory external, a commit in a directory containing a file external will commit any modifications to the file external.

The differences between a normal versioned file and a file external:

- File externals cannot be moved or deleted; the `svn:externals` property must be modified instead; however, file externals can be copied.

A file external shows up as a X in the switched status column.

Attention:

In Subversion 1.6 it is not possible to remove a file external from your working copy once you have added it, even if you delete the `svn:externals` property altogether. You have to check out a fresh working copy to remove the file.

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

The **Console View** shows the traces of all the actions performed by the application. Part of the displayed messages mirror the communication between the application and the Apache Subversion™ server. 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**.

The view has a simple layout, with most of its space occupied by a message area. On its right side, there is a toolbar holding the following buttons:

- **Clear** - Erases all the displayed messages;
- **Lock scroll** - Disables the automatic scrolling when new messages are appended in the view.

The maximum number of lines displayed in the console (length of the buffer) can be modified in the *Preferences* page. By default this value is set to 100.

Dynamic Help View

Dynamic Help view is a help window that changes its content to display the help section referring to the currently selected view. As you change the focused view, you are able to read a short description of it and its functionality.

The Revision Graph of a SVN Resource

The history of a SVN resource can be watched on a graphical representation of all the revisions of that resource together with the tags in which the resource was included. The graphical representation is identical to a tree structure and very easy to follow.

The graphical representation of a resource history is invoked with the **Revision graph** action available on the right click menu of a SVN resource in *the Working Copy view* and *the Repository view*.

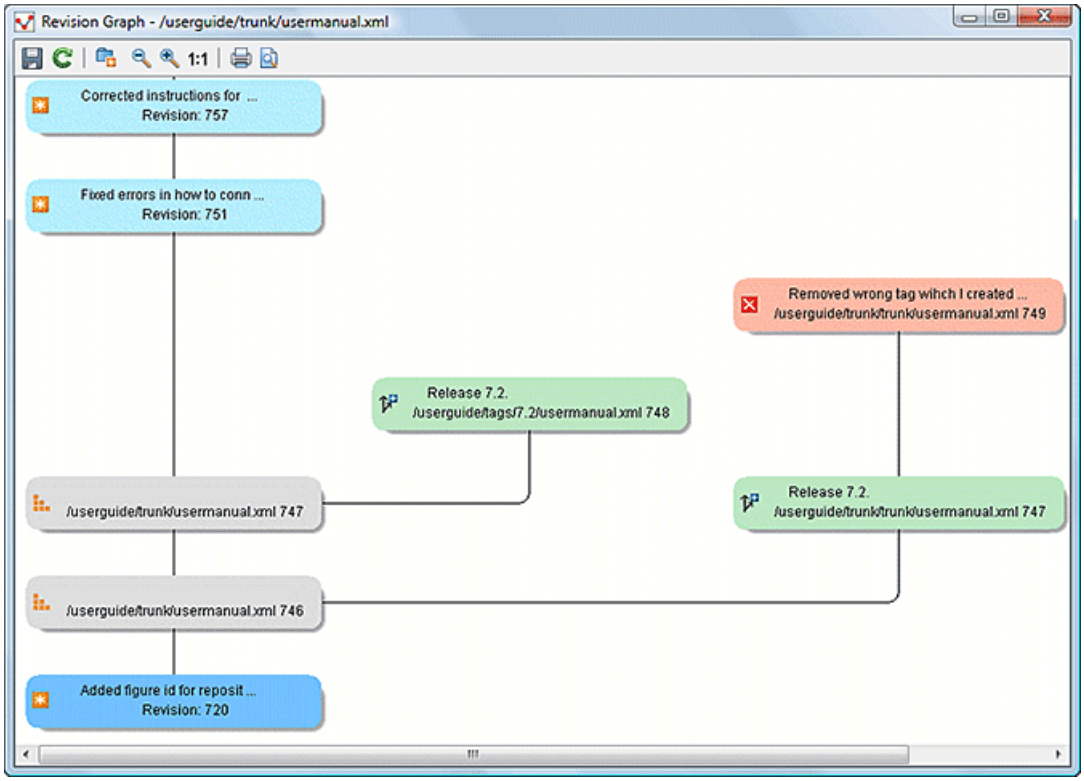


Figure 271: The Revision Graph of a File Resource

In every node of the revision graph an icon and the background color represent the type of operation that created the revision represented in that node. Also the commit message associated with that revision, the repository path and the revision number are contained in the node. The tooltip displayed when the mouse pointer hovers over a node specifies the URL of the resource, the SVN user who created the revision of that node, the revision number, the date of creation, the commit message, the modification type and *the affected paths*.

The types of nodes used in the graph are:

- **Added resource** - the icon for a new resource added to the repository ( ) and green background;
- **Copied resource** - the icon for a resource copied to other location, for example when a SVN tag is created ( ) and green background;
- **Modified resource** - the icon for a modified resource ( ) and blue background;
- **Deleted resource** - the icon for a resource deleted from the repository ( ) and red background;
- **Replaced resource** - the icon for a resource removed and replaced with another one on the repository ( ) and orange background;
- **Indirect resource** - the icon for a revision from where the resource was copied or an indirectly modified resource, that is a directory in which a resource was modified ( ) and grey background; the *Modification type* field of the tooltip specifies how that revision was obtained in the history of the resource.

A directory resource is represented with two types of graphs:

- **simplified graph** - lists only the changes applied directly to the directory;
- **complete graph** - lists also the indirect changes of the directory resource, that is the changes applied to the resources contained in the directory.

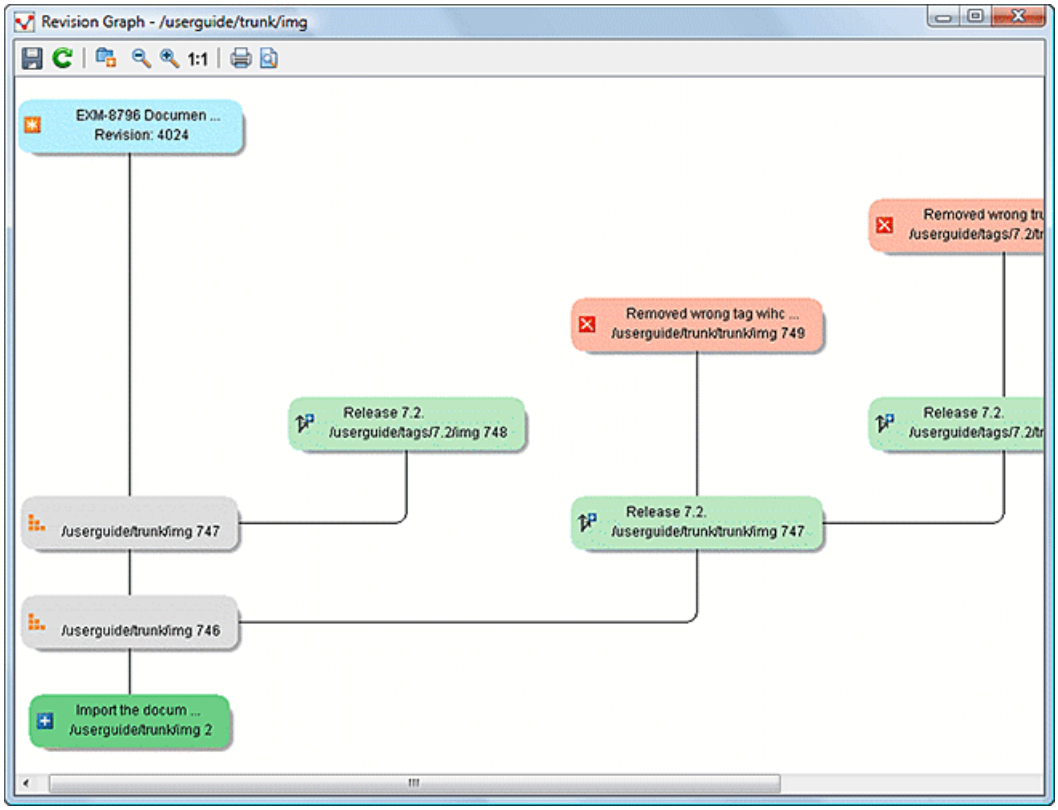


Figure 272: The Revision Graph of a Directory (Direct Changes)

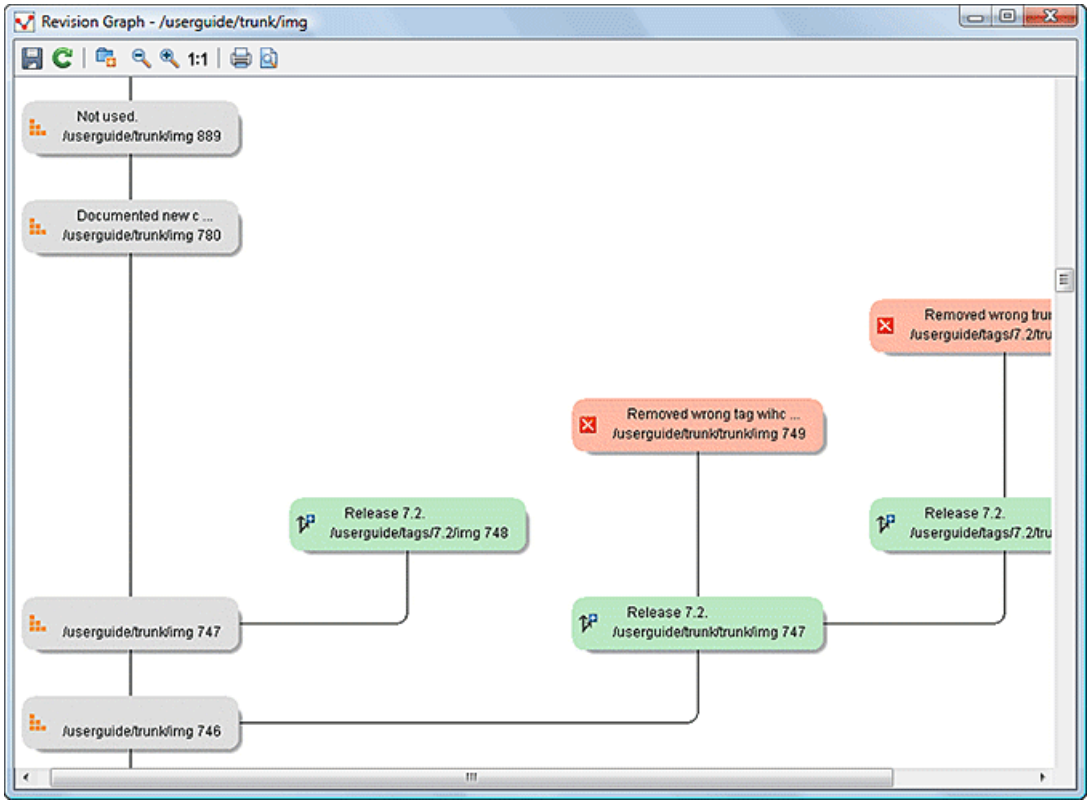


Figure 273: The Revision Graph of a Directory (Also Indirect Changes)

The **Revision graph** dialog toolbar contains the following actions:

- **Save as image** - Saves the graphical representation as image. For a large revision graph you have to *set more memory in the startup script*. The default memory size is not enough when there are more than 100 revisions that are included in the graph.
- **Show/Hide indirect modifications** - Switches between simplified and complete graph.
- **Zoom In** - Zooms in the graph.
- **Zoom Out** - Zooms out the graph. When the font reaches its minimum size, the graph nodes will display only the icons, leading to a very compact representation of the graph.
- **Reset scale** - Resets the graphical scale to a default setting.
- **Print** - Prints the graph.
- **Print preview** - Offers a preview of the graph to allow you to check the information to be printed.

Right clicking any of the graph nodes display a contextual menu containing the following actions:

- **Open** - Opens the selected revision in the editor panel. Available only for files.
- **Open with** - Opens the selected revision in the editor panel. Available only for files.
- **Save as** - Saves the file for which the revision graph was generated, based on the selected node revision.
- **Copy to** - Copies to the repository the item whose revision graph is displayed, using the selected revision.

  Note: This action can be used to resurrect deleted items also.

- **Compare with HEAD** - Compares the selected revision with the HEAD revision and displays the result in the diff panel. Available only for files.
- **Show History** - Displays the history of the resource in *the History view*. Available for both files and directories.
- **Check out** - *Checks out* the selected revision of the directory. Available only for directories.

When two nodes are selected in the revision graph of a file the right click menu of this selection contains only the **Compare** for comparing the two revisions corresponding to the selected nodes. If the resource for which the revision graph was built is a folder then the right click menu displayed for a two nodes selection also contains the **Compare** action but it computes the differences between the two selected revisions as a set of directory changes. The result is displayed in the *Directory Change Set* view.

Attention:

Generating the revision graph of a resource with many revisions may be a slow operation. You should enable caching for revision graph actions so that future actions on the same repository will not request the same data again from the SVN server which will finish the operation much faster.

Syncro SVN Client Preferences

The options used in the SVN client are saved and loaded independently from the Syncro SVN Client options. However if at the Syncro 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 key and HTTP Proxy settings).

The preferences dialog can be accessed from the *Options* -> Preferences. The preferences panels are called *Global* , *SVN* , *Diff colors* and HTTP/Proxy Configuration.

There is a second set of preferences applied to the SVN client: the preferences set in the global SVN files called 'config' and 'servers'. These are the files holding parameters that act as defaults applied to all the SVN client tools that are used by the same user on his/hers login account on the computer. These files can be opened for editing with the two edit actions available in the SVN client tool on the **Global Runtime Configuration** submenu of the **Options** menu.

Command Line Reference

This section specifies the equivalent Apache Subversion™ commands for each action available in the graphical user interface of Syncro SVN Client.

Checkout Command

Used to pull a SVN tree from the server to the local file system. The syntax of checkout command is the following.
`svn checkout` --revision rev *URL* *PATH*

rev	The desired revision number (optional)	
URL		Repository URL you want to check out from.
PATH		Checkout target on file system.

Update Command

Brings changes from the repository into your working copy. The syntax of update command is the following.
`svn update` --revision rev *PATH*

rev	The desired revision number (optional)	
PATH		Checkout target on file system.

Updates resources to the last revision on which they were synchronized or to the *HEAD* revision, if no repository information is available.

Commit Command

Sends changes from your working copy to the repository.
`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		Location on the file system of the resource to commit. Can be more than one.

Diff Command

Displays the differences found between two revisions.
`svn diff` --revision rev1:rev2 *PATH*

rev1:rev2	Specifies the revisions to be compared.	
PATH		Location on the file system of the resource to be compared.

If you use the **Compare with latest from HEAD** (**Ctrl (Meta on Mac OS) + Alt + H**) 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. 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

Display commit log messages.
`svn log` --revision rev1:rev2 --limit N --verbose *PATH*

rev1:rev2	Specifies the range of revisions for which to obtain the log.	
--limit N		Limits the number of messages brought to N.

--verbose		Gives detailed information about this command's execution.

Syncro SVN Client uses by default the *--limit* option in order to obtain only 50 log messages.

Refresh

Print the status of working copy files and directories.
`svn status` --verbose *PATH*

--verbose	Specifies that the status of all files should be reported.
PATH	Location on the file system of the resource to get status for.

Synchronize

`svn status` --show-updates *PATH*

--show-updates	Gets the resource status by contacting the repository.
PATH	Location on the file system of the resource to get status for.

Import

Commits an unversioned file or tree into the repository.
`svn import` -m "log message" *PATH URL*

-m "log message"	Specifies the commit log message.	
PATH		Local path to the resource on the file system.
URL	URL on the repository where the resource will be imported.	

Export

Exports a directory tree.
`svn export` --revision rev *URL PATH*

rev	Specifies the desired revision(if necessary).	
URL		Repository URL you want to export from.
PATH		Location on the file system where to export.

Information

Displays information about a local or remote item.
`svn info` --revision rev *PATH*|*URL*

rev	Specifies the revision number for which the information will be requested.	
PATH		Local file system path to the resource.
URL		Repository URL for the resource.

Add

Add files, directories, or symbolic links.

`svn add` *PATH...*

PATH	Local file system path of 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	Predefined property name for ignoring resources.	
PATH		Relative path from the working copy root for the resource to be ignored.
PARENTPATH		Path to the parent of the resource to be ignored.

Delete

Deletes resources from a working copy or from an Apache Subversion™ repository.
`svn delete` --recursive *PATH|URL*

--recursive	Specifies that the operation should be performed recursively.	
PATH		Local file system path of the resource to delete.
PARENTPATH		Repository URL of the resource to delete.

Copy

Copy a file or directory in a working copy or in the repository.
`svn copy`*(SRCPATH DSTPATH)|(SRCURL DSTURL)*

SRCPATH	Working copy path of the resource to be copied.	
DSTPATH		Working copy path where the resource will be copied to.
SRCURL	Repository path of the resource to be copied.	
DSTURL	Repository path where the resource will be copied to.	

Move / Rename

Move a file or directory.
`svn move`*(SRCPATH DSTPATH)|(SRCURL DSTURL)*

SRCPATH	Working copy path of the resource to be moved.	
DSTPATH		Working copy path where the resource will be moved to.
SRCURL	Repository path of the resource to be moved.	
DSTURL	Repository path where the resource will be moved to.	

Mark resolved

`svn resolved` --recursive *PATH*

--recursive	Specifies that the operation should be performed recursively.	
PATH		Path to the resource in the local working copy.

Revert

Undo all local edits.
`svn revert` [--recursive] *PATH*

--recursive	Specifies that the operation should be performed recursively.	
PATH		Local working copy path to revert to.

Cleanup

Recursively cleans up the working copy.
`svn cleanup` *PATH*

PATH	Local working copy path to clean up.

Show / Refresh Properties

`svn proplist` *PATH*
`svn propget` *PROPNAME PATH*

PATH	Local path of the resource.
PROPNAME	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*
`svn copy` -m "log message" *URL1@rev1 URL2*
`svn copy` -m "log message" *PATH URL*

-m "log message"	Commit message.	
URL1		Source repository URL.
rev1	Revision of the source.	
URL2	Destination repository URL.	
PATH	Source working copy path.	
URL	Destination repository URL.	

Merge

Apply the differences between two sources to a working copy path.
`svn merge` [--dry-run] *rev1:rev2 URL PATH*
`svn merge` [--dry-run] *URL1@rev1 URL2@rev2 PATH*

--dry-run	Specifies that the operation will be simulated without making any modifications.

URL		Repository URL for the resource to merge.
URL1	Repository URL for the start branch to merge.	
rev1	Start revision for the resource to merge.	
URL2	Repository URL for the end branch to merge.	
rev2	End revision for the resource to merge.	
PATH	Destination path in the working copy for the result of the merge.	

Scan for locks

Obtains the repository status for all the resources in the path.

`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.

Lock

Lock working copy paths or URLs in the repository so that no other user can commit changes to them.

`svn lock` [--force] [-m "log message"] *PATH*

--force	Forces(steals) the lock.	
-m "log message"		Lock message.
PATH		Path to the file to be locked.

Unlock

Unlock working copy paths or URLs.

`svn unlock` [--force] *PATH*

--force	Forces(breaks) the lock.	
PATH		Path to the file from the working copy..

Mark as merged

```
rename FILE FILE.TMP
svn update FILE
rename FILE.TMP FILE
```

FILE	File to be marked as merged.	
FILE.TMP		Temporary filename.

Override and update

```
svn revert PATH
svn update PATH
```

PATH	Path of the resource to be overridden.

Override and Commit

If the resource is in conflict first you should perform a *Mark Resolved action*. If the resource has incoming changes you should perform a *Mark as Merged action* followed by a *Commit action*.

Add / Edit property

`svn propset` [--recursive] *PROPNAME PROPVALUE PATH*

--recursive	Specifies that the property should be set recursively.	
PROPNAME		Property name.
PROPVALUE	Property value.	
PATH		Resource's path.

Remove property

Removes a property from an item.

`svn propdel` [--recursive] *PROPNAME PATH*

--recursive	Specifies that the property should be deleted recursively.	
PROPNAME		Property name.
PATH		Resource's 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

Short reference description.

`svn merge` rev1:rev2 *URL*

rev1	First revision number.	
rev2	Second revision number.	
URL		The SVN URL corresponding to the resource.

Technical Issues

This section contains special technical issues found during the use of Syncro SVN Client.

Authentication Certificates Not Saved

If Syncro SVN Client prompts you to enter the authentication certificate, although you already provided it in a previous session, then you should make sure that your local machine user account has the necessary rights to store certificate files in the *Subversion* configuration folder (write access to *Subversion* folder and all its subfolders). Usually, it is located in the following locations:

- Windows: `user's home directory\AppData\Roaming\Subversion`

- Mac OS X and Linux: `user's home directory/.subversion`

Updating Newly Added Resources

When you want to get from the repository a resource which is part of a newly created structure of folders, you need to also get its parent folders.

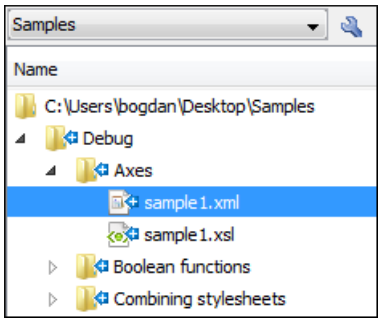


Figure 274: An incoming structure of folders from the repository

Syncro SVN Client allows you to choose how you want to deal with the entire structure from that moment onwards:

- **Update ancestor directories recursively** - This option brings the entire newly added folders structure into your working copy. In this case, the update time depends on the total number of newly incoming resources, because of the full update operation (not updating only selected resource).
- **Update selected files only (leave ancestor directories empty)** - This option brings a skeleton structure composed of the resource's parent folders only, and the selected resource at the end of the operation. All of the parent directories will have depth set to *empty* in your working copy, thus subsequent **Synchronize** operations will not report any remote modifications in those folders. If you need to update the folders to full-depth, you can use **Update to revision/depth** option from the working copy.

Cannot Access a Repository through HTTPS

If you have issues when trying to access a repository through HTTPS protocol, one of the possible causes can be the encryption protocol currently used by the application. This is happening when:

- you are running Syncro SVN Client with Java 1.6 or older;
- the repository is set to use only one of the SSLv3 or TLSv1 encryption protocols.

To solve this issue, set the ***HTTPS encryption protocols*** option to **SSLv3 only** or **TLSv1 only** (depending on the repository configuration).

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 editing 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 XML Author's features for comparing files and 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 XML Author provides a simple means of performing file and folder comparisons. You can see the differences in your files and folders and 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.

Note: Oxygen XML Author uses diff directories to compare archive files.

The comparison tool can also be started using command line arguments. In the installation folder there are two executable shells (`diffFiles.bat` and `diffDirs.bat` on Windows, `diffFiles.sh` and `diffDirs.sh` on Unix/Linux, `diffFilesMac.sh` and `diffDirsMac.sh` on Mac OS X). You can pass one or two command-line arguments to each of these shells. Both arguments can point to directories or archives (supported formats: *zip*, *docx*, and *xlsx*).

For example, to start the comparison between two Windows directories, use the following command:

```
diffDirs.bat "c:\Program Files" "c:\ant"
```

If there are spaces in the path names, surround the paths with quotes. If you pass only one argument, you are prompted to manually choose the second directory or archive. This is valid 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. A double click or an Enter key on a line with a pair of files starts *comparing the file content* of the two files from that line in the **Compare Files** window. Please note that the content is compared only in case of known file types, that is the files associated with the built-in editors and the file types associated with a built-in editor when the user was prompted to specify such an association (when opening for the first time a file of an unknown type).

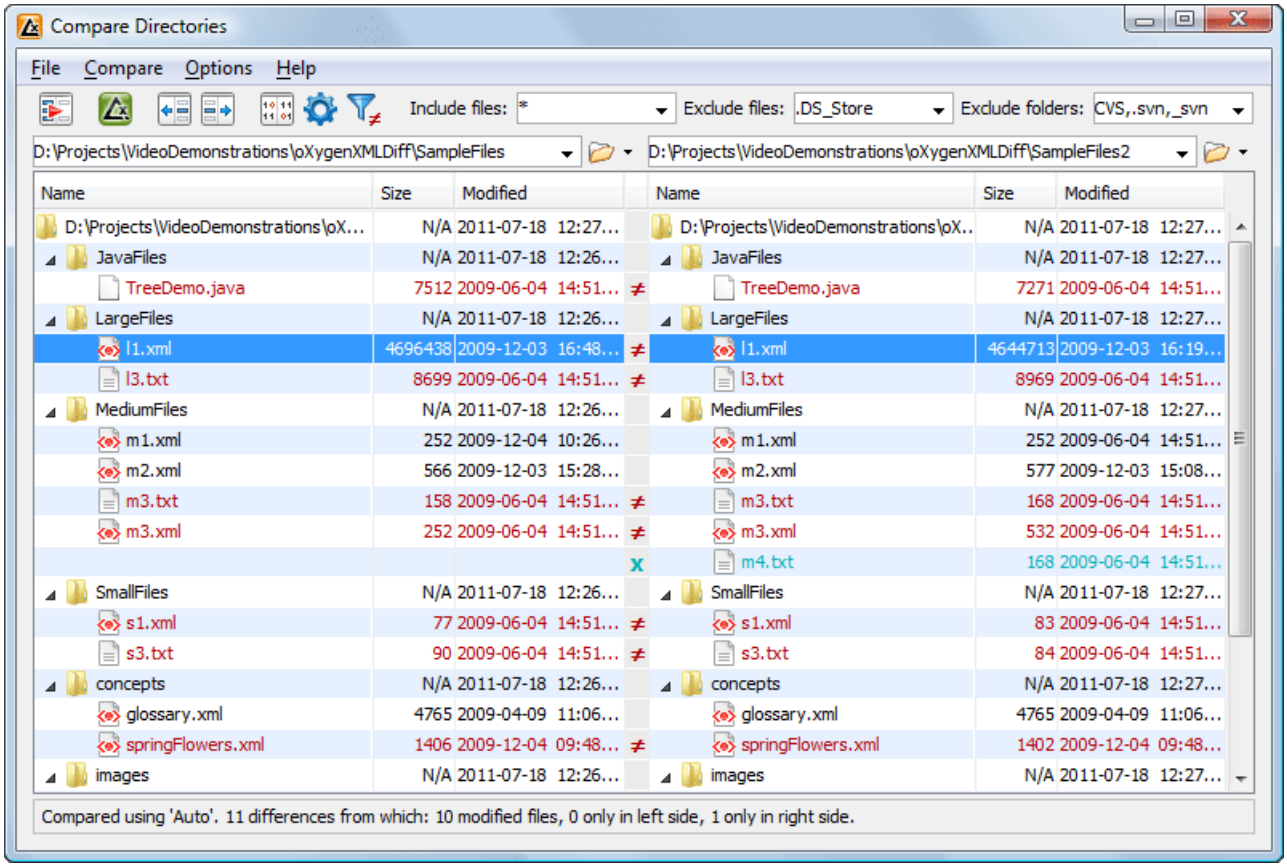


Figure 275: The Compare Directories Window

Directories Comparison User Interface

This section explains the user interface of the **Directories Comparison** window.

Compare Menu

This menu contains the following action:

- **Perform Directories Differencing** - Looks for differences between the two directories displayed in the left and right side of the application window.
- **Perform Files Differencing** - Compares the currently selected files.
- **Copy Change from Right to Left** - Copies the selected change from the right side to the left side (if there is no file/folder in the right side, the left file/folder is deleted).
- **Copy Change from Left to Right** - Copies the selected change from the left side to the right side (if there is no file/folder in the left side, the right file/folder is deleted).

Compare Toolbar

The toolbar contains the following actions:

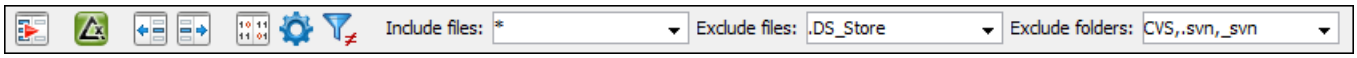


Figure 276: The Compare toolbar

- **Perform directories differencing** - Looks for differences between the two directories displayed in the left and right side of the application window.
- **Perform files differencing** - Compares the currently selected files.
- **Copy Change from Right to Left** - Copies the selected change from the right side to the left side (if there is no file/folder in the right side, the left file/folder is deleted).
- **Copy Change from Left to Right** - Copies the selected change from the left side to the right side (if there is no file/folder in the left side, the right file/folder is deleted).
- **Binary Compare** - Performs a byte-level comparison on the selected files.
- **Diff Options** - Opens the Directories Comparison preferences page.
- **Show Only Modifications** - Displays a more uncluttered file structure by hiding all identical files.
- Files and folders filters - Differences can be filtered using three filter boxes: **Include files, Exclude files, Exclude folders**. They come with predefined values and are editable to allow more custom values. All of them accept multiple comma separated values and the ***** and **?** wildcards. For example, to filter out all jpeg and gif image files, edit the **Exclude files** filter box to read **`*.jpeg, *.png`**. Each filter keeps a list with the latest 15 filters applied in the drop-down list of the filter box.

Directories Selector

To open the directories you want to compare, select a folder from each **Browse for local directory** button. The Diff Tool 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.

If you want to compare two archives' content you can select the archives from the **Browse for archive file** button.

Tip: By default, the supported archives are not treated as directories and the comparison is not performed over the files inside them. To make Oxygen XML Author treat supported archives as directories, go to the *Diff preferences page* and enable the **Look in archives** option.

Comparison Result

The directory comparison result is presented using two tree-like structures, showing files and folders names, size and modification date.

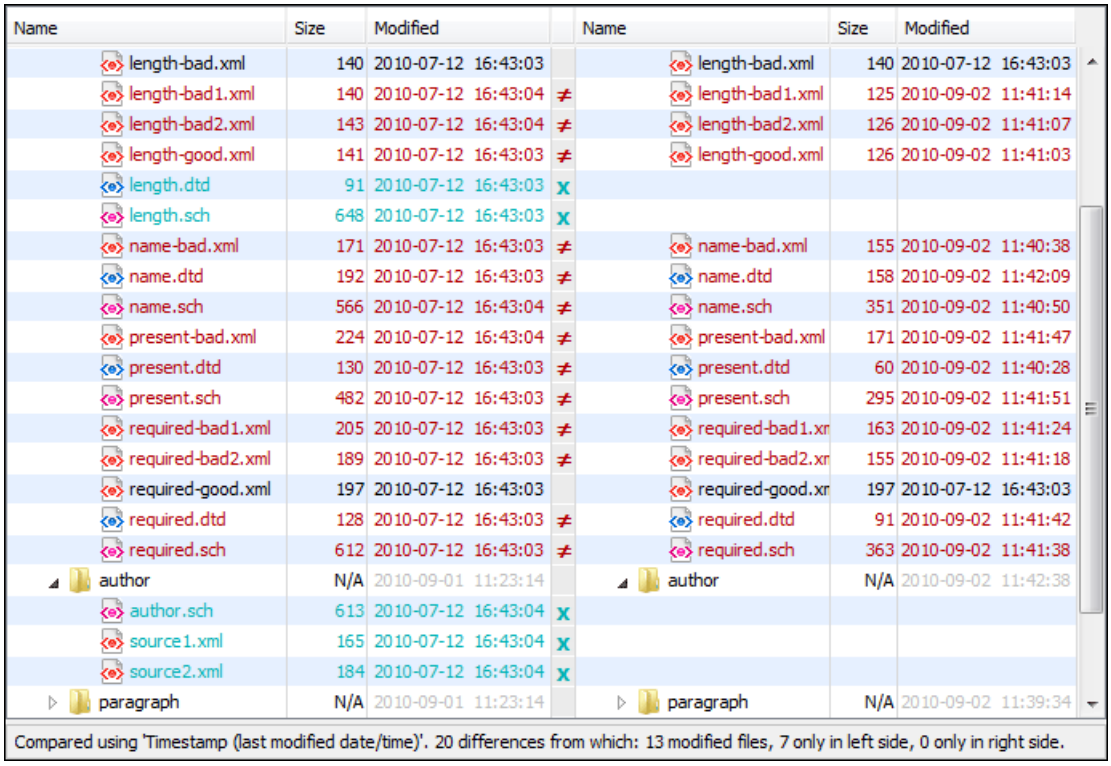


Figure 277: Comparison result

A column holding graphic symbols separate the two tree-like structures. The graphic symbols can be:

- an "X" sign, when a file or a folder exists only in one of the compared directories;
- a "not-equal" sign, if a file exists in both directories, but the content is different. The same sign appears when a collapsed folder contains modified files.

The color used for painting the sign and the directory or file name can be customized in the *Directories Comparison / Appearance* preferences page. You can double-click the line marked with the "not-equal" sign to open a new **File Content Comparison** window, showing the differences between the two files.

Compare Images

When double-clicking a line containing two different images a compare images dialog is displayed. The dialog presents the images in the left and right part scaled to fit the view available area. You can use the contextual menu actions to scale the images at their original size or scale them down to fit in the view area.

The supported image types are: GIF, JPG / JPEG, PNG, BMP.

Files Comparison

To compare two files side by side, open the **Diff Files** dialog from **Tools** > **Compare Files**. Using the **Browse for local file** button open a file in the left side of the dialog, and the file you want to compare it to in the right side. To highlight the differences between the two files, click the **Perform File Differencing** button. The line numbers on each side help you to identify the locations of the differences quickly.

You can edit both the source and the target file. The differences are refreshed when you save the modified document.

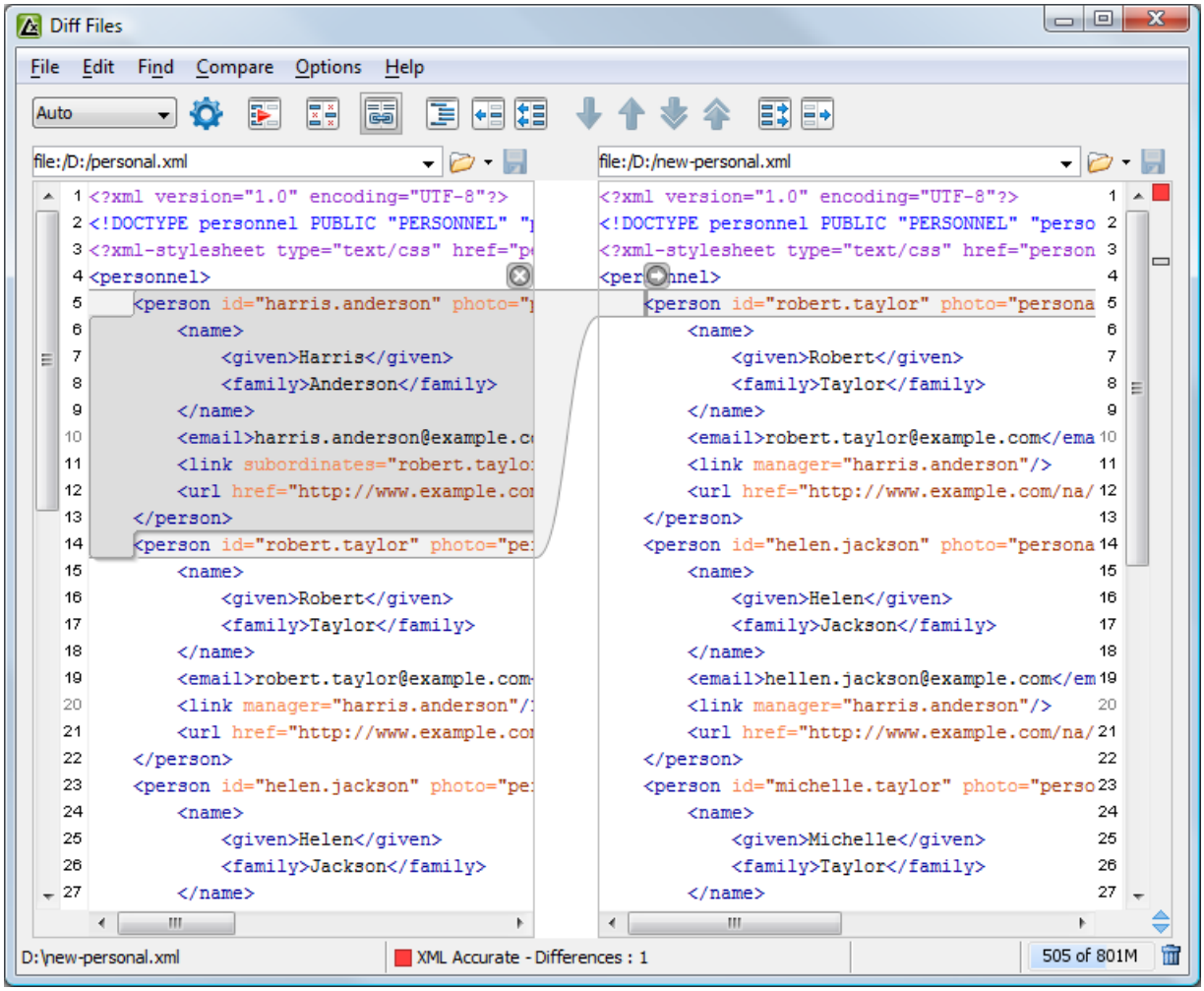


Figure 278: The Compare Files Window

Adjacent changes are grouped into blocks of changes. This layout allows an easier visual identification and focuses on a group of related changes.

A widget containing actions that can be used to copy or append changes from either of the two sides is displayed when you select a change:

- **Append left change to right** and **Append right change to left**- copy the content of the selected change from one side and appends it after the content of the corresponding change from the other side; as a result, the side towards the arrows point to, will contain the changes from both sides.
- **Copy change from left to right** and **Copy change from right to left** - replace the content of a change from one side with the content of the corresponding change from the other side.

Oxygen XML Author offers six different diff algorithms to choose from for file comparison:

- two XML diff algorithms: **XML Fast** and **XML Accurate**,
- a **Syntax Aware** algorithm that gives very good results on all file types known by Oxygen XML Author,
- three all-purpose algorithms: line based, word based and character based.

You can use any of these six algorithms to perform differences on request, but Oxygen XML Author also offers an automatic mode that selects the most appropriate one, based on the file content and size.

Main Menu

This section explains the menu actions of the **Files Comparison** window.

File Menu

The following actions are available:

- **Source** - The file is displayed in the left side of the application window
  - **Source** > **Open** - Browses for a source file.
  - **Source** > **Open URL** - Opens URL to be used as a source file. See *Open URL* for details.
  - **Source** > **Open File from Archive** - Browses an archive content for a source file.
  - **Source** > **Save** - Saves the changes made in the source file.
  - **Source** > **Save As...** - Displays the **Save As** dialog that allows you to save the source file with a new name.
- **Target** - The file is displayed in the right side of the application window
  - **Target** > **Open** - Browses for a target file.
  - **Target** > **Open URL** - Opens URL to be used as a target file. See *Open URL* for details.
  - **Target** > **Open File from Archive** - Browses an archive content for a target file.
  - **Target** > **Save** - Saves the changes made in the target file.
  - **Target** > **Save As...** - Displays the **Save As** dialog that allows you to save the target file with a new name.
- **Exit** - Quits the application.

Edit Menu

The following actions are available:

- **Cut** - Cut selection to clipboard from the local file currently opened in the focused **Compare** editor.
- **Copy** - Copy selection to clipboard from the local file currently opened in the focused **Compare** editor.
- **Paste** - Paste selection from clipboard in the local file currently opened in the focused **Compare** editor.
- **Undo** - Undo edit changes in the local file currently opened in the focused **Compare** editor.
- **Redo** - Redo edit changes in the local file currently opened in the focused **Compare** editor.

Find Menu

The find actions are the following:

- **Find/Replace** - Perform *find/replace* operations in the file currently opened in the focused **Editor**.
- **Find Next** - Go to the next match using the same options of the last *find* operation. The action runs in the two editor panels.
- **Find Previous** - Go to the previous match using the same options of the last *find* operation. The action runs in the two editor panels.

Compare Menu

The following actions are available in this menu:

Perform Files Differencing - performs a comparison between the source and target files;

Next Block of Changes - jumps to the next block of changes. This action is disabled when the cursor is positioned on the last change block or when there are no changes in the document;

Note: A change block groups one or more consecutive lines that contain at least one change.

Previous Block of Changes - jumps to the previous block of changes. This action is disabled when the cursor is positioned on the first change block or when there are no changes in the document;

Next Change - jumps to the next change from the current block of changes. When the last change from the current block of changes is reached, it highlights the next block of changes. This action is disabled when the cursor is positioned on the last change;

Previous Change - jumps to the previous change from the current block of changes. When the first change from the current block of changes is reached, it highlights the previous block of changes. This action is disabled when the cursor is positioned on the first change;

Last Change - jumps to the last change from the current file;

First Change - jumps to the first change from the current file;

Copy All Changes from Left to Right - copies all changes from source to target file;

Copy All Changes from Right to Left - copies all changes from target to source file;

Copy Change from Left to Right - copies the selected difference from source to target file;

Copy Change from Right to Left - copies the selected difference from target to source file;

Show Word Level Details - provides a word-level comparison of the selected change;

Show Character Level Details - provides a character-level comparison of the selected change.

Options Menu

- **Preferences** - Opens the preferences pages.
- **Menu Shortcut Keys** - Opens the **Menu Shortcut Keys** option page. Here you can configure all keyboard shortcuts available for menu items.
- **Reset Global Options** - Resets options to their default values.
- **Import Global Options** - Allows you to import an options set you have previously exported.
- **Export Global Options** - Allows you to export the current options set to a file.

Help Menu

The **Help** menu contains the following options:

- **Help** - opens the **Help** dialog;
- **Report problem** - opens a dialog that allows the user to write the description of a problem that was encountered while using the application;
- **Improvement Program Options** - allows you to activate or deactivate the application Product Improvement Program;
- **Support center** - opens the Oxygen XML Author Support Center web page in a browser.

Compare Toolbar

This toolbar contains the operations that can be performed on the source and target files.

Figure 279: The Compare Toolbar

The following actions are available:

- **Algorithm** - This option box allows you to select one of the 6 available compare algorithms:
  - *Characters* algorithm computes the differences at character level;
  - *Words* algorithm computes the differences at word level;
  - *Lines* algorithm computes the differences at line level, meaning that it compares two files looking for the first identical line of text. When it is found, it is considered a match. The content that precedes the match is considered to be a difference and marked accordingly. Then the algorithm continues to look for matching lines marking the content between them as differences.

- *Syntax Aware* for known file types, like the ones listed in the **New** dialog box, for example the XML file type (which includes, among others, XSLT files, XSL-FO files, XSD files, RNG files, NVDL files), the XQUERY file type (`.xquery`, `.xq`, `.xqy`, `.xqm` extensions), the DTD file type (`.dtd`, `.ent`, `.mod` extensions), the TEXT file type (`.txt` extension), the PHP file type (`.php` extension), etc.

  This algorithm splits the files into sequences of *tokens* and computes the differences between them. A *token* can have a different meaning, depending on the type of the compared files. For example:

  - when comparing XML files, a token can be one of the following:
    - the name of an XML tag;
    - the '<' character;
    - the '/>' sequence of characters;
    - the name of an attribute inside an XML tag;
    - the '=' sign;
    - the "" character;
    - an attribute value;
    - the text string between the start tag and the end tag (that is a text node which is a child of the XML element corresponding to the XML tag that encloses the text string).
  - when comparing plain text files (identified by the .txt extension), a token can be any continuous sequence of word characters (letters, digit, the '_' character) or any continuous sequence of whitespace characters including a newline character.
- *XML Fast* works on larger files but it is less precise than XML Accurate.
- *XML Accurate* works best on small XML files.
- *Auto* selects the most appropriate algorithm, based on the files content and size. By default, the **Auto** mode is selected.

- **Diff Options** - Opens the *Files Comparison page*.
- **Perform Files Differencing** - performs a comparison between the source and target files;
- **Ignore Whitespaces** - Enables or disables the whitespace ignoring feature. Ignoring whitespace means that before performing the comparison, the application normalizes the content and trims its leading and trailing whitespaces.
- **Synchronized scrolling** - Synchronizes scrolling of the two open files, so that a selected difference can be seen on both sides of the application window. This action enables/disables the previous described behavior.
- **Format and Indent Both Files** - Formats and indents both files before you compare them. Use this option when you compare files that contain long lines which makes it difficult to spot differences.
- **Copy Change from Right to Left** - Copies the selected difference from target to source file.
- **Copy All Changes from Right to Left** - Copies all changes from target to source file.
- **Next Block of Changes** - jumps to the next block of changes. This action is disabled when the cursor is positioned on the last change block or when there are no changes in the document;
- **Previous Block of Changes** - jumps to the previous block of changes. This action is disabled when the cursor is positioned on the first change block or when there are no changes in the document;
- **Next Change** - jumps to the next change from the current block of changes. When the last change from the current block of changes is reached, it highlights the next block of changes. This action is disabled when the cursor is positioned on the last change;
- **Previous Change** - jumps to the previous change from the current block of changes. When the first change from the current block of changes is reached, it highlights the previous block of changes. This action is disabled when the cursor is positioned on the first change;

- **Copy All Changes from Left to Right** - Copies all changes from source to target file.
- **Copy Change from Left to Right** - Copies the selected difference from source to target file.
- **First Change** - jumps to the first change from the current file;

Files Selector

To open the source and target files where you want to see the differences, use one of the **Browse for local**, **Browse for remote** or **Browse for archive** buttons. The Diff Tool 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

The files are opened in two side-by-side editors. The text view is used, offering a better view of the differences.

The two editors are kept in sync, so if you scroll the text in one of them, the other one also scrolls to show the difference side-by-side. The differences are indicated using highlights connected through colored areas. To navigate between differences, do one of the following:

- press the **Go to modification** buttons;
- select a change by clicking it in the overview ruler located in the right-most part of the window. The overview ruler contains a success indicator in its upper part. It turns green in case there are no differences or red if some differences are found.
- click 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.

Both editors provide a contextual menu that contains *edit*, *merge* and *navigation* actions.

The **Find/Replace** dialog is displayed by pressing **Ctrl+F** (**Cmd+F** on Mac). **Find/Replace** options are also available:

- **F3** used for performing another search using the last search configuration;
- **Shift+F3** for performing 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 differences exist between the source and the target file. You can go to Word Level Comparison by clicking the **Show word level details** menu item from the **Compare** menu.

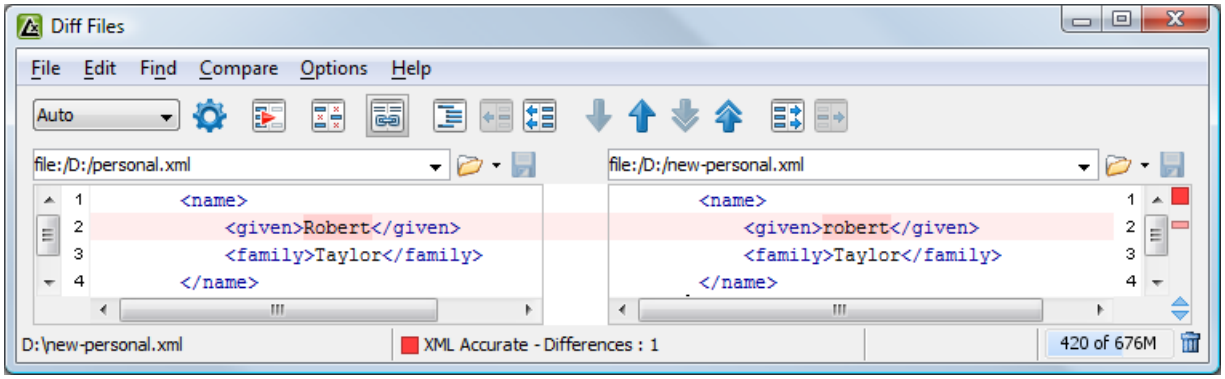


Figure 280: Word Level Comparison

Character Level Comparison

This option is only available if modifications exist between the source and the target file. You can go to Character Level Comparison by clicking the **Show Character Level details** menu item from the **Compare** menu.

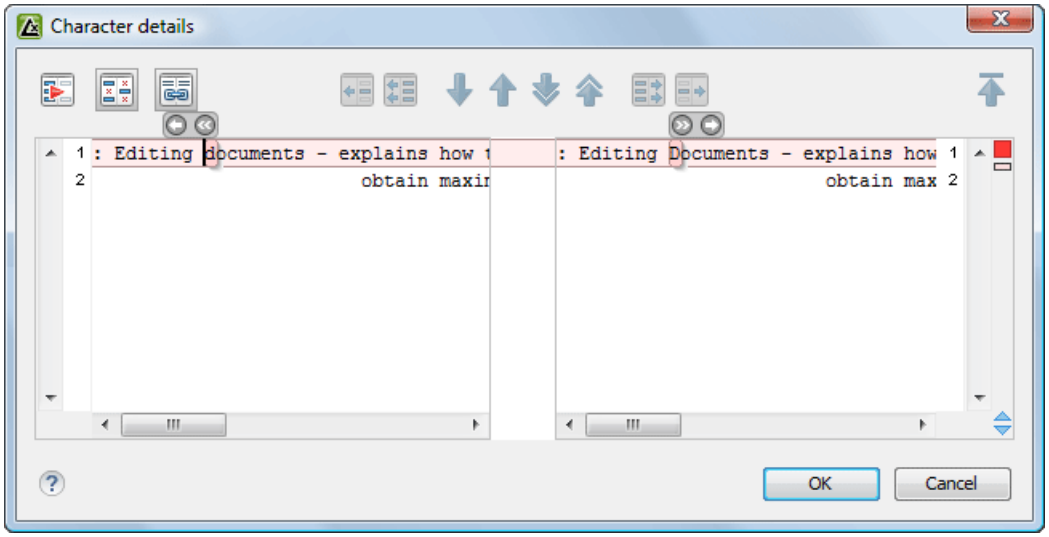


Figure 281: Character Level Comparison

XML Diff API

The following interface is available for calling the XML diff processor from a custom Java application:

- `ro.sync.diff.api.DifferencePerformer` - It compares two resources of a given content type using a set of options. It has the following methods:
  - `performDiff` - Perform a diff operation between the two specified resources. It returns a list with the differences. The parameters are the following:
    1. leftContentReader - A value of type `java.io.Reader` that provides the content of the first resource.
    2. rightContentReader - A value of type `java.io.Reader` that provides the content of the second resource.
    3. leftSystemId - A string value that is the location of the first resource.
    4. rightSystemId - A string value that is the location of the second resource
    5. contentType - A constant from the `ro.sync.diff.api.DiffContentTypes` interface.
    6. diffOptions - The user options controlling algorithm strength, ignore whitespaces, ignore comments, merge adjacent differences, etc. It is a value of type `ro.sync.diff.api.DiffOptions`.
    7. diffProgressListener - An object that will be notified about the progress of the diff operation. It is a value of type `ro.sync.diff.api.DiffProgressListener`.
  - `stop` - Signal to the diff performer that it must stop.

An example of this interface can be found in the class `ro.sync.diff.api.sample.DiffXMLFilesSample` which is included in the XML Diff SDK.

XML Digital Signatures

This chapter explains how to apply and verify digital signatures on XML documents.

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 non-repudiation 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 non-repudiation.

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 that 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*). An XML Signature may be applied to the content of one or more resources:

- enveloped or enveloping signatures are applied over data within the same XML document as the signature
- detached signatures are applied 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 XML Author: Canonical XML (or Inclusive XML Canonicalization)(*XMLC14N*) and Exclusive XML Canonicalization(*EXCC14N*). 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's **contextual menu** > **Source**.

Canonicalizing Files

The user can select the canonicalization algorithm to be used for his document from the following dialog displayed by the action **Canonicalize** available from the editor panel's **contextual menu** > **Source** and also from menu **Tools**.

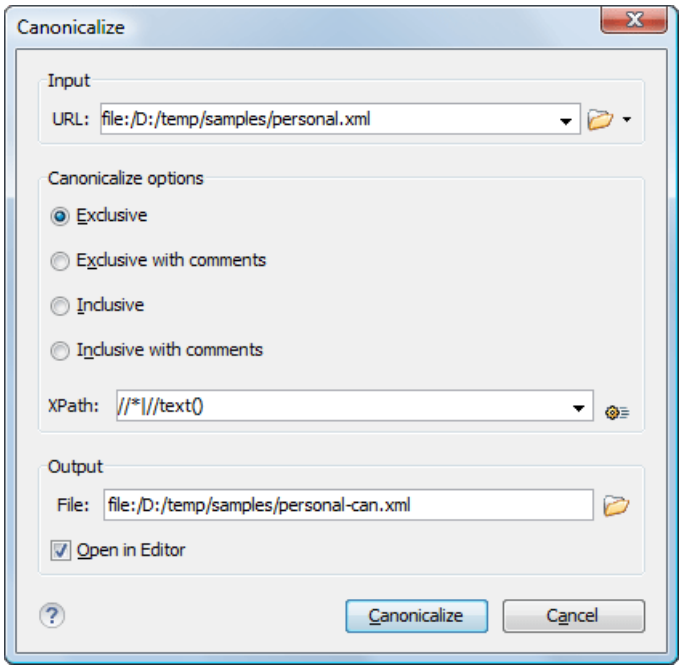


Figure 282: Canonicalization settings dialog

The fields of the dialog are the following:

- **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 XML Author there are provided two types of keystores: Java Key Store (JKS) and Public-Key Cryptography Standards version 12 (PKCS-12). A keystore file is protected by a password. In a PKCS 12 keystore you should not store a certificate without alias together with other certificates, with or without alias, as in such a case the certificate without alias cannot be extracted from the keystore.

To set the options for a certificate or to validate it, go to menu ***Options*** > ***Preferences*** > ***Certificates*** .

Signing Files

The user can select the type of signature to be used for his document from the following dialog displayed by the action **Sign** available from the editor panel's **contextual menu** > **Source** and also from menu **Tools** .

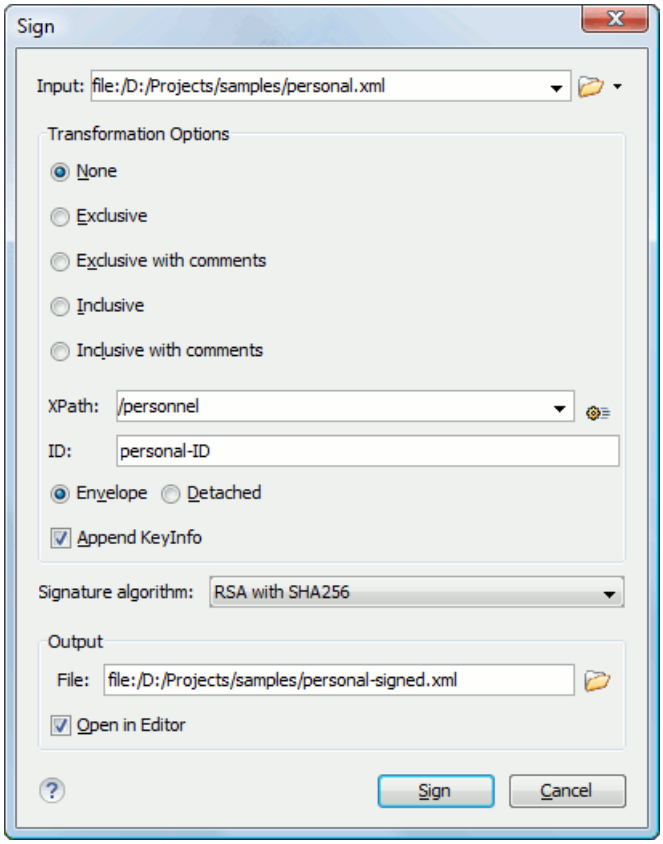


Figure 283: Signature settings dialog

The following options are available:

- **Input** - 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.
- **Append KeyInfo** - The element `ds:KeyInfo` will be added in the signed document only if this option is checked.
- **Signature algorithm** - Algorithm used for signing the document. The following options are available: **RSA with SHA1**, **RSA with SHA256**, **RSA with SHA384**, and **RSA with SHA512**.
- **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

You can verify the signature of a file from **Tools** > **Verify Signature** or from the contextual menu of the file: **Source** > **Verify Signature**. The **URL** field in the **Verify Signature** dialog specifies the location of the file whose signature is verified.

In case the signature is valid, a dialog displaying the name of the signer is displayed. If not, an error shows details about the problem.

Large File Viewer

XML files tend to become larger and larger mostly because they are frequently used as a format for database export or for porting between different database formats. Traditional XML text editors simply cannot handle opening these huge export files, some having sizes exceeding one gigabyte, because all the file content must be loaded in memory before the user can actually view it.

The best performance of the viewer is obtained for encodings that use a fixed number of bytes per character, like UTF-16 or ASCII. The performance for UTF-8 is very good for documents that use mostly characters of the European languages. For the same encoding, the rendering performance is higher for files consisting of long lines (up to few thousands characters) and may degrade for short lines. In fact, the maximum size of a file that can be rendered in the Large File Viewer decreases when the total number of the text lines of the file increases. Trying to open a very large file, for example a file of 4 GB with a very high number of short lines (100 or 200 characters per line) may produce an *out of memory* error (**OutOfMemoryError**) which would require either increasing the Java heap memory with the -Xmx startup parameter or decreasing the total number of lines in the file.

The powerful **Large File Viewer** is available from the **Tools** menu or as a standalone application. You can also right click a file in your project and choose to open it with the viewer. It uses an efficient structure for indexing the opened document. No information from the file is stored in the main memory, just a list of indexes in the file. In this way the viewer can open very large files, up to 10 gigabytes. If the opened file is XML, the encoding used to display the text is detected from the XML prolog of the file. For other file types, the encoding is taken from the Oxygen XML Author options. See *Encoding for non XML files*.

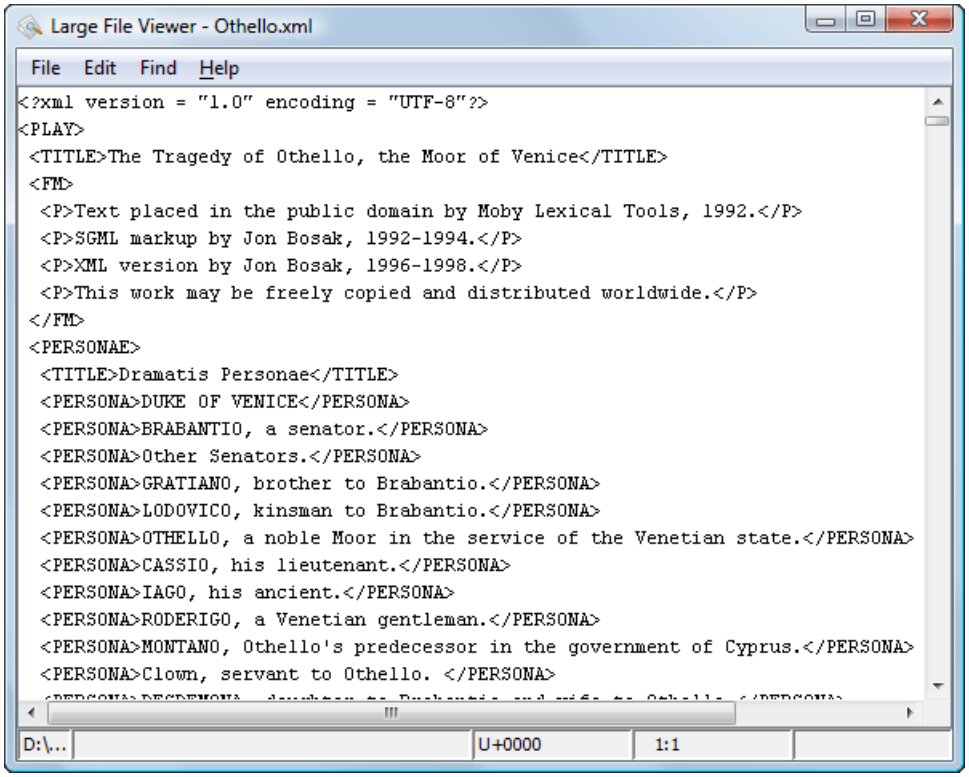


Figure 284: The Large File Viewer

Large File Viewer components:

- The menu bar provides menu driven access to all the features and functions available in **Large File Viewer**.
  - **File** > **Open** opens files in the viewer (also available in the contextual pop-up menu).
  - **File** > **Exit** closes the viewer.

- **Edit** > **Copy** copies the selected text to clipboard (also available in the contextual pop-up menu).
- **Find** > **Find** opens a reduced **Find** dialog providing some basic search options like:
  - **Case sensitive** - When checked, operations are case-sensitive.
  - **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.
- **Help** > **Help** provides access to this User Manual.

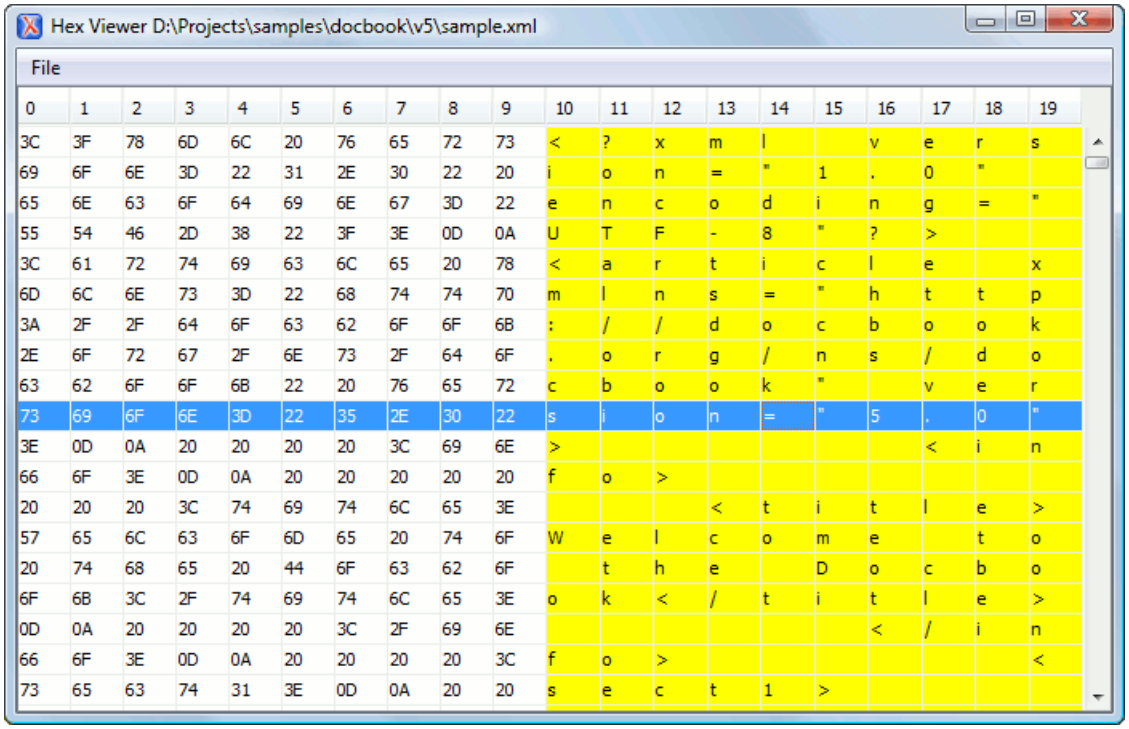
- The status bar provides information about the current opened file path, the Unicode representation of the character at caret position and the line and column in the opened document where the caret is located.

Attention: For faster computation the **Large File Viewer** uses a fixed font (plain, monospace font of size 12) to display characters. The font is *not* configurable from the Oxygen XML Author **Preferences** page.

Tip: The best performance of the viewer is accomplished for encodings that use a fixed number of bytes per character, like UTF-16 or ASCII. The performance for UTF-8 is very good for documents that use mostly characters of the European languages. For the same encoding the rendering performance is high for files consisting of short lines (up to a few thousand characters) and may degrade for long lines.

Hex Viewer

When the Unicode characters that are visible in a text viewer or editor are not enough and you need to see the byte values of each character of a document, you can start the hex viewer that is available on the **Tools** menu. It has two panels: the characters are rendered in the right panel and the bytes of each character are displayed in the left panel. There is a 1:1 correspondence between the characters and their byte representation: the byte representation of a character is displayed in the same matrix position of the left panel as the character in the matrix of the right panel.



0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
3C	3F	78	6D	6C	20	76	65	72	73	<	?	x	m	l		v	e	r	s
69	6F	6E	3D	22	31	2E	30	22	20	i	o	n	=	"	1	.	0	"	
65	6E	63	6F	64	69	6E	67	3D	22	e	n	c	o	d	i	n	g	=	"
55	54	46	2D	38	22	3F	3E	0D	0A	U	T	F	-	8	"	?	>		
3C	61	72	74	69	63	6C	65	20	78	<	a	r	t	i	c	l	e		x
6D	6C	6E	73	3D	22	68	74	74	70	m	l	n	s	=	"	h	t	t	p
3A	2F	2F	64	6F	63	62	6F	6F	6B	:	/	/	d	o	c	b	o	o	k
2E	6F	72	67	2F	6E	73	2F	64	6F	.	o	r	g	/	n	s	/	d	o
63	62	6F	6F	6B	22	20	76	65	72	c	b	o	o	k	"		v	e	r
73	69	6F	6E	3D	22	35	2E	30	22	s	i	o	n	=	"	5	.	0	"
3E	0D	0A	20	20	20	20	3C	69	6E	>							<	i	n
66	6F	3E	0D	0A	20	20	20	20	20	f	o	>							
20	20	20	3C	74	69	74	6C	65	3E				<	t	i	t	l	e	>
57	65	6C	63	6F	6D	65	20	74	6F	W	e	l	c	o	m	e		t	o
20	74	68	65	20	44	6F	63	62	6F		t	h	e		D	o	c	b	o
6F	6B	3C	2F	74	69	74	6C	65	3E	o	k	<	/	t	i	t	l	e	>
0D	0A	20	20	20	20	3C	2F	69	6E							<	/	i	n
66	6F	3E	0D	0A	20	20	20	20	3C	f	o	>							<
73	65	63	74	31	3E	0D	0A	20	20	s	e	c	t	1	>				

Figure 285: Hex Viewer

To open a file in **Hex Viewer** use the **File** > **Open** action. Alternatively, you can drag a file and drop it in the **Hex Viewer** panel.

Integrating External Tools

Sometimes an external tool which can be launched from the command line and which is different than a *FO processor* is needed. Oxygen XML Author offers you the option of integrating such a tool by specifying just the command line for starting the executable file 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 XML Author, *enable the option* for saving all edited files automatically when an external tool is applied.

External tools can be launched from the **External tools** toolbar or from the submenu **Tools** > **External tools**. While the action is running its icon is a stop icon:  . When the tool has finished running, it changes the icon back to the original run icon:  . Please note that even though you can stop the external tool by invoking the action again while it is running, that doesn't mean you can also stop the processes spawned by that external tool. This is especially a limiting factor when running a batch file as the batch will be stopped but without actually stopping the processes that the batch was running at that time.

Integrating the Ant Tool

As example let us integrate *the Ant build tool* in Oxygen XML Author:

- *Download* and *install* *Ant* on your computer;
- Test your *Ant* installation from the command-line interface in the directory where you want to use *Ant* from Oxygen XML Author, for example run the `clean` target of your `build.xml` file `C:\projects\XMLproject\build.xml`:

  ```
  ant clean
  ```

- *Go to* ***Options*** > ***Preferences*** > ***External Tools***;
- 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`;
- 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
  ```

Chapter 17

Extending Oxygen XML Author with Plugins

Topics:

This chapter explains how to write and install a plugin for Oxygen XML Author. It treats only the standalone version, as the Eclipse plugin version can be extended with other plugins following the rules of the Eclipse platform.

Introduction

Oxygen XML Author defines a couple of extension points to allow providing custom functionality via plugins. The plugin support includes the following types of plugins:

- General plugins
- Selection plugins
- Document plugins
- Custom protocol plugins
- Resource locking custom protocol plugins
- Components validation plugins
- Workspace access plugins
- Open redirect plugins

A selection plugin can be applied to both an XML document and a non-XML document. Other types of plugins can be applied only to XML documents.

A components validation plugin and a workspace access plugin are not connected with one document type, they have access to some resources of the application workspace used by all opened documents.

In order to develop a plugin a Java development environment must be installed. Apart from any library that the specific plugin requires, the file `oxygen.jar` is necessary for plugin compilation. Also an Oxygen XML Author installation is helpful for testing the deployment and plugin the functionality.

Installation

To install a plugin in Oxygen XML Author, follow these steps:

1. Go to the Oxygen XML Author installation directory and locate the `plugins` directory.

   The `plugins` directory contains all the plugins available to Oxygen XML Author.
2. In the `plugins` directory create a subfolder to store the plugin files.
3. In the new folder, place the plugin descriptor file (`plugin.xml`), the Java classes of the plugin and the other files that are referenced in the descriptor file.
4. Restart Oxygen XML Author.

   Alternatively, you can go to **Help** > **Manage Addons** and use the **Manage Add-ons** dialog box. This dialog allows you to install available plugins and manage the ones that are currently in use.

General configuration of an Oxygen XML Author plugin

The Oxygen XML Author functionality can be extended with plugins that implement a clearly specified API. A plugin includes at least a descriptor file which is an XML file called `plugin.xml` and two Java classes that extend *`ro.sync.exml.plugin.Plugin`* and *`ro.sync.exml.plugin.PluginExtension`*. Most plugins work only in the Text mode of the XML editor panel while others work at the workspace level. For extending the Author mode of the XML editor panel, see *Author Developer Guide* for the custom Author actions API.

On the Oxygen XML Author website there is a *plugin development kit* with some sample plugins (source code and compiled code) and the Javadoc API necessary for developing custom plugins.

The minimal implementation of a plugin must provide:

- a Java class that extends the `ro.sync.exml.plugin.Plugin` class

- a Java class that implements the `ro.sync.exml.plugin.PluginExtension` interface
- a plugin descriptor file called `plugin.xml`

A `ro.sync.exml.plugin.PluginDescriptor` object is passed to the constructor of the subclass of the `ro.sync.exml.plugin.Plugin` class. It contains the following data items about the plugin:

- basedir - *File* object - the base directory of the plugin.
- description - *String* object - the description of the plugin.
- name - *String* object - the name of the plugin.
- vendor - *String* object - the vendor name of the plugin.
- version - *String* object - the plugin version.
- id - *String* object - an unique identifier.

The *`ro.sync.exml.plugin.PluginDescriptor`* fields are filled with information from the plugin descriptor file.

The plugin descriptor is an XML file that defines how the plugin is integrated in Oxygen XML Author and what libraries are loaded. The structure of the plugin descriptor file is fully described in a DTD grammar located in `OXYGEN_INSTALLATION_FOLDER/plugins/plugin.dtd`. Here is a sample plugin descriptor used by the *Capitalize Lines* sample plugin:

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE plugin SYSTEM "../plugin.dtd">
<plugin
    name="Capitalize Lines"
    description="Capitalize the first character on each line"
    version="1.0.0"
    vendor="SyncRO"
    class="ro.sync.sample.plugin.caplines.CapLinesPlugin">
    <runtime>
        <library name="lib/caplines.jar"/>
    </runtime>
    <extension type="selectionProcessor"
    class="ro.sync.sample.plugin.caplines.CapLinesPluginExtension" keyboardShortcut="ctrl shift EQUALS"/>
</plugin>
```

If your plugin is of type *Selection*, *Document* or *General*, and thus contributes an action either to the contextual menu or to the main menu, then you can assign a keyboard shortcut for it. You can use the `keyboardShortcut` attribute for each `extension` element to specify the desired shortcut.

Tip: To compose string representations of the desired shortcut keys you can go to the Oxygen XML Author **Menu Shortcut Keys** preferences page, press **Edit** on any action, press the desired key sequence and use the representation which appears in the edit dialog.

Types of plugins

General Plugin

This plugin type allows the developer to invoke custom code and to interact with the workspace of Oxygen XML Author.

This plugin is the most general plugin type. It provides a limited API:

- The interface `GeneralPluginExtension` - Intended for general-purpose plugins, kind of external tools but triggered from the **Plugins** menu. The implementing classes must provide the method `process(GeneralPluginContext)` which must provide the plugin processing. This method takes as a parameter a `GeneralPluginContext` object.
- The class `GeneralPluginContext` - Represents the context in which the general plugin extension does its processing. The `getPluginWorkspace()` method allows you access to the workspace of Oxygen XML Author.

Selection Plugin

A selection plugin can be applied to both an XML document and a non-XML document. It works as follows: the user makes a selection in the editor, displays the contextual menu, and selects from the **Plugins** submenu the item corresponding to the plugin.

This plugin type provides the following API:

- The interface `SelectionPluginExtension` - The context containing the selected text is passed to the extension and the processed result is going to replace the initial selection. The `process(GeneralPluginContext)` method must return a `SelectionPluginResult` object which contains the result of the processing. The `String` value returned by the `SelectionPluginResult` object can include editor variables like *${caret}* and *${selection}*.
- The `SelectionPluginContext` object represents the context. It provides four methods:
  - `getSelection()` - Returns a `String` that is the current selection of text.
  - `getFrame()` - Returns a `Frame` that is the editing frame.
  - `getPluginWorkspace()` - Returns access to the workspace of Oxygen XML Author.
  - `getDocumentURL()` - Returns the URL of the current edited document.

Document Plugin

This plugin type can be applied only to an XML document. It can modify the current document which is received as callback parameter.

The plugin is started by selecting the corresponding menu item from the contextual menu of the XML editor (Text mode), **Plugins** submenu. It provides the following API:

- The interface `DocumentPluginExtension` - Receives the context object containing the current document in order to be processed. The `process(GeneralPluginContext)` method can return a `DocumentPluginResult` object containing a new document.
- The `DocumentPluginContext` object represents the context. It provides three methods:
  - `getDocument()` - Returns a `javax.swing.text.Document` object that represents the current document.
  - `getFrame()` - Returns a `java.awt.Frame` object that represents the editing frame.
  - `getPluginWorkspace()` - Returns access to the workspace of Oxygen XML Author.

Custom Protocol Plugin

This type of plugins allows the developer to work with a custom designed protocol for retrieving and storing files.

It provides the following API:

- The interface `URLStreamHandlerPluginExtension` - There is one method that must be implemented:
  - `getURLStreamHandler(String protocol)` - It takes as an argument the name of the protocol and returns a `URLStreamHandler` object, or null if there is no URL handler for the specified protocol.
- With the help of the `URLChooserPluginExtension2` interface, it is possible to write your own dialog that works with the custom protocol. This interface provides two methods:
  - `chooseURLs(StandalonePluginWorkspace workspaceAccess)` - Returns a `URL[]` object that contains the URLs the user decided to open with the custom protocol. You can invoke your own URL chooser dialog here and then return the chosen URLs having your own custom protocol. You have access to the workspace of Oxygen XML Author.
  - `getMenuName()` - Returns a `String` object that is the name of the entry added in the **File** menu.

- With the help of the `URLChooserToolbarExtension` interface, it is possible to provide a toolbar entry which is used for launching the custom URLs chooser from the `URLChooserPluginExtension` implementation. This interface provides two methods:
  - `getToolbarIcon()` - Returns the `javax.swing.Icon` image used on the toolbar.
  - `getToolbarTooltip()` - Returns a `String` that is the tooltip used on the toolbar button.

Resource Locking Custom Protocol Plugin

This plugin type allows the developer to work with a custom designed protocol for retrieving and storing files. It can lock a resource on opening it in Oxygen XML Author. This type of plugin extends the custom protocol plugin type with resource locking support.

Such a plugin provides the following API:

- The interface `URLStreamHandlerWithLockPluginExtension` - The plugin receives callbacks following the simple protocol for resource locking and unlocking imposed by Oxygen XML Author.

  There are two additional methods that must be implemented:
  - `getLockHandler()` - Returns a `LockHandler` implementation class with the implementation of the lock specific methods from the plugin.
  - `isSupported(String protocol)` - Returns a `boolean` that is `true` if the plugin accepts to manage locking for a certain URL protocol scheme like `ftp`, `http`, `https`, or `customName`.

Components Validation Plugin

This plugin type allows the developer to make customization of the editor menus, toolbars, and some other components by allowing or filtering them from the user interface.

This plugin provides the following API:

- The interface `ComponentsValidatorPluginExtension` - There is one method that must be implemented:
  - `getComponentsValidator()` - Returns a *`ro.sync.exml.ComponentsValidator`* implementation class used for validating the menus, toolbars, and their actions.
- The `ComponentsValidator` interface provides methods to filter various features from being added to the GUI of Oxygen XML Author:
  - `validateMenuOrTaggedAction(String[] menuOrActionPath)` - Checks if a menu or a tag action from a menu is allowed and returns a `boolean` value. A tag is used to uniquely identifying an action. The `String[]` argument is the tag of the menu / action and the tags of its parent menus if any.
  - `validateToolbarTaggedAction(String[] toolbarOrAction)` - Checks if an action from a toolbar is allowed and returns a *boolean* value. The `String[]` argument is the tag of the action from a toolbar and the tag of its parent toolbar if any.
  - `validateComponent(String key)` - Checks if the given component is allowed and returns a `boolean` value. The `String` argument is the tag identifying the component. You can remove toolbars entirely using this callback.
  - `validateAccelAction(String category, String tag)` - Checks if the given accelerator action is allowed to appear in the GUI and returns a `boolean` value. An accelerator action can be uniquely identified so it will be removed both from toolbars or menus. The first argument represents the action category, the second is the tag of the action.
  - `validateContentType(String contentType)` - Checks if the given content type is allowed and returns a `boolean` value. The `String` argument represents the content type. You can instruct Oxygen XML Author to ignore content types like *text / xsl* or *text / xquery*.

- `validateOptionPane(String optionPaneKey)` - Checks if the given options page can be added in the preferences option tree and returns a `boolean` value. The `String` argument is the option pane key.
- `validateOption(String optionKey)` - Checks if the given option can be added in the option page and returns a `boolean` value. The `String` argument is the option key. This method is mostly used for internal use and it is not called for each option in a preferences page.
- `validateLibrary(String library)` - Checks if the given library is allowed to appear listed in the **About** dialog and returns a `boolean` value. The `String` argument is the library. This method is mostly for internal use.
- `validateNewEditorTemplate(EditorTemplate editorTemplate)` - Checks if the given template for a new editor is allowed and returns a `boolean` value. The `EditorTemplate` argument is the editor template. An `EditorTemplate` is used to create an editor for a given extension. You can thus filter what appears in the **New** dialog list.
- `isDebuggerperspectiveAllowed()` - Check if the debugger perspective is allowed and returns a `boolean` value.
- `validateSHMarker(String marker)` - Checks if the given marker is allowed and returns a `boolean` value. The `String` argument represents the syntax highlight marker to be checked. If you decide to filter certain content types, you can also filter the syntax highlight options so that the content type is no longer present in the Preferences options tree.

Tip: The best way to decide what to filter is to observe the values that Oxygen XML Author passes when these callbacks are called. You have to create an implementation for this interface which lists in the console all values received by each function. Then you can decide on the values to filter and act accordingly.

Workspace Access Plugin

This plugin type allows the developer to contribute actions to the main menu and toolbars of Oxygen XML Author, to create custom views and to interact with the application workspace

Many complex integrations, like integrations with Content Management Systems (CMS) usually requires access to some workspace resources like the toolbar, menus and to the opened XML editors. This type of plugin is also useful because it allows you to make modifications to an opened editor's XML content.

The plugin must implement the interface *`ro.sync.exml.plugin.workspace.WorkspaceAccessPluginExtension`*. The callback method `applicationStarted` of this interface allows access to a parameter of type *`ro.sync.exml.workspace.api.standalone.StandalonePluginWorkspace`* which in its turn allows for API access to the application workspace.

The interface `StandalonePluginWorkspace` has three methods which can be called in order to customize the toolbars, menus and views:

- `addToolbarComponentsCustomizer` - Contributes to or modifies existing toolbars. You can specify in the associated `plugin.xml` descriptor additional toolbar IDs using the following construct:

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE plugin SYSTEM "../plugin.dtd">
<plugin name="CustomWorkspaceAccess" ..............>
 <runtime>
  ........
 </runtime>

 <extension type="WorkspaceAccess" ............../>
 ..............
  <toolbar id="SampleWorkspaceAccessToolbarID" initialSide="NORTH" initialRow="1"/>
</plugin>
```

  The `toolbar` element adds a toolbar in the Oxygen XML Author interface and allows you to contribute your own plugin specific actions. The following attributes are available:

  - `id` - unique identifier of the plugin toolbar;
  - `initialSide` - specifies the place where the toolbar is initially displayed. The allowed values are NORTH and SOUTH.

- `initialRow` - specifies the initial row on the specified side where the toolbar is displayed. For example the main menu has an initial row of "0" and the "Edit" toolbar has an initial row of "1".

The *`ro.sync.exml.workspace.api.standalone.ToolbarInfo`* toolbar component information with the specified id will be provided to you by the customizer interface. You will thus be able to provide Swing components which will appear on the toolbar when the application starts.

- `addViewComponentCustomizer` - Contributes to or modifies existing views or contributes to the reserved custom view. You can specify in the associated `plugin.xml` descriptor additional view IDs using the following construct:

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE plugin SYSTEM "../plugin.dtd">
<plugin name="CustomWorkspaceAccess" ..............>
 <runtime>
  ........
 </runtime>

 <extension type="WorkspaceAccess" ............../>
 ..............
 <view id="SampleWorkspaceAccessID" initialSide="WEST" initialRow="0"/>
</plugin>
```

The `view` element adds a view in the Oxygen XML Author interface and allows you to contribute your own plugin specific UI components. The following attributes are available:

- `id` - unique identifier of the view component.
- `initialSide` - specifies the place where the view is initially displayed. The allowed values are NORTH, SOUTH, EAST and WEST.
- `initialRow` - specifies the initial row on the specified side where the view is displayed. For example the **Project** view has an initial row of `0` and the Outline view has an initial row of `1`. Both views are in the WEST part of the workbench.

The `ro.sync.exml.workspace.api.standalone.ViewInfo` view component information with the specified id will be provided to you by the customizer interface. You will thus be able to provide Swing components which will appear on the view when the application starts.

- `addMenuBarCustomizer` - Contributes to or modifies existing menu components.

Access to the opened editors can be done first by getting access to all URLs opened in the workspace using the API method `StandalonePluginWorkspace.getAllEditorLocations(int editingArea)`. There are two available editing areas: the DITA Maps Manager editing area where only DITA Maps are edited and the main editing area. Using the URL of an opened resource you can gain access to it using the `StandalonePluginWorkspace.getEditorAccess(URL location, int editingArea)` API method. A *`ro.sync.exml.workspace.api.editor.WSEditor`* allows then access to the current editing page. Special editing API is supported only for the **Text** (*`ro.sync.exml.workspace.api.editor.page.text.WSTextEditorPage`*) page and the **Author** (*`ro.sync.exml.workspace.api.editor.page.author.WSAuthorEditorPage`*) page.

In order to be notified when editors are opened, selected and closed you can use the API method `StandalonePluginWorkspace.addEditorChangeListener` to add a listener.

Open Redirect Plugin

This type of plugin is useful for opening more than one file with only one open action.

For example when a zip archive or an ODF file or an OOXML file is open in the **Archive Browser** view a plugin of this type can decide to open a file also from the archive in an XML editor panel. This file can be the `document.xml` main file from an OOXML file archive or a specific XML file from a zip archive.

The plugin must implement the interface `OpenRedirectExtension`. It has only one callback: `redirect(URL)` that receives the URL of the file opened by the Oxygen XML Author user. If the plugin decides to open also other files it must return an array of information objects (`OpenRedirectInformation[]`) that correspond to these files. Such an information object must contain the URL that is opened in a new editor panel and the content type, for example

`text/xml`. The content type is used for determining the type of editor panel. A `null` content type allows auto-detection of the file type.

Targeted URL Stream Handler Plugin

This type of plugin can be used when it is necessary to impose custom URL stream handlers for specific URLs.

This plugin extension can handle the following protocols: `http`, `https`, `ftp` or `sftp`, for which Oxygen XML Author usually provides specific fixed URL stream handlers. If it is set to handle connections for a specific protocol, this extension will be asked to provide the URL stream handler for each opened connection of an URL having that protocol.

To use this type of plugin, you have to implement the `ro.sync.exml.plugin.urlstreamhandler.TargetedURLStreamHandlerPluginExtension` interface, that provides the following methods:

- `boolean canHandleProtocol(String protocol)`

  This method checks if the plugin can handle a specific protocol. If this method returns `true` for a specific protocol, the `getURLStreamHandler(URL)` method will be called for each opened connection of an URL having this protocol.

- `URLStreamHandler getURLStreamHandler(URL url)`

  This method provides the URL handler for the specified URL and it is called for each opened connection of an URL with a protocol for which the `canHandleProtocol(String)` method returns `true`.

  If this method returns `null`, the Oxygen URLStreamHandler is used.

To use this type of extension in your plugin, create an extension of `TargetedURLHandler` type in your `plugin.xml` and specify the class that implements `TargetedURLStreamHandlerPluginExtension`:

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE plugin SYSTEM "../plugin.dtd">
<plugin name="CustomTargetedURLStreamHandlerPlugin" ..............>
 <runtime>
  ........
 </runtime>

 <extension type="TargetedURLHandler" class="CustomTargetedURLStreamHandlerPluginExtension"/>
 ...............

</plugin>
```

This extension can be useful in situations when connections opened from a specific host must be handled in a particular way. For example, the Oxygen HTTP URLStreamHandler may not be compatible for sending and receiving SOAP using the SUN Webservices implementation. In this case you can override the stream handler set by Oxygen for HTTP to use the default SUN URLStreamHandler which is more compatible with sending and receiving SOAP requests.

```
public class CustomTargetedURLStreamHandlerPluginExtension
  implements TargetedURLStreamHandlerPluginExtension {

  @Override
  public boolean canHandleProtocol(String protocol) {
    boolean handleProtocol = false;
    if ("http".equals(protocol) || "https".equals(protocol)) {
      // This extension handles both HTTP and HTTPS protocols
      handleProtocol = true;
    }
    return handleProtocol;
  }

  @Override
  public URLStreamHandler getURLStreamHandler(URL url) {
    // This method is called only for the URLs with a protocol
    // for which the canHandleProtocol(String) method returns true (HTTP and HTTPS)

    URLStreamHandler handler = null;

    String host = url.getHost();
    String protocol = url.getProtocol();
    if ("some_host".equals(host)) {
      // When there are connections opened from some_host, the SUN HTTP(S)
      // handlers are used
      if ("http".equals(protocol)) {
```

```
        handler = new sun.net.www.protocol.http.Handler();
      } else {
        handler = new sun.net.www.protocol.https.Handler();
      }
    }
    return handler;
  }
}
```

Lock Handler Factory Plugin

This type of extension is used for locking resources from a specific protocol.

It provides the following API:

- The interface `LockHandlerFactoryPluginExtension`.

  You need to implement the following two methods:

  - `LockHandler getLockHandler()`

    Gets the lock handler for the current handled protocol. Might be `null` if not supported.

  - `boolean isLockingSupported(String protocol)`

    Checks if a lock handler can be provided for a specific protocol.

  To use this type of extension in your plugin, create an extension of `LockHandlerFactory` type in your `plugin.xml` and specify the class implementing `LockHandlerFactoryPluginExtension`:

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE plugin SYSTEM "../plugin.dtd">
<plugin name="CustomLockHandler" ..............>
 <runtime>
  ........
 </runtime>

 <extension type="LockHandlerFactory" class="LockHandlerFactoryPluginExtensionImpl"/>
 ...............

</plugin>
```

StylesFilter Plugin

This plugin type allows the developer to dynamically modify the CSS styles used to render elements in the **Author** mode.

The plugin must extend the *`ro.sync.exml.plugin.author.css.filter.GeneralStylesFilterExtension`* class. This class has a callback on which you can alter the styles for an Author element.

This extension point is similar with the Styles Filter that you set at the *Document Type* level. The only difference is that the plugin filters styles from any opened XML document, regardless of the document type. The changes made by this plugin are prioritised over the changes made by the Document Type level filter.

Option Page Plugin Extension

This extension type allows developers to add custom preference pages to the application **Preferences** dialog.

The extension must implement the `ro.sync.exml.plugin.option.OptionPagePluginExtension` interface. The provided callbacks allow the developer to create the custom Swing component which will be added to the page and to react to various calls in order to persistently save the page's settings using the `OptionsStorage` API.

All preferences pages which are contributed by a plugin appear listed in the **Preferences** dialog in the **Plugins** category. The `plugin.xml` configuration file can specify one or more such extensions using constructs like:

```
<extension type="OptionPage" class="my.package.CustomOptionPagePluginExtension"/>
```

How to

Different tutorials about how to implement complex plugins.

How to Write a CMS Integration Plugin

In order to have a complete integration between Oxygen XML Author and any CMS you usually have to write a plugin which combines two available plugin extensions:

- *Workspace Access*
- *Custom protocol*

The usual set of requirements for an integration between Oxygen XML Author and the CMS are the following:

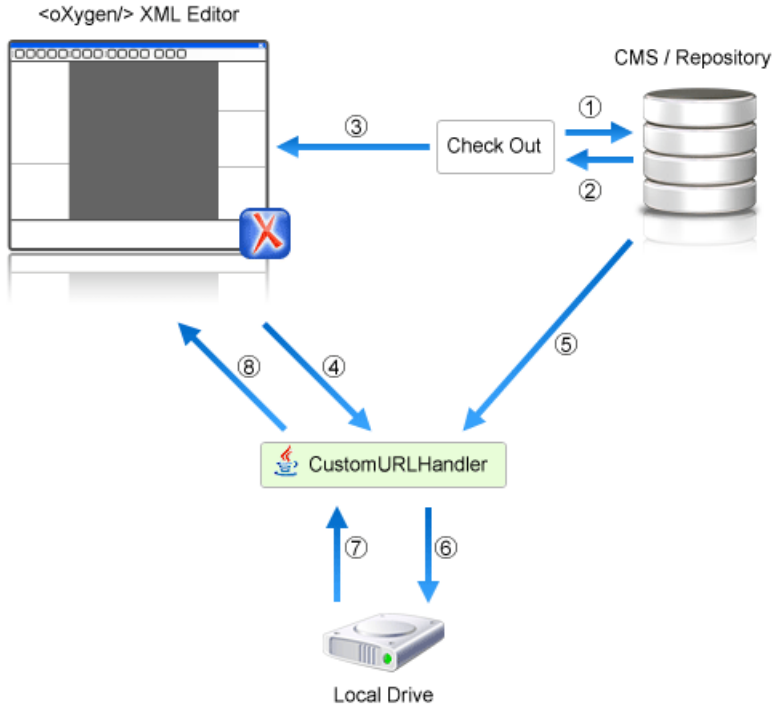
- Contribute to the Oxygen XML Author toolbars and main menu with your custom **Check Out** and **Check In** actions:
  - **Check Out** triggers your custom dialogs which allow you to browse the remote CMS and choose the resources you want to open;
  - **Check In** allows you to send back to the server the modified content.

    You can use the **Workspace Access** plugin extension (and provided sample Java code) for all these operations.

- When **Check Out** is called, use the Oxygen XML Author API to open your custom URLs (URLs created using your custom protocol). It is important to implement and use a **Custom Protocol** extension in order to be notified when the files are opened and saved and to be able to provide to Oxygen XML Author the content for the relative references the files may contain. Your custom `java.net.URLStreamHandler` implementation checks out the resource content from the server, stores it locally and provides its content. Sample **Check Out** implementation:

```
  /**
   * Sample implementation for the "Check Out" method.
   *
   * @param pluginWorkspaceAccess The plugin workspace access (Workspace Access plugin).
   * @throws MalformedURLException
   */
  private void checkOut(StandalonePluginWorkspace pluginWorkspaceAccess) throws MalformedURLException {
    //TODO Show the user a custom dialog for browsing the CMS
    //TODO after the user selected the resource create an URL with a custom protocol
    // which will uniquely map to the resource on the CMS using the URLHandler
    //something like:
    URL customURL = new URL("mycms://host/path/to/file.xml");
    //Ask Oxygen to open the URL
    pluginWorkspaceAccess.open(customURL);
    //Oxygen will then your custom protocol handler to provide the contents for the resource
"mycms://host/path/to/file.xml"
    //Your custom protocol handler will check out the file in a temporary directory for example and provide
the content from it.
    //Oxygen will also pass through your URLHandler if you have any relative references which need to be
opened/obtained.
  }
```

  Here is a diagram of the **Check Out** process:



Each phase is described below:

1. Browse CMS repository
2. User chooses a resource
3. Use API to open custom URL: `mycms://path/to/file.xml`
4. Get content of URL: `mycms://path/to/file.xml`
5. Get content of resource
6. Store on disk for faster access
7. Retrieve content from disk if already checked out
8. Retrieved content

- Contribute a special **Browse CMS** action to every dialog in Oxygen XML Author where an URL can be chosen to perform a special action (like the **Insert a DITA Content Reference** action or the **Insert Image Reference** action). Sample code:

```
      //Add an additional browse action to all dialogs/places where Oxygen allows selecting an URL.
      pluginWorkspaceAccess.addInputURLChooserCustomizer(new InputURLChooserCustomizer() {
        public void customizeBrowseActions(List<Action> existingBrowseActions, final InputURLChooser chooser)
 {
          //IMPORTANT, you also need to set a custom icon on the action for situations when its text is not
used for display.
          Action browseCMS = new AbstractAction("CMS") {
            public void actionPerformed(ActionEvent e) {
              URL chosenResource = browseCMSAndChooseResource();
              if (chosenResource != null) {
                try {
                  //Set the chosen resource in the dialog's combo box chooser.
                  chooser.urlChosen(chosenResource);
                } catch (MalformedURLException e1) {
                  //
                }
              }
            }
          };
          existingBrowseActions.add(browseCMS);
        }
      });
```

When inserting references to other resources using the actions already implemented in Oxygen XML Author, the reference to the resource is made by default relative to the absolute location of the edited XML file. You can gain control over the way in which the reference is made relative for a specific protocol like:

```
      //Add a custom relative reference resolver for your custom protocol.
      //Usually when inserting references from one URL to another Oxygen makes the inserted path relative.
     //If your custom protocol needs special relativization techniques then it should set up a custom relative

      //references resolver to be notified when resolving needs to be done.
      pluginWorkspaceAccess.addRelativeReferencesResolver(
          //Your custom URL protocol for which you already have a custom URLStreamHandlerPluginExtension set
up.
          "mycms",
          //The relative references resolver
          new RelativeReferenceResolver() {
        public String makeRelative(URL baseURL, URL childURL) {
          //Return the referenced path as absolute for example.
          //return childURL.toString();
          //Or return null for the default behavior.
          return null;
        }
      });
```

- Write the `plugin.xml` descriptor. Your plugin combines the two extensions using a single set of libraries. The descriptor would look like:

```
<!DOCTYPE plugin SYSTEM "../plugin.dtd">
<plugin
 name="CustomCMSAccess"
 description="Test"
 version="1.0.0"
 vendor="ACME"
 class="custom.cms.CMSAccessPlugin">
 <runtime>
  <library name="lib/cmsaccess.jar"/>
 </runtime>
 <!--Access to add actions to the main menu and toolbars or to add custom views.-->
 <!--See the "ro.sync.sample.plugin.workspace.CustomWorkspaceAccessPluginExtension" Java sample for more
details-->
 <extension type="WorkspaceAccess"
  class="custom.cms.CustomWorkspaceAccessPluginExtension"/>
 <!--The custom URL handler which will communicate with the CMS implementation-->
 <!--See the "ro.sync.sample.plugin.workspace.customprotocol.CustomProtocolURLHandlerExtension" Java sample
for more details-->
 <extension type="URLHandler"
  class="custom.cms.CustomProtocolURLHandlerExtension"/>
</plugin>
```

- Create a `cmsaccess.jar` JAR archive containing your implementation classes.
- Copy your new plugin directory in the `plugins` subfolder of the Oxygen XML Author install folder and start Oxygen XML Author.

Class Loading Issues

It is possible that the Java libraries you have specified in the plugin libraries list conflict with the ones already loaded by Oxygen XML Author. In order to instruct the plugin to prefer its libraries over the ones used by Oxygen XML Author, you can add the following attribute on the `<plugin>` root element:`classLoaderType="preferReferencedResources"` from the `plugin.xml` descriptor.

A **Late Delegation Class Loader** (the main class loader in Oxygen XML Author) is a `java.net.URLClassLoader` extension which prefers to search classes in its own libraries list and only if a class is not found there to delegate to the parent class loader.

The main Oxygen XML Author Class Loader uses as libraries all jars specified in the `OXYGEN_INSTALL_DIR\lib` directory. Its parent class loader is the default JVM Class loader. For each instantiated plugin a separate class loader is created having as parent the Oxygen XML Author Class Loader.

The plugin class loader can be either a standard `java.net.URLClassLoader` or a `LateDelegationClassLoader` (depending on the attribute `classLoaderType` in the `plugin.xml`). Its parent class loader is always the Oxygen XML Author `LateDelegationClassLoader`.

If you experience additional problems like the following:

```
java.lang.LinkageError: ClassCastException: attempting to cast
jar:file:/C:/jdk1.6.0_06/jre/lib/rt.jar!/javax/xml/ws/spi/Provider.classtojar:file:/D:/Program
    Files/Oxygen XML Editor
    12/plugins/wspcaccess/../../xdocs/lib/jaxws/jaxws-api.jar!/javax/xml/ws/spi/Provider.class
    at javax.xml.ws.spi.Provider.provider(Provider.java:94) at
    javax.xml.ws.Service.<init>(Service.java:56)
.....................................................................
```

The cause could be the fact that some classes are instantiated using the context class loader of the current thread. The most straightforward fix is to write your code in a *try/finally* statement:

```
ClassLoader oldClassLoader = Thread.currentThread().getContextClassLoader();
try {
  //This is the implementation of the WorkspaceAccessPluginExtension plugin interface.
  Thread.currentThread().setContextClassLoader(
      CustomWorkspaceAccessPluginExtension.this.getClass().getClassLoader());
  //WRITE YOUR CODE HERE
} finally {
  Thread.currentThread().setContextClassLoader(oldClassLoader);
}
```

How to Write A Custom Protocol Plugin

For creating a custom protocol plugin, apply the following steps:

1. Write the handler class for your protocol that implements the `java.net.URLStreamHandler` interface.

   Be careful to provide ways to correct and uncorrect the URLs of your files.
2. Write the plugin class by extending *`ro.sync.exml.plugin.Plugin`*.
3. Write the plugin extension class that implements the *`ro.sync.exml.plugin.urlstreamhandler.URLStreamHandlerPluginExtension`* interface.

   It is necessary that the plugin extension for the custom protocol implements the `URLStreamHandlerPluginExtension` interface. Without it, you cannot use your plugin, because Oxygen XML Author is not able to find the protocol handler.

   You can choose also to implement the *`URLChooserPluginExtension`* interface. It allows you to write and display your own customized dialog for selecting resources that are loaded with the custom protocol.

   An implementation of the extension *`URLHandlerReadOnlyCheckerExtension`* allows you to:

   - mark a resource as read-only when it is opened
   - switch between marking the resource as read-only and read-write while it is edited

   It is useful when opening and editing CMS resources.
4. Write the `plugin.xml` descriptor.

   Remember to set the name of the plugin class to the one from the second step and the plugin extension class name with the one you have chosen at step 3.
5. Create a .jar archive with all these files.
6. Install your new plugin in the `plugins` subfolder of the Oxygen XML Author install folder.

How to Deploy a Plugin or a Framework as an Oxygen XML Author Add-on

To deploy a plugin or a framework as an Oxygen XML Author add-on:

1. Pack it as a `ZIP` file or a *JAR*. Please note that you should pack the entire root directory not just it's contents.
2. Digitally sign the package. Please note that you can perform this step only if you have created a *JAR* at the previous step. You will need a certificate signed by a trusted authority. To sign the jar you can either use the `jarsigner` command line tool inside Oracle's Java Development Kit. (`'JDK_install_dir'/bin/jarsigner.exe`) or, if you are working with *Ant*, you can use the `signjar` task (which is just a front for the `jarsigner` command line tool).

   The benefit of having a signed add-on is that the user can verify the integrity of the add-on issuer. If you don't have such a certificate you can generate one yourself using the keytool command line tool. Please note that this approach is mostly recommended for tests since anyone can create a self signed certificate.
3. Create a descriptor file. You can use a template that Oxygen XML Author provides. To use this template, go to **File** > **New** and select the **Oxygen add-ons update site** template.

4. Copy the `ZIP` file and the descriptor file to an HTTP server. The URL to this location serves as the **Update Site** URL.

How to Share the Classloader Between a Framework and a Plugin

In some cases you may need to extend the functionality of Oxygen XML Author both through a framework and through a plugin. Normally, a framework and a plugin both run in their own private classloader. If the framework and the plugin use the same JAVA extensions/classes, it is recommended that they share the same classloader. This way, the common classes are loaded by only one classloader and they will both use the same static objects and have the ability to cast objects between one another.

To achieve this, go to **Options** > **Preferences** > **Document Type Association**, select the document type, go to the **Classpath** tab and in the **Use parent classloader from plugin with ID** fields introduce the ID of the plugin. This ID is declared in the *configuration file of the plugin*.

Important: The shared classed must be specified only in the configuration files of the plugin, and not in the configuration file and the document type class path at the same time.

Example - A Selection Plugin

The following plugin is called `UppercasePlugin` and is an example of *selection plugin*. It is used in Oxygen XML Author for capitalizing the characters in the current selection. This example consists of two Java classes and the plugin descriptor:

- `UppercasePlugin.java`:

```
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;
    }
}
```

- `UppercasePluginExtension.java`:

```
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());
    }
}
```

- `plugin.xml`:

```
<!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>
```

Creating and Running Automated Tests

If you have developed complex custom plugins and/or document types the best way to test your implementation and insure that further changes will not interfere with the current behavior is to make automated tests for your customization.

An Oxygen XML Author installation standalone (Author or Editor) comes with a main `oxygen.jar` library located in the `OXYGEN_INSTALLATION_DIRECTORY`. That JAR library contains a base class for testing developer customizations named `ro.sync.exml.workspace.api.PluginWorkspaceTCBase`.

Please see below some steps in order to develop `JUnit` tests for your customizations using the **Eclipse** workbench:

1. Create a new Eclipse Java project and copy to it the entire contents of the `OXYGEN_INSTALLATION_DIRECTORY`.
2. Add to the **Java Build Path**->**Libraries** tab all JAR libraries present in the `OXYGEN_INSTALLATION_DIRECTORY/lib` directory. Make sure that the main JAR library `oxygen.jar` or `oxygenAuthor.jar` is the first one in the Java classpath by moving it up in the **Order and Export** tab.
3. Download and add to the Java build path the additional `JUnit` libraries *`jfcunit.jar`* and *`junit.jar`*.
4. Create a new Java class which extends `ro.sync.exml.workspace.api.PluginWorkspaceTCBase`.
5. Pass on to the constructor of the super class the following parameters:
   - `File frameworksFolder` The file path to the frameworks directory. It can point to a custom frameworks directory where the custom framework resides.
   - `File pluginsFolder` The file path to the plugins directory. It can point to a custom plugins directory where the custom plugins resides.
   - `String licenseKey` The license key used to license the test class.
6. Create test methods which use the API in the base class to open XML files and perform different actions on them. Your test class could look something like:

```
public class MyTestClass extends PluginWorkspaceTCBase {

 /**
  * Constructor.
  */
 public MyTestClass() throws Exception {
  super(new File("frameworks"), new File("plugins"),
        "------START-LICENSE-KEY------\n" +
    "\n" +
    "Registration_Name=Developer\n" +
    "\n" +
    "Company=\n" +
    "\n" +
    "Category=Enterprise\n" +
    "\n" +
    "Component=XML-Editor, XSLT-Debugger, Saxon-SA\n" +
```

```
    "\n" +
    "Version=14\n" +
    "\n" +
    "Number_of_Licenses=1\n" +
    "\n" +
    "Date=09-04-2012\n" +
    "\n" +
    "Trial=31\n" +
    "\n" +
    "SGN=MCwCFGNoEGJSeiC3XCYIyalvjzHhGhhqAhRNRDpEu8RIWb8icCJO7HqfVP4++A\\=\\=\n" +
    "\n" +
  "-------END-LICENSE-KEY-------");
 }

  /**
    * <p><b>Description:</b> TC for opening a file and using the bold operation</p>
    * <p><b>Bug ID:</b> EXM-20417</p>
    *
    * @author radu_coravu
    *
    * @throws Exception
    */
   public void testOpenFileAndBoldEXM_20417() throws Exception {
     WSEditor ed = open(new File("D:/projects/eXml/test/authorExtensions/dita/sampleSmall.xml").toURL());
     //Move caret
     moveCaretRelativeTo("Context", 1, false);

     //Insert <b>
     invokeAuthorExtensionActionForID("bold");
     assertEquals("<?xml version=\"1.0\" encoding=\"utf-8\"?>\n" +
       "<!DOCTYPE task PUBLIC \"-//OASIS//DTD DITA Task//EN\"
\"http://docs.oasis-open.org/dita/v1.1/OS/dtd/task.dtd\">\n" +
       "<task id=\"taskId\">\n" +
       "    <title>Task <b>title</b></title>\n" +
       "    <prolog/>\n" +
       "    <taskbody>\n" +
       "        <context>\n" +
       "            <p>Context for the current task</p>\n" +
       "        </context>\n" +
       "        <steps>\n" +
       "            <step>\n" +
       "                <cmd>Task step.</cmd>\n" +
       "            </step>\n" +
       "        </steps>\n" +
       "    </taskbody>\n" +
       "</task>\n" +
       "", getCurrentEditorXMLContent());
   }
}
```

Debugging a Plugin Using the Eclipse Workbench

To debug problems in the code of the plugin without having to re-bundle the Java classes of the plugin in a JAR library, follow these steps:

1. Download and unpack an *all platforms standalone version* of Oxygen XML Author/Editor to a folder on your hard drive.

   Note: Name the folder `OXYGEN_DIR`.

2. Download the *Plugins SDK*.
3. Create an Eclipse Java Project (let's call it `MyPluginProject`) with the Java sources from one of the sample plugins (the Workspace Access plugin for example).
4. In the Project root folder, create a folder called `myPlugin` and add the `plugin.xml` from the sample plugin in there. Modify the added plugin.xml to add a library reference to the project's classes directory: `<library name="../classes"/>`.
5. Copy the `plugin.dtd` from the `OXYGEN_DIR/plugins` folder in the root Project folder.
6. In the Project's build path add external JAR references to all the JAR libraries in the `OXYGEN_DIR/lib` folder. Now your Project should compile successfully.
7. Create a new Java Application configuration for debugging. The Main Class should be `ro.sync.exml.Oxygen`. The given VM Arguments should be:

```
-Dcom.oxygenxml.app.descriptor=ro.sync.exml.EditorFrameDescriptor -Xmx1024m
-XX:MaxPermSize=384m -Dcom.oxygenxml.editor.plugins.dir=D:\projects\MyPluginProject
```

8. Add a break point in one of the source Java classes.
9. Debug the created configuration. When the code reaches your breakpoint, the debug perspective should take over.

Disabling a Plugin

To disable a plugin, use one of the following two methods:

- Go to **Options** > **Preferences** > **Plugins** and deselect the plugin that you want to disable;
- Create an empty file called `plugin.disable` next to the plugin configuration file (`plugin.xml`). The plugin will be disabled and will no longer be loaded by the application on startup.

Note: This is useful if you want to temporarily stop work on a plugin and use the application without it.

Chapter 18

Configuring Oxygen XML Author

Topics:

This chapter presents all the user preferences that allow you to configure the application and the editor variables that are available for customizing the user defined commands.

Configuring Options

A set of options controls Oxygen XML Author, allowing you to configure most of the features. To offer you the highest degree of flexibility in customizing the application to fit the end-user's role in your organization, Oxygen XML Author comes with several distinct layers of option values, arranged here according to their priority, from low to high:

- *Default Options* - should be regarded as factory defaults or built-in values.

  This predefined set of values are tuned so Oxygen XML Author behaves optimally in most working environments.

- *Customized Default Options* - designed to customize the initial option values for a group of users.

  This layer allows an administrator to deploy the application preconfigured with a standardized set of option values.

  Note: Once this layer is set, it represents the initial state of Oxygen XML Author when an end-user presses the **Restore defaults** or **Reset Global Options** buttons.

- *Global Options* - allows individual users to personalize Oxygen XML Author according to their specific needs.
- *Project Options* - allow project managers to establish a set of rules for a specific project. These rules standardize the information exchanged by the team members (for example, if the project is stored in a repository, a common set of formatting rules avoid conflicts that may appear when documents modified by different team members are committed to the repository).

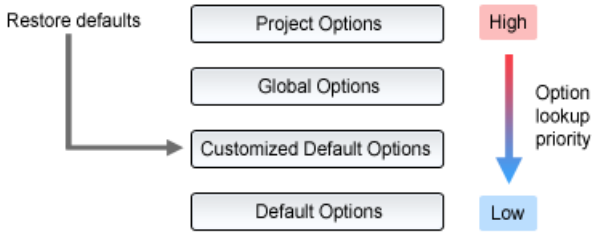


Figure 286: Option lookup priority

Note: If you set a specific option in one of the layers, but it is not applied in the application, make sure that one of the higher priority layers is not overwriting it.

Customized Default Options

You can overwrite the *Default Options* values by loading a set of options, from a specific XML structure, stored in an *options file* (a file that contains all the Oxygen XML Author options). To create an *options file*:

- make sure the options that you want to set are not *stored at project level*;
- set the values you want to impose as defaults in the *Preferences pages*;
- select **Options** > **Export Global Options**.

A *project file (.xpr file extension)* contains only the options different from the *Default Options*. To create one, follow these steps:

- create an Oxygen project or open an already existing one in *the Project view*;
- store the options that you want to set with default values *at project level*
- set the values of the default options in the Preferences dialog so that they are saved in the project file.

There are two ways to make Oxygen XML Author use such an options configuration file to extract the customized default options:

- set the file path of the options configuration file as value of `com.oxygenxml.default.options` *startup parameter*.

  The file must be specified with an URL or a file path relative to the application installation folder. For example:

  ```
  -Dcom.oxygenxml.default.options=options/default.xml
  ```

- copy the options configuration file in the `[Oxygen-install-folder]/preferences` folder.

Note: Make sure that the options configuration file has an `.xml` or an `.xpr` extension, like `default-options.xml`.

Note: In the Java Webstart distribution, the same procedures apply.

If you want to specify the path to the default options using a parameter, the parameter `com.oxygenxml.default.options` must be set *in the `.jnlp` file* that launches the editor using a `property` element, for example:

```
<property name="oxy:com.oxygenxml.default.options" value="http://host/path/to/default-options.xml"/>
```

Project Level User Options

You are able to set the Oxygen XML Author options either globally, or to bound them to a specific project by choosing the appropriate setting in the preferences pages:

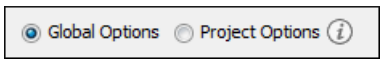


Figure 287: Controlling the Storage of the Preferences

By default, **Global Options** is selected, meaning that the options are stored on your computer, in your user home folder.

When you choose **Project Options**, the preferences are stored in the project file and can be shared with other users. For instance, if your project file and other files and folders are saved on a version control system (like SVN, CVS or Source Safe) or a shared folder, your team can use the same options/scenarios you have chosen to store in the project file.

> You may decide that the default schema associations and catalogs must be shared with other team members. To do this, go to **Options** > **Preferences** > **XML** > **XML Catalog** and select **Project Options**. Now all the options set in the **XML Catalog** page are saved in your current project. At a later time, you can drop a preferences panel from being stored into the project by selecting **Global Options**.

The same mechanism is applied for saving transformation and validation scenarios.

Importing / Exporting Global Options

The import/export operations are located in the **Options** menu. These operations allow you to load or save global preferences as an XML file. You can use this file to reload saved options both on your computer and on others.

The following actions are available in the **Options** menu:

- **Reset Global Options** - restores the preferences set to *Customized Default Options layer*, or if this level is not defined, to *Default Options layer*;
- **Import Global Options** - allows you to import a set of *Global Options* from an *options file*;
- **Export Global Options** - allows you to export the entire set of *Global Options* to an options file.

Oxygen XML Author automatically stores your options in an `options` file. Depending on the platform you are using, this file is located in the following directories:

- [user-home-folder]\Application Data\com.oxygenxml for Windows XP;
- [user-home-folder]\AppData\Roaming\com.oxygenxml for Windows Vista/7;
- [user-home-folder]/Library/Preferences/com.oxygenxml for Mac OS X;
- [user-home-folder]/.com.oxygenxml for Linux.

The name of the `options` file of Oxygen XML Author 15.2 is oxyAuthorOptionsSa15.2.xml.

Preferences

Once the application is installed you can use the **Preferences** dialog accessed from menu **Options** > **Preferences** to customize the application.

Option pages are organized hierarchically in a tree-like structure displayed in the left side of the **Preferences** dialog. The option tree features a search box that allows you to look for a specific option name: just type-in relevant keywords and the entire options structure is trimmed down. To navigate the tree structure, use the *Up*/*Down* keys or click the tree entries to display the options pages in the right side of the **Preferences** dialog.

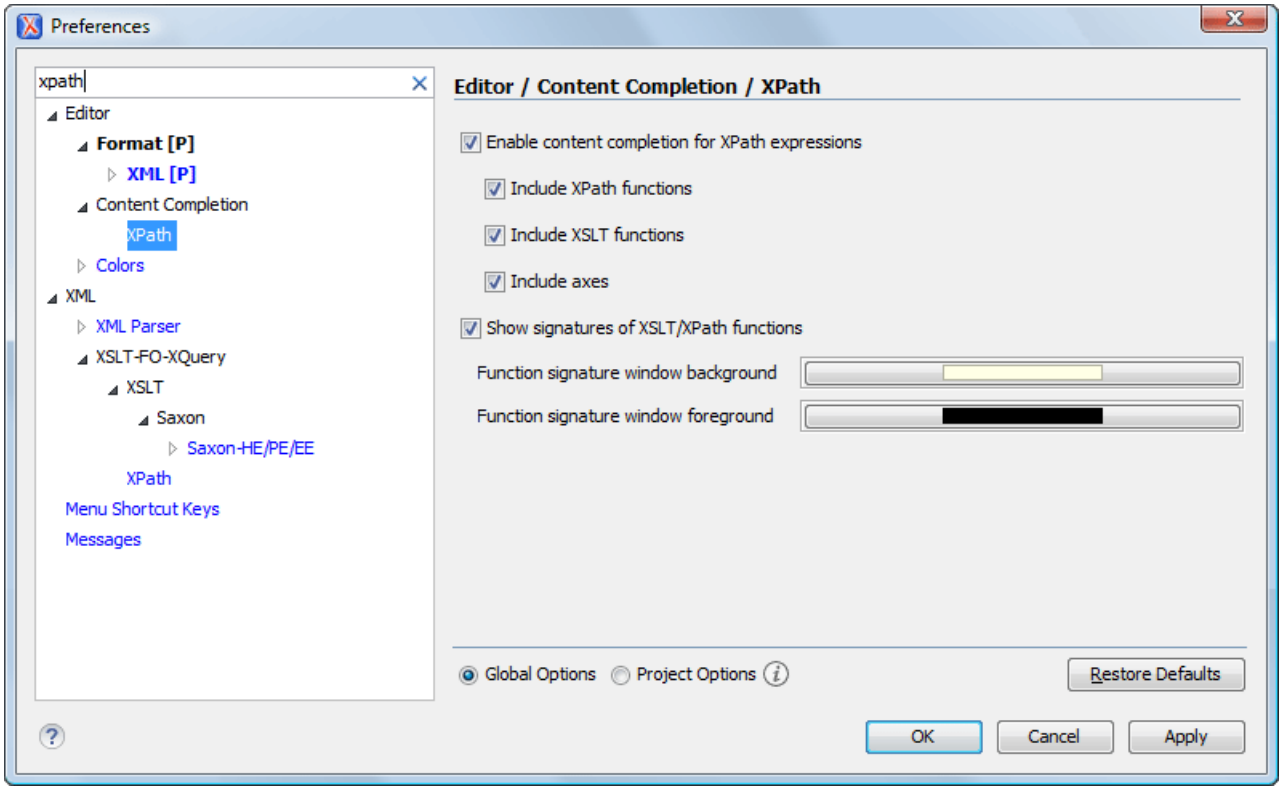


Figure 288: The Search field from the Preferences dialog

You can always revert modifications to their default values by pressing the **Restore Defaults** button, available in each preferences page.

If you don't know how to use a specific preference that is available in any **Preferences** panel or what effect it will have you can open a help page about the current panel at any time pressing the help button located in the left bottom corner of the dialog or pressing the F1 key.

Global options are stored in the following locations:

- [user-home-folder]\Application Data\com.oxygenxml.author for Windows XP

- [user-home-folder]\AppData\Roaming\com.oxygenxml.author for Windows Vista/7
- [user-home-folder]/Library/Preferences/com.oxygenxml.author for Mac OS X
- [user-home-folder]/.com.oxygenxml.author for Linux

Global Preferences

To display the **Global** preferences of Oxygen XML Author, go to **Options** > **Preferences** > **Global**.

The following options are available in the **Global** preferences page:

- **Automatic Version Checking** - checks whether a new version of Oxygen XML Author is available;
- **Language** - allows you to localize the interface and change the language to English, French, German, Dutch, Japanese, or Italian. Restart the application to apply the current selection;
- **Other language** - allows you to set the file (either *properties* or XML) that contains interface messages translated into a different language than the default one; For details about creating this file, go to *Localization of the User Interface*.

  Note: After restarting the application, if some interface labels are not rendered correctly (for example Chinese or Korean characters), install the corresponding language pack from your OS installation kit (for example the East-Asian language pack).

- **Look and Feel** - use this option to change graphic style (look and feel) of the user interface;
- **Styles** - on Windows there are available the following styles:
  - Office 2003
  - Vsnet
  - Eclipse
  - Xerto
  - Default

  Note: After changing the style, 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, you have to restart the application in order for the modification to take effect.

  On Mac OS X this option is not available.

- **Themes** - on Windows this option is enabled only for the **Office 2003** and **Default** styles. In these cases, the following themes are available:
  - normal Color
  - home Stead
  - metallic
  - default
  - gray

  On Linux and Mac OS X this option is not available.

- **Line separator** - this option defines the line separator. The **System Default** choice sets the platform-specific line separator;
- **Detect the line separator on file open** - when this option is checked, the editor detects the line separator when the edited file is loaded and it uses it when the file is saved. The new files are saved using the line separator defined by the **Line separator** option;

- **Default Internet browser** - the path to a web browser of choice, used for:
  - opening (X)HTML or PDF transformation results;
  - opening a web page (for example, pointing to specific paragraphs in the W3C recommendation of XML Schema in case of XML Schema validation errors).
- **Open last edited files from project** - when enabled, Oxygen XML Author opens the last edited files from project at start-up;
- **Beep on operation finished** - Oxygen XML Author emits a short beep when a validate, check well-formedness, or transform action has ended;

  Note: When the validation or the transformation process of a document is successful, the beep signal has a higher audio frequency, as opposed to when the validation fails, and the beep signal has a lower audio frequency. On the Windows platform, for other operations, the default system sound (`Asterisk`) is used . You can configure it by changing the sound theme.

- **Show memory status** -enable this option to view the memory Oxygen XML Author uses. To free memory, click the  **Run Garbage Collector** button located in the bottom right corner of the screen. The memory status bar has a light blue background which turns yellow or red when Oxygen XML Author uses too much memory;
- **Show Java vendor warning at startup** - Sun Microsystems/Oracle Java VM (on Windows and Linux) or Apple Computer Java VM (on Mac OS X) is recommended for running the application. If a different Java Virtual Machine is used, then a warning is displayed. This option allows the user to choose whether the warning dialog is shown or not:
- **Current frameworks directory** - location of the directory that holds default framework-specific files (like templates, schema files and catalogs to name a few). You can change its value using the `com.oxygenxml.editor.frameworks.url` property set either in the Oxygen XML Author *`.vmoptions` configuration files or in the startup scripts*;
- **Check opened files for file system changes** - Oxygen XML Author searches for changes in the source of the currently edited content. In case any differences between the content displayed in the editor and its source are found, you are prompted whether you want to reload the content of the document from the disk. Selecting **Reload** updates the content to match its source. In case you want your content automatically updated every time its source is modified, select **Always reload**.

  Note: Selecting **Always reload** enables **Auto update unmodified editors on file system changes** automatically.

  - **Auto update unmodified editors on file system changes** - Oxygen XML Author updates automatically unmodified editors when the edited file changes externally. By default this option is disabled, meaning that you are prompted to decide if you want Oxygen XML Author to update the file content;

  Note: Check opened files for file system changes and **Auto update unmodified editors on file system changes** influence only DITA documents.

- **Last visited directory** - when selected, the *Open file dialog* memorizes the last visited folder. When used next time, it starts directly in this folder;
- **Directory of the edited file** - the *Open file dialog* starts in the folder where the currently edited file is stored;
- **Show hidden files and directories** - shows system hidden files and folders in the file browser dialog and the folder browser dialog. This setting is not available on Mac OS X.

Add-ons Preferences

To open the **Add-ons** preferences page, go to **Options** > **Menu** > **Preferences** > **Add-ons**. The following options are available in the Add-ons preferences page:

- **enable automatic updates checking** - allows Oxygen XML Author to search for available updates automatically;

- **Update Sites URLs** - this list contains the URLs of the update sites. An update site is an XML descriptor file which stores all the information about an add-on. You can add, edit, and delete URLs in this list.

Fonts Preferences

To open the **Fonts** preferences page, go to **Options** > **Preferences** > **Fonts**.

The following options are available:

- **Editor** - The family and size of the font used for displaying text information in the text editor. This option affects both the Text and Grid mode.

  Note: On Mac OS X, the default font, Monaco, cannot render bold typeface characters.

- **Author default font** - The family and size of the font used for displaying text in the **Author** mode. This value is used as default in case another one is not specified in the CSS file associated with the opened document.
- **Text antialiasing** - Allows you to set text anti-aliasing behavior:
  - **Default** - allows the application to use the setting of the operating system, if available;
  - **On** - sets the text anti-aliasing to pixel level;
  - **Off** - disables text anti-aliasing;
  - sub-pixel anti-aliasing modes, like GASP, LCD_HRGB, LCD_HBGR, LCD_VRGB, and LCD_VBGR.
- **Text components** - The family and size of the font used for displaying text information in text components. After changing the font, restart the application for the change in this setting to take effect.
- **GUI** - The family and size of the font used for displaying user interface labels. After changing the font, restart the application for the change in this setting to take effect.

To edit the fields use the **Choose** and **Reset** buttons available next to each value. The **Choose** button opens a dialog that allows you to configure the **Font family**, the **Font size** and whether the text is rendered bold. A preview window is also available. The **Reset** button restores the setting to their default values.

Document Type Association Preferences

A *document type* or *framework* is associated to an XML file according to a set of rules. It includes also many settings that improve editing in the **Author** mode for the category of XML files it applies for. These settings include:

- a default grammar used for validation and content completion in both **Author** mode and Text mode;
- CSS stylesheet(s) for rendering XML documents in **Author** mode;
- user actions invoked from toolbar or menu in **Author** mode;
- predefined scenarios used for transformation of the class of XML documents defined by the document type;
- XML catalogs;
- directories with file templates;
- user-defined extensions for customizing the interaction with the content author in **Author** mode.

To open the **Document Type Association** preferences page, go to **Options** > **Preferences** > **Document Type Association**.

Oxygen XML Author is highly customizable. Practically you can associate an entire class of documents (grouped logically by some common features like namespace, root element name or filename) to a bundle consisting of CSS stylesheets, validation schemas, catalog files, new files templates, transformation scenarios and even custom actions. The bundle is called *document type* and the association is called *Document Type Association* or, more generically, *framework*.

The following actions are available in this preferences panel:

- **Change framework directory location** - specifies a custom frameworks folder from where Oxygen XML Author loads the document types;

- **Document types table** - presents the currently defined document type associations, ordered by priority and alphabetically. Each row of the table represents a document type association, each holding the following information:
  - **Document type** - name of the document type;
  - **Enabled** - when checked, the corresponding document type association is enabled and analyzed when the application is trying to determine the type of an opened document;
  - **Storage** - displays the type of location where the framework configuration file is stored. Can be one of **External** (framework configuration is saved in a file) or **Internal** (framework configuration is stored in the application's internal options);

    Note: Note that if you set the **Storage** to **Internal** and the document type association settings are already stored in a framework file, the file content is saved in application's internal options and the file is removed.

  - **Priority** - depending on the priority level, Oxygen XML Author establishes the order in which the existing document type associations are evaluated to determine the type of a document you are opening. It can be one of the following: Lowest, Low, Normal, High, Highest. You can set a higher priority to Document Type Associations you want to be evaluated first;

  When expanding a **Document Type Association** its defined rules are presented. A rule is described by:

  - **Namespace** - specifies the namespace of the root element from the association rules set (* *(any)* by default). If you want to apply the rule only when the root element is in no namespace, leave this field empty (remove the **ANY_VALUE** string);
  - **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);
  - **Public ID** - represents the Public ID of the matched document;
  - **Java class** - presents the name of the Java class which is used to determine if a document matches the rule;
- **New** - opens a dialog box that allows you to add a new association;
- **Edit** - opens a new dialog allowing you to edit an existing association;

  Note: If you try to edit an existing association type when you have no write permissions to its store location, a dialog box will be shown, asking if you want to duplicate the document type.

- **Delete** - deletes the selected associations;
- **Enable DTD/XML Schema processing in document type detection** - when this option is enabled, the matching process also examines the DTD/XML Schema associated with the document. For example, the fixed attributes declared in the DTD for the root element are also analyzed, if this is specified in the association rules.

  This is especially useful if you are writing DITA customizations. DITA topics and maps are also matched by looking for the `DITAArchVersion` attribute of the root element. This attribute is specified as `default` in the DTD and it is detected in the root element, helping Oxygen XML Author to correctly match the DITA customization.

  This option is enabled by default;
- **Only for local DTD's / XML Schemas** - when the previous feature is enabled, you can choose with this option to process only the local DTD's / XML Schemas.

  This option is enabled by default.
- **Enable DTD/XML Schema caching** - when this option is enabled the associated DTDs or XML Schema are cached when parsed for the first time, improving performance when opening new documents with similar schema associations.

  This option is enabled by default.

Locations Preferences

The **Locations** preferences page allows you to specify the location from which the frameworks used in Oxygen XML Author are loaded. You can choose between `OXYGEN_INSTALLATION_FOLDER/frameworks`, or a custom directory. You are also allowed to specify additional frameworks directories. The frameworks are loaded from the current

framework directory, from add-ons, and from the additional frameworks directories. The priority of the frameworks is internal frameworks, followed by additional ones and external frameworks.

The Document Type Dialog

This dialog allows you to create or edit a *Document Type Association*. The following fields are available in this dialog:

- **Name** - the name of the *Document Type Association*;
- **Priority** - depending on the priority level, Oxygen XML Author establishes the order in which the existing document type associations are evaluated to determine the type of a document you are opening. It can be one of the following: Lowest, Low, Normal, High, Highest. You can set a higher priority to Document Type Associations you want to be evaluated first;
- **Description** - a detailed description of the framework;
- **Storage** - displays the type of location where the framework configuration file is stored. Can be one of **External** (framework configuration is saved in a file) or **Internal** (framework configuration is stored in the application's internal options);

  Note: Note that if you set the **Storage** to **Internal** and the document type association settings are already stored in a framework file, the file content is saved in application's internal options and the file is removed.

- **Initial edit mode** - sets the default edit mode when you open a document for the first time;

You are able to configure the options of each *framework* in the following tabs:

- ***Association rules***;
- ***Schema***;
- ***Classpath***;
- ***Author***;
- ***Templates***;
- ***Catalogs***;
- ***Transformation***;
- ***Validation***;
- ***Extensions***.

The Association Rules Tab

By combining multiple association rules you can instruct Oxygen XML Author to identify the type of a document. An Oxygen XML Author *association rule* holds information about *Namespace*, *Root local name*, *File name*, *Public ID*, *Attribute*, and *Java class*. Oxygen XML Author identifies the type of a document when the document matches at least one of the *association rules*. Using the **Document type rule** dialog, you can create *association rules* that activate on any document matching all the criteria in the dialog.

In the **Association rules** tab you can perform the following actions:

-  **New** - opens the **document type rule** dialog allowing you to create *association rules*;
-  **Edit** - opens the **document type rule** dialog allowing you to edit the properties of the currently selected *association rule*;
-  **Delete** - deletes the currently selected *association rules*;
-  **Move Up** - moves the selection to the previous *association rule*;
-  **Move Down** - moves the selection to the following *association rule*.

The Schema Tab

In the **Schema** tab you can specify a schema that Oxygen XML Author uses in case an XML document does not contain a schema declaration and no default validation scenario is associated with it.

To set the **Schema URL**, use *editor variables* to specify the path to the Schema file.

Note: It is a good practice to store all resources in the framework directory and use the `${framework}` editor variable to refer them. This is a recommended approach to designing a self-contained document type that can be easily maintained and shared between different users.

The Classpath Tab

The **Classpath** tab displays a list of folders and JAR libraries that hold implementations for API extensions, implementations for custom Author operations, different resources (such as stylesheets), and framework translation files. Oxygen XML Author loads the resources looking in the folders in the order they appear in the list.

In the **Classpath** tab you can perform the following actions:

- **New** - opens a dialog that allows you to add a resource in the **Classpath** tab;
- **Edit** - opens a dialog that allows you to edit a resource in the **Classpath** tab;
- **Delete** - deletes the currently selected resource;
- **Move Up** - moves the selection to the previous resource;
- **Move Down** - moves the selection to the following resource.

The ***Use parent classloader from plugin with ID*** specifies the ID of a plugin. The current framework has access to the classes loaded for the plugin.

The Author Tab

The **Author** tab is a container that holds information regarding the CSS file used to render a document in the **Author** mode, and regarding framework-specific actions, menus, contextual menu, toolbar and content completion list of proposals.

The options that you configure in the **Author** tab are grouped in the following sub-tabs:

- ***CSS***;
- ***Actions***;
- ***Menu***;
- ***Contextual menu***;
- ***Toolbar***;
- ***Content Completion***.

CSS

The **CSS** sub-tab contains the CSS files that Oxygen XML Author uses to render a document in the **Author** mode. In this sub-tab, you set alternate CSS files. When you are editing a document in the **Author** mode, you are able to switch between these CSS files from the **Author CSS Alternatives** toolbar.

The following actions are available in the **CSS** sub-tab:

- **New** - opens a dialog that allows you to add a CSS file;
- **Edit** - opens a dialog that allows you to edit a CSS file;
- **Delete** - deletes the currently selected CSS file;
- **Move Up** - moves the selection to the previous CSS file;
- **Move Down** - moves the selection to the following CSS file;
- **ignore CSSs from the associated document type** - the CSS files set in the CSS tab are overwritten by the CSS files specified in the document itself;
- **merge them with CSSs from the associated document type** - the CSS files set in the CSS tab are merged with the CSS files specified in the document itself.

Actions

The **Actions** sub-tab holds the framework specific actions. Each action has an unique ID, a name, a description, and a shortcut key.

The following actions are available in this sub-tab:

- **New** - opens *the **Action** dialog* that allows you to add an action;
- **Duplicate** - duplicates the currently selected action.
- **Edit** - opens a dialog that allows you to edit an existing action;
- **Delete** - deletes the currently selected action;

The Action Dialog

The **Action** dialog allows you to edit an existing document type action or create one. To open this dialog, go to **Option** > **Preferences** > **Document Type Association**, select a document type, and click **Edit** or **New**. The **Document type** dialog is presented. In this dialog go to the **Author** tab, click **Actions**, select an action, and click **Edit** or **New**.

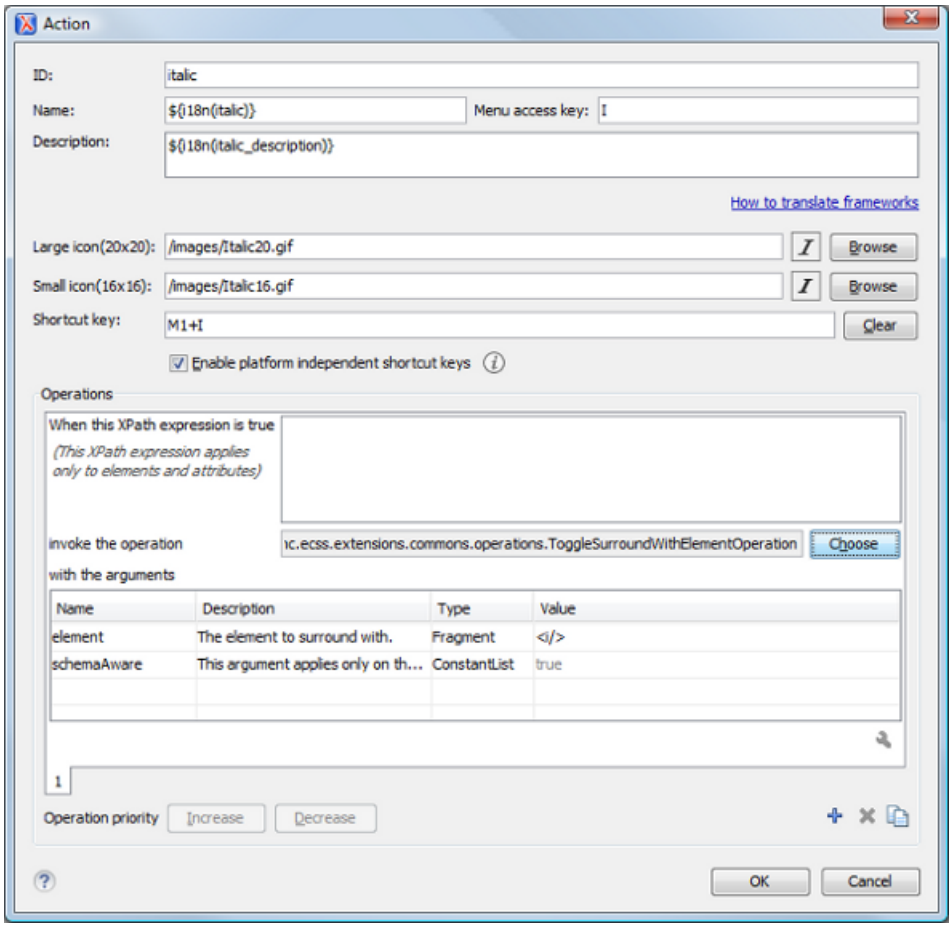


Figure 289: The Action Dialog

The following options are available:

- **ID** - specifies a unique action identifier;
- **Name** - specifies the name of the action. This name is displayed as a tooltip or as a menu item;
- **Menu access key** - on Windows, the menu items are accessed using the **Alt + "Letter"** shortcut, when the menu is visible. The letter is visually represented by underlining the first letter from the menu item name having the same value;
- **Description** - a description of the action;
- **Large icon** - select an image that Oxygen XML Author uses for the toolbar action.

Note: A good practice is to store the image files inside the framework directory and use the `${frameworks}`editor variable to make the image relative to the framework location. In case the images are bundled in a *jar* archive, together with some Java operations implementation for instance, it is convenient to refer the images by their relative path location in the *class-path*.

- **Small icon** - select an image that Oxygen XML Author uses for the contextual menu icon;
- **Shortcut key** - this field allows you to configure a shortcut key for the action you are editing. The **+** character separates the keys. The shortcut you are specifying in this field is platform-independent. The following modifiers are used:
  - `M1` represents the **Command** key on MacOS X, and the **Ctrl** key on other platforms;
  - `M2` represents the **Shift** key;
  - `M3` represents the **Option** key on MacOS X, and the **Alt** key on other platforms;
  - `M4` represents the **Ctrl** key on MacOS X, and is undefined on other platforms.
- **Operations**

  In this section of the **Action** dialog you are configuring the functionality of the action you are editing. An action has one or mode operation modes. The evaluation of an XPath expression activates an operation mode. The first enabled operation mode is activated when you trigger the action. The scope of the XPath expression must consist only of element nodes and attribute nodes of the edited document. Otherwise, the XPath expression does not return a match and does not fire the action.

  The following options are available in this section:

  - **When this XPath expression is true** - an XPath expression that applies to elements and attributes;

    Note: Oxygen XML Author provides two XPath extension functions: *the `oxy:allows-child-element()` function* that you can use to check whether an element is valid in the current context, considering the associated schema and *the `oxy:current-selected-element()` function* that you can use to get the currently selected element.

  - **invoke the operation** - specifies the invoked operation;
  - **with the arguments** - specifies the arguments of the invoked operation;
  - **Edit** - allows you to edit the arguments of the operation.
- **Operation priority** - increases or decreases the priority of an operation. The operations are invoked in the order of their priority. In case more than one XPath expression is true, the operation with the highest priority is invoked;
- **Add** - adds an operation;
- **Remove** - removes an operation;
- **Duplicate** - duplicates an operation.

The `oxy:allows-child-element()` Function

This extension function allows author actions to be available in a context only if the associated schema permits it.

The oxy:allows-child-element() is evaluated at the caret position and has the following signature: `oxy:allows-child-element($childName, ($attributeName, $defaultAttributeValue, $contains?)?)`.

The following parameters are supported:

`childName`

the name of the element that you want to check whether it is valid in the current context. Its value is a string that supports the following forms:

- the child element with the specified local name that belongs to the default namespace.

  ```
  oxy:allows-child-element("para")
  ```

  The above example verifies if the para element (of the default namespace) is allowed in the current context.
- the child element with the local name specified by any namespace.

  ```
  oxy:allows-child-element("*:para")
  ```

  The above example verifies if the para element (of any namespace) is allowed in the current context.
- a qualified name of an element.

  ```
  oxy:allows-child-element("prefix:para")
  ```

The prefix is resolved in the context of the element where the caret is located. The function matches on the element with the para local name from the previous resolved namespace. In case the prefix is not resolved to a namespace, the function returns `false`.

- any element.

```
oxy:allows-child-element("*")
```

The above function verifies if any element is allowed in the current context.

Note: A common use case of `oxy:allows-child-element("*")` is in combination with the `attributeName` parameter.

`attributeName`

the attribute of an element that you want to check whether it is valid in the current context. Its value is a string that supports the following forms:

- the attribute with the specified name from no namespace.

```
oxy:allows-child-element("*", "class", " topic/topic ")
```

The above example verifies if an element with the `class` attribute and the default value of this attribute (that contains the `topic/topic` string) is allowed in the current context.

- the attribute with the local name specified by any namespace.

```
oxy:allows-child-element("*", "*:localname", " topic/topic ")
```

- a qualified name of an attribute.

```
oxy:allows-child-element("*", "prefix:localname", " topic/topic ")
```

The prefix is resolved in the context of the element where the caret is located. In case the prefix is not resolved to a namespace, the function returns `false`.

`defaultAttributeValue`

a string that represents the default value of the attribute. Depending on the value of the next parameter the default value of the attribute must either contain this value or be equal with it.

`contains`

an optional boolean. The default value is `true`. For the `true` value, the default value of the attribute must contain the `defaultAttributeValue` parameter. In case the value is `false`, the two values must be the same.

The `oxy:current-selected-element()` Function

This function returns the fully selected element. In case no element is selected, the function returns an empty sequence.

```
oxy:current-selected-element()[self::p]/b
```

This example returns the `b` elements that are children of the currently selected `p` element.

Menu

In the **Menu** sub-tab you configure what *framework* specific actions appear in the Oxygen XML Author menu. The sub-tab is divided in two sections: **Available actions** and **Current actions**.

The **Available actions** section presents a table that displays the actions defined in the **Actions** sub-tab, along with their icon, ID, and name. The **Current actions** section holds the actions that are displayed in the Oxygen XML Author menu. To add an action in this section as a sibling of the currently selected action, use the **Add as sibling** button. To add an image in this section as a child of the currently selected action use the **Add as child** button.

The following actions are available in the **Current actions** section:

- **Edit** - edits an item;
- **Remove** - removes an item;
- **Move Up** - moves an item up;
- **Move Down** - moves an item down.

Contextual menu

In the **Contextual menu** sub-tab you configure what framework-specific action the **Content Completion Assistant** proposes. The sub-tab is divided in two sections: **Available actions** and **Current actions**.

The **Available actions** section presents a table that displays the actions defined in the **Actions** sub-tab, along with their icon, ID, and name. The **Current actions** section holds the actions that are displayed in the contextual menu of a document belonging to the edited framework. To add an action in this section as a sibling of the currently selected action, use the **Add as sibling** button. To add an action in this section as a child of the currently selected action use the **Add as child** button.

The following actions are available in the **Current actions** section:

- **Edit** - edits an item;
- **Remove** - removes an item;
- **Move Up** - moves an item up;
- **Move Down** - moves an item down.

Toolbar

In the **Toolbar** sub-tab you configure what framework-specific action the Oxygen XML Author toolbar holds. The sub-tab is divided in two sections: **Available actions** and **Current actions**.

The **Available actions** section presents a table that displays the actions defined in the **Actions** sub-tab, along with their icon, ID, and name. The **Current actions** section holds the actions that are displayed in the Oxygen XML Author toolbar when you work with a document belonging to the edited framework. To add an action in this section as a sibling of the currently selected action, use the **Add as sibling** button. To add an action in this section as a child of the currently selected action use the **Add as child** button.

The following actions are available in the **Current actions** section:

- **Edit** - edits an item;
- **Remove** - removes an item;
- **Move Up** - moves an item up;
- **Move Down** - moves an item down.

Content Completion

In the **Content Completion** sub-tab you configure what framework-specific the **Content Completion Assistant** proposes. The sub-tab is divided in two sections: **Available actions** and **Current actions**.

The **Available actions** section presents a table that displays the actions defined in the **Actions** sub-tab, along with their icon, ID, and name. The **Current actions** section holds the actions that the **Content Completion Assistant** proposes when you work with a document belonging to the edited framework. To add an action in this section as a sibling of the currently selected action, use the **Add as sibling** button. To add an action in this section as a child of the currently selected action use the **Add as child** button.

The following actions are available in the **Current actions** section:

- **Edit** - edits an item;
- **Remove** - removes an item;
- **Move Up** - moves an item up;
- **Move Down** - moves an item down.

The Templates Tab

The **Templates** tab specifies a list of directories in which new file templates are located. These file templates are gathered from all the document types and presented in the **New** dialog wizard.

The Catalogs Tab

The **Catalogs** tab specifies a list of *XML catalogs* which are added to all the catalogs that Oxygen XML Author uses to resolve resources.

The Transformation Tab

In the **Transformation** tab you configure the transformation scenarios associated with the framework you are editing. These are the transformation scenarios that are presented in the **Configure Transformation Scenarios** dialog as associated with the type of the edited document.

You can set one or more of the scenarios from the **Transformation** tab as default. The scenarios set here as default are rendered bold in the **Configure Transformation Scenarios** dialog and are also displayed on the tooltip of the **Apply transformation Scenario(s)**.

The **Transformation** tab offers the following options:

- **New** - opens the **document type rule** dialog allowing you to create *association rules*;
- **Edit** - opens the **document type rule** dialog allowing you to edit the properties of the currently selected *association rule*;
- **Delete** - deletes the currently selected *association rules*;
- **Import scenarios** - imports transformation scenarios;
- **Export selected scenarios** - export transformation scenarios;
- **Move Up** - moves the selection to the previous *association rule*;
- **Move Down** - moves the selection to the following *association rule*.

The Validation Tab

In the **Validation** tab you configure the validation scenarios associated with the framework you are editing. These are the validation scenarios that are presented in the **Configure Validation Scenarios** dialog as associated with the type of the edited document.

You can set one or more of the scenarios from the **Validation** tab as default. The scenarios set here as default are rendered bold in the **Configure Transformation Scenarios** dialog and are also displayed on the tooltip of the **Apply transformation Scenario(s)** button.

The **Validation** tab offers the following options:

- **New** - opens the **document type rule** dialog allowing you to create *association rules*;
- **Edit** - opens the **document type rule** dialog allowing you to edit the properties of the currently selected *association rule*;
- **Delete** - deletes the currently selected *association rules*;
- **Import scenarios** - imports transformation scenarios;
- **Export selected scenarios** - export transformation scenarios;
- **Move Up** - moves the selection to the previous *association rule*;
- **Move Down** - moves the selection to the following *association rule*.

The Extensions Tab

The **Extension** tab specifies implementations of Java interfaces used to provide advanced functionality to the document type.

Libraries containing the implementations must be present in the *classpath* of your document type. The Javadoc available at *http://www.oxygenxml.com/InstData/Editor/SDK/javadoc/* contains details about how each API implementation functions.

Document Type Sharing

Oxygen XML Author allows you to share the customizations for a specific XML type by creating your own *Document Type* in the **Document Type Association** preferences page.

A document type can be shared between authors as follows:

- Save it externally in a separate framework folder in the `OXYGEN_INSTALL_DIR/frameworks` directory.

  Important: For this approach to work, have the application installed to a folder with full write access.

  Please follow these steps:

  1. Go to `OXYGEN_INSTALL_DIR/frameworks` and create a directory for your new framework (name it for example `custom_framework`). This directory will contain resources for your framework (CSS files, new file templates, schemas used for validation, catalogs). See the **Docbook** framework structure from the `OXYGEN_INSTALL_DIR/frameworks/docbook` as an example.
  2. Create your custom document type and save it externally, in the `custom_framework` directory.
  3. Configure the custom document type according to your needs, take special care to make all file references relative to the `OXYGEN_INSTALL_DIR/frameworks` directory by using the `${frameworks}` editor variable. The *Author Developer Guide* contains all details necessary for creating and configuring a new document type.
  4. If everything went fine then you should have a new configuration file saved in: `OXYGEN_INSTALL_DIR/frameworks/custom_framework/custom.framework` after the Preferences are saved.
  5. Then, to share the new framework directory with other users, have them copy it to their `OXYGEN_INSTALL_DIR/frameworks` directory. The new document type will be available in the list of Document Types when Oxygen XML Author starts.

     Note: In case you have a `frameworks` directory stored on your local drive, you can also go to the **Document Type Association** > **Locations** preferences page and add your `frameworks` directory in the **Additional frameworks directories** list.

- Save the document type at project level in the **Document Type Association** preferences page.

  Please see the following steps:

  1. On your local drive, create a directory with full write access, containing the Oxygen XML Author project file and associated document type resources (CSS files, new file templates, schemas used for validation, catalogs).
  2. Start Oxygen XML Author, go to the ***Project** view* and create a project. Save it in the newly created directory.
  3. In the **Document Type Association** preferences page, select **Project Options** at the bottom of the page.
  4. Create your custom document type using the default **internal** storage for it. It will actually be saved in the previously chosen Oxygen XML Author project `.xpr` file.
  5. Configure the custom document type according to your needs, take special care to make all file references relative to the project directory by using the `${pd}` editor variable. The *Author Developer Guide* contains all details necessary for creating and configuring a new document type.
  6. You can then share the new project directory with other users. When they open the customized project file in the ***Project** view*, the new document type becomes available in the list of Document Types.

- Deploy your document type configuration *as an add-on*.

Deploying Plugins or Frameworks as Add-ons

To deploy a plugin or a framework as an Oxygen XML Author add-on:

- Pack it as a `ZIP` file or a *JAR*. Please note that you should pack the entire root directory not just it's contents;
- Digitally sign the package. Please note that you can perform this step only if you have created a *JAR* at the previous step. You will need a certificate signed by a trusted authority. To sign the jar you can either use the `jarsigner` command line tool inside Oracle's Java Development Kit. (`'JDK_install_dir'/bin/jarsigner.exe`) or,

if you are working with *Ant*, you can use the `signjar` task (which is just a front for the `jarsigner` command line tool);

Note: The benefit of having a signed add-on is that the user can verify the integrity of the add-on issuer. If you don't have such a certificate you can generate one yourself using the keytool command line tool. Please note that this approach is mostly recommended for tests since anyone can create a self signed certificate.

- Create a descriptor file. You can use a template that Oxygen XML Author provides. To use this template, go to **File** > **New** and select the **Oxygen add-ons update site** template;
- Copy the `ZIP` file and the descriptor file to an HTTP server. The URL to this location serves as the **Update Site** URL.

Localizing Frameworks

Oxygen XML Author supports framework localization (translating framework actions, buttons, and menu entries to different languages). This lets you develop and distribute a framework to users that speak different languages without changing the distributed framework. Changing the language used in Oxygen XML Author (in **Options** > **Preferences** > **Global** > **Language** Global preferences page) is enough to set the right language for each framework.

To localize the content of a framework, create a `translation.xml` file which contains all the translation (key, value) mappings. The `translation.xml` has the following format:

```
<translation>
    <languageList>
        <language description="English" lang="en_US"/>
        <language description="German" lang="de_DE"/>
        <language description="French" lang="fr_FR"/>
    </languageList>
    <key value="list">
        <comment>List menu item name.</comment>
        <val lang="en_US">List</val>
        <val lang="de_DE">Liste</val>
        <val lang="fr_FR">Liste</val>
    </key>
.....................
</translation>
```

Oxygen XML Author matches the GUI language with the language set in the `translation.xml` file. In case this language is not found, the first available language declared in the `languagelist` tag for the corresponding framework is used.

Add the directory where this file is located to the **Classpath** list corresponding to the edited document type.

After you create this file, you are able to use the keys defined in it to customize the name and description of:

- framework actions;
- menu entries;
- contextual menus;
- toolbar;
- static CSS content.

For example, if you want to localize the bold action go to **Options** > **Preferences** > **Document Type Association**. Open the **Document type** dialog, go to **Author** > **Actions**, and rename the bold action to `${i18n(translation_key)}`. Actions with a name format different than `${i18n(translation_key)}` are not localized. `Translation_key` corresponds to the key from the translation.xml file.

Now open the `translation.xml` file and edit the translation entry if it exists or create one if it does not exist. This example presents an entry in the translation.xml file:

```
<key value="translation_key">
        <comment>Bold action name.</comment>
        <val lang="en_US">Bold</val>
        <val lang="de_DE">Bold</val>
        <val lang="fr_FR">Bold</val>
    </key>
```

To use a description from the `translation.xml` file in the Java code used by your custom framework, use the new `ro.sync.ecss.extensions.api.AuthorAccess.getAuthorResourceBundle()` API method to

request for a certain key the associated value. In this way all the dialogs that you present from your custom operations can have labels translated in different languages.

You can also refer a key directly in the CSS content:

```
title:before{
    content:"${i18n(title.key)} : ";
}
```

Note: You can enter any language you want in the `languagelist` tag and any number of keys.

The `translation.xml` file for the DocBook framework is located here:`[OXYGEN_INSTALL_DIR]/frameworks/docbook/i18n/translation.xml`. In the **Classpath** list corresponding to the Docbook document type the following entry was added: `${framework}/i18n/`.

In **Options** > **Preferences** > **Document Type Association** > **Author** > **Actions**, you can see how the DocBook actions are defined to use these keys for their name and description. If you look in the Java class `ro.sync.ecss.extensions.docbook.table.SADocbookTableCustomizerDialog` available in the Author SDK, you can see how the new `ro.sync.ecss.extensions.api.AuthorResourceBundle` API is used to retrieve localized descriptions for different keys.

Perspectives Layout Preferences

Oxygen XML Author offers many helper views that you can arrange in different layouts to match your needs. Use the **Perspectives Layout** preferences page to configure your preferred layout.

To open this preferences page, go to **Options** > **Preferences** > **Perspectives Layout**. The following options are available:

- **Select application layout**
  - **Default** - indicates that Oxygen XML Author uses the default layout for all its perspectives. Any modification of this layout (for instance closing / displaying views or a new view arrangement) is saved on exit and reloaded at start-up;
  - • **Predefined** - Oxygen XML Author has several predefined layouts to choose from, depending on the type of work you intend to do:
    - **Advanced** - all views are visible;
    - **Author** - authoring-oriented layout, displaying the **Project**, **Archive Browser**, **DITA Maps Manager**, **Outline**, **Attributes**, **Model**, and **Elements** views;
    - **Basic** - only the **Project** view and the **Outline** view are visible. Recommended when you edit XML content and you need maximum screen space;
    - **Intermediate** - the **Project**, **Outline**, **Attributes**, **Model**, **Elements**, **Entities**, and **Transformation Scenarios** views are visible;
    - **Schema development** - the **Project**, **Component Dependencies**, **Resource Hierarchy/Dependencies**, **Outline**, **Palette**, and **Attributes** views are visible;
    - **XQuery development** - the **Project**, **Outline**, **Transformation Scenarios**, **XSLT/XQuery input** views are visible;
    - **XSLT development** - the **Project**, **Component Dependencies**, **Resource Hierarchy/Dependencies**, **Outline**, **Attributes**, **Model**, **XSLT/XQuery input**, **XPath Builder**, and **Transformation Scenarios** views are visible.
  - **Custom** - allows you to choose a previously saved layout file;

    Note: In order to create a layout file, you can arrange the views in the desired order and then save the layout by invoking the **Window** > **Save layout ...** action.

- **Reset layout at stratup** - enable this option to erase the changes made to the layout between sessions. This is useful when you want to keep a fixed layout from one section to another;
- **Remember layout changes for each project** - specifies whether the Oxygen XML Author layout configuration is saved individually for each project. When you enable this option, a different layout file is created for each project in the options folder. Switching from the current project to another one also loads the layout associated with the latter.

- **Allow detaching editors from main window** - this option allows you to drag and drop an editor window outside of the main screen. This is useful especially when you are using two monitors and you want to view files in parallel;

  Note: In case the main screen is maximized, you can not drag and drop an editor outside of it.

- **View tab placement** - specifies whether the View tab is presented at the top or bottom of the window;
- **Editor tab placement** - specifies whether the Editor tab is presented at the top or bottom of the window.

The changes you make to any layout are preserved between working sessions. Also, changing to a different layout and returning to the previous one does not alter the changes you made to the first layout. The predefined *layout* files are saved in the `preferences` directory of Oxygen XML Author.

Encoding Preferences

To open the **Encoding** preferences page, go to **Options** > **Preferences** > **Encoding**. The following encoding preferences are available:

- **Encoding for non XML files** - specifies the default encoding the Oxygen XML Author uses to open non XML documents. This is necessary because non XML files have a large variety of formats and there is no standard mechanism for declaring the encoding that should be used for opening and saving the file. In case of XML files, the encoding is declared at the beginning of the file in a special declaration element or it is assumed to be the default value, which is UTF-8;
- **UTF-8 BOM handling** - specifies how to handle the *Byte Order Mark* (BOM) when Oxygen XML Author saves an UTF-8 XML document:
  - **Don't Write** - do not save the BOM bytes. Loaded BOM bytes are ignored;
  - **Write** - save the BOM bytes;
  - **Keep** - do not alter the BOM declaration of the currently open file. This is the default option.

  Note: The UTF-16 BOM is always preserved. UTF-32 documents have a *big-endian* byte order.

- **Encoding errors handling** - 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** - displays an error dialog box with the character that cannot be represented in the specified encoding. Unrecognized characters are rendered as an empty box. This is the default option;
  - **IGNORE** - the character is ignored and it is not included in the document displayed in the editor panel;

    Attention: If you edit and save the document, the characters that cannot be represented in the specified encoding are dropped.

  - **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 replacement character code is 63.

Note: The default encoding for RNC files is considered UTF-8.

Editor Preferences

To open the **Editor** preferences page, go to **Options** > **Preferences** > **Editor**.

Use these options to configure the visual aspect of the text editor.

The following options are available:

- **Selection background color** - Background color of selected text.
- **Selection foreground color** - Text color of selected text.
- **Completion proposal background** - Background color of the content completion assistant window.
- **Completion proposal foreground** - Foreground color of the content completion assistant window.
- **Documentation window background** - Background color of the window containing documentation for the elements suggested by the content completion assistant.
- **Documentation window foreground** - Foreground color for the window containing documentation for the elements suggested by the content completion assistant.
- **Find highlight color** - Color of the highlights generated by the **Find** and **Find all** actions.
- **XPath highlight color** - Color of the highlights generated when you run an XPath expression.
- **Maximum number of highlights** - The maximum number of highlights that Oxygen XML Author displays.
- **Show TAB/NBSP/EOL/EOF marks** - Marks the *TAB*/*NBSP*/*EOL*/*EOF* characters using small icons, for a better visualization of the document. Also sets the marks color.
  - **Show SPACE marks** - marks each space with a light grey dot.

    Note: You can change the color of the dots from the colors palette of the **Show TAB/NBSP/EOL/EOF marks** option.

- **Can edit read only files** - Read-only files are marked in Oxygen XML Author using a lock icon on the file tab. If this option is checked, you are able to modify a read-only file, but you cannot overwrite it when trying to save the file. If unchecked, any modification to the content is prohibited.
- **Indent with tabs** - When checked, sets the indent size to a *tab* unit. When unchecked, the application uses space characters to form an indent. The number of space characters that form a *tab* is defined by the **Indent size** option.
- **Undo history size** - Sets the maximum amount of undo operations you can perform in either of the editor modes (Text, Author, Design, Grid).

Print Preferences

To open the **Print** preferences page, go to **Options** > **Preferences** > **Editor** > **Print** . This page allows you to customize the information printed on the header and footer of a page. These settings do not apply to the **Grid** and **Schema Diagram** modes.

You can customize the information printed in the one-row header and footer of a page. The following options are available:

- **Left**, **Middle** and **Right** area of the header and footer. Here you can write a pattern of the text printed in the header and footer of the page. You can use the following editor variables to write the text pattern:
  - **${currentFileURL}** - Current file as URL, that is the absolute file path of the current edited document represented as URL;
  - **${cfne}** - Current file name with extension. The current file is the one currently opened and selected;
  - **${cp}** - Current page number. Used to display the current page number on each printed page in the **Editor / Print** Preferences page;
  - **${tp}** - Total number of pages in the document. Used to display the total number of pages on each printed page in the **Editor / Print** Preferences page.
  - **${env(VAR_NAME)}** - Value of the *VAR_NAME* environment variable. The environment variables are managed by the operating system. If you are looking for Java System Properties, use the **${system(var.name)}** editor variable;

- **${system(var.name)}** - Value of the *var.name* Java System Property. The Java system properties can be specified in the command line arguments of the Java runtime as `-Dvar.name=var.value`. If you are looking for operating system environment variables, use the**${env(VAR_NAME)}** editor variable instead;
- **${date(pattern)}** - Current date. The allowed patterns are equivalent to the ones in the *Java SimpleDateFormat class*. Example: yyyy-MM-dd;

  Note: This editor variable supports both the xs:date and xs:datetime parameters. For details about xs:date, go to *http://www.w3.org/TR/xmlschema-2/#date*. For details about xs:datetime, go to *http://www.w3.org/TR/xmlschema-2/#dateTime*.

Note: As an example, to show the current page number against the total number of pages in the top right corner of the page, write the following pattern in the **Right** text area of the **Header** section: `${cp} from ${tp}`.

- **Color** - Text color.
- **Font** - Font type. Default is `SansSerif`.

  To edit this fields use the **Choose** and **Reset** buttons. The **Choose** button opens a dialog that allows you to configure the **Font family**, the **Font size** and whether the text is rendered bold. A preview window is also available. The **Reset** button restores the setting to their default values.

- **Underline/Overline** - When selected, a separator line is drawn between the header/footer and the page content.

Edit modes Preferences

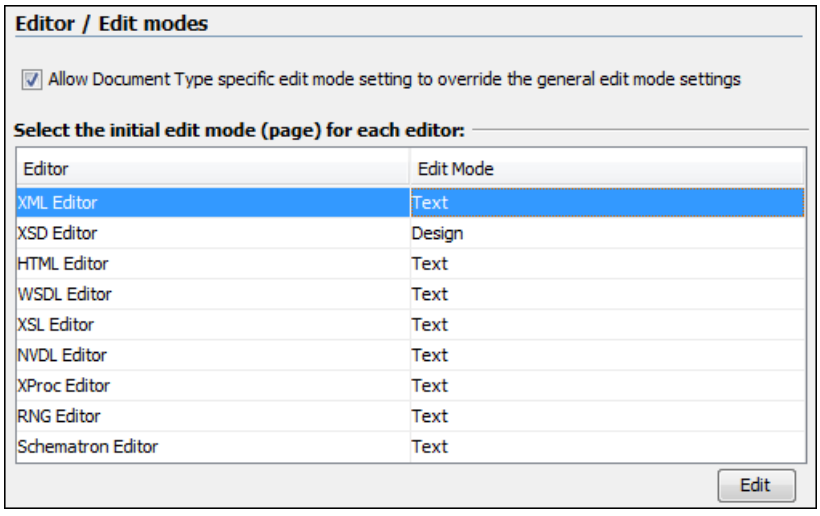
The **Edit modes** preferences page allows you to select the initial edit mode of an editor. The previous editing mode is saved and used at start-up. To open the **Edit modes** preferences page, go to **Options** > **Preferences** > **Editor** > **Edit modes** .

If the checkbox **Allow Document Type specific edit mode setting to override the general mode setting** is enabled, the initial edit mode setting set in *the Document Type dialog* overrides the general edit mode setting from the table below.

The initial edit mode of each editor type has one of the following values:

- Text;
- Author;
- Grid;
- Design (available only for the W3C XML Schema editor).

The Oxygen XML Author “Edit modes” Preferences Page



Text Preferences

To open the Text preferences page, go to **Options** > **Preferences** > **Editor** > **Edit modes** > **Text** .

The following preferences are available:

- **Editor background color** - Background color of the **Text** editing mode, **Diff Files** editors and **Outline** view.
- **Editor caret color** - Customize the caret color.
- **Highlight current line** - Foreground color of the line numbers displayed in the editor panels.
- **Show line numbers** - Enables the line numbers stripe in the editor panels and in the **Results** view of the Debugger perspective.
- **Show print margin** - In conjunction with the **Print margin column** option, allows you to set a safe print limit in the form of a vertical line displayed in the right side of the editor pane. You can also customize the print margin line color.
  - **Print margin column** - Safe print limit width measured in characters.
- **Line wrap** - Enables *soft wrap* of long lines, that is automatically wrap lines in edited documents. The document content is unaltered as the application does not use newline characters to break long lines.

  Note: When you enable the **Line wrap** option, Oxygen XML Author disables the **Highlight current line** option.

- **Cut / Copy whole line when nothing is selected** - Enables the *Cut* and *Copy* actions when nothing is selected in the editor. In this case the *Cut* and *Copy* actions operate on the entire current line.
- **Enable folding** - Displays the vertical stripe that holds the *folding markers*.
- **Display quick assist notification icon** - Displays the yellow bulb icon in the editor line number stripe.
- **Highlight matching tag** - If you place the cursor on a start or end tag, Oxygen XML Author highlights the corresponding member of the pair. You can also customize the highlight color.
- **Lock the XML tags** - Default tag locking state of the opened editors. For more information, see the *Locking and Unlocking XML markup* section.

Grid Preferences

To open the **Grid** preferences page, go to **Options** > **Preferences** > **Editor** > **Edit modes** > **Grid**.

The following preferences are available:

- **Compact representation** - If checked, a more *compact representation* of the grid is used: a child element is displayed at the same height level with the parent element.

  Note: In the *non-compact representation*, a child element is presented nested with one level in the parent container, one row lower than the parent.

- **Format and indent when passing from grid to text or on save** - The content of the document is formatted by applying the *Format and Indent* action on every switch from the **Grid** editor to the **Text** editor of the same document.
- **Default column width (characters)** - The default width in characters of a table column of the grid. A column can hold:
  - element names;
  - element text content;
  - attribute names;
  - attribute values.

  If the total width of the grid structure is too large you can resize any column by dragging the column margins with the mouse pointer, but the change is not persistent. To make it persistent, set the new column width with this option.
- **Active cell color** - Background color for the active cell of the grid. There is only one active cell at a time. The keyboard input always goes to the active cell and the selection always contains it.
- **Selection color** - Background color for the selected cells of the grid except the active cell.
- **Border color** - The color used for the lines that separate the grid cells.

- **Background color** - The background color of grid cells that are not selected.
- **Foreground color** - The text color of the information displayed in the grid cells.
- **Row header colors - Background color** - The background color of row headers that are not selected.
- **Row header colors - Active cell color** - The background color of the row header cell that is currently active.
- **Row header colors - Selection color** - The background color of the header cells corresponding to the currently selected rows.
- **Column header colors - Background color** - The background color of column headers that are not selected.
- **Column header colors - Active cell color** - The background color of the column header cell that is currently active.
- **Column header colors - Selection color** - The background color of the header cells corresponding to the currently selected columns.

The column headers are painted with two color gradients, one for the upper 1/3 part of the header and the other for the lower 2/3 part. The start and end colors of the first gradient are set with the first two color buttons. The start and end colors of the second gradient are set with the last two color buttons.

Author Preferences

To open the **Author** preferences page, go to**Options** > **Preferences** > **Editor** > **Edit modes** > **Author**.

The following options are available:

- **Author default background color** - default background color of the Author editing mode. The `background-color` CSS property set in the CSS file associated with the current edited document overwrites this option;
- **Author default foreground color** - default foreground color of the Author editing mode. The `color` CSS property set in the CSS file associated with the current edited document overwrites this option;
- **Show placeholders for empty elements** - when enabled, placeholders are displayed for empty elements to make them clearly visible. A placeholder is rendered as a light grey box displaying the element name;
- **Show Author layout messages** - if enabled, all errors reported during layout creation are presented in the **Errors** view;
- **Show block range** - if enabled, a *block range indicator* is shown in a stripe located in the left side of the editor. The block range indicator is displayed as a heavy line that spans from the first line to the last line of the block;
- **Show comments** - shows comments of the documents you edit in **Author** mode;
- **Show processing instructions** - shows processing instructions of the documents you edit in **Author** mode;
- **Show doctype** - shows *doctype* sections of the documents you edit in **Author** mode;
- **Display referred content (e.g.: entities, XInclude, DITA conref, etc.)** - when enabled, the references (like entities, XInclude, DITA conref) also display the content of the resources they refer. If you toggle this option while editing, reload the file for the modification to take effect;
- **Auto-scale images wider than (pixels)** - sets the maximum width of an image beyond which Oxygen XML Author scales the image;
  - **Show very large images** - enables the very large images support (larger than 6 megapixels) in the **Author** mode;

    Important: If you enable this option and your document contains many such images, Oxygen XML Author may consume all available memory, throwing an *OutOfMemory error*. This means that you need to restart the application after you increase the *available memory limit.*

- **Format and indent** - here you can set the format and indent method that is applied when a document is saved in **Author** mode, or when switching the editing mode (from Text to Author or vice versa):
  - **Only the modified content** - the **Save** operation only formats the nodes that were modified in the **Author** mode. The rest of the document preserves its original formatting.

    Note: This option applies also to the DITA Maps open in the **DITA Maps Manager**.

  - **The entire document** - the **Save** operation applies formatting to the entire document regardless of the nodes that were modified in **Author** mode.

If the **Apply also 'Format and Indent' action as in 'Text' edit mode** option is enabled, the content of the document is formatted by applying the **Format and Indent** rules from the *Editor/Format/XML* option page. In this case, the result of the **Format and indent** operation will be the same as when it is applied in **Text** editing mode.

- **Tags display mode** - default display mode for element tags presented in **Author** mode. You can choose between:
  - **Full Tags with Attributes** - this mode reveals the entire XML markup, easing the transition from a Text based editing to an **Author** mode editing. Tags contain element names, attribute names, and attribute values;
  - **Full Tags** - displays name tags that enclose block and inline elements;
  - **Block Tags** - displays a mix of element name tags that enclose block elements and compact tags that enclose the inline elements;
  - **Inline Tags** - displays only name tags that enclose the inline elements;
  - **Partial Tags** - displays compact tags that enclose the inline elements;
  - **No Tags** - no tags are displayed. This representation is as close as possible to the document published content;
- **Tags background color** - allows you to configure the Author tags background color;
- **Tags foreground color** - allows you to configure the Author tags foreground color;

Caret Navigation Preferences

To open the **Caret Navigation** preferences page, go to **Options** > **Preferences** > **Author** > **Caret Navigation**. The following options are available:

- **Highlight elements near caret** - defines the background color of the element or elements at caret position;
- **Show caret position tooltip** - if enabled, the caret position information tooltip is displayed. More information about the position information tooltip can be found in the section *Position information tooltip*. The documentation tooltip can be disabled from the ***Annotations*** *preferences p;*
- **Quick up/down navigation** - speeds up navigation when using up / down keys. The cursor jumps from line to line, without stopping at intermediate positions between element tags;
- **Arrow keys move the caret in the writing direction** - controls the caret movement in the bidirectional (BIDI) text for documents opened in the **Author** mode. Pressing the right arrow key increases the offset of the caret in the document. The left one decreases the offset. This means pressing the right arrow key advances the caret in the text in the reading direction. If the option is not selected, pressing the right arrow will simply move the caret to the right, regardless of the text direction.

Schema Aware Preferences

To open the **Schema Aware** preferences page, go to **Options** > **Preferences** > **Editor** > **Edit modes** > **Author** > **Schema aware**.

- **Schema aware normalization, format, and indent**

  When opening a document in Author, white spaces can be normalized or removed in order to obtain a more compact display. The reverse process takes place when saving the document in the Author. By default this algorithm is controlled by the CSS `display` property.

  If this option is checked, then this process will be schema aware so the algorithm will take into account if the element is declared as element-only or mixed. It will also take into account options **Preserve space elements**, **Default space elements**, **Mixed content elements** from option page ***Options*** > ***Preferences*** > ***Editor*** > ***Format*** > ***XML***

- **Indent blocks-only content**

  If checked, even if an element is declared in the schema as being mixed but it has a blocks-only content (as specified by the CSS property `display` of its children), it will be treated as being element-only.

- **Schema Aware Editing**

  Editing in Author is schema driven.

  - **On** - Enables all schema aware editing options.
  - **Off** - Disables all schema aware editing options.

- **Custom** -
  - **Delete element tags with backspace and delete**

    Controls the behavior for deleting element tags using delete or backspace keys. Available options:

    - **Smart delete**

      If the result of the delete action is invalid, different strategies will be applied in order to keep the document valid. If backspace / delete is pressed at the beginning / end of an element the action that should take place is unwrap (the element will be deleted and its content will be put in its place). If its content is not accepted by the schema in that position, you can keep a valid document by applying different strategies like:

      - Search for a preceding (backspace case)/following (delete case) element in which you can append that content.
      - If the tag markers of the element to unwrap are not visible a caret move action in the delete action direction will be performed.

    - **Reject action when its result is invalid**

      If checked and the result of the delete action is invalid, the action will not be performed.

  - **Paste and Drag and Drop**

    Controls the behavior for paste and drag and drop actions. Available options:

    - **Smart paste and drag and drop**

      If the content inserted by a paste or drop action is not valid at the caret position, according to the schema, different strategies are applied to find an appropriate insert position, like:

      - If a sibling element can accept the content, then a new element with the same name as the sibling is created in which the content will be inserted.
      - An analysis will be performed to the left or to the right of the insertion position, without leaving the current context, and try to insert the fragment in one of the encountered elements (that accepts the content to be inserted).
      - If one of the ancestors of the element at caret position accepts the content, after the current offset or before it, then the paste operation will be performed inside this ancestor.

    - **Reject action when its result is invalid**

      If checked and the result of the paste or drop action is invalid, the action will not be performed.

  - **Typing**

    Controls the behavior that takes place when typing. Available options:

    - **Smart typing**

      If the typed character cannot be inserted at element from the caret position then a sibling element that can accept it will be searched for. If the sibling element can accept the content, then a new element with the same name as the sibling is created in which the content will be inserted.

    - **Reject action when its result is invalid**

      If checked and the result of the typing action is invalid, the action will not be performed.

  - **Content Completion**

    Controls the behavior that takes place when inserting elements using content completion. Available options:

    - **Allow only insertion of valid elements and attributes**

      If checked, only elements or attributes form the content completion proposals list can be inserted in the document through content completion.

- **Show all possible elements in the content completion list**

  Specifies whether Oxygen XML Author displays in the content completion list of proposals all the possible elements. If an element which is not allowed at the current offset is chosen by the user, the application will attempt to insert it in a proper location using the schema aware strategies.

- **Warn on invalid content when performing action**

  A warning message will be displayed when performing an action that will result in invalid content. Available options:

  - **Delete Element Tags**

    If checked, when the *Delete Element Tags* action will result in an invalid content, a warning message will be displayed in which the user is asked if the operation should continue.

  - **Join Elements**

    If checked, when the *Join Elements* action will result in an invalid content, a warning message will be displayed in which the user is asked if the operation should continue.

- **Convert external content on paste**

  If checked, Oxygen XML Author preserves the formatting style when you paste content copied from external applications (like web browsers or Office-like applications). This option is enabled by default and applies only to the major document type frameworks (DocBook, DITA, TEI, XHTML) and to those customized to support the *content conversion on paste*.

If the Schema Aware Editing is **On** or **Custom** all actions that can generate invalid content will be forwarded first toward *AuthorSchemaAwareEditingHandler*.

Review Preferences

To open the Author **Review** preferences page, go to**Options** > **Preferences** > **Editor** > **Edit modes** > **Author** > **Review**.

The available preferences are:

- **Author** - The name of the user who performs the changes when **Track Changes** is active for a given editor. This information is associated with each performed change;
- **Track Changes (applies for all authors)**:
- **Initial State** - Controls the initial **Track Changes** state;
  - **Stored in document** - Recommended when multiple editors work on the same set of documents because the state of **Track Changes** (enabled/disabled) is kept in the edited document. When you open such a document and the **Store in document** option is active, if the `<?oxy_options track_changes="on"?>` processing instruction was saved in the document, the **Track Changes** is enabled. When this option is enabled and you open a document in the **Author** mode, the **Track Changes** state is restored from the previous use of the document. This means that if another user edited the document with **Track Changes** turned on before sending it to you, you will also have **Track Changes** switched on when you open it in the **Author** mode;
  - **Always On** - The **Track Changes** feature is active when you open a document;
  - **Always Off** - The **Track Changes** feature is inactive when you open a document;

  Note: **Initial Track Changes State** options do not affect documents already open in the **Author** mode.

- **Changed lines marker** - enable this option to display a vertical stripe in the left of the content that is commented, or modified when **Track Changes** is enabled;
- **Inserted content color** - Sets the color used for marking the inserted content. This includes the font foreground and background, and the underline that decorates all inserted text:
  - **Auto** - Automatically assigns colors for the insert changes for each author name. Enabled by default;
  - **Custom** - Uses a custom color for all insert changes, regardless of the author name;

- **Use same color for text foreground** - Uses the same color to paint the inserted text foreground;
- **Use same color for background** - Uses the same color for the insert text background. Use the slider to adjust the transparency level;

- **Deleted content color** - Sets the color used for marking the deleted content. This includes the font foreground and background, and the strike-through that decorates all deleted text:
  - **Auto** - Automatically assigns colors for the delete changes for each author name. Enabled by default;
  - **Custom** - Uses a custom color for all delete changes, regardless of the author name;
  - **Use same color for text foreground** - Uses the same color to paint the deleted text foreground;
  - **Use same color for background** - Uses the same color for the deleted text background. Use the slider to adjust the transparency level;
- **Commented color (applies for all authors)** - Sets the background color of the annotated text:
  - **Auto** - Automatically assigns colors for the annotated content for each author name. Enabled by default;
  - **Custom** - Use a custom color for all annotated content, regardless of the author name. Use the slider to control the transparency level.

Callouts Preferences

To open the *Callouts* preferences page, go to **Options** > **Preferences** > **Editor** > **Edit modes** > **Author** > **Review** > **Callouts**. You can also open this preferences page from the contextual menu of a callout. To open the preferences page from the contextual menu, right click the callout and select **Callouts Options**.

This preferences page is divided in two sections. In the first section, you can choose what type of callouts Oxygen XML Author displays. In the second section, you can customize the parameters of the callouts layout.

The options of the first section are:

- **Comments** - displays author review comment callouts and track changes comment callouts. This option is enabled by default;
- **Track Changes deletion** - enable this option to display deletion callouts;
  - **Show deleted content in callout** - enable this option to display the actual deleted content in the displayed callouts;
- **Track Changes insertion** - enable this option to display insertion callouts.
  - **Show inserted content in callout** - enable this option to display the actual inserted content in the displayed callouts;

The following options of the second section control the amount of information shown in each callout:

- **Show review time** - enable this option to display the date and time of an insertion, deletion, or comment insertion;
- **Show all connecting lines** - enable this option to display the connecting lines between targets and their corresponding callouts;
- **Callouts pane width (px)** - this drop-box specifies the width of a callout. The default value of the **Callouts pane width (px)** field is 200 pixels. Click the drop-box to modify its value.
- **Callouts text limit (characters)** - this drop-box specifies how many characters Oxygen XML Author displays inside a callout. The default value of the **Callouts text limit (characters)** field is 160. Click the drop-box to modify its value.

Profiling / Conditional Text Preferences

To open the Author **Profiling/Conditional Text** preferences page, go to **Options** > **Preferences** > **Editor** > **Edit modes** > **Author** > **Profiling/Conditional Text**.

This preferences page contains two sections that present the **profiling attributes** and the **profiling condition sets** defined for the supported document types. You can customize your *profiling attributes* and *condition sets*, or use the ones that Oxygen XML Author comes predefined with.

In case you have two or more identically named entries that match the same document type, Oxygen XML Author uses the one that is positioned highest in the table. Use the **Up / Down** buttons to change the priority of the entries.

The **Import from DITAVAL** button allows you to import profiling attributes from `.ditaval` files. You can merge these new profiling attributes with the existing ones, or replace them completely. The **Import from DITAVAL** dialog box contains two tables. The first one displays the attributes and values extracted from the `.ditaval` files and the second one the displays the already defined profiling attributes.

Note: When importing profiling attributes from DITAVAL files, Oxygen XML Author automatically creates condition sets based on these files.

MathML Preferences

To configure the *MathML* editor of the **Author** mode, go to **Options** > **Preferences** > **Editor** > **Edit modes** > **Author** > **MathML**. You can configure the following parameters:

- **Equation minimum font size** - the minimum size of the font used for rendering mathematical symbols;
- **MathFlow installation directory** - the installation folder where Oxygen XML Author looks for *MathFlow* Components (the *MathFlow* SDK);
- **MathFlow license file** - the license for *MathFlow* Components (the *MathFlow* SDK);
- **MathFlow preferred editor** - a *MathML* formula can be edited in one of three editors of the *MathFlow* Components (*MathFlow* SDK): structure editor, style editor, and simple editor. More documentation is available on the *MathFlow SDK*website.

Messages Preferences

In the Author **Messages** preferences page you specify the default behavior for opening a DITA Map in Oxygen XML Author. To open this preferences page, go to **Options** > **Preferences** > **Editor** > **Edit Modes** > **Author** > **Messages**. The following options are available:

- **Always open in the DITA Maps Manager** - a DITA Map file is always opened in *the **DITA Maps Manager** view* without asking for user confirmation;
- **Always open as XML** - a DITA Map file is always opened in the XML editor panel without asking for user confirmation;
- **Always ask** - when you open a DITA Map, you are prompted to choose between opening it in the XML editor panel or in the **DITA Maps Manager** view.

AutoCorrect Preferences

To open the **AutoCorrect** preferences page, go to **Options** > **Preferences** > **Editor** > **Edit Modes** > **Author** > **AutoCorrect**.

The following options are available:

- **Replace "double quotes" with "smart quotes"** - enable this option to insert smart quotes instead of double quotes automatically;
- **Replace "single quotes" with "smart quotes"** - enable this option to insert smart quotes instead of single quotes automatically;

To change the symbols that are inserted automatically when these options are enabled, click the **Start quote** and **End quote** buttons and select the symbols you want from the ***Character Map** dialog box*.

Format Preferences

To open the **Format** preferences page, go to **Options** > **Preferences** > **Editor** > **Format**.

The following options are available:

- **Detect indent on open** - the editor detects the indent settings of the open XML document. This way you can correctly format (pretty-print) files that were created with different settings, without changing your options every time you edit such a file. Besides, you can activate the option for detecting the maximum line width used by the formatting and hard wrap mechanism. These features were designed to minimize the differences created by the **Format and Indent** operation when working with a versioning system, like CVS for example;

Note: If the document contains different-size indents, the application computes a weighted average value.

    - **Use zero-indent, if detected** - the formatting operation takes into account an indent level of zero in case this is detected.

- **Indent with tabs** - when enabled, sets the indent size to a *tab* unit. When unchecked, the application uses space characters to form an indent. The number of space characters that form a *tab* is defined by the **Indent size** option;
- **Indent size** - sets the number of space characters or the tab size that equals a single indent. An *indent* can be a number of spaces or a tab, selectable using the **Indent With Tabs** option. For example, if set to 4, one tab equals:
    - either 4 space characters, if the **Indent With Tabs** option is unchecked;
    - or one tab that spans 4 characters, if the **Indent With Tabs** option is checked.
- **Hard line wrap** - when enabled, Oxygen XML Author breaks the edited line automatically when its length exceeds the maximum set line width. This feature allows you to neatly edit a document;
- **Indent on Enter** - if enabled, Oxygen XML Author indents the new line introduced when pressing the Enter key;
- **Enable Smart Enter** - if you press the Enter key between a start and an end tag, Oxygen XML Author places the cursor in an indented position on the empty line formed between the start and end tag;
- **Detect line width on open** - detects the line width automatically when the document is opened;
- **Format and indent the document on open** - when enabled, an XML document is formatted and indented before opening it in the editor panel. This option applies only to documents associated with the XML editor. This option does not apply to *read-only* documents when the *Can edit read only files* option is disabled;
- **Line width - Format and Indent** - defines the point at which the **Format and Indent** (pretty-print) function performs hard line wrapping. For example, if set to 100, after a **Format and Indent** action, the longest line will have at most 100 characters;
- **Clear undo buffer before Format and Indent** - if checked, you cannot undo anymore editing actions that preceded the **Format and Indent** operation. Only modifications performed after you have performed the operation can be undone. Check this option if you encounter out of memory problems (**OutOfMemoryError**) when performing the **Format and Indent** operation.

To watch our video demonstration about the formatting options offered by Oxygen XML Author, go to *http://oxygenxml.com/demo/Autodetect_Formating.html*.

XML

To open the **XML** Format preferences page, go to **Options** > **Preferences** > **Editor** > **Format** > **XML**.

The following options are available:

- **Preserve empty lines** - the **Format and Indent** operation preserves all empty lines found in the document;
- **Preserve text as it is** - the **Format and Indent** operation preserves text content as it is, without removing or adding any white space.
- **Preserve line breaks in attributes** - line breaks found in attribute values are preserved;

    Note: When this option is enabled, **Break long lines** option is automatically disabled.

- **Break long attributes** - the **Format and Indent** operation breaks long attribute values;
- **Indent inline elements** -the *inline elements* are indented on separate lines if they are preceded by white spaces and they follow another element start or end tag. Example:

    Original XML:

    ```
    <root>
      text <parent> <child></child> </parent>
    </root>
    ```

    Indent inline elements enabled:

    ```
    <root> text <parent>
        <child/>
      </parent>
    </root>
    ```

    Indent inline elements disabled:

    ```
    <root> text <parent> <child/> </parent> </root>
    ```

- **Expand empty elements** - the **Format and Indent** operation outputs empty elements with a separate closing tag, ex. `<a atr1="v1"></a>`. When not enabled, the same operation represents an empty element in a more compact form: `<a atr1="v1"/>`;
- **Sort attributes** - the **Format and Indent** operation sorts the attributes of an element alphabetically;
- **Add space before slash in empty elements** - inserts a space character before the trailing / and > of empty elements;
- **Break line before attribute's name** - the **Format and Indent** operation breaks the line before the attribute name;
- **Element spacing** - controls how the application handles whites paces found in XML content;
  - **Preserve space** - List of elements for which the **Format and Indent** operation preserves the whitespaces (like blanks, tabs, and newlines). The elements can be specified by name or by XPath expressions:
    - `elementName`
    - `//elementName`
    - `/elementName1/elementName2/elementName3`
    - `//xs:localName`

    The namespace prefixes like `xs` are treated as part of the element name without taking into account its binding to a namespace.
  - **Default space** - This list contains the names of the elements for which contiguous whitespaces are merged by the **Format and Indent** operation into one blank character.
  - **Mixed content** - The elements from this list are treated as mixed when applying the **Format and Indent** operation. The lines are split only when whitespaces are encountered.
- **Schema aware format and indent** - the **Format and Indent** operation takes into account the schema information regarding the *space preserve*, *mixed*, or *element only* properties of an element;
- **Indent (when typing) in preserve space elements** - the *Preserve space* elements (identified by the `xml:space` attribute set to `preserve` or by their presence in the **Preserve space** elements list) are normally ignored by the **Format and Indent** operation. When this option is enabled and you are editing one of these elements, its content is formatted.
- **Indent on paste - sections with number of lines less than 300** - when you paste a chunk of text that has less than 300 lines, the inserted content is indented. To keep the indent style of the document you are copying content from, disable this option.

Whitespaces Preferences

This panel displays the special whitespace characters of Unicode. Any character that is checked in this panel is considered whitespace that can be normalized in an XML document. The whitespaces are normalized in any of the following cases:

- when the **Format and Indent** action is applied on an XML document;
- when you switch from **Text** mode to **Author** mode;
- when you switch from **Author** mode to **Text** mode;

The characters with the codes 9 (TAB), 10 (LF), 13 (CR) and 32 (SPACE) are always in the group of whitespace characters that must be normalized so they are always enabled in this panel.

CSS Properties

To open the **CSS** Format preferences page, go to **Options** > **Preferences** > **Editor** > **Format** > **CSS**.

The following options control the behavior of the **Format and Indent** operation:

- **Indent class content** - the *class* content is indented. Enabled by default;
- **Class body on new line** - the *class* body (including the curly brackets) is placed on a new line;
- **Add new line between classes** - an empty line is added between two classes;
- **Preserve empty lines** - the empty lines from the CSS content are preserved;
- **Allow formatting embedded CSS** - the CSS content embedded in XML is formatted when the XML content is formatted.

JavaScript Properties

To open the **JavaScript** format preferences page, go to **Options** > **Preferences** > **Editor** > **Format** > **JavaScript**.

The following options control the behavior of the **Format and Indent** action:

- **Start curly brace on new line** - opening curly braces start on a new line;
- **Preserve empty lines** - empty lines in the JavaScript code are preserved. This option is enabled by default;
- **Allow formatting embedded JavaScript** - applied only to XHTML documents, this option allows Oxygen XML Author to format embedded JavaScript code, taking precedence over the *Schema aware format and indent* option. This option is enabled by default.

Content Completion Preferences

The ***Content Completion Assistant*** is a powerful tool that enables inline syntax lookup and auto completion of mark-up elements and attributes. It streamlines mark-up and reduces errors while editing. These settings define the operating mode of the **Content Completion Assistant**.

To open the **Content Completion** preferences page, got to **Options** > **Preferences** > **Editor** > **Content Completion**.

The following options are available:

- **Auto close the last opened tag** - Oxygen XML Author closes the last open tag when you type `</`;
- **Automatically rename/delete/comment matching tag** - Oxygen XML Author automatically mirrors the matching end tag when you rename a start tag. You are also able to delete one ore more start tags and their matching tags are deleted automatically. This is available for the **Toggle comment** option as well.

  Note: In case you select **Toggle comment** for multiple starting tags (or you delete them) and the matching end tags area interferes with start tags, the end tags are not commented (or deleted).

- **Use content completion** - activates the content completion assistant;
- **Close the inserted element** - when you choose an entry from the **Content Completion Assistant** list of proposals, Oxygen XML Author inserts both start and end tags;
  - **If it has no matching tag** - the end tag of the inserted element is automatically added only if it is not already present in the document;
  - **Add element content** - Oxygen XML Author inserts the required elements specified in the DTD, XML Schema, or RELAX NG schema that is *associated with the edited XML document*. This option is applied also in the **Author** mode of the XML editor;
    - **Add optional content** - Oxygen XML Author inserts the optional elements specified in the DTD, XML Schema, or RELAX NG schema. This option is applied also in the **Author** mode of the XML editor;
    - **Add first Choice particle** - Oxygen XML Author inserts the first **choice** particle specified in the DTD, XML Schema, or RELAX NG schema. This option is applied also in the **Author** mode of the XML editor;
- **Case sensitive search** - the search in the content completion assistant window when you type a character is case-sensitive ('a' and 'A' are different characters). This option is applied also in the **Author** mode of the XML editor;
- **Cursor position between tags** - when enabled, Oxygen XML Author sets the cursor automatically between start and end tag for:
  - elements with only optional attributes or no attributes at all;
  - elements with required attributes, but only when the **Insert the required attributes** option is disabled.
- **Show all entities** - Oxygen XML Author displays 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. &);
- **Insert the required attributes** - Oxygen XML Author inserts automatically the required attributes taken from the DTD or XML Schema. This option is applied also in the **Author** mode of the XML editor;
- **Insert the fixed attributes** - Oxygen XML Author automatically inserts any `FIXED` attributes from the DTD or XML Schema for an element inserted with the help of the **Content Completion Assistant**. This option is applied also in the **Author** mode of the XML editor;

- **Show recently used items** - when checked, Oxygen XML Author remembers the last inserted items from the **Content Completion Assistant** window. The number of items to be remembered is limited by the **Maximum number of recent items shown** list box. These most frequently used items are displayed on the top of the content completion window and are separated from the rest of the suggestions by a thin grey line . This option is applied also in the **Author** mode of the XML editor;
- **Maximum number of recent items shown** - limits the number of recently used items presented at the top of the **Content Completion Assistant** window. This option is applied also in the **Author** mode of the XML editor;
- **Learn attributes values** - Oxygen XML Author learns the attribute values used in a document. This option is applied also in the **Author** mode of the XML editor;
- **Learn on open document** - Oxygen XML Author automatically learns the document structure when the document is opened. This option is applied also in the **Author** mode of the XML editor;
- **Learn words** (Dynamic Abbreviations, available on **Ctrl (Meta on Mac OS) + Space**) - When selected, Oxygen XML Author learns the typed words and makes them available in a content completion fashion by pressing **Ctrl (Meta on Mac OS) + Space** om your keyboard;

  Note: In order to be learned, the words need to be separated by space characters.

- **Activation delay of the proposals window (ms)** - Delay in milliseconds from last key press until the content completion assistant window is displayed.

Annotations Preferences

To open the **Annotations** preferences page, go to **Options** > **Preferences** > **Editor** > **Content Completion** > **Annotations**.

The following preferences can be configured for the annotations of the elements and attributes displayed by the **Content Completion Assistant**:

- **Show annotations** - Oxygen XML Author displays the schema annotations of an element, attribute, or attribute value currently selected in the **Content Completion Assistant** proposals list. This option is applied also in the **Author** mode of the XML editor.
- **Show annotations as tooltip** - Oxygen XML Author displays the annotation of elements and attributes as a tooltip when you hover over them with the cursor in the XML editor panel or in the **Elements** view (both *the Text editing mode one* and *the Author editing mode* one). This option is applied also in the **Author** mode of the XML editor.
- **Use DTD comments as annotation** - When enabled, Oxygen XML Author uses all DTD comments as annotations. If this option is disabled, Oxygen XML Author displays only special Oxygen XML Author `doc:` comments, or if they are missing, it displays any other comment found in the DTD.
- **Use all Relax NG annotations as documentation** - When enabled, any element outside the Relax NG namespace, that is `http://relaxng.org/ns/structure/1.0`, is considered annotation and is displayed in the annotation window next to the **Content Completion Assistant** window and in the **Model** view. When disabled, only elements from the Relax NG annotations namespace, that is `http://relaxng.org/ns/compatibility/annotations/1.0` are considered annotations.

XPath Preferences

To configure the options for the content completion in XPath expressions, go to **Options** > **Preferences** > **Editor** > **Content Completion** > **XPath**.

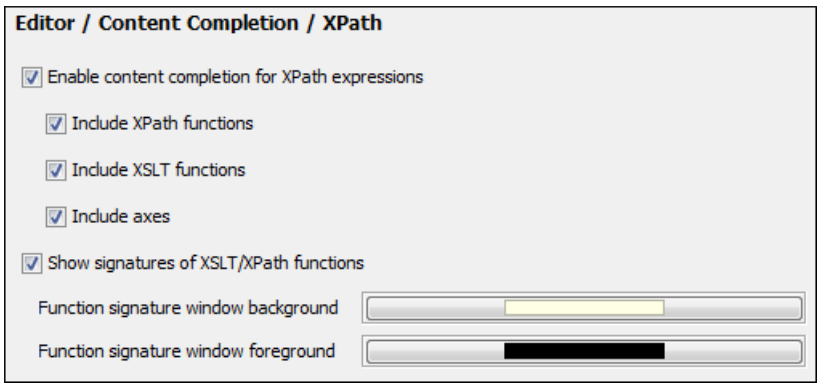


Figure 290: The Content Completion XPath Preferences Panel

The following options are available:

- **Enable content completion for XPath expressions** - enables the **Content Completion Assistant** in XPath expressions that you enter in the `match`, `select`, and `test` XSL attributes and also in the XPath toolbar. Options are available to control if the XPath functions, XSLT functions and XSLT axes are presented in the content completion list of proposals when editing XPath expressions.
- **Show signatures of XSLT / XPath functions** - makes the editor indicate the signature of the XPath function located at the caret position in a tooltip.
- **Function signature window background** - specifies the background color of the tooltip window.
- **Function signature window foreground** - specifies the foreground color of the tooltip window.

JavaScript Preferences

Oxygen XML Author allows you to specify additional JavaScript files for the **Content Completion Assistant** to take into account. To specify the additional JavaScript files, go to **Options** > **Preferences** > **Editor** > **Content Completion** > **JavaScript**. In this preferences page, you are able to configure the following options:

- **Enable content completion** - enables the content completion support for JavaScript files;
- **Use built-in libraries** - allows Oxygen XML Author to include components (object names, properties, functions, and variables) collected from the built-in JavaScript library files;
- **Use defined libraries** - the libraries table allows you to define additional paths (URIs) to JavaScript files. Oxygen XML Author scans these files for components.

Note: The paths can contain editor variables such as `${pdu}`, or `${oxygenHome}`. You can make these paths relative to the project directory or installation directory.

Colors Preferences

Oxygen XML Author supports syntax highlight for XML, JavaScript / JSON, PHP,CSS documents. While Oxygen XML Author provides a default color configuration for highlighting the tokens, you can choose to customize it, using the Colors options panel.

To open the Colors preferences page go to **Options** > **Preferences** > **Editor** > **Colors**.

Each document type has an associated set of tokens. When a document type node is expanded, the associated tokens are listed. For each token, you can customize the color and the font style. These properties are used in **Text** mode of the editor panel. The tokens for XML documents are used also in XSD, XSL, RNG documents.

Note: The **Preview** area contains 4 tabs that allow you to preview XML, XSD, XSL, RNG sample files as they are rendered in Oxygen XML Author.

When you do not know the name of the token that you want to configure, select a token by clicking directly on that type of token in the **Preview** area.

You can edit the following color properties of the selected token:

- **Foreground** - The **Foreground** button opens a color dialog that allows setting the color properties for the selected token with one of the following color models: Swatches, HSB, or RGB;
  - **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;

  Note: You can also open the dialog for changing the foreground color of a token by double-clicking (or pressing *Enter*) on the tree node that corresponds to that token.

- **Background** - The **Background** button opens the same color dialog as the **Foreground** button;
- **'<' & '>' color** - available only for **XML** > **Tag**, this option specifies the color of the **<** and **>** XML tags;
- **Bold style** - This checkbox enables the bold variant of the font for the selected token. This property is not applied to a bidirectional document;
- **Italic style** - This checkbox enables the italic variant of the font for the selected token. This property is not applied to a bidirectional document.

The **Enable nested syntax highlight** option controls if different content types mixed in the same file (like PHP, JS and CSS scripts inside an HTML file) are highlighted according with the color schemes defined for each content type.

Elements / Attributes by Prefix Preferences

The **Elements / Attributes by Prefix** preferences panel is opened from menu **Options** > **Preferences** > **Editor** > **Colors** > **Elements / Attributes by Prefix**.

One row of the table contains the association between a namespace prefix and the properties to mark start tags and end tags, or attribute names 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 and attribute names with that prefix are marked with the same color.

You can edit the following color properties of the selected token:

- **Foreground** - The **Foreground** button opens a color dialog that allows setting the color properties for the selected token with one of the following color models: Swatches, HSB, or RGB;
  - **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;

  Note: You can also open the dialog for changing the foreground color of a token by double-clicking (or pressing *Enter*) on the tree node that corresponds to that token.

- **Background** - The **Background** button opens the same color dialog as the **Foreground** button;

You can choose that only the prefix is displayed with the selected color by enabling the **Draw only the prefix with a separate color** option.

Open / Save Preferences

To open the **Open / Save** preferences page, go to **Options** > **Preferences** > **Editor** > **Open / Save**.

The following options are available:

- **When bidirectional (BIDI) text is detected** - allows you to choose the application behavior when you try to open a file that contains BIDI Unicode characters. You can choose between **Enable bidirectional editing mode**, **Disable bidirectional editing mode** and **Prompt for each document**.

- **Disable bidirectional text support for documents larger than (Characters)** - when you try to open a document that exceeds the specified limit, the bidirectional editing mode is turned off, even if the **When bidirectional (BIDI) text is detected** option is set to **Enable bidirectional editing mode**.
- **Safe save (only for local files)** - option that provides an increased degree of protection in the unlikely event of a failure of the **Save** action. This mechanism creates a temporary file that holds the edited content until it is safely saved in the original file. If the **Save** action fails, the temporary file is kept in the system temporary folder, **OxygenXMLTemp** subfolder.
- **Make backup copy on save (only for local files)** - If enabled, a backup copy is made when saving the edited document. This option is available only for local files (files that are stored on the local file system). The default backup file extension is `.bak`, but you can change it as you prefer.
- **Enable automatic save** - When enabled, your document are saved automatically after a preset time interval.
- **Automatic save interval (minutes)** - Selects the interval in minutes between two automatic save actions.
- **Save all files before transformation or validation** - Saves all open files before validating or transforming an XML document. This way the dependencies are resolved, for example when modifying both the XML document and its XML Schema.
- **Check errors on save** - If enabled, Oxygen XML Author checks your document for errors before saving it.
- **Save all files before calling external tools** - If enabled, all files are saved before executing an *external tool*.
- **Optimize loading in the Text edit mode for files over (MB)** - File loading is optimized for reduced memory usage for any file with a size larger than this value. This optimization is useful for being able to load and edit very large files, but it comes with *several restrictions* for memory-intensive operations.
- **Show warning when loading large documents** - A warning dialog is displayed when you try to load a very large file.
- **Optimize loading for documents with lines longer than (Characters)** - Line wrap is turned on for a document containing lines that exceed the length specified with this option. For a list of the restrictions applied to a document with long lines, see *the **Editing Documents with Long Lines** section.*
- **Show warning when loading documents with long lines** - If enabled, a warning dialog is displayed when you try to open a file that contains at least one line that exceeds the maximum line length specified in the previous option. The warning dialog informs you that line wrapping is turned on and some of the editing features are disabled. Another option is to *format and indent the document* after it is opened in the editor panel. For a list of the restrictions applied to a document with long lines, see the section about *formatting documents with long lines*.
- **Clear undo buffer on save** - If enabled, Oxygen XML Author erases its undo stack when you save a document. Only modifications made after you have saved the document can be undone. Check this option if you encounter frequent *out of memory* problems (**OutOfMemoryError**) when editing very large documents.
- **Consider application bundles to be directories when browsing** - This option is available only on the Mac OS X platform. When checked, the file browser dialog allows browsing inside an application bundle as in a regular folder. When unchecked, the file browser dialog does not allow browsing inside an application bundle, as the Finder application does on Mac OS X. The same effect can be obtained by setting the property *apple.awt.use-file-dialog-packages* to *true* or *false* in the `Info.plist` descriptor file of the Oxygen XML Author application:

```
<key>apple.awt.use-file-dialog-packages</key>
<string>false</string>
```

Templates Preferences

This panel groups the preferences that are related with code templates and document templates:

- *Code Templates*
- *Document Templates*

Code Templates Preferences

Code templates are small document fragments that can be inserted quickly at the editing position and can be reused in other editing sessions. Oxygen XML Author comes with a large set of ready-to use templates for XSL, XQuery, and XML Schema. You can even share your code templates with your colleagues using the template export and import functions.

To obtain the template list, use:

- The shortcut key that activates the **Content Completion Assistant** on request is **Ctrl (Meta on Mac OS) + Space**. It displays the code templates names in *the content completion assistant list* together with proposed element names.
- The shortcut key that activates code templates assistant on request: **Ctrl (Meta on Mac OS) + Shift + Space**. It displays only the code templates in the proposals list.

To open the **Code Templates** preferences page, go to **Options** > **Preferences** > **Editor** > **Templates** > **Code Templates**. This preferences page contains a list with all available code templates (both built-in and custom created ones) and a code preview area. You can disable any code template by unchecking its corresponding option box.

- **New** - defines a new code template. You can choose to set the newly defined code template for a specific type of editor or for all editor types;
- **Edit** - edits the selected code template;
- **Duplicate** - creates a duplicate of the currently selected code template;
- **Delete** - deletes the currently selected code template. This action is disabled for the built-in code templates;
- **Import** - imports a file with code templates that was created by the **Export** action;
- **Export** - exports a file with code templates.

Document Templates Preferences

The list of document templates that are displayed in *the **New** dialog* can be extended with custom templates that are specified in the **Document Templates** preferences panel. Add the template files in a folder that is specified in this panel or in the `templates` folder of the Oxygen XML Author install directory.

To open the **Document Templates** preferences page, go to **Options** > **Preferences** > **Editor** > **Templates** > **Document Templates**.

You can add new document template location folders and manage existing ones. You can also alter the order in which Oxygen XML Author looks into these location folders by using the **Up** and **Down** buttons on a selected table row.

Spell Check Preferences

To open the **Spell Check** preferences page , go to **Options** > **Preferences** > **Editor** > **Spell Check**.

The following options are available:

- **Spell checking engine** - the application ships with two spell check engines, *Hunspell* and *Java spell checker*. Each engine has a specific format of spelling dictionaries. The languages of the built-in dictionaries of the selected engine are listed in the **Default language** options list.

  Note: In case you configured an additional location for the dictionaries that Oxygen XML Author uses, the **Default language** option collects the languages both from the default and additional locations.

- **Automatic Spell Check** - enable this option to make the spellchecker highlight errors as you edit a document;
- **Select editors** - allows you to select the file types for which the automatic spell check takes effect. File types in which automatic spell check is generally not useful, like CSS and DTD, are excluded by default.
- **Spell check highlight color** - use this option to set the color used by the spell check engine to highlight spelling errors.
- **Default language** - the default language list allows you to choose the language used by the spell check engine;

  Note: You can *add more spelling dictionaries* to the spell check engines.

- **Use "lang" and "xml:lang" attributes** - if enabled, the contents of any element with one of the `lang` or `xml:lang` attributes is checked using a dictionary suitable for the language specified in the attribute value, if this dictionary is available. When these attributes are missing, the language used is controlled by the two radio buttons: **Use the default language** or **Do not check**;
- **XML spell checking in** - these options allow you to specify if the spell checker will be enabled inside XML comments, attribute values, text, and CDATA sections;

- **Case sensitive** - when enabled, spell checking reports capitalization errors, for example a word that starts with lowercase after *etc.* or *i.e.*;
- **Ignore mixed case words** - when enabled, operations do not check words containing mixed case characters (e.g. *SpellChecker*);
- **Ignore words with digits** - when enabled, the spell checker does not check words containing digits (e.g. *b2b*);
- **Ignore Duplicates** - when enabled, the spell checker does not signal two successive identical words as an error;
- **Ignore URL** - when enabled, ignores words looking like URL or file names (e.g. *www.oxygenxml.com* or *c:\boot.ini*);
- **Check punctuation** - when enabled, punctuation checking is enabled: misplaced white space and wrong sequences, like a dot following a comma, are highlighted as errors;
- **Allow compounds words** - when enabled, all words formed by concatenating two legal words with a hyphen (hyphenated compounds) are accepted. If the language allows it, two words concatenated without hyphen (closed compounds) are also accepted.
- **Allow general prefixes** - when enabled, a word formed by concatenating a registered prefix and a legal word is accepted. For example if *mini-* is a registered prefix, the spell check engine accepts the word *mini-computer*.
- **Allow file extensions** - when enabled, accepts any word ending with registered file extensions (e.g. *myfile.txt*, *index.html*, etc.).
- **Ignore acronyms** - when enabled, the acronyms are not reported as errors.
- **Ignore elements** - a list of XPath expressions for the elements that the spell check engine ignores. The following restricted set of XPath expressions are supported:
  - '/' and '//' separators;
  - '*' wildcard.

  An example of allowed XPath expression: */a/*/b*.

Dictionaries Preferences

To open the **Dictionaries** preferences page, go to **Options** > **Preferences** > **Editor** > **Spell Check** > **Dictionaries**. This page allows you to configure the dictionaries and term lists that Oxygen XML Author uses and to choose where to save new learned words.

Note: A term list must have the `.tdi` extension.

The following options are available:

- **Dictionaries and term lists default folder** - specifies the default location where the dictionaries and term lists that Oxygen XML Author uses are stored;
- **Include dictionaries and term list from** - specifies a location where you can store dictionaries and term lists, different from the default one;

Note: In case the additional location contains a file with the same name as one from the default location, the additional file is proffered.

Note: The spell checker takes into account term lists, collected both from the default and additional locations.

- **Save learned words in the following location** - specifies the target in which new learned words are saved;
  - **Default** - the default location where the dictionaries and term lists are stored;
  - **Custom** - a custom location where you can store dictionaries and term lists;
- **Delete learned words** - opens the list of learned words, allowing you to select the items you want to remove, without deleting the dictionaries and term lists.

Note: These options are valid when Oxygen XML Author uses the Hunspell spell checking engine.

Document Checking Preferences

To open the **Document Checking** preferences page, go to **Options** > **Preferences** > **Editor** > **Document Checking**. This preferences page contains preferences for configuring how a document is checked for both well-formedness errors and validation errors.

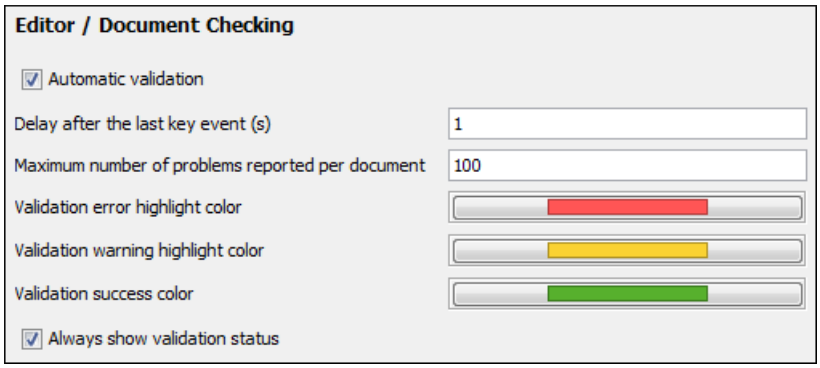


Figure 291: Document Checking Preferences Panel

The error checking preferences are the following:

- **Maximum number of validation highlights** - If validation generates more errors than the number from this option only the first errors up to this number are highlighted in editor panel and on stripe that is displayed at right side of editor panel. This option is applied both for *automatic validation* and *manual validation*.
- **Validation error highlight color** - The color used to highlight validation errors in the document.
- **Validation warning highlight color** - The color used to highlight validation warnings in the document.
- **Validation success color** - The color used to highlight in the vertical ruler bar the success of the validation operation.
- **Always show validation status** - If this option is selected the line at the bottom of the editor panel which presents the current validation error or warning is always visible. This is useful to avoid scrolling problems when **Automatic validation** is enabled and the vertical scroll bar may change position due to displaying an error message while the document is edited.
- **Enable automatic validation** - Validation of edited document is executed in background as the document is modified by editing in Oxygen XML Author.
- **Delay after the last key event (s)** - The period of keyboard inactivity which starts a new validation (in seconds).

Custom Validation Engines Preferences

The **Custom Validation Engines** preferences panel is opened from menu **Options** > **Preferences** > **Editor** > **Custom Validations**.

If you want to add a new custom validation tool or edit the properties of an exiting one you can use the **Custom Validator** dialog displayed by pressing the **New** button or the **Edit** button.

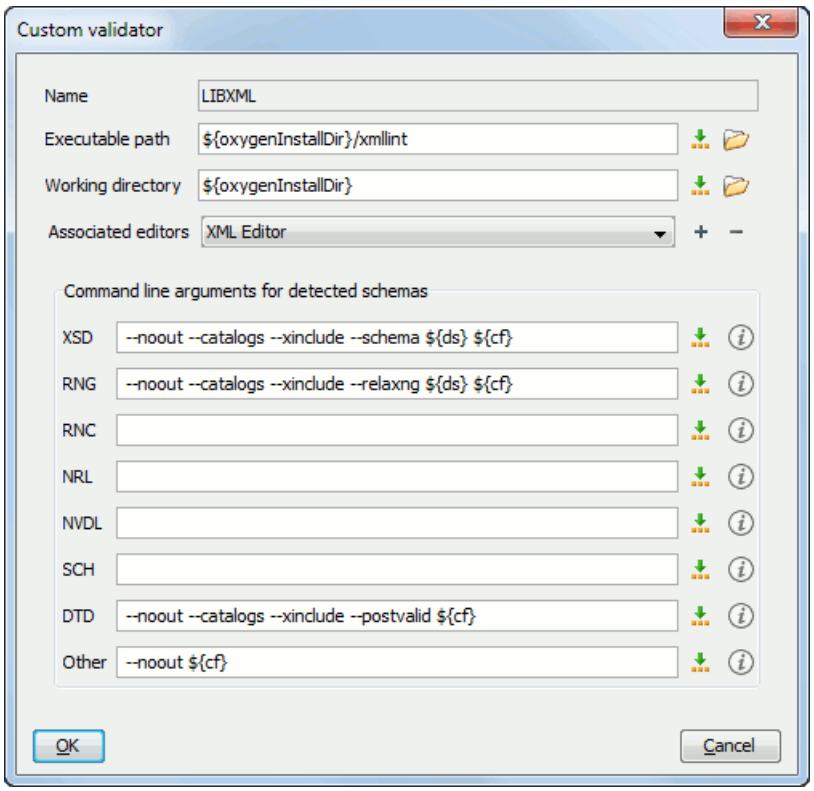


Figure 292: Edit a Custom Validator

The configurable parameters of a custom validator are the following:

- **Name** - Name of the custom validation tool displayed in the **Custom Validation Engines** toolbar.
- **Executable path** - Path to the executable file of the custom validation tool. You can insert here *editor variables* like *${home}*, *${pd}*, *${oxygenInstallDir}*, etc.
- **Working directory** - The working directory of the custom validation tool.
- **Associated editors** - The editors which can perform validation with the external tool: the XML editor, the XSL editor, the XSD editor, etc.
- **Command line arguments for detected schemas** - Command line arguments used in the commands that validate the current edited file against different types of schema: W3C XML Schema, Relax NG full syntax, Relax NG compact syntax, NVDL, Schematron, DTD, etc.. The arguments can include any custom switch (like -rng) and the following editor variables:
  - **${cf}** - Current file as file path, that is the absolute file path of the current edited document;
  - **${cfu}** - The path of the current file as a URL. The current file is the one currently opened and selected;
  - **${ds}** - The path of the detected schema as a local file path for the current validated XML document;
  - **${dsu}** - The path of the detected schema as an URL for the current validated XML document;

Increasing the stack size for validation engines

To prevent the appearance of a *StackOverflowException*, use one of the following methods:

- use the **com.oxygenxml.stack.size.validation.threads** property to increase the size of the stack for validation engines. The value of this property is specified in bytes. For example, to set a value of one megabyte specify 1x1024x1024=1048576;
- increase the value of the **-Xss** parameter.

Note: Increasing the value of the **-Xss** parameter affects all the threads of the application.

CSS Validator Preferences

To open the **CSS Validator** preferences page, go to **Options** > **Preferences** > **CSS Validator**.

You can configure the following options for the built-in CSS validator of Oxygen XML Author:

- **Profile** - Selects one of the available validation profiles: **CSS 1**, **CSS 2**, **CSS 2.1**, **CSS 3**, **CSS 3 with Oxygen extensions**, **SVG**, **SVG Basic**, **SVG Tiny**, **Mobile**, **TV Profile**, **ATSC TV Profile**. The **CSS 3 with Oxygen extensions** profile includes all the CSS 3 standard properties and the *CSS extensions specific for Oxygen* that can be used in *Author mode*. That means all Oxygen specific extensions are accepted in a CSS stylesheet by *the built-in CSS validator* when this profile is selected.
- **Media type** - Selects one of the available mediums: **all**, **aural**, **braille**, **embossed**, **handheld**, **print**, **projection**, **screen**, **tty**, **tv**, **presentation**, **oxygen**.
- **Warning level** - Sets the minimum severity level for reported validation warnings. Can be one of: **All**, **Normal**, **Most Important**, **No Warnings**.
- **Ignore properties** - Here you can type comma separated patterns that match the names of CSS properties that will be ignored at validation. As wildcards you can use:
  - `*` to match any string;
  - **?** to match any character.
- **Recognize browser CSS extensions (applies also to content completion)** - If checked, Oxygen XML Author recognizes (no validation is performed) browser-specific CSS properties. The **Content Completion Assistant** lists these properties at the end of its list, prefixed with the following particles:
  - `-moz-` for Mozilla;
  - `-ms-` for Internet Explorer;
  - `-o-` for Opera;
  - `-webkit-` for Safari/Webkit.

XML Preferences

This section describes the panels that contain the user preferences related with XML.

XML Catalog Preferences

To open the **XML Catalog** preferences page, go to **Options** > **Preferences** > **XML** > **XML Catalog**.

The following options are available:

- **Prefer** is used for specifying if Oxygen XML Author tries to resolve first the PUBLIC or SYSTEM reference from the DOCTYPE declaration of the XML document. If PUBLIC is preferred and a PUBLIC reference is not mapped in any of the XML catalogs then a SYSTEM reference is looked up.
- 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 selects the detail level of such logging messages of the XML catalog resolver that will be displayed in the **Catalogs** view at the bottom of the window:
  - **None** - No message is displayed by the catalog resolver when it tries to resolve a URI reference, a SYSTEM one or a PUBLIC one with the XML catalogs specified in this panel.
  - **Unresolved entities** - Only the logging messages that track the failed attempts to resolve references are displayed.
  - **All messages** - The messages of both failed attempts and successful ones are displayed.
- If **Resolve schema locations also through system mappings** is enabled, Oxygen XML Author analyzes both *uri* and *system* mappings in order to resolve the location of schema.

- If **Process namespaces through URI mappings for XML Schema** is selected then the target namespace of the imported XML Schemas is resolved through the *uri* mappings. The namespace is taken into account only when the schema specified in the *schemaLocation* attribute was not resolved successfully.
- If the **Use default catalog** option is checked the first XML catalog which Oxygen XML Author will use to resolve references at document validation and transformation will be a default built-in catalog. This catalog maps such references to the built-in local copies of the schemas of the Oxygen XML Author frameworks: DocBook, DITA, TEI, XHTML, SVG, etc.

You can also add or configure catalogs at framework level in the *Document Type Association* preferences page.

When you add, delete or edit an XML catalog to / from the list, reopen the currently edited files which use the modified catalog or run *the **Validate** action* so that the XML catalog changes take full effect.

XML Parser Preferences

To open the **XML Parser** preferences page, go to **Options** > **Preferences** > **XML** > **XML Parser**.

The configurable options of the built-in XML parser are the following:

- **Enable parser caching (validation and content completion)** - enables re-use of internal models when validating and provides content completion in opened XML files which reference the same schemas (grammars) like DTD, XML Schema, RelaxNG;
- **Ignore the DTD for validation if a schema is specified** - forces validation against a referred schema (W3C XML Schema, Relax NG schema) even if the document includes also a DTD DOCTYPE declaration. This option is useful when the DTD declaration is used only to declare DTD entities and the schema reference is used for validation against a W3C XML Schema or a Relax NG schema;

  Note: Schematron schemas are treated as additional schemas. The validation of a document associated with a DTD and referring a Schematron schema is executed against both the DTD and the Schematron schema, regardless of the value of the **Ignore the DTD for validation if a schema is specified** option.

- **Enable XInclude processing** - enables XInclude processing. If checked, the XInclude support in Oxygen XML Author is turned on for validation, rendering in Author mode and transformation of XML documents;
- **Base URI fix-up** - 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** - 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;
- **DTD post-validation** - enable this option to validate an XML file against the associated DTD, after all the content merged to the current XML file using `XInclude` was resolved. In case you disable this option, the current XML file is validated against the associated DTD before all the content merged to the current XML file using `XInclude` is resolved.

XML Schema Preferences

To open the **XML Schema** preferences page, go to **Options** > **Preferences** > **XML** > **XML Parser** > **XML Schema**.

This preferences page allows you to configure the following options:

Xerces validation features

- **Default XML Schema version** - allows you to select the version of W3C XML Schema: XML Schema 1.0 or XML Schema 1.1;

  Note: You are also able to set the XML Schema version using the option in **New** dialog box.

- **Default XML Schema validation engine** - allows you to set the default XML Schema validation engine either to Xerces, or to Saxon EE;
- **Enable full schema constraint checking (http://apache.org/xml/features/validation/schema-full-checking)** - sets the *schema-full-checking* feature to true. This enables a validation of the parsed XML document against a schema (W3C XML Schema or DTD) while the document is parsed;
- **Enable honour all schema location feature (http://apache.org/xml/features/honour-all-schema-location)** - sets the *honour-all-schema-location* feature to true. All the files that declare W3C XML Schema components from the same namespace are used to compose the validation model. In case this option is disabled, only the first W3C XML Schema file that is encountered in the XML Schema import tree is taken into account;
- **Enable XSD 1.1 CTA full XPath 2.0 checking (http://apache.org/xml/features/validation/cta-full-xpath-checking)** - controls whether full XPath or an XPath subset is used to evaluate CTA instructions for XSD 1.1;
- **Enable comments and PIs in XDM model, for XSD 1.1 assertion processing (http://apache.org/xml/features/validation/assert-comments-and-pi-checking)** - controls whether comments and processing instructions are visible to the XPath expression used to define an assertion for XSD 1.1;

Saxon validation features

- **Multiple schema imports** - forces xs:import to fetch the referenced schema document. By default, the xs:import fetches the document only if no schema document for the given namespace has already been loaded. With this option in effect, the referenced schema document is loaded unless the absolute URI is the same as a schema document already loaded;
- **Assertions can see comments and processing instructions** - controls whether comments and processing instructions are visible to the XPath expression used to define an assertion. By default (unlike Saxon 9.3), they are not made visible.

Relax NG Preferences

To open the **Relax NG** preferences page, go to **Options** > **Preferences** > **XML** > **XML Parser** > **Relax NG**.

The following options are available in this page:

- **Check feasibly valid** - checks whether Relax NG documents can be transformed into valid documents by inserting any number of attributes and child elements anywhere in the tree;

  Note: Enabling this option disables the **Check ID/IDREF** option.

- **Check ID/IDREF** - checks the ID/IDREF matches when a Relax NG document is validated;
- **Add default attribute values** - default values are given to the attributes of documents validated using Relax NG. These values are defined in the Relax NG schema.

Schematron Preferences

To open the **Schematron** preferences page, go to **Options** > **Preferences** > **XML** > **XML Parser** > **Relax NG**.

The following options are available in this preferences page:

- **Schematron XPath Version** - selects the version of XPath for the expressions that are allowed in Schematron assertion tests: 1.0 or 2.0. This option is applied both in standalone Schematron schemas and in embedded Schematron rules, both in Schematron 1.5 and in ISO Schematron;
- **Optimize (visit-no-attributes)** - in case your ISO Schematron assertion tests do not contain the attributes axis you should check this option for faster ISO Schematron validation;
- **Allow foreign elements (allow-foreign)** - enables support for `allow-foreign` on ISO Schematron. This option is used to pass non-Schematron elements to the generated stylesheet;

- **Use Saxon EE (schema aware) for xslt2 query binding** - when enabled, Saxon EE is used for `xslt2` query binding. In case this option is disabled, Saxon PE is used.

XProc Engines Preferences

Oxygen XML Author comes with a built-in XProc engine called *Calabash*. An external XProc engine can be configured in this panel.

When **Show XProc messages** is selected all messages emitted by the XProc processor during a transformation will be presented in the results view.

For an external engine the value of the **Name** field will be displayed in the XProc transformation scenario and in the command line that will start it.

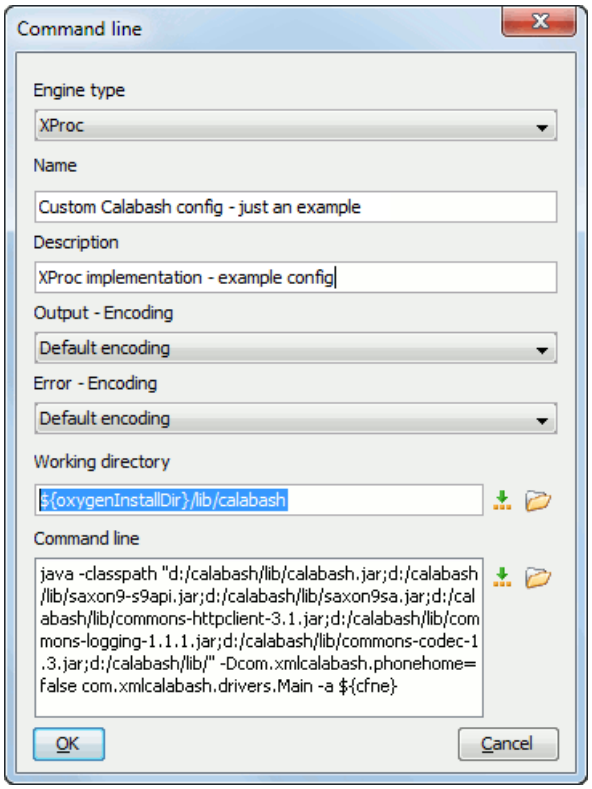


Figure 293: Creating an XProc external engine

Other parameters that can be set for an XProc external engine are the following: , and the error stream of the engine, the working directory of the command that will start the engine. The encodings will be used for reading and displaying the output of the engine. The working directory and

- a textual description that will appear as tooltip where the XProc engine will be used;
- the encoding for the output stream of the XProc engine, used for reading and displaying the output messages;
- the encoding for the error stream of the XProc engine, used for reading and displaying the messages from the error stream;
- the working directory for resolving relative paths;
- the command line that will run the XProc engine as an external process; the command line can use *built-in editor variables* and *custom editor variables* for parameterizing a file path.

Note: You can configure the Saxon processor using the `saxon.config` file. For further details about configuring this file go to *http://www.saxonica.com/documentation/configuration/configuration-file.xml*.

Note: You can configure Calabash using the `calabash.config` file.

Note: These files are located in `[Oxygen installation directory]\lib\xproc\calabash`. In case they do not exist, you have to create them.

XSLT-FO-XQuery Preferences

The **XSLT/FO/XQuery** preferences panel is opened from menu **Options** > **Preferences** > **XML** > **XSLT/FO/XQuery**. This panel contains only the most generic options for working with XSLT / XSL-FO / XQuery processors. The more specific options are grouped in other panels linked as child nodes of this panel in the tree of the **Preferences** dialog.

There is only one generic option available:

Create transformation temporary files in system temporary directory - It should be selected only when the temporary files necessary for performing transformations are created in the same folder as the source of the transformation (the default behavior, when this option is not selected) and this breaks the transformation. An example of breaking the transformation is when the transformation processes all the files located in the same folder as the source of the transformation, which will include the temporary files, and the result is incorrect or the transformation fails due to this fact.

XSLT Preferences

To open the **XSLT** preferences panel, go to **Options** > **Preferences** > **XML** > **XSLT/FO/XQuery** > **XSLT**.

Oxygen XML Author gives you the possibility to use an XSLT transformer implemented in Java (other than the XSLT transformers that come bundled with Oxygen XML Author). To use a different XSLT transformer, specify the name of the transformer factory class. Oxygen XML Author sets this transformer factory class as the value of the Java property `javax.xml.transform.TransformerFactory`.

You can customize the following XSLT preferences:

- **Value** - Allows the user to enter the name of the transformer factory Java class;
- **XSLT 1.0 Validate with** - allows you to set the XSLT engine used for validation of XSLT 1.0 documents;
- **XSLT 2.0 Validate with** - allows you to set the XSLT Engine used for validation of XSLT 2.0 documents;
- **XSLT 3.0 Validate with** - allows you to set the XSLT Engine used for validation of XSLT 3.0 documents.

Note: Saxon-HE does not implement any XSLT 3.0 features. Saxon-PE implements a selection of XSLT 3.0 (and XPath 3.0) features, with the exception of schema-awareness and streaming. Saxon-EE implements additional features relating to streaming (processing of a source document without constructing a tree in memory. For further details about XSLT 3.0 conformance, go to *http://www.saxonica.com/documentation/index.html#!conformance/xslt30*.

Saxon6 Preferences

To open the **Saxon 6** preferences page, go to **Options** > **Preferences** > **XML** > **XSLT/FO/XQuery** > **XSLT** > **Saxon** > **Saxon 6**.

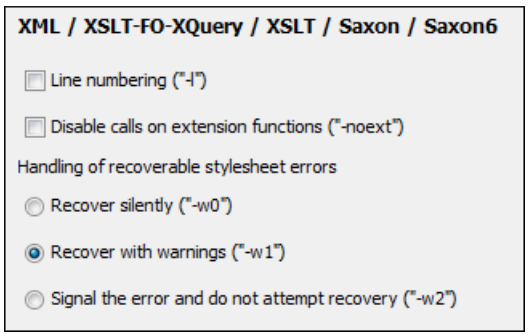


Figure 294: The Saxon 6 XSLT Preferences Panel

The built-in Saxon 6 XSLT processor can be configured with the following options:

- **Line numbering** - specifies whether line numbers are maintained and reported in error messages for the XML source document;
- **Disable calls on extension functions** - if enabled, external functions called is disallowed. 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;
- **Handling of recoverable stylesheet errors** - allows the user to choose how dynamic errors are handled. Either one of the following options can be selected:
  - **recover silently** - continue processing without reporting the error;
  - **recover with warnings** - issue a warning but continue processing;
  - **signal the error and do not attempt recovery** - issue an error and stop processing.

Saxon-HE/PE/EE Preferences

To open the **Saxon HE/PE/EE** preferences panel go to **Options** > **Preferences** > **XML** > **XSLT/FO/XQuery** > **XSLT** > **Saxon** > **Saxon HE/PE/EE**.

Oxygen XML Author allows you to configure the following XSLT options for the Saxon 9.5.0.1 transformer (editions: Home Edition, Professional, and Enterprise):

- **Use a configuration file ("-config")** - sets a Saxon 9 configuration file that is executed for XSLT transformation and validation processes;
- **Version warnings ("-versmsg")** - warns you when the transformation is applied to an XSLT 1.0 stylesheet;
- **Line numbering ("-l")** - error line number is included in the output messages;
- **Debugger trace into XPath expressions (applies to debugging sessions)** - instructs the XSLT Debugger to step into XPath expressions;
- **Expand attributes defaults ("-expand")** - specifies whether the attributes defined in the associated DTD or XML Schema that have default values are expanded in output of the transformation you are executing;
- **DTD validation of the source ("-dtd")** - the following options are available:
  - **On** - requests *DTD-based* validation of the source file and of any files read using the document() function;
  - **Off** - (default setting) suppresses DTD validation;
  - **Recover** - performs DTD validation but treats the errors as non-fatal.

  Note: Any external DTD is likely to be read even if not used for validation, because DTDs can contain definitions of entities.

- **Recoverable errors ("-warnings")** - policy for handling recoverable errors in the stylesheet: Allows you to choose how dynamic errors are handled. One of the following options can be selected:
  - **Recover silently ("silent")**;
  - **Recover with warnings ("recover")** - default setting;
  - **Signal the error and do not attempt recovery ("fatal")**.
- **Strip whitespaces ("-strip")** - strip whitespaces feature can be one of the following three options:
  - **All ("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 ("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 ("none")** - default setting. No whitespaces are stripped before further processing. However, whitespace are stripped if this is specified in the stylesheet using `xsl:strip-space`.
- **Optimization level ("-opt")** - set optimization level. The value is an integer in the range 0 (no optimization) to 10 (full optimization); currently all values other than 0 result in full optimization but this is likely to change in the future. The default is full optimization; this feature allows optimization to be suppressed in cases where reducing compile time is important, or where optimization gets in the way of debugging, or causes extension functions with side-effects

to behave unpredictably. (Note however, that even with no optimization, the lazy evaluation may still cause the evaluation order to be not as expected).

The advanced options available only in Saxon PE / EE are:

- **Allow calls on extension functions ("-ext")** - if checked, the stylesheet is allowed to call external Java functions. This does not affect calls on integrated extension functions, including Saxon and EXSLT extension functions. This option is useful when loading an untrusted stylesheet, perhaps from a remote site using an http:// URL; it ensures that the stylesheet cannot call arbitrary Java methods and thus gain privileged access to resources on your machine;

The advanced options available only in Saxon EE are:

- **XML Schema version** - use this option to change the default XML Schema version set in **Options** > **Preferences** > **XML** > **XML Parser** > **XML Schema**.

  Note: This option is available when you configure the Saxon EE advanced options from a transformation scenario.

- **Validation of the source file ("-val")** - requests schema-based validation of the source file and of any files read using the `document()` or similar functions. Validation is available only with Saxon-EE, and this flag automatically switches on the `-sa` option. Available options:
  - **Schema validation ("strict")** - this mode requires an XML Schema and specifies that the source documents should be parsed with schema-validation enabled;
  - **Lax schema validation ("lax")** - this mode specifies if the source documents should be parsed with schema-validation enabled if an XML Schema is provided;
  - **Disable schema validation** - this specifies that the source documents should be parsed with schema-validation disabled.
- **Validation errors in the results tree treated as warnings ("-outval")** - normally, if validation of result documents is requested, a validation error is fatal. Enabling this option causes such validation failures to be treated as warnings.
- **Write comments for non-fatal validation errors of the result document** - the validation messages are written (where possible) as a comment in the result document itself;
- **Generate bytecode ("--generateByteCode:(on|off)")** - when you enable this option, Saxon-EE attempts to generate Java bytecode for evaluation of parts of a query or stylesheet that are amenable to such treatment. For further details regarding this option, go to*http://www.saxonica.com/documentation/javadoc/*;
- **Initializer class** - equivalent with the *-init* Saxon command-line argument. The value is the name of a user-supplied class that implements the `net.sf.saxon.lib.Initializer` interface; this initializer is called during the initialization process, and may be used to set any options required on the configuration programmatically. It is particularly useful for tasks such as registering extension functions, collations, or external object models, especially in Saxon-HE where the option cannot be set via a configuration file. Saxon only calls the initializer when running from the command line, but the same code may be invoked to perform initialization when running user application code.

  Important: The *advanced Saxon-HE/PE/EE options configured in a transformation scenario* override the Saxon-HE/PE/EE options defined globally.

Saxon HE/PE/EE Advanced Preferences

To open the **Saxon HE/PE/EE Advanced** preferences page, go to **Options** > **Preferences** > **XML** > **XSLT/FO/XQuery** > **XSLT** > **Saxon** > **Saxon HE/PE/EE** > **Advanced**.

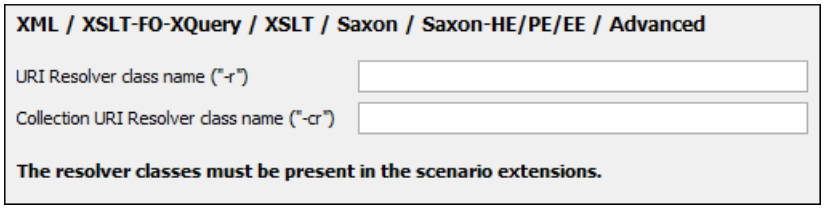


Figure 295: The Saxon HE/PE/EE XSLT Advanced Preferences Panel

You can configure the following advanced XSLT options for the Saxon 9.5.0.1 transformer (all three editions: Home Edition, Professional Edition, Enterprise Edition):

- **URI Resolver class name ("-r")** - specifies a custom implementation for the URI resolver used by the XSLT Saxon 9.5.0.1 transformer (the -r option when run from the command line). The class name must be fully specified and the corresponding `jar` or `class` extension must be configured from *the dialog for configuring the XSLT extension* for the particular transformation scenario.
- **Collection URI Resolver class name ("-cr")** - specifies a custom implementation for the Collection URI resolver used by the XSLT Saxon 9.5.0.1 transformer (the -cr option when run from the command line). The class name must be fully specified and the corresponding `jar` or `class` extension must be configured from *the dialog for configuring the XSLT extension* for the particular transformation scenario.

XSLTProc Preferences

The **XSLTProc** preferences panel is opened from menu **Options** > **Preferences** > **XML** > **XSLT/FO/XQuery** > **XSLT** > **XSLTProc**.

The options of the XSLTProc processor are the same as the ones available in the command line:

- **Enable XInclude processing** - If checked, XInclude references will be resolved when XSLTProc is used as transformer in *XSLT transformation scenarios*.
- **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 this limit of maximum templates depth 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 XML Author 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 XML Author will display in the **Warnings** view the URL of all the files loaded during transformation.
- **Show profile information** - If checked, Oxygen XML Author will display in the **Warnings** view a table with all the matched templates, and for each template will display: the match XPath expression, the template name, the number of template modes, the number of calls, the execution time.
- **Show the list of registered extensions** - If checked, Oxygen XML Author will display in the **Warnings** view a list with all the registered extension functions, 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 Preferences

The MSXML preferences panel is opened from menu **Options** > **Preferences** > **XML** > **XSLT/FO/XQuery** > **XSLT** > **MSXML**.

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*:

- **Validate documents during parse phase** - If checked and either the source or stylesheet document has a DTD or schema against which its content can 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, strips 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:
  - the time to load, parse, and build the input document
  - the time to load, parse, and build the stylesheet document
  - the time to compile the stylesheet in preparation for the transformation
  - the time to execute the stylesheet
- **Start transformation in this mode** - Although stylesheet 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 Preferences

The **MSXML.NET** preferences panel is opened from menu **Options** > **Preferences** > **XML** > **XSLT/FO/XQuery** > **XSLT** > **MSXML.NET**.

The options of the MSXML.NET processor are:

- **Enable XInclude processing** - If checked, XInclude references will be resolved when MSXML.NET is used as transformer in the *XSLT transformation scenario*.
- **Validate documents during parse phase** - If checked and either the source or stylesheet document has a DTD or schema against which its content can 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 for the XML document.
- **Strip non-significant whitespaces** - If checked, strips 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:
  - the time to load, parse, and build the input document
  - the time to load, parse, and build the stylesheet document
  - the time to compile the stylesheet in preparation for the transformation
  - the time to execute the stylesheet
- **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.*
- **Use named URI resolver class** - This option allows to specify a custom URI resolver class to resolve URI references in `xsl:import` and `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*. 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* (GAC), where the specified resolver class can be found. See MSDN for more info about *partial assembly names*. Also see the previous option.
- **List of extension object class names** - This option allows to specify *extension object* 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, similar to providing XSLT parameters.
- **Use specified EXSLT assembly** - MSXML.NET supports a rich library of the *EXSLT* and *EXSLT.NET extension functions* embedded or in a plugged in EXSLT.NET 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).

FO Processors Preferences

Besides Apache FOP, the built-in formatting objects processor, you can configure other external processors and set them in the transformation scenarios for processing XSL-FO documents.

Oxygen XML Author provides an easy way to add two of the most used commercial FO processors: *RenderX XEP* and *Antenna House XSL Formatter*. You can easily add RenderX XEP as an external FO processor if you have the XEP installed. Also, if you have the Antenna House XSL Formatter v4 or v5, Oxygen XML Author uses the environmental variables set by the XSL Formatter installation to detect and use it for XSL-FO transformations. If the environmental variables are not set for the XSL Formatter installation, you can browse and choose the executable file just as you would for XEP. You can use these two external FO processors for *DITA OT transformations scenarios* and *XML with XSLT transformation scenarios*.

To open the **FO Processors** preferences panel ,go to **Options** > **Preferences** > **XML** > **XSLT/FO/XQuery** > **FO Processors**.

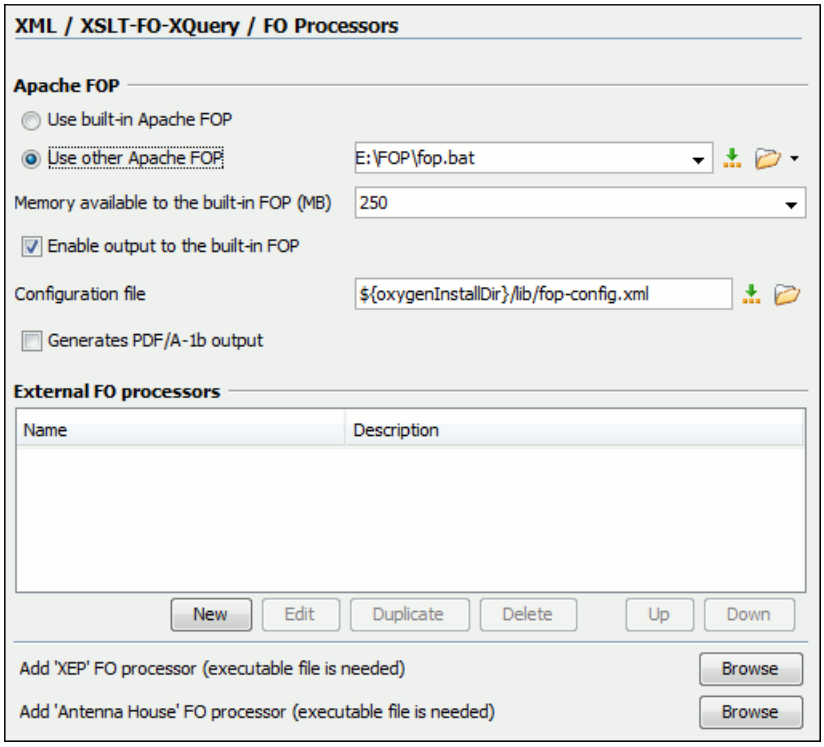


Figure 296: The FO Processors Preferences Panel

Apache FOP

The options for FO processors are the following:

- **Use built-in Apache FOP** - instructs Oxygen XML Author to use its built-in Apache FO processor;
- **Use other Apache FOP** - instructs Oxygen XML Author to use another Apache FO processor installed on your computer;
- **Enable the output of the built-in FOP** - all Apache FOP output is displayed in a results pane at the bottom of the Oxygen XML Author window including warning messages about FO instructions not supported by Apache FOP;
- **Memory available to the built-in FOP** - if your Apache FOP transformations fail with an Out of Memory error (**OutOfMemoryError**) 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 an Apache FOP configuration file, necessary for example to render to PDF a document containing Unicode content using a special *true type* font;
- **Generates PDF/A-1b output** - when selected PDF/A-1b output is generated;

  Note: All fonts have to be embedded, even the implicit ones. More information about configuring metrics files for the embedded fonts can be found in *Add a font to the built-in FOP*.

  Note: You cannot use the `<filterList>` key in the configuration file because FOP would generate the following error: *The Filter key is prohibited when PDF/A-1 is active*.

- **Add 'XEP' FO processor (executable file is needed)** - in case *RenderX XEP* is already installed on your computer, you can use this button to choose the XEP executable script (`xep.bat` for Windows, `xep` for Linux);
- **Add 'Antenna House' FO processor (executable file is needed)** - in case *Antenna House XSL Formatter* is already installed on your computer, you can use this button to choose the Antenna House executable script (AHFCmd.exe ,or XSLCmd.exe for Windows, AHFCmd.sh ,or XSLCmd.sh for Linux);

External FO processors

In this section you can manage the external FO processors you want to use in transformation scenarios. Press the **New** button to add a new external FO processor. The following dialog is displayed:

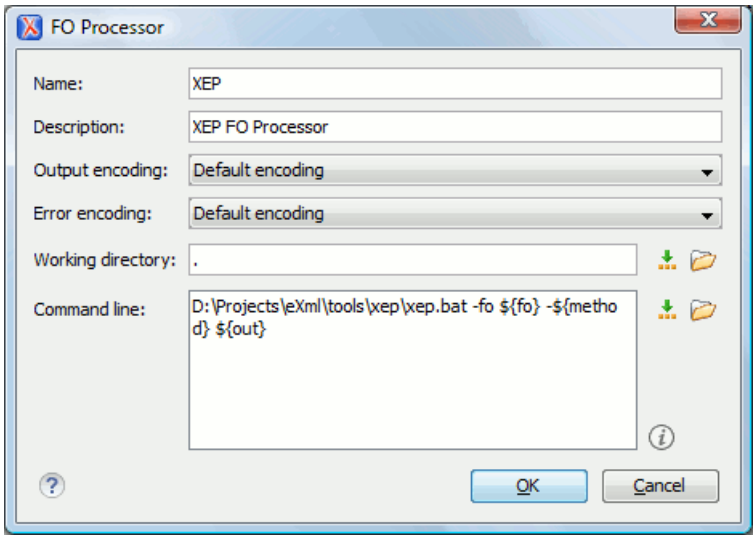


Figure 297: The External FO Processor Configuration Dialog

- **Name** - the name displayed in the list of available FOP processors on the FOP tab of the transformation scenario dialog;
- **Description** - a textual description of the FO processor displayed in the FO processors table and in tooltips of UI components where the processor is selected;
- **Output Encoding** - the encoding of the FO processor output stream displayed in a results panel at the bottom of the Oxygen XML Author window;
- **Error Encoding** - the encoding of the FO processor error stream displayed in a results panel at the bottom of the Oxygen XML Author window;
- **Working directory** - the directory where the intermediate and final results of the processing is stored. Here you can use one of the following editor variables:
  - **${homeDir}** - the path to user home directory;
  - **${cfd}** - the path of current file directory. If the current file is not a local file, the target is the user's desktop directory;
  - **${pd}** - the project directory;
  - **${oxygenInstallDir}** - the Oxygen XML Author installation directory;
- **Command line** - the command line that starts the FO processor, specific to each processor. Here you can use one of the following editor variables:
  - **${method}** - the FOP transformation method: **pdf**, **ps** or **txt**;
  - **${fo}** - the input FO file;
  - **${out}** - the output file;
  - **${pd}** - the project directory;
  - **${frameworksDir}** - the path of the `frameworks` subdirectory of the Oxygen XML Author install directory;
  - **${oxygenInstallDir}** - the Oxygen XML Author installation directory;
  - **${ps}** - the platform-specific path separator. It is used between the library files specified in the class path of the command line.

XPath Preferences

To open the **XPath** preferences panel go to **Options** > **Preferences** > **XML** > **XSLT/FO/XQuery** > **XPath**.

Oxygen XML Author allows you to customize the following options:

- **Unescape XPath expression** - the entities of an XPath expressions that you type in *the XPath toolbar* are unescaped. For example the expression

  ```
  //varlistentry[starts-with(@os,'&#x73;')]
  ```

  is equivalent with:

  ```
  //varlistentry[starts-with(@os,'s')]
  ```

- **Multiple XPath results** - enable this option to display the results of an XPath in separate tabs in the **Results View***The Results View* on page 56.
- **No namespace** - if you enable this option, Oxygen XML Author considers unprefixed element names of the XPath 2.0 / 3.0 expressions evaluated in *the XPath toolbar* as belonging to no namespace.
- **Use the default namespace from the root element** - if you enable this option, Oxygen XML Author considers unprefixed element names of the XPath expressions evaluated in *the XPath toolbar* as belonging to the default namespace declared on the root element of the XML document you are querying.
- **Use the namespace of the root** - if you enable this option, Oxygen XML Author considers unprefixed element names of the XPath expressions evaluated in *the XPath toolbar* as belonging to the same namespace as the root element of the XML document you are querying.
- **This namespace** - in this field you can enter the namespace of the unprefixed elements used in *the XPath toolbar*.
- **Default prefix-namespace mappings** - in this field you can associate prefixes with namespaces. Use these mappings when you want to define them globally, not for each document.

Custom Engines Preferences

You can configure and run XSLT and XQuery transformations with processors other than *the ones which come with the Oxygen XML Author distribution*.

Note:

To open the **Custom Engines** preferences page, go to **Options** > **Preferences** > **XML** > **XSLT/FO/XQuery** > **Custom Engines**.

The following parameters can be configured for a custom engine:

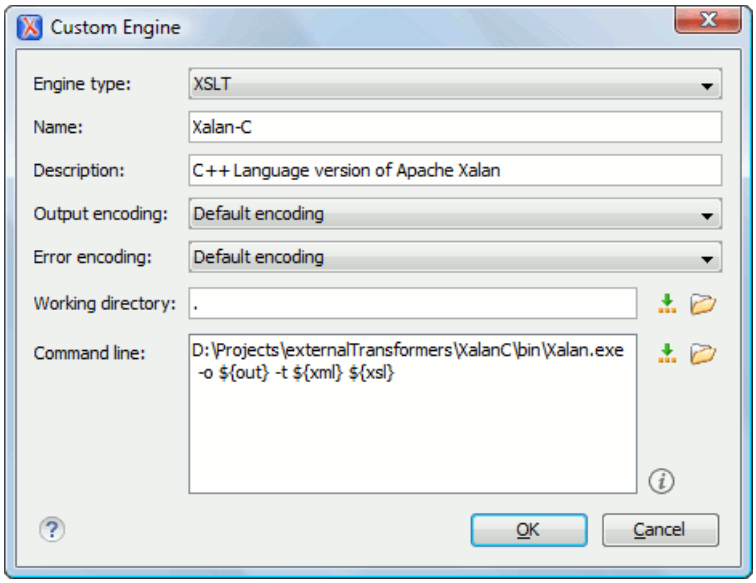


Figure 298: Parameters of a Custom Engine

- **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** - A textual description of the transformer.

- **Output Encoding** - The encoding of the transformer output stream.
- **Error Encoding** - The encoding of the transformer error stream.
- **Working directory** - The start directory of the transformer executable program. The following editor variables are available for making the path to the working directory independent of the location of the input files:
  - **${homeDir}** - The user home directory in the operating system.
  - **${cfd}** - The path to the directory of the current file.
  - **${pd}** - The path to the directory of the current project.
  - **${oxygenInstallDir}** - The Oxygen XML Author install directory.
- **Command line** - The command line that must be executed by Oxygen XML Author to perform a transformation with the engine. The following editor variables are available for making the parameters in the command line (the transformer executable, the input files) independent of the location of the input files:
  - **${xml}** - The XML input document as a file path.
  - **${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.
  - **${ps}** - The platform separator which is used between library file names specified in the class path.

Import Preferences

To open the **Import** preferences page, go to **Preferences** > **XML** > **Import**. This page allows you to configure how empty values and `null` values are handled when they are encountered in imported database tables or Excel sheets. Also you can configure the format of date / time values recognized in the imported database tables or Excel sheets.

The following options are available:

- **Create empty elements for empty values** - If checked, an empty value from a database column or from a text file is imported as an empty element.
- **Create empty elements for null values** - If checked, `null` values from a database column are imported as empty elements.
- **Escape XML content** - Enabled by default, this option instructs Oxygen XML Author to escape the imported content to an XML-safe form.
- **Add annotations for generated XML Schema** - If checked, the generated XML Schema contains an annotation for each of the imported table columns. The documentation inside the annotation tag contains the remarks of the database columns (if available) and also information about the conversion between the column type and the generated XML Schema type.

The section **Date / Time Format** specifies the format used for importing date and time values from Excel spreadsheets or database tables and in the generated XML schemas. The following format types are available:

- **Unformatted** - If checked, the date and time formats specific to the database are used for import. When importing data from Excel a string representation of date or time values are used. The type used in the generated XML Schema is `xs:string`.
- **XML Schema date format** - If checked, the XML Schema-specific format ISO8601 is used for imported date / time data (`yyyy-MM-dd'T'HH:mm:ss` for `datetime`, `yyyy-MM-dd` for `date` and `HH:mm:ss` for `time`). The types used in the generated XML Schema are `xs:datetime`, `xs:date` and `xs:time`.
- **Custom format** - If checked, the user can define a custom format for timestamp, date, and time values or choose one of the predefined formats. A preview of the values is presented when a format is used. The type used in the generated XML Schema is `xs:string`.

Date / Time Patterns Preferences

Table 8: Pattern letters

Letter	Date or Time Component	Presentation	Examples
G	Era designator	Text	AD
y	Year	Year	1996; 96
M	Month in year	Month	July; Jul; 07
w	Week in year	Number	27
W	Week in month	Number	2
D	Day in year	Number	189
d	Day in month	Number	10
F	Day of week in month	Number	2
E	Day in week	Text	Tuesday; Tue
a	Am / pm marker	Text	PM
H	Hour in day (0-23)	Number	0
k	Hour in day (1-24)	Number	24
K	Hour in am / pm (0-11)	Number	0
h	Hour in am / pm (1-12)	Number	12
m	Minute in hour	Number	30
s	Second in minute	Number	55
S	Millisecond	Number	978
z	Time zone	General time zone	Pacific Standard Time; PST; GMT-08:00
Z	Time zone	RFC 822 time zone	-0800

Pattern letters are usually repeated, as their number determines the exact presentation:

- *Text* - If the number of pattern letters is 4 or more, the full form is used; otherwise a short or abbreviated form is used if available.
- *Number* - The number of pattern letters is the minimum number of digits, and shorter numbers are zero-padded to this amount.
- *Year* - If the number of pattern letters is 2, the year is truncated to 2 digits; otherwise it is interpreted as a number.
- *Month* - If the number of pattern letters is 3 or more, the month is interpreted as text; otherwise, it is interpreted as a number.
- *General time zone* - Time zones are interpreted as text if they have names. For time zones representing a GMT offset value, the following syntax is used:
  - *GMTOffsetTimeZone* - GMT Sign Hours : Minutes
  - *Sign* - one of + or -
  - *Hours* - one or two digits
  - *Minutes* - two digits
  - *Digit* - one of 0 1 2 3 4 5 6 7 8 9

  Hours must be between 0 and 23, and Minutes must be between 00 and 59. The format is locale independent and digits must be taken from the Basic Latin block of the Unicode standard.

- *RFC 822 time zone*: The RFC 822 4-digit time zone format is used:
  - *RFC822TimeZone* - Sign *TwoDigitHours* Minutes
  - *TwoDigitHours* - a number of two digits

  TwoDigitHours must be between 00 and 23.

Data Sources Preferences

To open the **Data Sources** preferences page, go to **Options** > **Preferences** > **Data Sources**.

Data Sources Preferences

To open the **Data Sources** preferences page, go to **Options** > **Preferences** > **Data Sources**. In this preferences page you can configure data sources and connections to relational databases as well as native XML databases. You can check the list of drivers (*http://www.oxygenxml.com/database_drivers.html*) available for the major database servers.

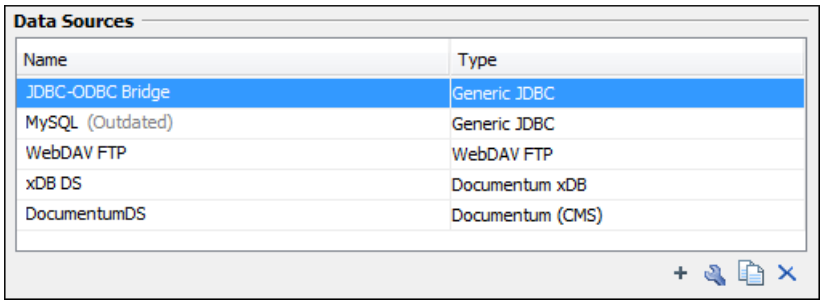


Figure 299: The Data Sources Preferences Panel

- **New** - opens the **Data Sources Drivers** dialog that allows you to configure a new database driver.

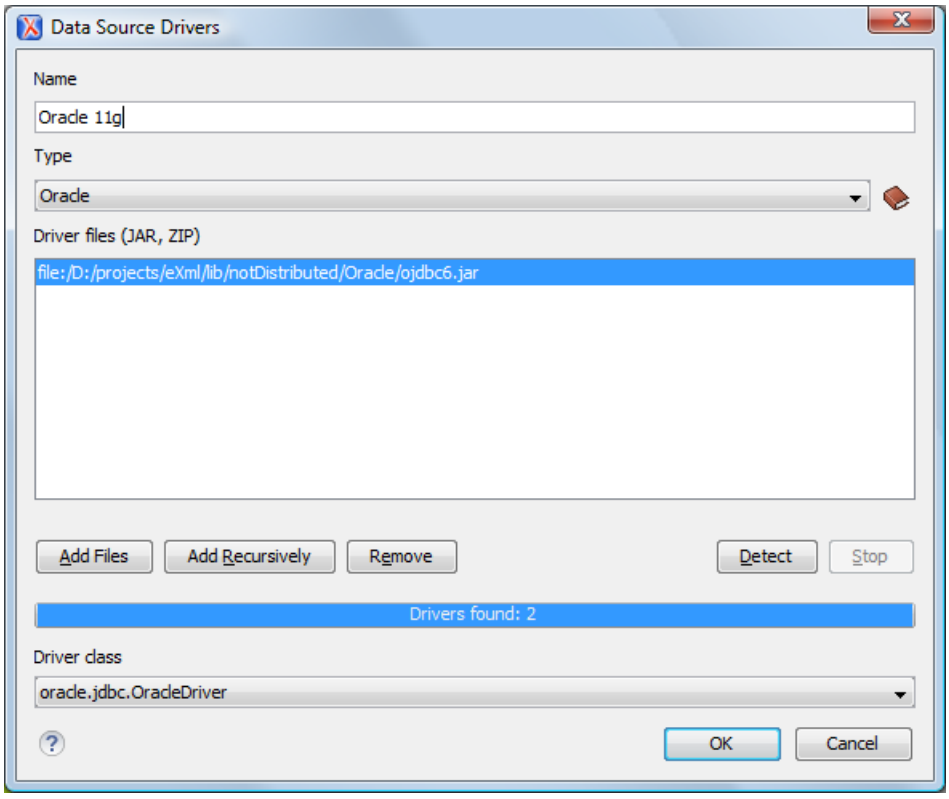


Figure 300: The Data Sources Drivers Dialog

The following options are available:

- **Name** - the name of the new data source driver that will be used for creating connections to the database;
- **Type** - selects the data source type from the supported driver types;
- **Help** - opens the User Manual at *the list of the sections* where the configuration of supported data sources is explained and the URLs for downloading the database drivers are specified;
- **Driver Class** - specifies the driver class for the data source driver;
- **Add** - adds the driver class library;
- **Remove** - removes the selected driver class library from the list;
- **Detect** - detects driver class candidates;
- **Stop** - stops the detection of the driver candidates;

- **Edit** - opens the **Data Sources Drivers** dialog for editing the selected driver. See above the specifications for the **Data Sources Drivers** dialog. In order to edit a data source, there must be no connections using that data source driver;
- **Delete** - deletes the selected driver. In order to delete a data source, there must be no connections using that data source driver;

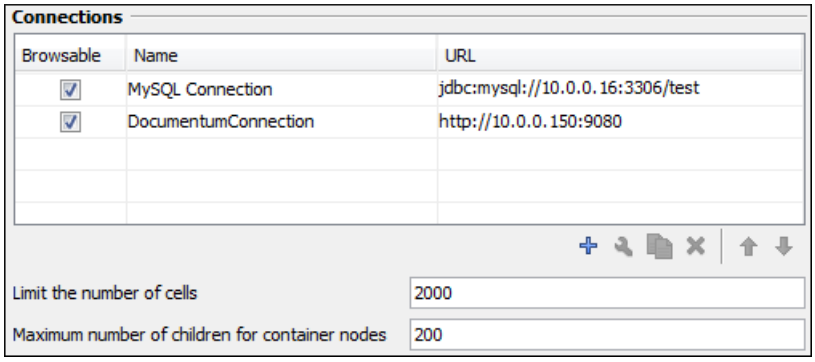


Figure 301: The Connections Preferences Panel

For performance issues, you can set the maximum number of cells that will be displayed in the **Table Explorer** view for a database table. Leave the field **Limit the number of cells** empty if you want the entire content of the table to be displayed. By default this field is set to 2,000. If a table having more cells than the value set here is displayed in the **Table Explorer** view, a warning dialog will inform you that the table is only partially shown.

In Oracle XML a container can hold millions of resources. If the node corresponding to such a container in the **Data Source Explorer** view would display all the contained resources at the same time the performance of the view would be very slow. To prevent such a situation only a limited number of the contained resources is displayed as child nodes of the container node. Navigation to other contained resources from the same container is enabled by the *Up* and *Down* buttons in the **Data Source Explorer** view. This limited number is set in the option **Maximum number of children for container nodes**. The default value is 200 nodes.

The actions of the buttons from the **Connections** panel are the following:

- **New** - opens the **Connection** dialog which has the following fields:

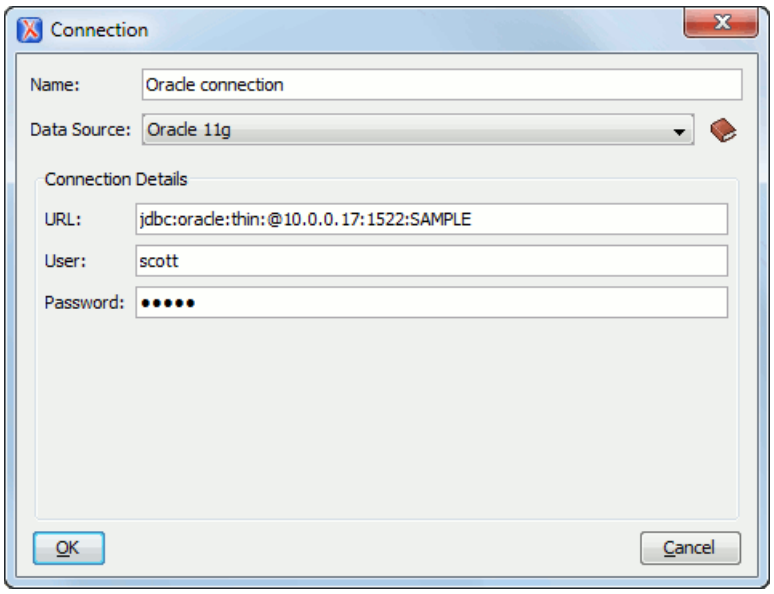


Figure 302: The Connection Dialog

- **Name** - the name of the new connection that will be used in transformation scenarios and validation scenarios;
- **Data Source** - allows selecting a data source defined in the **Data Source Drivers** dialog.

Depending upon the selected data source, you can set some of the following parameters in the **Connection details** area:

- **URL** - the URL for connecting to the database server;
- **User** - the user name for connecting to the database server;
- **Password** - the password of the specified user name;
- **Host** - the host address of the server;
- **Port** - the port where the server accepts the connection;
- **XML DB URI** - the database URI;
- **Database** - the initial database name;
- **Collection** - one of the available collections for the specified data source;
- **Environment home directory** - specifies the home directory (only for a Berkeley database);
- **Verbosity** - sets the verbosity level for output messages (only for a Berkeley database);
- **Use a secure HTTPS connection (SSL)** - allows you to establish a secure connection to an eXist database through the SSL protocol.

- **Edit** - opens the **Connection** dialog, allowing you to edit the selected connection. See above the specifications for the **Connection** dialog;
- **Duplicate** - creates a duplicate of the currently selected connection;
- **Delete** - deletes the selected connection.

Download Links for Database Drivers

You can find below the locations where you have to go to get the drivers necessary for accessing databases in Oxygen XML Author.

- **Berkeley DB XML database** - Copy the jar files from the Berkeley database install directory to the Oxygen XML Author install directory as described in *the procedure* for configuring a Berkeley DB data source.
- **IBM DB2 Pure XML database** - Go to the *IBM website* and in the *DB2 Clients and Development Tools* category select the *DB2 Driver for JDBC and SQLJ* download link. Fill the download form and download the zip file. Unzip the zip file and use the `db2jcc.jar` and `db2jcc_license_cu.jar` files in Oxygen XML Author for *configuring a DB2 data source*.

- **eXist database** - Copy the jar files from the eXist database install directory to the Oxygen XML Author install directory as described in *the procedure* for configuring an eXist data source.
- **MarkLogic database** - Download the MarkLogic driver from *MarkLogic Community site*.
- **Microsoft SQL Server 2005 / 2008 database** - Both SQL Server 2005 and SQL Server 2008 are supported. For connecting to SQL Server 2005 you have to download the SQL Server 2005 JDBC driver file `sqljdbc.jar` from the *Microsoft website* and use it for *configuring an SQL Server data source*. For connecting to SQL Server 2008 you have to download the SQL Server 2008 JDBC 1.2 driver file `sqljdbc_1.2\enu\sqljdbc.jar` from the *Microsoft website* and use it for *configuring an SQL Server data source*. Please note that the SQL Server driver is compiled with a Java 1.6 compiler so you need to *run Oxygen XML Author with a Java 1.6 virtual machine* in order to use this driver.
- **Oracle 11g database** - Download the Oracle 11g JDBC driver called `ojdbc5.jar` from the *Oracle website* and use it for *configuring an Oracle data source*.
- **PostgreSQL 8.3 database** - Download the PostgreSQL 8.3 JDBC driver called `postgresql-8.3-603.jdbc3.jar` from the *PostgreSQL website* and use it for *configuring a PostgreSQL data source*.
- **Documentum xDb (X-Hive/DB) 10 XML database** - Copy the jar files from the Documentum xDb (X-Hive/DB) 10 database install directory to the Oxygen XML Author install directory as described in *the procedure* for configuring a Documentum xDb (X-Hive/DB) 10 data source.

Table Filters Preferences

The **Table Filters** preferences panel is opened from menu **Options** > **Preferences** > **Data Sources** > **Table Filters**.

Here you can choose which of the database table types will be displayed in the **Data Source Explorer** view.

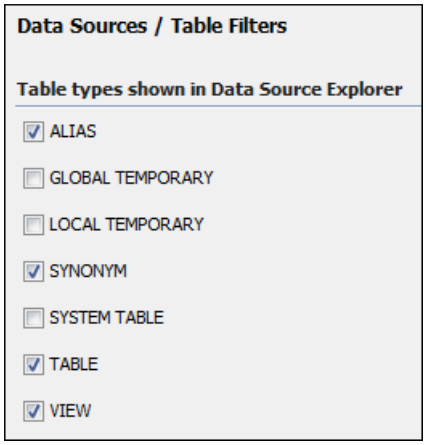


Figure 303: Table Filters Preferences Panel

SVN Preferences

To open the **SVN** preferences page, go to **Options** > **Preferences** > **SVN**. In this preferences page the user preferences for the embedded SVN client tool are configured. Some other preferences for the embedded SVN client tool can be set in the global files called `config` and `servers`, that is the files with parameters that act as defaults applied to all the SVN client tools that are used by the same user on his login account on the computer. These files can be opened for editing with the two edit actions available in the SVN client tool on the **Global Runtime Configuration** submenu of the **Options** menu.

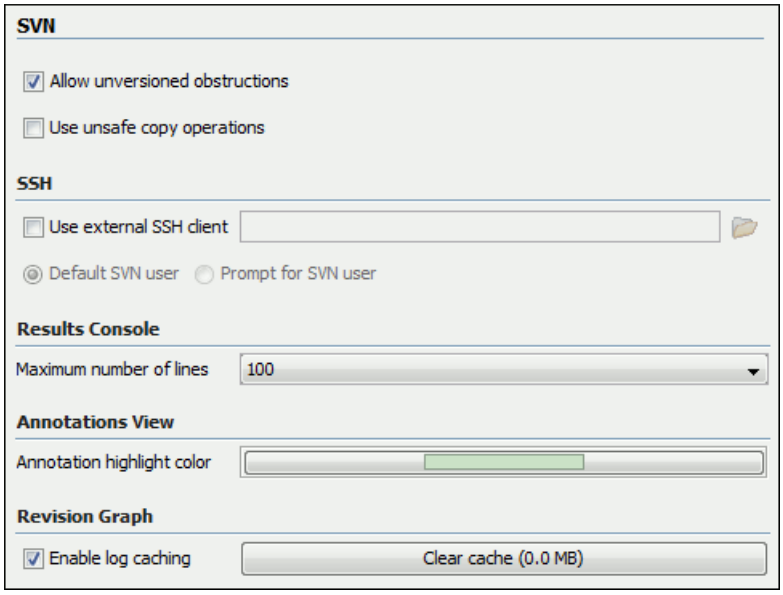


Figure 304: The SVN Preferences Panel

The SVN preferences are the following:

- **Enable symbolic link support** (*available only on Mac OS X and Linux*) - Apache Subversion™ has the ability to put a symbolic link under version control, via the usual SVN `add` command. The Subversion repository has no internal concept of a symbolic link, it stores a versioned symbolic link as an ordinary file with a `svn:special` property attached. The SVN client (on Unix) sees the property and translates the file into a symbolic link in the working copy.

  Note: Windows file systems have no symbolic links, so a Windows client won't do any such translation: the object appears as a normal file.

  If the symbolic link support is disabled then the versioned symbolic links, on Linux and OS X, are supported in the same way as on Windows, that is a text file instead of symbolic link is created.

  Important: It is recommended to disable symbolic links support if you do not have versioned symbolic links in your repository, because the SVN operations will work faster. However, you should not disable this option when you do have versioned symbolic links in repository. In that case a workaround would be to refer to working copy by its real path, not a path that includes a symbolic link.

- **Allow unversioned obstructions** - controls how should be handled working copy resources being ignored / unversioned when performing an update operation and from the repository are incoming files with the same name, in the same location, that intersect with those being ignored / unversioned. If the option is enabled, then the incoming items will become BASE revisions of the ones already present in the working copy, and those present will be made versioned resources and will be marked as modified. Exactly as if the user first made the update operation and after that he / she modified the files. If the option is disabled, the update operation will fail when encountering files in this situation, possibly leaving other files not updated. By default, this option is enabled.
- **Use unsafe copy operations** - sometimes when the working copy is accessed through Samba and SVN client cannot make a safe copy of the committed file due to a delay in getting write permission the result is that the committed file will be saved with zero length (the content is removed) and an error will be reported. In this case this option should be selected so that SVN client does not try to make the safe copy.
- **HTTPS encryption protocols** - sets a specific encryption protocol to be used when the *application accesses a repository through HTTPS protocol*. You can choose one of the following values:
  - **SSLv3, TLSv1** (default value)
  - **SSLv3 only**
  - **TLSv1 only**

- **SSH** - specifies the command line for an external SSH client which will be used when connecting to a SVN+SSH repository. Absolute paths are recommended for the SSH client executable and the file paths given as arguments (if any). Depending on the SSH client used and your SSH server configuration you may need to specify in the command line the user name and / or private key / passphrase. Here you can also choose if the default user name (the same user name as the SSH client user) will be used for SVN repository operations or you should be prompted for a SVN user name whenever SVN authentication is required. For example on Windows the following command line uses the `plink.exe` tool as external SSH client for connecting to the SVN repository with SVN+SSH:
  ```
  C:\plink-install-folder\plink.exe -l username -pw password -ssh -batch host_name_or_IP_address_of_SVN_server
  ```
- **Results Console** - specifies the maximum number of lines displayed in the **Console** view. The default value is 1,000.
- **Annotations View** - sets the color used for highlighting in the editor panel all the changes contributed to a resource by the revision selected in *the **Annotations** view*.
- **Revision Graph** - enables caching for the action of computing a revision graph. When a new revision graph is requested one of the caches from the previous actions may be used which will avoid running the whole query again on the SVN server. If a cache is used it will finish the action much faster.

Working Copy Preferences

To open the **Working Copy** preferences page, go to **Options** > **Preferences** > **SVN** > **Working Copy**. The option that you are able to configure in this preferences page are specific to SVN working copies:

- **Working copies location** - Allows you to define a location where you keep your working copies. This location is automatically suggested when you checkout a new working copy.
- **Working copy administrative directory** - Allows you to customize the directory name where the svn entries are kept for each directory in the working copy.
- **When loading an old format working copy** - You can instruct Oxygen XML Author to do one of the following:
  - **Automatically upgrade** - Older format working copies are upgraded to the newest known format.
  - **Never upgrade** - Older format working copies are left untouched. No attempt to upgrade the format is made.
  - **Always ask** - You are notified when such a working copy is used and you are allowed to choose what action to be taken - to upgrade or not the format of the current working copy.
- **Enable working copy caching** - If checked, the content of the working copies is cached for refresh operations.
- **Automatically refresh the working copy** - If checked, the working copy is refreshed from cache. Only the new changes (modifications with a date/time that follows the last refresh operation) are refreshed from disk. Disabled by default.
- **When synchronizing with repository** - The action that will be executed automatically after the **Synchronize** action. The possible actions are:
  - **Always switch to 'Modified' mode** - The **Synchronize** action is followed automatically by a switch to **Modified** mode of **Working Copy** view, if **All Files** mode is currently selected.
  - **Never switch to 'Modified' mode** - Keeps the currently selected view mode unchanged.
  - **Always ask** - The user is always asked if he wants to switch to **Modified** mode.
- **Application global ignores** - Allows setting file patterns that may include the `*` and `?` wildcards for unversioned files and folders that must be ignored when displaying the working copy resources in *the **Working Copy** view*. These patterns are case-sensitive. For example,`*.txt` matches `file.txt`, but does not match `file.TXT`.

Diff Preferences

The **Diff** preferences page allows you to set the compare options for SVN client. To open the **Diff** preferences page, go to **Options** > **Preferences** > **SVN** > **Diff**.

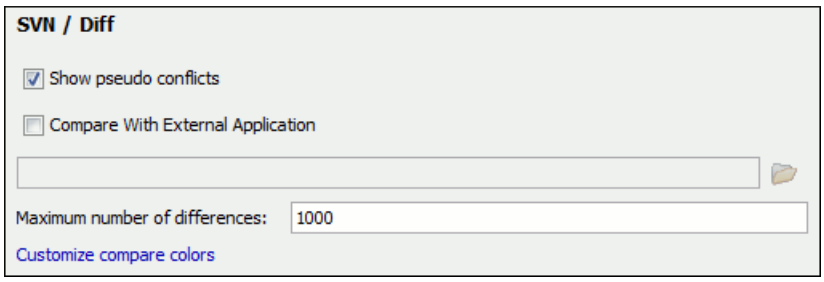


Figure 305: The SVN Diff Preferences Panel

The SVN diff preferences are the following:

- **Show pseudo conflicts** - specifies whether the *the **Compare** view* displays pseudo-conflicts . A pseudo-conflict occurs when two developers make the same change, for example when they both add or remove the same line of code.
- **Compare With External Application** - specifies an external application to be launched for compare operations in the following cases:
  - when two history revisions are compared;
  - when the working copy file is compared with a history revision;
  - when *a conflict is edited*.

  The parameters ${firstFile} and ${secondFile} specify the positions of the two compared files in the command line for the external diff application. The parameter ${ancestorFile} specifies the common ancestor (that is, the BASE revision of a file) in a three-way comparison: the working copy version of a file is compared with the repository version, with the BASE revision (the latest revision read from the repository by an Update or Synchronize operation) being the common ancestor of these two compared versions.
- **Maximum number of differences** - sets the maximum number of differences allowed in the view.

Messages Preferences

To open the **Messages** preferences page, go to **Options** > **Preferences** > **SVN** > **Messages**. This preferences page allows you to disable the following warning messages which may appear in the application:

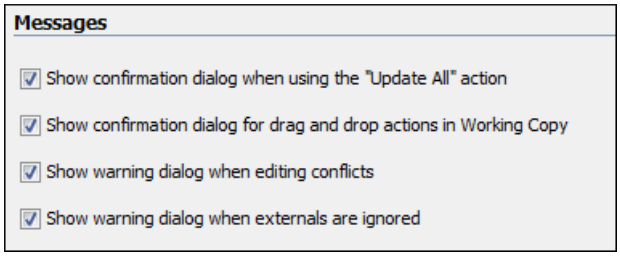


Figure 306: The Messages Preferences Panel

- **Show confirmation dialog when using the "Update All" action** - Allows you to avoid performing accidental update operations by requesting you to confirm them before execution.
- **Show confirmation dialog for drag and drop actions in Working Copy** - This option avoids doing a drag and drop when you just want to select multiple files in the Working Copy view.
- **Show warning dialog when editing conflicts** - When the **Edit Conflicts** action is executed, a warning dialog notifies you that the action overwrites the conflicted version of the file created by an update operation. The conflicted file is overwritten with the version of the same file which existed in the working copy before the update operation and then *proceeds with the visual editing of the conflicting file*.
- **Show warning dialog when "svn:externals" definitions are ignored** - A warning dialog is displayed when "svn:externals" definitions are ignored before performing any operation that updates resources of the working copy (like *Update* and *Override and Update*).

Files Comparison Preferences

To open the **Files Comparison** preferences page, go to **Options** > **Preferences** > **Diff** > **Files Comparison**. This preferences page allows you to configure the following options:

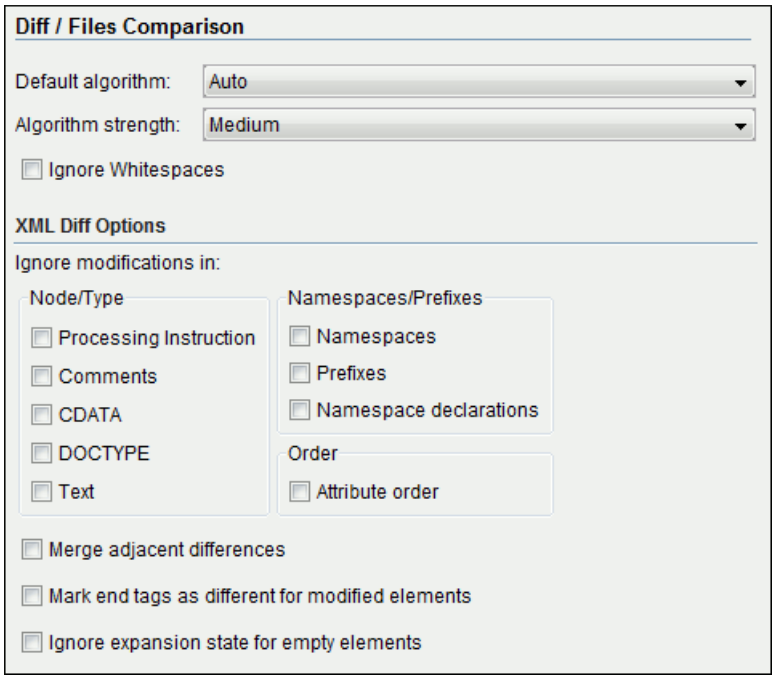


Figure 307: The Files Comparison Preferences Panel

- **Default algorithm** - the default algorithm used for comparing files. The following options are available:
  - **Auto** - automatic selection of the diff algorithm, based on the file content and its 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 XML Author, this algorithm computes the differences taking into consideration the syntax (the specific types of tokens) of the documents;
  - **XML Fast** - a diff algorithm well-suited for large XML documents (tens of MB). Sacrifices accuracy in favor of speed;
  - **XML Accurate** - XML-tuned diff algorithm. It favors accuracy over speed.
- **Algorithm strength** - controls the amount of resources allocated to the application to perform the comparison. The algorithm stops searching more differences when reaches the maximum allowed resources. A dialog is shown when this limit is reached and partial results are displayed. Four settings are available: **Low**, **Medium** (default), **High** and **Very High**;
- **Ignore Whitespaces** - ignoring whitespaces means that before performing the comparison, the application normalizes the content (collapses any sequence of whitespace characters (space, newline or tab characters) into a single space) and trims its leading and trailing whitespaces;

  Note: If the **Ignore Whitespaces** check box is selected, comparing the `a  b` sequence with `a  b`, Oxygen XML Author finds no differences, because after normalization, all whitespaces from the first sequence are collapsed into a single space character. However, when comparing `a  b` with `ab` (no whitespace between `a` and `b`), Oxygen XML Author signals a difference.

- **XML Diff Options** - this set of options allows you to specify the types of XML nodes for which the differences will be ignored (will not be reported) by the **XML Fast** and **XML Accurate** algorithms;

- **Merge adjacent differences** - considers two adjacent differences as one when the differences are painted in the side-by-side editors. If unchecked, every difference is represented separately;
- **Mark end tags as different for modified elements** - end tags of modified elements are presented as differences too, otherwise only the start tags are presented as differences;
- **Ignore expansion state for empty elements** - empty elements in both expansion states are considered matched, that is `<element/>` and `<element></element>` are considered equal.

Appearance Preferences

To open the **Files Comparison / Appearance** preferences page, go to **Options** > **Preferences** > **Diff** > **Files Comparison** > **Appearance**. This preferences page offers the following options:

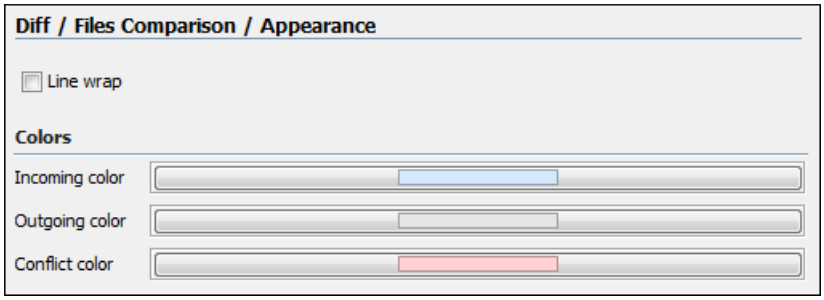


Figure 308: Files Comparison Appearance Preferences Panel

- **Line wrap** - wraps at the right margin of each panel the lines presented in the two diff panels, so no horizontal scrollbar is necessary;
- **Incoming color** - specifies the color used for incoming changes on the vertical bar, that shows the differences between the compared files;
- **Outgoing color** - specifies the color used for outgoing changes on the vertical bar, that shows the differences between the compared files;
- **Conflict color** - specifies the color used for conflicts on the vertical bar, that shows the differences between the compared files.

Directories Comparison Preferences

The **Directories Comparison** preferences panel is opened from menu **Options** > **Preferences** > **Diff** > **Directories Comparison** and offers the following configurable preferences:

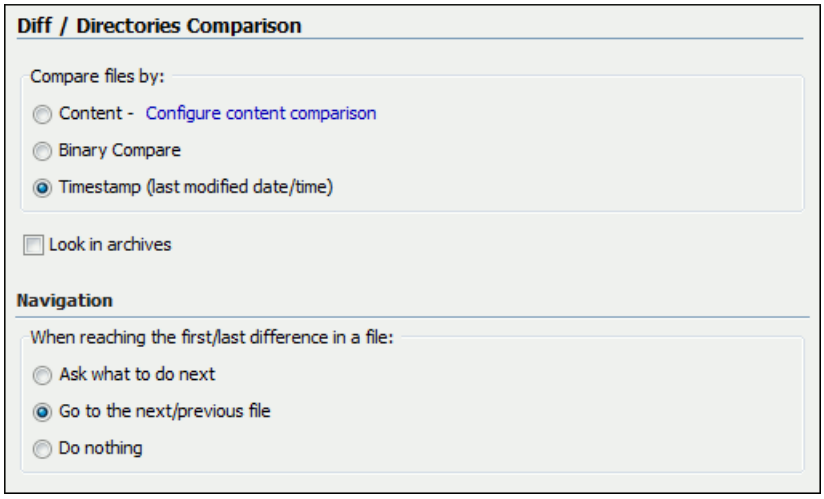


Figure 309: The Diff Preferences Panel

For the directories comparison, you can specify:

- **Compare files by** - Controls the method used for comparing two files:
  - **Content** - The file content is compared using the current *diff algorithm*. This option is applied for a pair of files only if that file type is associated with a built-in editor type (either associated by default or associated by the user when the user is prompted to do that on opening a file of that type for the first time).
  - **Binary Compare** - The files are compared at byte level.
  - **Timestamp (last modified date / time)** - The files are compared only by their last modified timestamp.
- **Look in archives** - If checked, *archives known by Oxygen XML Author* are considered directories and their content is compared just like regular files.
- **Navigation** - This options control the behaviour of the differences traversal actions (**Go to previous modification**, **Go to next modification**) when the first or last difference in a file is reached:
  - **Ask what to do next** - A dialog is displayed asking you to confirm that you want the application to display modifications from the previous or next file.
  - **Go to the next/previous file** - The application opens the next or previous file without waiting for your confirmation.
  - **Do nothing** - No further action is taken.

Appearance Preferences

The **Directories Comparison / Appearance** preferences panel is opened from menu **Options** > **Preferences** > **Diff** > **Directories Comparison** > **Appearance**.

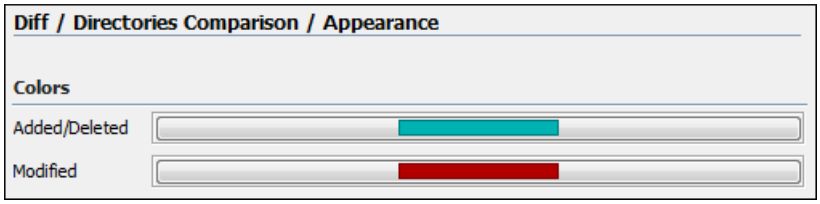


Figure 310: The Diff Appearance Preferences Panel

- **Added/Deleted** - Color used for marking added or deleted files and folders.
- **Modified** - Color used for marking modified files.

Archive Preferences

The **Archive** preferences panel is opened from menu **Options** > **Preferences** > **Archive**.

The following options are available in the **Archive** preferences panel:

- **Archive backup options** - Controls if the application makes backup copies of the modified archives. The following options are available:
  - **Always create backup copies of modified archives** - When you modify an archive, its content is backed up.
  - **Never create backup copies of modified archives** - No backup copy is created.
  - **Ask for each archive once per session** - Once per application session for each modified archive, user confirmation is required to create the backup. This is the default setting.

    Note: Backup files have the name `originalArchiveFileName.bak` and are located in the same folder as the original archive.

- **Archive types** - This table contains all known archive extensions mapped to known archive formats. Each row maps a list of extensions to an archive type supported in Oxygen XML Author. You can edit an existing mapping or create a new one by associating your own list of extensions to an archive format.

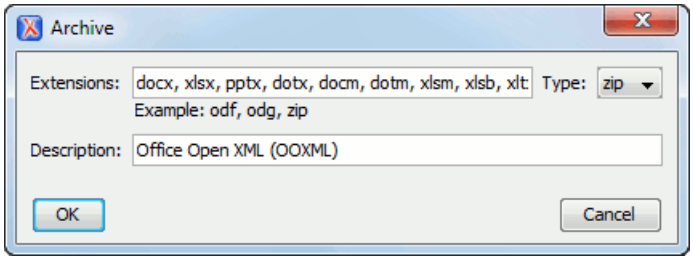


Figure 311: Edit Archive Extension Mappings

Important: You have to restart Oxygen XML Author after removing an extension from the table in order for that extension to not be recognised anymore as an archive extension.

- **Store Unicode file names in Zip archives** - Use this option when you archive files that contain international (that is, non-English) characters in file names or file comments. If an archive is modified in any way with this option turned on, UTF-8 characters are used in the names of all files in the archive.

Plugins Preferences

You are able to add plugins that extend the functionality of Oxygen XML Author. The plugins are shipped as separate packages. To check for new plugins, go to *http://www.oxygenxml.com/oxygen_sdk.html*.

A plugin consists of a separate sub-folder in the `Plugins` folder of the Oxygen XML Author installation folder. This sub-folder must contain a valid `plugin.xml` file in accordance with the `plugin.dtd` file located in the `Plugins` folder.

Oxygen XML Author automatically detects and loads plugins installed correctly in the `Plugins` folder and displays them in the **Plugins** preferences page. To open this preferences page, go to **Options** > **Preferences** > **Plugins**.

You can use the check-boxes in front of each plugin to enable or disable them. To display the properties of a plugin in the second section of the **Plugins** preferences page, click the name of the plugin.

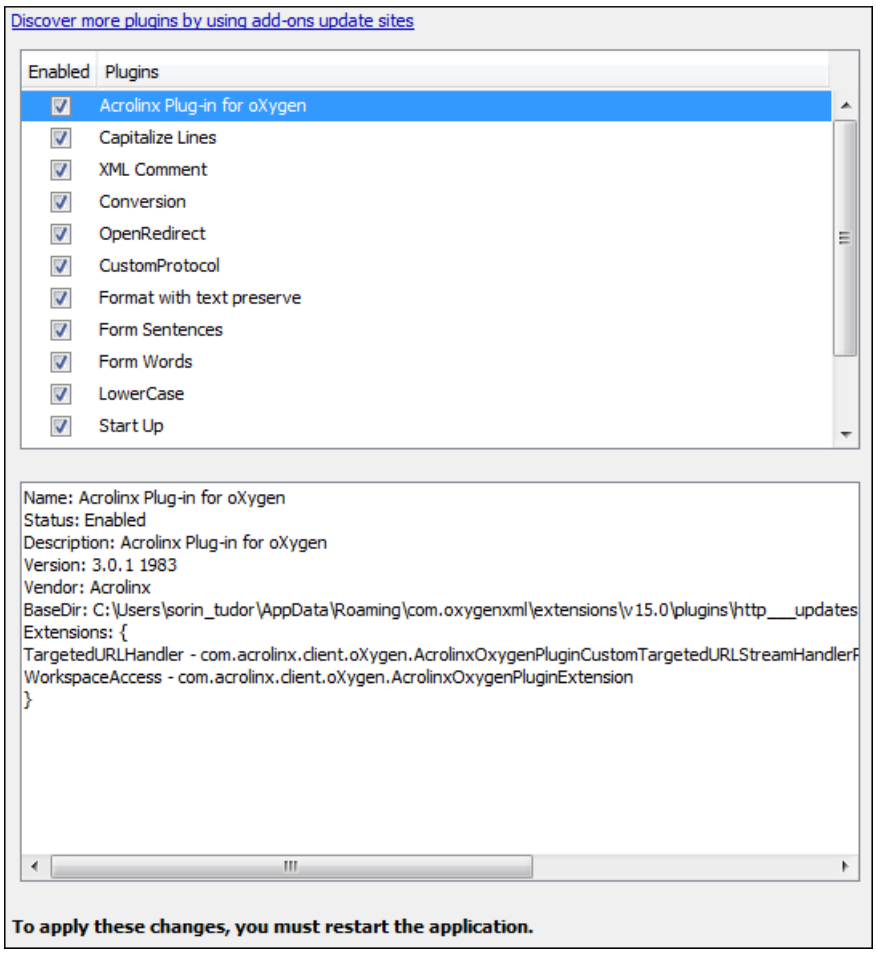


Figure 312: The Plugins Preferences Panel

Also, you are able to install a plugin as an add-on. For further details about this, go to *Deploying Plugins or Frameworks as Add-ons*

External Tools Preferences

The **External Tools** preferences panel is opened from menu **Preferences** > **External Tools**.

A command-line tool can be started from the **External Tools** toolbar in the Oxygen XML Author user interface as if from the command line of the operating system shell. Such a tool must be configured first in this preferences panel. The parameters of an external tool are set in the following dialog:

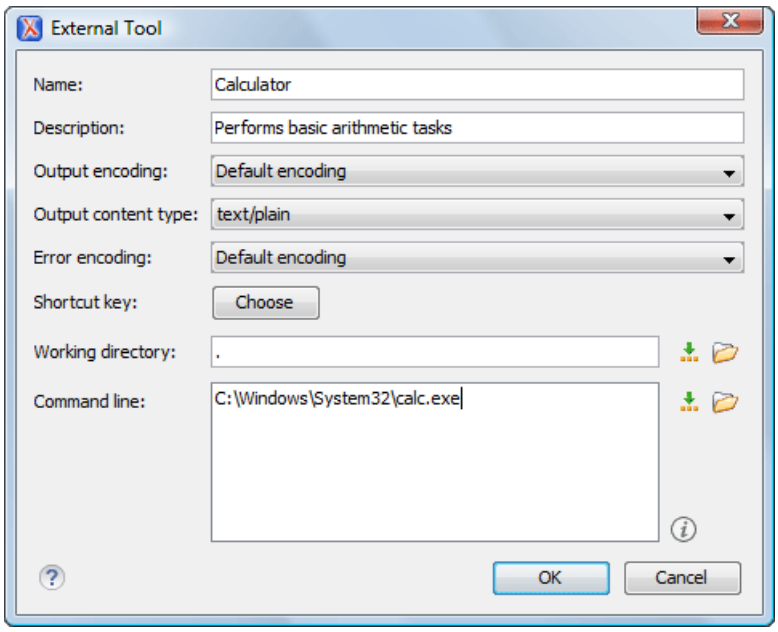


Figure 313: The External Tools Configuration Dialog

- **Name** - The name of the menu entry corresponding to this tool that will be displayed in the **Tools** > **External Tools** menu and in the **External Tools** toolbar.
- **Description** - The description of the tool displayed as tooltip where the tool name is used.
- **Output Encoding** - The encoding of the output stream of the external tool that will be used by Oxygen XML Author to read the output of the tool.
- **Output content type** - A list of predefined content type formats that instruct Oxygen XML Author how to display the generated output. For example, setting the **Output content type** to `text/xml` enables the syntax coloring of XML output.
- **Error Encoding** - The encoding of the error stream of the external tool that will be used by Oxygen XML Author to read this error stream.
- **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 editor variables:
  - **${homeDir}** - The path (as file path) of the user home folder;
  - **${cfd}** - Current file folder as file path, that is the path of the current edited document up to the name of the parent folder;
  - **${pd}** - Current project folder as file path. Usually the current folder selected in the Project View;
  - **${oxygenInstallDir}** - Oxygen XML Author installation folder as file path;
- **Command line** - The command line that will start the external tool. Here you can use one of the following editor variables:
  - **${dbgXML}** - The local file path to the XML document which is current selected in the Debugger source combo box (for tools started from the XSLT/XQuery Debugger);
  - **${dbgXSL}** - The local file path to the XSL/XQuery document which is current selected in the Debugger stylesheet combo box (for tools started from the XSLT/XQuery Debugger);
  - **${homeDir}** - The path (as file path) of the user home folder;
  - **${cfd}** - Current file folder as file path, that is the path of the current edited document up to the name of the parent folder;
  - **${cfn}** - Current file name without extension and without parent folder. The current file is the one currently opened and selected;
  - **${cfne}** - Current file name with extension. The current file is the one currently opened and selected;

- **${cf}** - Current file as file path, that is the absolute file path of the current edited document;
- **${tsf}** - The transformation result file path. If the current opened file has an associated scenario which specifies a transformation output file, this variable expands to it;
- **${pd}** - Current project folder as file path. Usually the current folder selected in the Project View;
- **${oxygenInstallDir}** - Oxygen XML Author installation folder as file path;
- **${frameworksDir}** - The path (as file path) of the `frameworks` subfolder of the Oxygen XML Author installation folder;
- **${ps}** - Path separator, that is the separator which can be used on the current platform (Windows, Mac OS X, Linux) between library files specified in the class path;
- **${timeStamp}** - Time stamp, that is the current time in Unix format. It can be used for example to save transformation results in different output files on each transform;

Menu Shortcut Keys Preferences

To open the **Menu Shortcut Keys** preferences page, go to **Options** > **Preferences** > **Menu Shortcut Keys**. Alternatively you can go to **Options** > **Menu Shortcut Keys**. You can use this page to configure shortcut keys for the actions available in Oxygen XML Author. The shortcuts assigned to menu items are displayed in the below table.

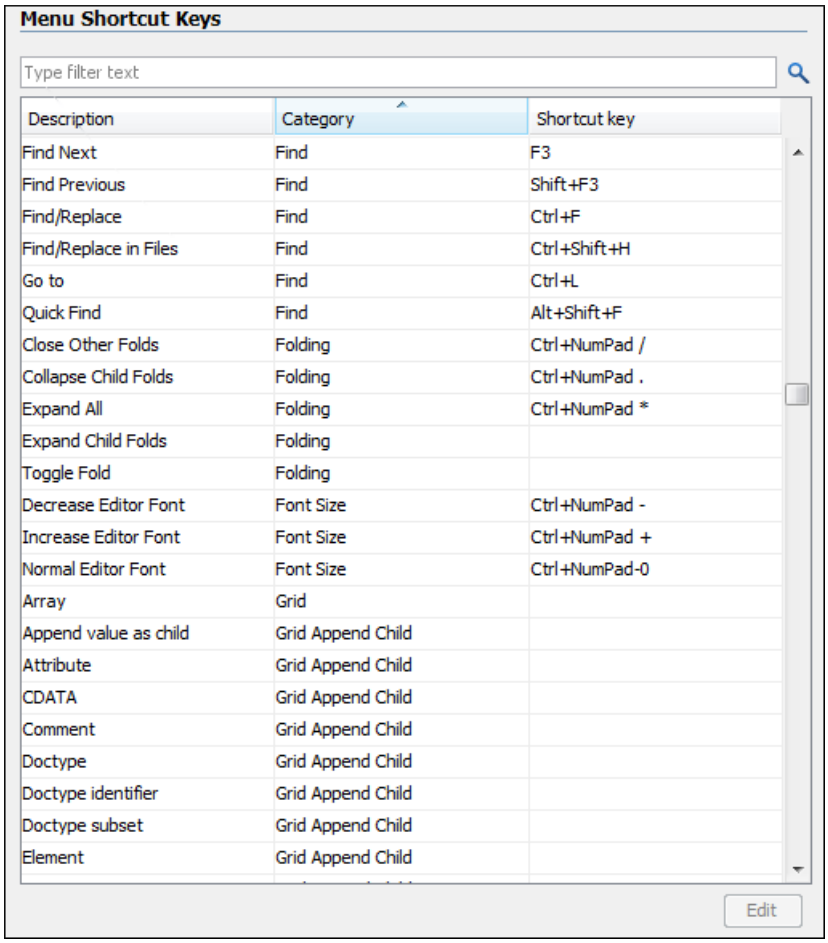


Figure 314: The Menu Shortcut Keys Preferences Panel

The **Menu shortcut Keys** preferences page also contains the shortcuts that you define at *document type* level.

Note: A shortcut defined at *document type* level overwrites a default shortcut.

To find a specific action, you can use the filter to search through the **Description**, **Category**, and **Shortcut Key** columns:

- **Description** - this column provides a short description of the action;
- **Category** - this column provides a classification of the actions in categories for easier management. For example, you can distinguish the **Cut** operation available in the **Text** view from the one available in the **Tree** view by assigning them to different categories;
- **Shortcut key** - this column holds the combination of keys on your keyboard that launches the action. You can either double click a row of the **Shortcut key** column or press the **Edit** button to enter a new shortcut;
- **'Home' and 'End' keys are applied at line level** - Option available only on Mac OS X that controls the way the HOME and END keys are interpreted. If enabled, the default behavior of the Mac OS X HOME and END keys is overridden and the caret moves only on the current line.

File Types Preferences

Oxygen XML Author offers editing support for a wide variety of file types, but users are free to add new file extensions and associate them with the editor type which fits better. The associations set here between a file extension and the type of editor which opens the file for editing have precedence over the default associations available in *the **File > New** dialog*.

To open the **File Types** preferences page, go to **Options** > **Preferences** > **File Types**.

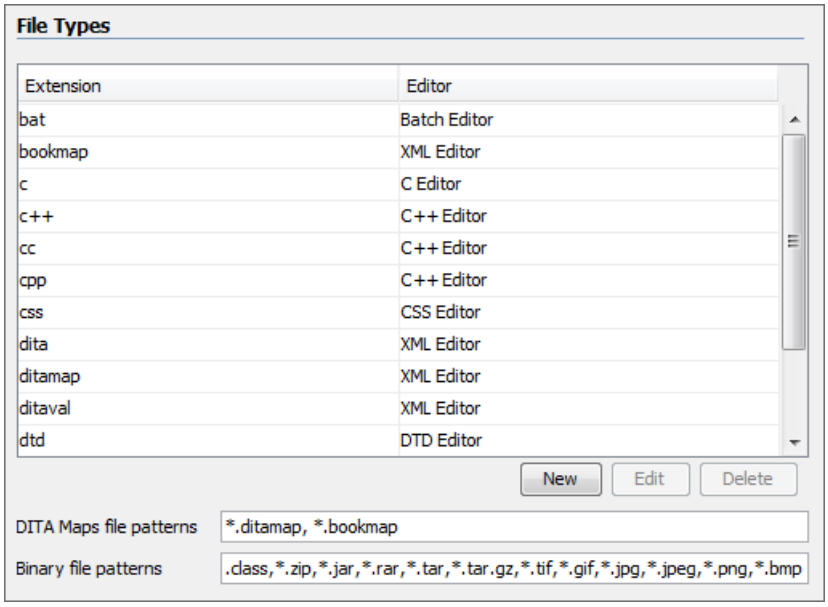


Figure 315: The File Types Preferences Panel

The table columns contain the following data:

- **Extension** - The extensions of the files that will be associated with an editor type.
- **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 others provide just a syntax highlight scheme (e.g. Java editor, SQL editor, Shell editor, etc.).

  If the editor set here is not one of the XML editors (XML editor, XSL editor, XSD editor, RNG editor, WSDL editor) then the encoding set in *the preference **Encoding for non XML files*** is used for opening and saving a file of this type. This is necessary because in case of XML files the encoding is usually declared at the beginning of the XML file in a special declaration or it assumes the default value UTF-8 but in case of non XML files there is no standard mechanism for declaring the encoding of the file.

You can also decide the files which will be handled as DITA maps when opened in Oxygen XML Author. If the files match the pattern that is specified in **DITA Maps file patterns** you will be prompted to open them in the **DITA Maps Manager** view.

The files that match the **Binary file patterns** patterns are handled as binary and opened in the associated system application. Also, they are excluded from the following actions available in the ***Project** view*: **File/Replace in Files**, **Check Spelling in Files**, **Validate**.

SVN File Editors Preferences

Each type of file is associated with a type of editor which opens the files of that type for editing. The editor can be the built-in one specially provided for the file type (for example the internal XML editor, the internal XSLT editor, the internal XSL-FO editor, etc) or an external application installed on the computer, either the default system application associated with that file type in the operating system or other particular application specified by the path to its executable file. The list of all the associations file type - editor is displayed in the preferences panel **SVN File Editors** which is opened from menu **Options** > **Preferences** > **SVN File Editors**.

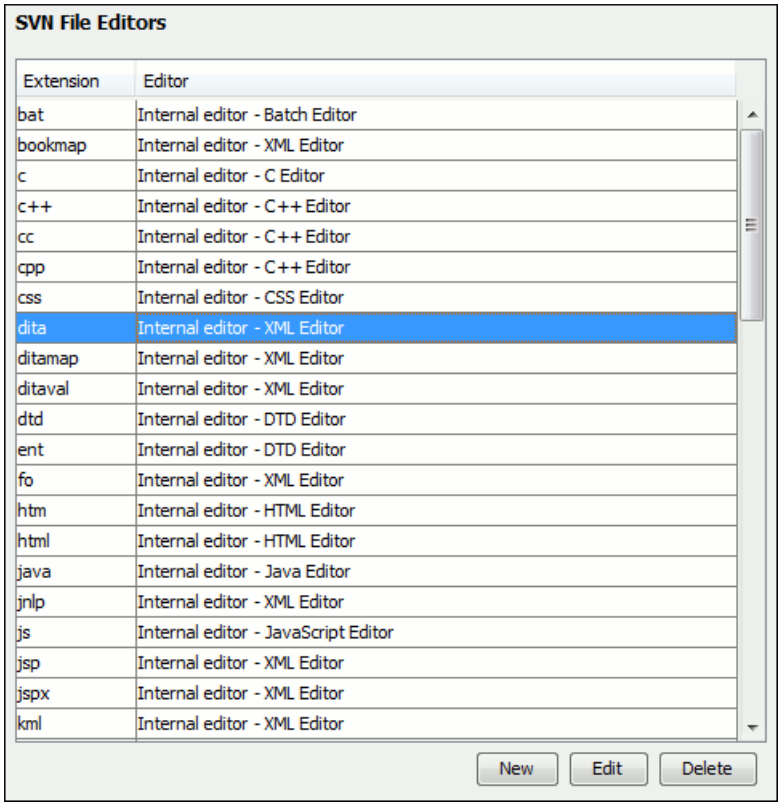


Figure 316: The SVN File Editors Preferences Panel

The **Edit** button or a double click on a table row opens a dialog for specifying the editor associated with the file type. The same dialog is displayed on opening a file from one of the Oxygen XML Author views.

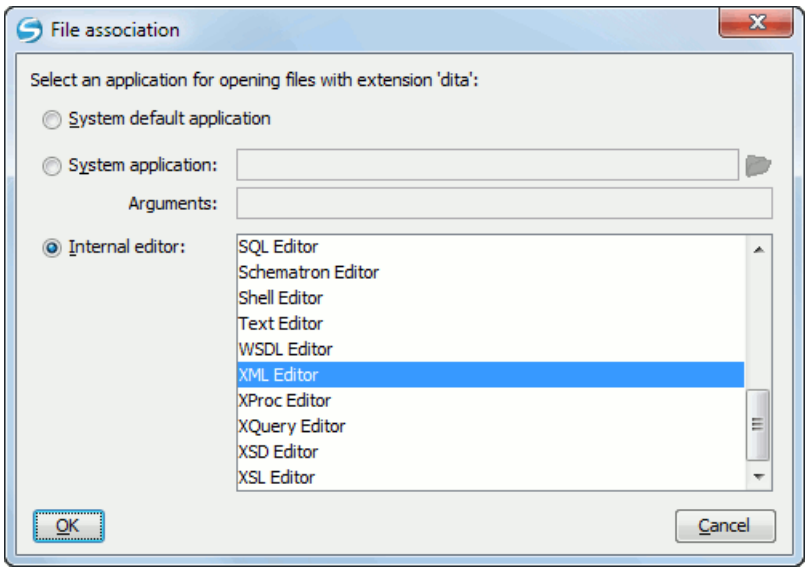


Figure 317: The Open With Dialog

In this dialog are offered three options for opening a file:

- **System default application** - Opens the selected file using the application that is associated with that file extension by default in the operating system.
- **System application** - Opens the selected file using an external application that you have to specify by the path of its executable file. Also, you can specify some arguments for the command line of that application, if they are needed. This option also works for directories, if you wish to choose a file browser other than the system default.
- **Internal editor** - Allows selecting an editor type from the built-in editors that Oxygen XML Author comes with. By default, this option is disabled when selecting directories.

If a file type is associated with an internal editor other than an XML editor type then the encoding set in *the preference **Encoding for non XML files*** is used for opening and saving a file of that type. This is necessary because in case of XML files the encoding is usually declared at the beginning of the XML file in a special declaration or it assumes the default value UTF-8 but in case of non XML files there is no standard mechanism for declaring the encoding of the file.

Custom Editor Variables Preferences

An editor variable is useful for making a transformation scenario, a validation scenario or an external tool independent of the file path on which the scenario / command line is applied. An editor variable is specified as a parameter in a transformation scenario, validation scenario or command line of an external tool. Such a variable is defined by a name, a string value and a text description. A custom editor variable is defined by the user and can be used in the same expressions as the built-in ones.

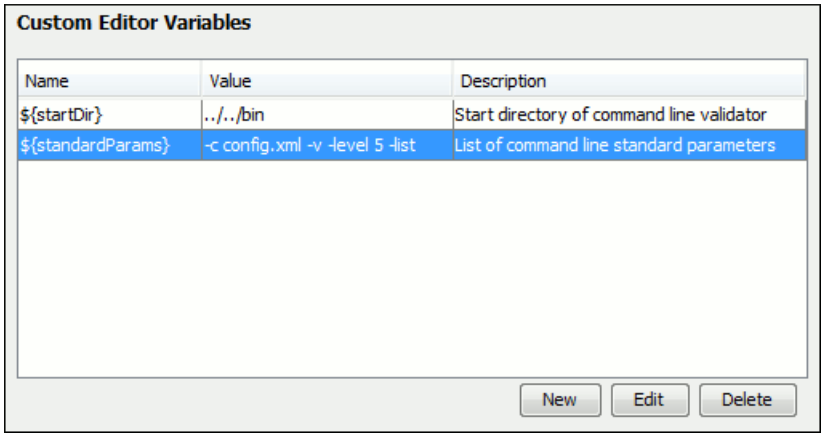


Figure 318: Custom Editor Variables

The Network Connection Settings Preferences

This section presents the options available in the **Network Connection Settings** preferences pages.

Proxy Preferences

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. If you are not sure whether your computer is required to use a proxy server to connect to the Internet or you do not know the proxy parameters, consult your network administrator.

To open the **Proxy** preferences page, go to **Options** > **Preferences** > **Network Connection Settings** > **Proxy**. The following options are available:

- **Direct connection** - specifies whether the HTTP(S) connections go directly to the target host without going through a proxy server;
- **Use system settings** - specifies whether the HTTP(S) connections go through the proxy server set in the operating system. For example, on Windows the proxy settings are the ones that Internet Explorer uses;

  Attention: The system settings for the proxy cannot be read correctly from the operating system on some Linux systems. The system settings option should work properly on Gnome based Linux systems, but it does not work on KDE based ones as *the Java virtual machine does not offer the necessary support yet*.

- **Manual proxy configuration** - specifies whether the HTTP(S) connections go through the proxy server specified in the **Address** and **Port** fields;
- **No proxy for** - specifies the hosts to which the connections must not go through a proxy server;
- **User** - specifies the user necessary for authentication with the proxy server;
- **Password** - specifies the password necessary for authentication with the proxy server;
- **SOCKS Proxy** - In this section you set the host and port of a SOCKS proxy through which all the connections pass. If the **Address** field is empty the connections use no SOCKS proxy.

Using an automatic proxy configuration script (PAC)

If you have set up the path to an automatic proxy configuration script in your system (IE for Windows) Oxygen XML Author cannot detect this setting out of the box.

You can create a new folder `OXYGEN_INSTALL_DIR\lib\endorsed` in which you should copy two additional Java libraries: `deploy.jar` and `plugin.jar`. These libraries can be found in the folder `OXYGEN_INSTALL_DIR\jre\lib` if the application comes with a bundled Java VM or otherwise in the Java VM installation used to run the application.

HTTP(S)/WebDAV Preferences

To open the **HTTP(S)/WebDAV** preferences page, go to **Options** > **Preferences** > **Connection settings** > **HTTP(S)/WebDAV**. The following options are available:

- **Internal Apache HttpClient Version** - Oxygen uses the Apache HttpClient to establish connections to HTTP servers. To enable oXygen to benefit from particular sets of features provided by different versions, you may choose between v3 and v4.

  Note: For a full list of features, go to *http://hc.apache.org/httpclient-3.x/* and *http://hc.apache.org/httpcomponents-client-ga/*

- **Maximum number of simultaneous connections per host** - Defines the maximum number of simultaneous connections established by the application with a distinct host. Servers might consider multiple connections opened from the same source to be a **Denial of Service** attack. You can avoid that by lowering the value of this option.

  Note: This option accepts a minimum value of 5.

- **Read Timeout (seconds)** - The period in seconds after which the application considers that an HTTP server is unreachable if it does not receive any response to a request sent to that server.
- **Enable HTTP 'Expect: 100-continue ' handshake for HTTP/1.1 protocol** - Activates *Expect: 100-Continue* handshake. The purpose of the *Expect: 100-Continue* handshake is to allow a client that is sending a request message with a request body to determine if the origin server is willing to accept the request (based on the request headers) before the client sends the request body. The use of the *Expect: 100-continue* handshake can result in noticeable performance improvement when working with databases. The *Expect: 100-continue* handshake should be used with caution, as it may cause problems with HTTP servers and proxies that do not support the HTTP/1.1 protocol.
- **Use the 'Content-Type' header field to determine the content type** - When checked, Oxygen XML Author tries to determine a resource type using the **Content-Type** header field. This header indicates the *Internet media type* of the message content, consisting of a type and subtype, for example:

  ```
  Content-Type: text/xml
  ```

  When unchecked, the resource type is determined by analyzing its extension. For example, a file ending in *.xml* is considered to be an XML file.
- **Automatic retry on recoverable error** - If enabled, if an HTTP error occurs when Oxygen XML Author 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 XML Author tries to send again the request to the server.
- **Automatically accept a security certificate, even if invalid** - When enabled, the HTTPS connections that Oxygen XML Author attempts to establish will accept all security certificates, even if they are invalid.

  Important: By accepting an invalid certificate, you accept at your own risk a potential security threat, since you cannot verify the integrity of the certificate's issuer.

- **Encryption protocols (SVN Client only)** - this option is available only if you run the application with Java 1.6 or older. Sets a specific encryption protocol used when a repository is accessed through HTTPS protocol. You can choose one of the following values:
  - **SSLv3, TLSv1** (default value);
  - **SSLv3 only**;
  - **TLSv1 only**.
- **Lock WebDAV files on open** - If checked, the files opened through WebDAV are locked on the server so that they cannot be edited by other users while the lock placed by the current user still exists on the server.

(S)FTP Preferences

To open the **(S)FTP** preferences page, go to **Options** > **Preferences** > **HTTP(S) / (S)FTP / Proxy Configuration** > **(S)FTP**. In this preferences page you can customize the following options:

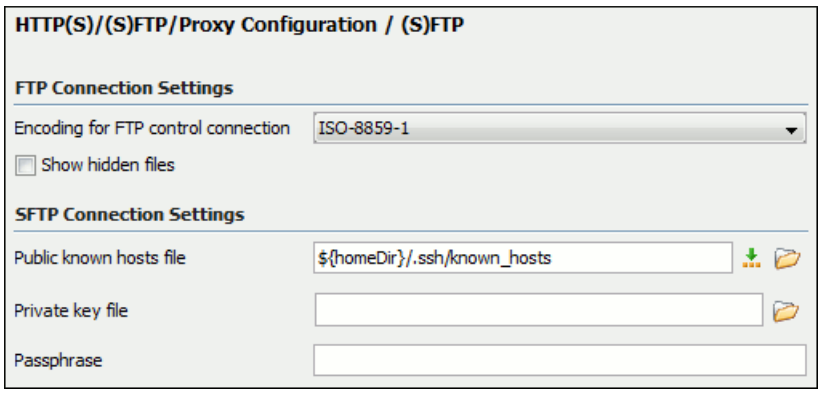


Figure 319: The (S)FTP Configuration Preferences Panel

- **Encoding for FTP control connection** - The encoding used to communicate with FTP servers: either ISO-8859-1 or UTF-8. If the server supports the UTF-8 encoding Oxygen XML Author will use it for communication. Otherwise it will use ISO-8859-1.
- **Public known hosts file** - File containing the list of all SSH server host keys that you have determined are accurate. The default file location is `${homeDir}/.ssh/known_hosts`.
- **Private key file** - The path to the file containing the private key used for the private key method of authentication of the secure FTP (SFTP) protocol. The user / password method of authentication has precedence if it is used in *the Open URL dialog*.
- **Passphrase** - The passphrase used for the private key method of authentication of the secure FTP (SFTP) protocol. The user / password method of authentication has precedence if it is used in *the Open URL dialog*.

SSH Preferences

To open the **SSH** preferences page, go to **Options** > **Preferences** > **Connection settings** > **SSH**. The following options are available:

- **Use external SSH client** - allows you to specify the command line for an external SSH client which is used when connecting to a SVN+SSH repository. Absolute paths are recommended for the SSH client executable and the file paths given as arguments (if any). Depending on the SSH client used and your SSH server configuration, specify the user name and / or private key / passphrase in the command line. Here you can also choose if the default user name (the same user name as the SSH client user) will be used for SVN repository operations or you should be prompted for a SVN user name whenever SVN authentication is required. For example, on Windows the following command line uses the `plink.exe` tool as external SSH client for connecting to the SVN repository with SVN+SSH:

```
C:\plink-install-folder\plink.exe -l username -pw password -ssh -batch host_name_or_IP_address_of_SVN_server
```

Certificates Preferences

Oxygen XML Author provides two types of keystores for certificates used for digital signatures of XML documents: Java KeyStore (JKS) and Public-Key Cryptography Standards version 12 (PKCS-12). A keystore file is protected by a password. To configure a certificate keystore, go to **Options** > **Preferences** > **XML** > **XML Signing Certificates**. You can customize the following parameters of a keystore:

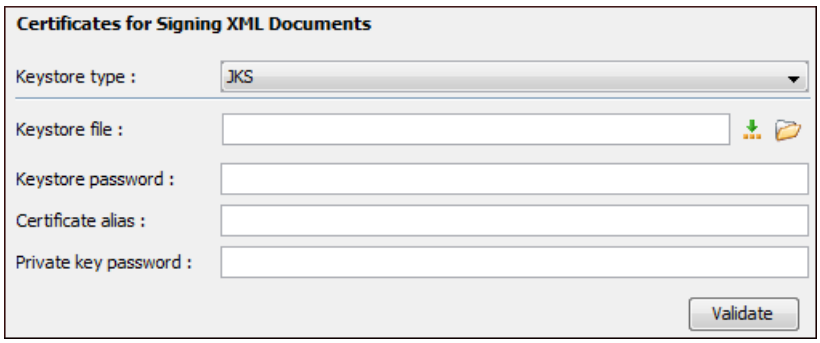


Figure 320: The Certificates Preferences Panel

- **Keystore type** - the type of keystore that Oxygen XML Author uses;
- **Keystore file** - the location of the imported file;
- **Keystore password** - the password that is used for protecting the privacy of the stored keys;
- **Certificate alias** - the alias used for storing the key entry (the certificate and / or the private key) inside the keystore;
- **Private key password** - the private key password of the certificate. Required only for JKS keystores;
- **Validate** - press this button to verify the configured keystore and the validity of the certificate.

XML Structure Outline Preferences

The **XML Structure Outline** preferences panel is opened from menu **Options** > **Preferences** > **XML Structure Outline** and contains the following preferences:

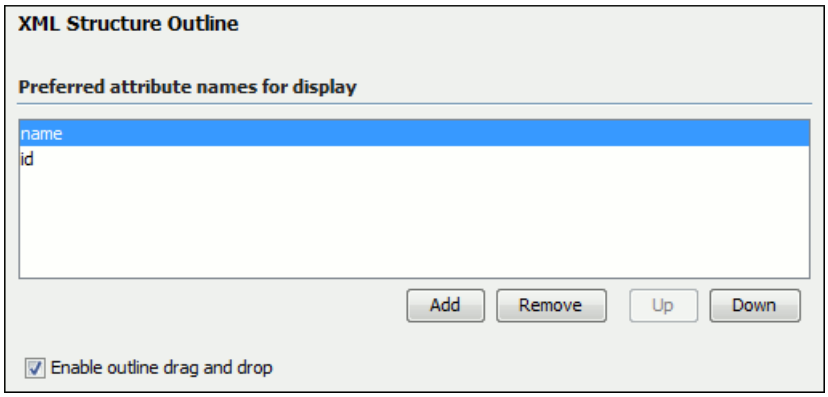


Figure 321: The XML Structure Outline Preferences Panel

- **Preferred attribute names for display** - The attribute names which should be preferred when displaying the element's attributes in the **Outline** view. If there is no preferred attribute name specified the first attribute of an element is displayed.
- **Enable outline drag and drop** - Drag and drop should be disabled for the tree displayed in the **Outline** view only of there is a possibility to accidentally change the structure of the document by such drag and drop operations.

Views Preferences

The **Views** preferences panel is opened from menu **Options** > **Preferences** > **Views** and contains the following preferences:

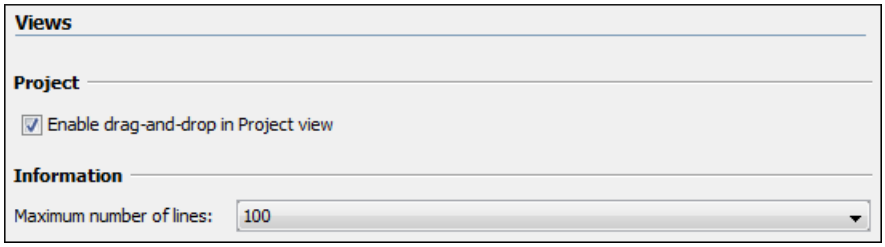


Figure 322: The Views Preferences Panel

- **Enable project drag and drop** - Enables the drag and drop support in **Project** view. It should be disabled only if there is a possibility to accidentally change the structure of the project by such drag and drop actions.
- **Maximum number of lines** - Sets the maximum number of lines in the **Information** view.

Messages Preferences

To open the **Messages** preferences page, go to **Options** > **Preferences** > **Messages**. This preferences page allows you to disable the following warning messages which may appear in the application:

- **Show confirmation dialog when moving resources** - displays a confirmation dialog box when you move a resource in the Project view, DB Explorer, and Archive Browser. In the **Confirm** dialog box you are able to choose not to see this dialog in the future;
- **Show warning when adding resources already included in the project** - displays a dialog box that warns you in case you try to add already existing files in your project;
- **Show BIDI limit warning** - displays a warning dialog box when the opened file which contains bidirectional characters is too large and bidirectional support is disabled;
- **Show warning message when changing the text orientation in the editor** - displays a warning dialog box when you change the text orientation in the editor;
- **Show warning when editing long expressions in the XPath toolbar** - displays an information dialog box that asks you whether you want to use the ***XPath/XQuery Builder*** view when you edit long XPath expressions;
- **Show MathFlow recommendation** - displays an information dialog box that recommends using the **MathFlow Editor** to edit MathML equations;
- **Show SFTP certificate warning dialog** - displays a warning dialog box each time the authenticity of the SFTP server host cannot be established;
- **Convert DB Structure to XML Schema** - when tables from a database schema are selected in the **Select Database Table** dialog, after the ***Convert DB Structure to XML Schema*** is invoked, and another database schema is expanded, a confirmation is needed because the previous selection is discarded. This option controls whether you are always asked about the next action, the other database schema is always expanded without asking you, or it is never expanded.

Reset Global Options

To reset all global preferences to their default values you have to go to menu **Options** > **Reset Global Options** > **Reset Global Options**. . The project level preferences are not changed by this action. The list of transformation scenarios will be reset to the default scenarios.

Scenarios Management

You can import, export, and reset the global transformation and validation scenarios using the following actions:

- **Options** > **Import Global Transformation Scenarios** - loads a set of transformation scenarios from a properties file that was created with the action **Export Global Transformation Scenarios**;

- **Options** > **Export Global Transformation Scenarios** - stores all the global (not project-level) transformation scenarios in a properties file that can be used later by the action **Import Global Transformation Scenarios**;
- **Options** > **Import Global Validation Scenarios** - loads a set of validation scenarios from a properties file that was created with the action **Export Global Validation Scenarios**;
- **Options** > **Export Global Validation Scenarios** - stores all the global (not project-level) validation scenarios in a separate properties file.

The **Export Global Transformation Scenarios** and **Export Global Validation Scenarios** options are used to store all the scenarios in a separate properties file. Associations between document URLs and scenarios are also saved in this file. You can load the saved scenarios using the **Import Global Transformation Scenarios** and **Import Global Validation Scenarios** actions. To distinguish the existing scenarios and the imported ones, the names of the imported scenarios contain the word **import**.

Editor Variables

An editor variable is a shorthand notation for context-dependent information, like a file or folder path, a time-stamp, or a date. It is used in the definition of a command (for example the input URL of a transformation, the output file path of a transformation, the command line of an external tool) to make a command or a parameter generic and reusable with other input files. When the same command is applied to different files, the notation is expanded at the execution of the command so that the same command has different effects depending on the actual file.

You can use the following editor variables in Oxygen XML Author commands of external engines or other external tools, in transformation scenarios, validation scenarios, and Author operations:

- **${oxygenHome}** - Oxygen XML Author installation folder as URL;
- **${oxygenInstallDir}** - Oxygen XML Author installation folder as file path;
- **${frameworks}** - The path (as URL) of the `frameworks` subfolder of the Oxygen XML Author install folder;
- **${frameworksDir}** - The path (as file path) of the `frameworks` subfolder of the Oxygen XML Author installation folder;
- **${home}** - The path (as URL) of the user home folder;
- **${homeDir}** - The path (as file path) of the user home folder;
- **${pdu}** - Current project folder as URL. Usually the current folder selected in the Project View;
- **${pd}** - Current project folder as file path. Usually the current folder selected in the Project View;
- **${pn}** - Current project name;
- **${cfdu}** - Current file folder as URL, that is the path of the current edited document up to the name of the parent folder, represented as a URL;
- **${cfd}** - Current file folder as file path, that is the path of the current edited document up to the name of the parent folder;
- **${cfn}** - Current file name without extension and without parent folder. The current file is the one currently opened and selected;
- **${cfne}** - Current file name with extension. The current file is the one currently opened and selected;
- **${cf}** - Current file as file path, that is the absolute file path of the current edited document;
- **${cfu}** - The path of the current file as a URL. The current file is the one currently opened and selected;
- **${af}** - The local file path of the ZIP archive that includes the current edited document;
- **${afu}** - The URL path of the ZIP archive that includes the current edited document;
- **${afd}** - The local directory path of the ZIP archive that includes the current edited document;
- **${afdu}** - The URL path of the directory of the ZIP archive that includes the current edited document;
- **${afn}** - The file name (without parent directory and without file extension) of the zip archive that includes the current edited file;
- **${afne}** - The file name (with file extension, for example `.zip` or `.epub`, but without parent directory) of the zip archive that includes the current edited file;
- **${currentFileURL}** - Current file as URL, that is the absolute file path of the current edited document represented as URL;

- **${ps}** - Path separator, that is the separator which can be used on the current platform (Windows, Mac OS X, Linux) between library files specified in the class path;
- **${timeStamp}** - Time stamp, that is the current time in Unix format. It can be used for example to save transformation results in different output files on each transform;
- **${caret}** - The position where the caret is inserted. This variable can be used in a code template, in **Author** operations, or in a selection plugin;
- **${selection}** - The current selected text content in the current edited document. This variable can be used in a code template, in **Author** operations, or in a selection plugin;
- **${id}** - Application-level unique identifier;A short sequence of 10-12 letters and digits which is not guaranteed to be universally unique;
- **${uuid}** - Universally unique identifier;An unique sequence of 32 hexadecimal digits generated by the Java *UUID* class;
- **${env(VAR_NAME)}** - Value of the *VAR_NAME* environment variable. The environment variables are managed by the operating system. If you are looking for Java System Properties, use the **${system(var.name)}** editor variable;
- **${system(var.name)}** - Value of the *var.name* Java System Property. The Java system properties can be specified in the command line arguments of the Java runtime as `-Dvar.name=var.value`. If you are looking for operating system environment variables, use the**${env(VAR_NAME)}** editor variable instead;
- **${ask('message', type, ('real_value1':'rendered_value1'; 'real_value2':'rendered_value2'; ...), 'default_value')}** - To prompt for values at runtime, use the *ask('message', type, ('real_value1':'rendered_value1'; 'real_value2':'rendered_value2'; ...), 'default-value'')* editor variable. You can set the following parameters:
  - `'message'` - the displayed message. Note the quotes that enclose the message;
  - `type` - optional parameter. Can have one of the following values:
    - `url` - input is considered an URL. Oxygen XML Author checks that the URL is valid before passing it to the transformation;
    - `password` - input characters are hidden;
    - `generic` - the input is treated as generic text that requires no special handling;
    - `relative_url` - input is considered an URL. Oxygen XML Author tries to make the URL relative to that of the document you are editing;

      Note: You can use the `$ask` editor variable in file templates. In this case, Oxygen XML Author keeps an absolute URL.

    - `combobox` - displays a dialog that contains a non-editable combo-box;
    - `editable_combobox` - displays a dialog that contains an editable combo-box;
    - `radio` - displays a dialog that contains radio buttons;
  - `'default-value'` - optional parameter. Provides a default value in the input text box;

  Examples:

  - `${ask('message')}` - Only the message displayed for the user is specified.
  - `${ask('message', generic, 'default')}` - `'message'` is displayed, the type is not specified (the default is string), the default value is `'default'`.
  - `${ask('message', password)}` - `'message'` is displayed, the characters typed are masked with a circle symbol.
  - `${ask('message', password, 'default')}` - same as before, the default value is `'default'`.
  - `${ask('message', url)}` - `'message'` is displayed, the parameter type is URL.
  - `${ask('message', url, 'default')}` - same as before, the default value is `'default'`.
- **${date(pattern)}** - Current date. The allowed patterns are equivalent to the ones in the *Java SimpleDateFormat class*. Example: yyyy-MM-dd;

  Note: This editor variable supports both the xs:date and xs:datetime parameters. For details about xs:date, go to *http://www.w3.org/TR/xmlschema-2/#date*. For details about xs:datetime, go to *http://www.w3.org/TR/xmlschema-2/#dateTime*.

- **${dbgXML}** - The local file path to the XML document which is current selected in the Debugger source combo box (for tools started from the XSLT/XQuery Debugger);
- **${dbgXSL}** - The local file path to the XSL/XQuery document which is current selected in the Debugger stylesheet combo box (for tools started from the XSLT/XQuery Debugger);
- **${tsf}** - The transformation result file path. If the current opened file has an associated scenario which specifies a transformation output file, this variable expands to it;
- **${dsu}** - The path of the detected schema as an URL for the current validated XML document;
- **${ds}** - The path of the detected schema as a local file path for the current validated XML document;
- **${cp}** - Current page number. Used to display the current page number on each printed page in the **Editor / Print** Preferences page;
- **${tp}** - Total number of pages in the document. Used to display the total number of pages on each printed page in the **Editor / Print** Preferences page.

Custom Editor Variables

An editor variable can be created by the user and included in any user defined expression where a built-in editor variable is also allowed. For example a custom editor variable may be necessary for configuring the command line of an external tool, the working directory of a custom validator, the command line of a custom XSLT engine, a custom FO processor, etc. All the custom editor variables are listed together with the built-in editor variables, for example when editing the working folder or the command line of an *external tool* or of a *custom validator* , the working directory, etc.

Creating a custom editor variable is very simple: just specify the name that will be used in user defined expressions, the value that will replace the variable name at runtime and a textual description for the user of that variable.

You can configure the custom editor variables in the ***Preferences*** *page.*

Configure Toolbars

You can configure the toolbars that appear in the current editor mode (Author, Text, Grid) using the **Configure toolbars** dialog that is opened from menu **Window** > **Configure toolbars ...**.

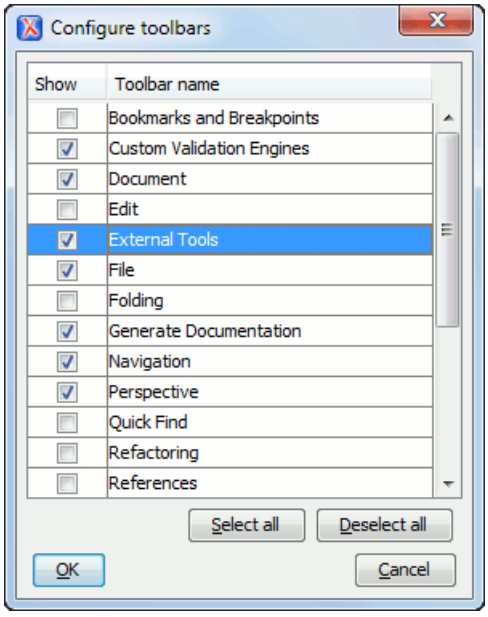


Figure 323: Configure Toolbars Dialog

Custom System Properties

A number of Java system properties can be set in the application to influence its behavior:

Table 9: Custom System Properties

Property	Allowed values	Purpose
com.oxygenxml.disable.http.protocol.handlers	true/false (false by default)	By default Oxygen uses for HTTP(S) connections the open source Apache HTTP Client software. If you disable this feature, the default Java SUN protocols HTTP(S) will be used instead. You will also lose **WebDAV** support and probably other related features.
com.oxygenxml.default.options	An URL-like relative or absolute path.	Provides the path to an XML file containing default application options. Read this topic for more details: *Customized Default Options* on page 700.
com.oxygenxml.customOptionsDir	A file system absolute path pointing to a folder.	Sets a different folder which will be used by the application to load and save preference files. The default place where the options are saved varies according to the operating system: *Importing / Exporting Global Options* on page 701
com.oxygenxml.ApplicationDataFolder	A file system absolute path pointing to a folder.	When the application runs on Windows you can set this property to it to change the place where the application considers that the *APPDATA* folder is located.
com.oxygenxml.editor.frameworks.url	An URL-like absolute path.	Changes the folder where the application considers that all frameworks/document types are installed. It has the same effect as changing the **Use custom frameworks directory** value in the *Global Preferences* on page 703 Preferences page.
com.oxygenxml.MultipleInstances	true/false	If **true** allows multiple instances of the application to be started. By default it is **true** on Linux and **false** on Windows.
com.oxygenxml.xep.location	A file system absolute path pointing to a folder.	Points to a folder where RenderX XEP is installed. Has the same effect as configuring XEP in the *FO Processors Preferences* on page 747 Preferences page.
com.oxygenxml.additional.classpath	A list of JAR-like resources separated by the platform file separator.	An additional list of libraries to be used in the application's internal class loader in addition to the libraries specified in the `lib` folder.
com.oxygenxml.user.home	A file system absolute path pointing to a folder.	Overwrites the user home which was implicitly detected for the application.

Property	Allowed values	Purpose
com.oxygenxml.use.late.delegation.for.author.extensions	true/false (true by default)	All Java extensions in a document type configuration are instantiated in a separate class loader. When **true**, the JAR libraries used in a certain document type configuration will have priority to resolve classes before delegating to the parent class loader. This is the default behavior. When **false** the parent class loader will take precedence.
com.oxygenxml.stack.size.validation.threads	The number of bytes used to validation threads.	Some parts of the application (validation, content completion) which use the Relax NG parser require sometimes a larger Thread stack size in order to parse complex schemas. The default value is (5 * 1024 * 1024) which should be more than enough.
com.oxygenxml.jing.skip.validation.xhtml.data.attrs	true/false (true by default)	By default the Relax NG validation was configured to skip validation for XHTML attributes starting with "data-" which should be skipped from validation according to the XHTML 5 specification.
com.oxygenxml.report.problems.url	User defined URL	The URL where a problem reported through the **Report Problem** dialog is sent.

Localization of the User Interface

Oxygen XML Author comes with an user interface available in English, French, German, Japanese, Dutch, and Italian. In addition, it provides a mechanisms that allows you to localize the interface to your native language. You have to translate all the messages and labels available in the user interface (menu action names, button names, check box texts, view titles, error messages, status bar messages), store them in a custom XML file and instruct Oxygen XML Author to read this file.

Localization of the User Interface Using an XML File

In order to add a new language for the user interface, follow this procedure. For simplicity sake, it is assumed that you are translating the user interface in Spanish, and you are using a standard Oxygen XML Author Windows distribution.

1. Identify the ISO code for the new language you wish to translate the interface. In this example the language code is **es_ES**.
2. Write an email to Oxygen XML Author support team and ask them to send you the *translation.xml* sample file.
3. Open *translation.xml* in Oxygen XML Author. The file contains all messages available for internationalization and it is updated at every new release with the latest additions. Here is a sample of its content:

```
<translation>
    <languageList>
        <language description="English" lang="en_US"/>
    </languageList>
    <key value="New">
        <comment>The File/New action. Creates a new document.</comment>
        <val lang="en_US">New</val>
    </key>
    <key value="New_folder">
        <comment>Creates a folder in the Project View.</comment>
        <val lang="en_US">New Folder</val>
    </key>
    .....
</translation>
```

4. Update the `language` element to reflect the new language. Set the `description` attribute to `Spanish` and the `lang` attribute to `es_ES`.
5. For each `key` element translate the `comment` (optional) and `val` elements. Set the `lang` attribute to `es_ES`.

   Note: After this step the file should look like:

```
<translation>
    <languageList>
        <language description="Español" lang="es_ES"/>
    </languageList>
    <key value="New">
        <comment>El Archivo / Nueva acción. Crea un nuevo documento.</comment>
        <val lang="en_US">Nuevo</val>
    </key>
    <key value="New_folder">
        <comment>Crea una carpeta en la vista del proyecto.</comment>
        <val lang="en_US">Nueva carpeta</val>
    </key>
    .....
</translation>
```

6. Go to **Options** > **Preferences** > **Global** and enable the **Other language** option. Browse for the *translation.xml* file.
7. Restart the application.

Chapter 19

Upgrading Oxygen XML Author

Topics:

This chapter presents the procedure you have to follow to upgrade Oxygen XML Author.

Upgrading Oxygen XML Author on Windows / Linux

The following steps describe the upgrading procedure of Oxygen XML Author, valid for Windows:

1. In case you added files, or modified files from the installation folder of Oxygen XML Author, save a copy of them. These files are overwritten during the upgrade.

   Note: Custom frameworks are preserved, but we recommend you to back them up as well.

2. Run the new installation kit and install the new version in the folder where the old version was installed.
3. When you are promoted to choose whether you want to upgrade the existed installation, select **Proceed**. The old version is uninstalled automatically and the new one takes its place.
4. Copy the files you previously backed up in the installation folder.

Upgrading Oxygen XML Author on Mac OS X

The following steps describe the upgrading procedure of Oxygen XML Author, valid for Mac OS X:

1. Back up anything you need from the installation folder of Oxygen XML Author.
2. Remove the installation folder.
3. Unpack the archive with the new version.

   Note: Do not unpack a new version of Oxygen XML Author on top of an older version. This causes problems because of used libraries that become duplicated.

4. Copy the backed-up files in the new installation folder.

Chapter 20

Common Problems

Topics:

This chapter presents common problems that may appear when running the application and the solutions for these problems.

XML Document Opened After a Long Time

Oxygen XML Author opens an XML document after a long time. Why does it happen?

Usually the time necessary for opening an XML document is long when the whole content of your document is on a single line or the document size is very large. If the content is on a single line please enable the **Format and indent the document on open** preference from menu ***Options*** > ***Preferences*** > ***Editor*** > ***Format*** before opening the document. If the document is very large (above 30 MB) you should make sure that the minimum limit of document size that enables the support for editing large documents (the value of *the option* ***Optimize loading in the Text edit mode for files over***) is less than the size of your document. If that fails and you get an Out Of Memory error (**OutOfMemoryError**) you should *increase the memory available to Oxygen XML Author.*

Oxygen XML Author Takes Several Minutes to Start on Mac

If Oxygen XML Author takes several minutes to start, the Java framework installed on the Mac may have a problem. One solution for this is to update Java to the latest version: go to **Apple symbol** > **Software Update**. After it finishes to check for updates, click **Show Details**, select the Java Update (if one is available) and click **Install**. If no Java updates are available, reset the Java preferences to their defaults. Start **Applications > Utilities > Java Preferences** and click **Restore Defaults**.

Out Of Memory Error When I Open Large Documents

I am trying to open a file larger than 100 MB to edit it in Oxygen XML Author, but it keeps telling me it runs out of memory (**OutOfMemoryError**). What can I do?

You should make sure that the minimum limit of document size that enables the support for editing large documents (the value of *the option* ***Optimize loading in the Text edit mode for files over***) is less than the size of your document. That will enable the optimized support for large documents. If that fails and you still get an Out Of Memory error you should *increase the memory available to Oxygen XML Author.*

Other tips:

- Make sure that you close other files before opening the large file.
- You can set the default editing mode *in the Preferences dialog*. The *Text editing mode* uses less memory than other editing modes.
- If the file is too large for the editor to handle, you can *open it in for viewing in* ***Large File Viewer***.

Special Characters Are Replaced With a Square in Editor

My file was created with other application and it contains special characters like é, ©, ®, etc. Why does Oxygen XML Author display a square for these characters when I open the file in Oxygen XML Author?

You must set a font able to render the special characters in the ***Font*** *preferences*. If it is a text file you must set also *the encoding used for non XML files.* If you want to set a font which is installed on your computer but that font is not accessible in the **Font** preferences that means the Java virtual machine is not able to load the system fonts, probably because it is not a True Type font. It is a problem of the Java virtual machine and a possible solution is to copy the font file in the `[JVM-home-folder]/lib/fonts` folder. `[JVM-home-folder]` is the value of the property *java.home* which is available in the **System properties** tab of the **About** dialog that is opened from menu **Help** > **About**.

The Scroll Function of my Notebook's Trackpad is Not Working

I got a new notebook (Lenovo Thinkpad™ with Windows) and noticed that the scroll function of my trackpad is not working in Oxygen XML Author.

It is a problem of the Synaptics™ trackpads which can be fixed by adding the following lines to the `C:\Program Files\Synaptics\SynTP\TP4table.dat` file:

```
*,*,oxygen14.2.exe,*,*,*,WheelStd,1,9
*,*,oxygenAuthor14.2.exe,*,*,*,WheelStd,1,9
*,*,oxygenDeveloper14.2.exe,*,*,*,WheelStd,1,9
*,*,syncroSVNClient.exe,*,*,*,WheelStd,1,9
*,*,diffDirs.exe,*,*,*,WheelStd,1,9
*,*,diffFiles.exe,*,*,*,WheelStd,1,9
```

`NullPointerException` at Startup on Windows XP

When I start Oxygen XML Author on Windows XP I get the following error. What can I do?

```
Cannot start Oxygen XML Author.
Due to:java.lang.NullPointerException
java.lang.NullPointerException
at com.sun.java.swing.plaf.windows.XPStyle.getString(Unknown Source)
at com.sun.java.swing.plaf.windows.XPStyle.getString(Unknown Source)
at com.sun.java.swing.plaf.windows.XPStyle.getDimension(Unknown Source)
at com.sun.java.swing.plaf.windows.WindowsProgressBarUI.
getPreferredInnerHorizontal(Unknown Source)
```

The error is caused by a *a bug in the Java runtime from Sun Microsystems*. You can avoid it by setting the Java system property *com.oxygenxml.no.xp.theme* to the value *true* in the startup script, that is *adding the startup parameter -Dcom.oxygenxml.no.xp.theme=true*. If you start Oxygen XML Author with the author.bat script just add the parameter-Dcom.oxygenxml.no.xp.theme=true to the `java` command in the script. If you start Oxygen XML Author from the Start menu shortcut you have to add the same parameter on a new line in the file [oXygen-install-folder]\oxygenAuthor15.2.vmoptions .

Crash at Startup on Windows with an Error Message About a File `nvoglv32.dll`

I try to start Oxygen XML Author on Windows but it crashed with an error message about “Fault Module Name: nvoglv32.dll”. What is the problem?

It is an OpenGL driver issue that can be avoided by creating an empty file called `opengl32.dll` in the Oxygen XML Author install folder (if you start Oxygen XML Author with the shortcut created by the installer on the Start menu or on Desktop) or in the subfolder `bin` of the home folder of the Java virtual machine that runs Oxygen XML Author (if you start Oxygen XML Author with the `oxygen.bat` script). The home folder of the Java virtual machine that runs Oxygen XML Author is the value of the property *java.home* which is available in the **System properties** tab of the **About** dialog that is opened from menu **Help** > **About**.

Oxygen XML Author Crashed on My Mac OS X Computer

Oxygen XML Author crashed the Apple Java virtual machine/Oxygen XML Author could not start up on my Mac OS X computer due to a JVM crash. What can I do?

Usually it is an incompatibility between the Apple JVM and a native library of the host system. More details are available in the crash log file generated by OS X and reported in the crash error message.

Wrong Highlights of Matched Words in a Search in User Manual

When I do a keyword search in the User Manual that comes with the Oxygen XML Author application the search highlights the wrong word in the text. Sometimes the highlighted word is several words after the matched word. What can I do to get correct highlights?

This does not happen when Oxygen XML Author runs with a built-in Java virtual machine, that is a JVM that was installed by Oxygen XML Author in a subfolder of the installation folder, for example on Windows and Linux when installing Oxygen XML Author with the installation wizard specific for that platform. When Oxygen XML Author runs from an All Platforms installation it uses whatever JVM was found on the host system which may be incompatible with the JavaHelp indexer used for creating the built-in User Manual. Such a JVM may offset the highlight of the matched word with several characters, usually to the right of the matched word. In order to see the highlight exactly on the matched word it is recommended to install the application with the specific installation wizard for your platform (available only for Windows and Linux).

Keyboard Shortcuts Do Not Work

The keyboard shortcuts listed in **Options** > **Preferences** > **Menu Shortcut Keys** do not work. What can I do?

Usually this happens when a special keyboard layout is set in the operating system which generates other characters than the usual ones for the keys of a standard keyboard. For example if you set the extended Greek layout for your keyboard you should return to the default Greek layout or to the English one. Otherwise the Java virtual machine that runs the application will receive other key codes than the usual ones for a standard keyboard.

After Installing Oxygen XML Author I Cannot Open XML Files in Internet Explorer Anymore

Before installing Oxygen XML Author I had no problems opening XML files in Internet Explorer. Now when I try to open an XML file in Internet Explorer it opens the file in Oxygen XML Author. How can I load XML files in Internet Explorer again?

XML files are opened in Oxygen XML Author because Internet Explorer uses the Windows system file associations for opening files and you associated XML files with Oxygen XML Author in the installer panel called **File Associations** therefore Internet Explorer opens XML files with the associated Windows application.

By default the association with XML files is disabled in the Oxygen XML Author installer panel called **File Associations**. When you enabled it the installer displayed a warning message about the effect that you experience right now.

For opening XML files in Internet Explorer again you have to set Internet Explorer as the default system application for XML files, for example by right-clicking on an XML file in Windows Explorer, selecting **Open With** > **Choose Program**, selecting IE in the list of applications and selecting the checkbox **Always use the selected program**. Also you have to run the following command from a command line:

```
wscript revert.vbs
```

where `revert.vbs` is a text file with the following content:

```
function revert()
  Set objShell = CreateObject("WScript.Shell")
  objShell.RegWrite "HKCR\.xml\", "xmlfile", "REG_SZ"
```

```
  objShell.RegWrite "HKCR\.xml\Content Type", "text/xml", "REG_SZ"
end function

revert()
```

I Cannot Associate Oxygen XML Author With a File Type on My Windows Computer

I cannot associate the Oxygen XML Author application with a file type on my Windows computer by right clicking on a file in Windows Explorer, selecting **Open With** > **Choose Program** and browsing to the file . When I select the file in the Windows file browser dialog the Oxygen XML Author application is not added to the list of applications in the **Open With** dialog. What can I do?

The problem is due to some garbage Windows registry entries remained from versions of Oxygen XML Author older than version 9.0. Please uninstall all your installed versions of Oxygen XML Author and run a registry cleaner application for cleaning these older entries. After that just reinstall your current version of Oxygen XML Author and try again to create the file association.

The Files Are Opened in Split Panels When I Restart Oxygen XML Author

When I close the Oxygen XML Author application with multiple files open and then restart it, every file opens in a split panel of the editing area instead of a tab sharing with the other opened files the same editing area which organizes the editors in a tabbed pane. I want to have the files arranged as a tabbed pane as they used to be arranged before closing the Oxygen XML Author application.

This happens sometimes when several files are opened automatically on startup. It is a problem of the JIDE docking views library used in Oxygen XML Author for docking and floating views. The workaround is to run the action **Window** > **Reset Layout**. If you have a specific layout of the Oxygen XML Author views which you want to preserve when running this action you should set your layout with the option **Use fixed layout** that is available from menu **Options** > **Preferences** > **Perspectives Layout**.

Grey Window on Linux With the Compiz / Beryl Window Manager

I try to run Oxygen XML Author on Linux with the Compiz / Beryl window manager but I get only a grey window which does not respond to user actions. Sometimes the Oxygen XML Author window responds to user actions but after opening and closing an Oxygen XML Author dialog or after resizing the Oxygen XML Author window or a view of the Oxygen XML Author window the content of this window becomes grey and it does not respond to user actions. What is wrong?

Sun Microsystems' Java virtual machine *does not support the Compiz window manager and the Beryl one very well*. It is expected that better support for Compiz / Beryl will be added in future versions of their Java virtual machine. You should turn off the special effects of the Compiz / Beryl window manager before starting the Oxygen XML Author application or switch to other window manager.

Drag and Drop Without Initial Selection Does Not Work

When I try to drag with the mouse an unselected file from the **Project** view or the **DITA Maps Manager** view, the drag never starts, it only selects the resource. I need to drag the resource again after it becomes selected. As a result any drag and drop without initial selection becomes a two step operation. How can I fix this?

This is *a bug* present in JVM versions prior to 1.5.0_09. This issue is fixed in 1.5.0_09 and newer versions (including 1.6). See *the installation instructions* for setting a specific JVM version for running the Oxygen XML Author application.

Set Specific JVM Version on Mac OS X

How do I configure Oxygen XML Author to run with the version X of the Apple Java virtual machine on my Mac OS X computer?

Oxygen XML Author uses the first JVM from the list of preferred JVM versions set on your Mac computer that has a version number 1.6.0 or higher. 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 in the **Java Preferences** panel that is opened from **Applications** > **Utilities** > **Java** > **Java Preferences**.

Segmentation Fault Error on Mac OS X

On my Mac OS X machine the application gives a *Segmentation fault* error when I double-click on the application icon. Sometimes it gives no error but it does not start. What is the problem?

Please make sure you have the latest Java update from the Apple website installed on your Mac OS X computer. If installing the latest Java update doesn't solve the problem please copy the file `JavaApplicationStub` from the `/System/Frameworks/JavaVM.framework` folder to the `OxygenAuthor.app/Contents/MacOS` folder. For browsing the `.app` folder you have to **(CMD+click)** on the Oxygen XML Author icon and select **Show Package Contents**.

Damaged File Associations on Mac OS X

After upgrading OS X to version 10.4.x / Oxygen XML Author to version 6.x Oxygen XML Author is not associated anymore to the file types XML, XSL, XSD, etc. This worked in the previous version of Oxygen XML Author. How can I create the file associations again?

The upgrade damaged the file associations in the LaunchService Database on your Mac OS X machine. Please rebuild the LaunchService Database 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.

1. Find all the Oxygen XML Author installations on your hard drive.
2. Delete them by dragging them to the Trash.
3. Clear the Trash.
4. Unpack the Oxygen XML Author installation kit on your desktop.
5. Copy the contents of the archive into the folder `/ Applications / Oxygen`.
6. Run the following command in a Terminal:

```
/System/Library/Frameworks/CoreServices.framework/Versions/A/Frameworks/LaunchServices.framework/Versions/A/Support/lsregister
 -kill -r -domain local -domain system -domain user
```

7. Restart Finder with the following command:
   ```
   killall Finder
   ```
8. Create a XML or XSD file on your desktop.
   It should take the Oxygen XML Author icon.
9. Double click the file.
10. Accepting the confirmation dialog.

Oxygen XML Author will start up and the file associations work correctly.

I Cannot Connect to SVN Repository From Repositories View

I cannot connect to a SVN repository from the **Repositories** view of SVN Client. How can I find more details about the error?

First check that you entered the correct URL of the repository in the **Repositories** view. Also check that a SVN server is running on the server machine specified in the repository URL and is accepting connections from SVN clients. You can check that the SVN server accepts connections with the command line SVN client from CollabNet.

If you try to access the repository with a `svn+ssh` URL also check that a SSH server is running on port 22 on the server machine specified in the URL.

If the above conditions are verified and you cannot connect to the SVN repository please generate a logging file on your computer and send the logging file to support@oxygenxml.com . For generating a logging file you need to create a text file called `log4j.properties` in the install folder with the following content:

```
log4j.rootCategory= debug, R2

log4j.appender.R2=org.apache.log4j.RollingFileAppender
log4j.appender.R2.File=logging.log
log4j.appender.R2.MaxFileSize=12000KB
log4j.appender.R2.MaxBackupIndex=20
log4j.appender.R2.layout=org.apache.log4j.PatternLayout
log4j.appender.R2.layout.ConversionPattern=%r %p [ %t ] %c - %m%n
```

Restart the application, reproduce the error, close the application and send the file `logging.log` generated in the install directory to support@oxygenxml.com .

Problem Report Submitted on the Technical Support Form

What details should I add to my problem report that I enter on the Technical Support online form of the product website?

For problems like server connection error, unexpected delay while editing a document, a crash of the application, etc for which the usual details requested on the Technical Support online form are not enough you should generate a log file and attach it to the problem report. In case of a crash you should also attach the crash report file generated by your operating system. For generating a logging file you need to create a text file called `log4j.properties` in the install folder with the following content:

```
log4j.rootCategory= debug, R2

log4j.appender.R2=org.apache.log4j.RollingFileAppender
log4j.appender.R2.File=logging.log
log4j.appender.R2.MaxFileSize=12000KB
log4j.appender.R2.MaxBackupIndex=20
log4j.appender.R2.layout=org.apache.log4j.PatternLayout
log4j.appender.R2.layout.ConversionPattern=%r %p [ %t ] %c - %m%n
```

Restart the application, reproduce the error and close the application. The log file is called `logging.log` and is located in the install folder.

Signature verification failed error on open or edit a resource from Documentum

When I try to open/edit a resource from Documentum, I receive the following error:

`signature verification failed: certificate for All-MB.jar.checksum not signed by a certification authority`.

The problem is that the certificates from the Java Runtime Environment 1.6.0_22 or later no longer validate the signatures of the UCF jars.

Set the `-Drequire.signed.ucf.jars=false` parameter, as explained in the *Setting a Parameter in the Launcher Configuration File / Startup Script* topic.

```
-vmargs
-Xms40m
-Xmx256m
-Drequire.signed.ucf.jars=false
```

Cannot Cancel a System Shutdown

If I try to shutdown my Win XP when there is at least one modified document open in Oxygen XML Author, I am prompted to cancel the shutdown or force quit the application. If I choose **Cancel**, the system shuts down anyway. Why is that?

This problem was reported on Windows XP systems only. The known workaround is to start Oxygen XML Author using the `author.bat` script.

Compatibility Issue Between Java and Certain Graphics Card Drivers

Under certain settings, a compatibility issue can appear between Java and some graphics card drivers, which results in the text from the editor (in **Author** or **Text** mode) being displayed garbled. In case you encounter this problem, update your graphics card driver. Another possible workaround is to go to **Preferences** > **Fonts** > **Text antialiasing** and set the value of **Text antialiasing** option to ON.

Note: If this workaround does not resolve the problem, set the **Text antialiasing** option to other values than ON.

An Image Appears Stretched Out in the PDF Output

Sometimes, when publishing XML content (DITA, Docbook, etc), images are scaled up in the PDF outputs but are displayed perfectly in the HTML (or WebHelp) output.

PDF output from XML content is obtained by first obtaining a intermediary XML format called XSL-FO and then applying an XSL-FO processor to it to obtain the PDF. This stretching problem is caused by the fact that all XSL-FO processors take into account the DPI (dots-per-inch) resolution when computing the size of the rendered image.

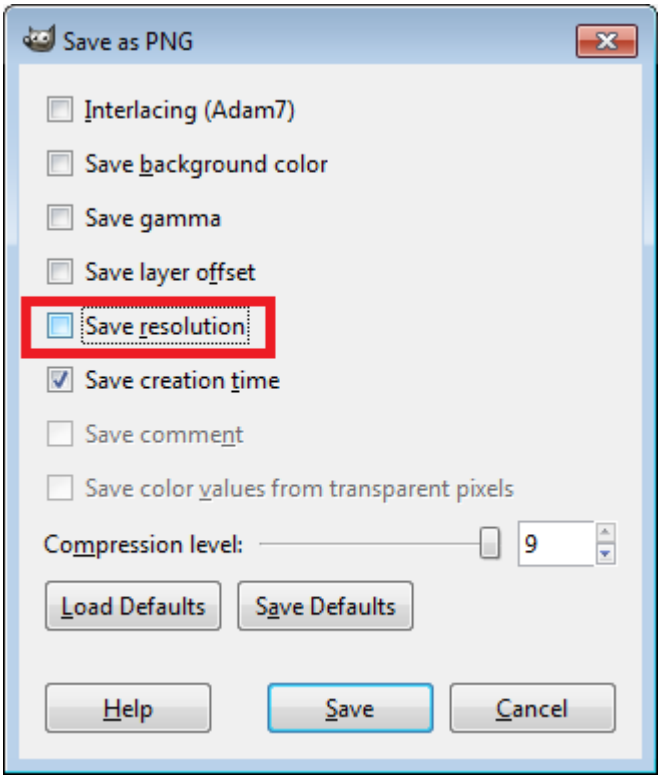
The PDF processor which comes out of the box with the application is the open-source Apache FOP processor. Here is what Apache FOP does when deciding the image size:

1. If the XSL-FO output contains width, height or a scale specified for the image `external-graphic` tag, then these dimensions are used. This means that if in the XML (DITA, Docbook, etc) you set explicit dimensions to the image they will be used as such in the PDF output.
2. If there are no sizes (width, height or scale) specified on the image XML element, the processor looks at the image resolution information available in the image content. If the image has such a resolution saved in it, the resolution will be used and combined with the image width and height in order to obtain the rendered image dimensions.
3. If the image does not contain resolution information inside, Apache FOP will look at the FOP configuration file for a default resolution. The FOP configuration file for XSLT transformations which output PDF is located in the `OXYGEN_INSTALL_DIR\lib\fop.xconf`. DITA publishing uses the DITA Open Toolkit which has the Apache FOP configuration file located in `OXYGEN_INSTALL_DIR/frameworks/dita/DITA-OT/plugins/org.dita.pdf2/fop/conf/fop.xconf`. The configuration file contains two XML elements called `source-resolution` and `target-resolution`. The values set to those elements can be increased, usually a DPI value of 110 or 120 should render the image in PDF just like in the HTML output.

The commercial **RenderX XEP** XSL-FO processor behaves similarly but as a fallback it uses 120 as the DPI value instead of using a configuration file.

Tip:

As a conclusion, it is best to save your images without any DPI resolution information in them. For example the open-source GIMP image editor allows you when saving a PNG image whether to save the resolution to it or not:



Having images without any resolution information saved in them allows you to control the image resolution from the configuration file for all referenced images.

The DITA PDF Transformation Fails

To generate the PDF output, Oxygen XML uses the DITA Open Toolkit.

In case your transformation fails you can detect some of the problems that caused the errors by running *the **Validate and Check for Completeness** action*. Depending on the options you select when you run it, this action emphasises errors like topics referenced in other topics but not in the DITA Map, broken links, and missing external resources.

You can also analyse the **results** tab of the DITA transformation and search for messages that contain text similar to `[fop] [ERROR]`. In case you encounter this type of error messages, edit the transformation scenario you are using and set the **clean.temp** parameter to **no** and the **retain.topic.fo** parameter to **yes**. Run the transformation, go to the temporary directory of the transformation, open the `topic.fo` file and go to the line indicated by the error. Depending on the XSL FO context try to find the DITA topic that contains the text which generates the error.

If none of the above methods helps you, go to **Help** > **About** > **Components** > **Frameworks** and check what version of the DITA Open Toolkit you are using. Copy the whole output from the DITA OT console output and either report the problem on the DITA User List or to the Oxygen XML team.

Alignment Issues of the Main Menu on Linux Systems Based on Gnome 3.x

On some Linux systems based on Gnome 3.x (e.g. Ubuntu 11.x, 12.x) the main menu of Oxygen XML Author has alignment issues when you navigate it using your mouse.

This is a known problem caused by Java SE 6 1.6.0_32 and earlier. You can resolve this problem using the latest Java SE 6 JRE from Oracle. To download the latest version, go to *http://www.oracle.com/technetwork/java/javase/downloads/index.html*.

To bypass the JRE bundled with Oxygen XML Author, go to the installation directory of Oxygen XML Author and rename or move the `jre` folder. If Oxygen XML Author does not seem to locate the system JRE, either set the JAVA_HOME environment variable to point to the location where you have installed the JRE, or you can simply copy that folder with the JRE to the installation directory and rename it to `jre` to take the place of the bundled JRE.

JPEG CMYK Color Space Issues

JPEG images with CMYK color profile having the color profiles embedded in the image should be properly rendered in the **Author** mode.

If the color profile information is missing from the JPEG image but you have the ICC file available, you can copy the `profileFileName.icc` to the `OXYGEN_INSTALL_DIR\lib` directory.

If the color space profile is missing, JPEG images that have the CMYK color space are rendered without taking the color profile into account. The **Unsupported Image Type** message is displayed above the image.

MSXML 4.0 Transformation Issues

In case the latest MSXML 4.0 service pack is not installed on your computer, you are likely to encounter the following error message in the **Results** panel when you run a transformation scenario that uses the MSXML 4.0 transformer.

Error Message

```
Could not create the 'MSXML2.DOMDocument.4.0' object.
Make sure that MSXML version 4.0 is correctly installed on the machine.
```

To fix this issue, go to the Microsoft website and get the latest MSXML 4.0 service pack.

Java Archive

JAR (Java ARchive) is an archive file format. JAR files are built on the ZIP file format and have the .jar file extension. Computer users can create or extract JAR files using the `jar` command that comes with a JDK.

Java Archive (JAR)

JAR

Apache Ant

Apache Ant (Another Neat Tool) is a software tool for automating software build processes.

Ant

Chapter 21

Using the WebApp Reviewer

Topics:

The WebApp Reviewer is a browser based application for mobile devices, especially designed to help you review and edit DITA documents, offering a simplified version of Oxygen XML Author's **Author** mode functionality. Portability and ease of use are the main advantages of the WebApp Reviewer. The most common authoring actions are available in tow working modes:

- *The **Review** mode*;
- *The **Edit** mode*.

The Review Mode

The **Review** mode in the WebApp Reviewer provides an intuitive interface that enables you to view documents and document edits. Swipe right to display the **Review** panel at the left of the editing area. This panel presents comments and tracked changes. A **Preview** panel is also available at the bottom of the editing area. It displays the current comment or tracked change and the author who inserted it..

To insert a comment, select the text that you want to comment on and touch **Add comment** at the bottom of the editing area. You are able to navigate between comments using the two arrows (left and right) from the **Preview** panel. To make changes to a comment, touch **Edit**.

The Edit Mode

The **Edit** mode in the WebApp Reviewer allows you not to only review a document but to also make changes to it. You also have the possibility to enable the **Track Changes** support and record all the edits you make.

When you swipe right, the **Toolbar** panel is displayed at the left of the editing area. This panel lets you enable the track changes support, display the content completion list of proposals, undo/redo a change, and rename an element.

Important: On Android devices the content completion list of proposals might display *undefined* elements. To avoid this, go to **Settings** > **Bandwidth Management** > **Reduce data usage** and select **OFF**.

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