Refactoring XML Documents
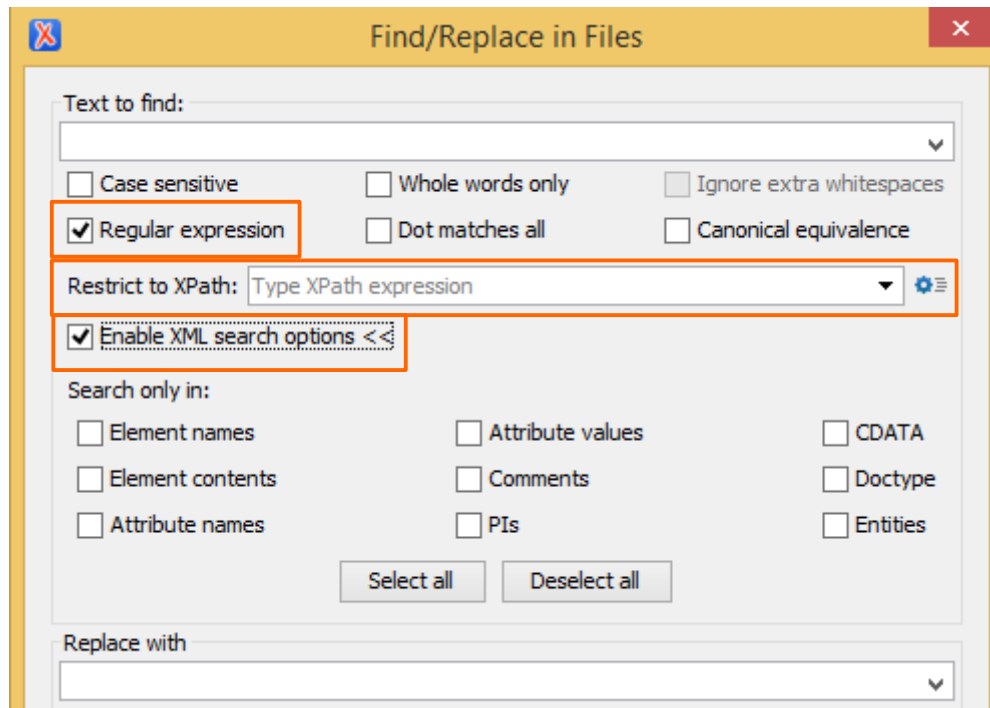
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Why do we need this tool?

Aren't the existing tools enough?

- limited structure-aware
- complex

Aren't the existing tools enough?

Q: Isn't a more structure aware solution already here?

A: Yes, **XSLT** and **XQuery Update**

XSLT

```
<xsl:stylesheet
    xmlns:xsl="http://www.w3.org/1999/XSL/Transform"
    version="2.0">
<xsl:template match="node() | @*">
    <xsl:copy>
        <xsl:apply-templates select="node() | @*"/>
    </xsl:copy>
</xsl:template>
</xsl:stylesheet>
```

XQuery Update

```
(insert node test
    as first into $node,
delete node $attribute)
```
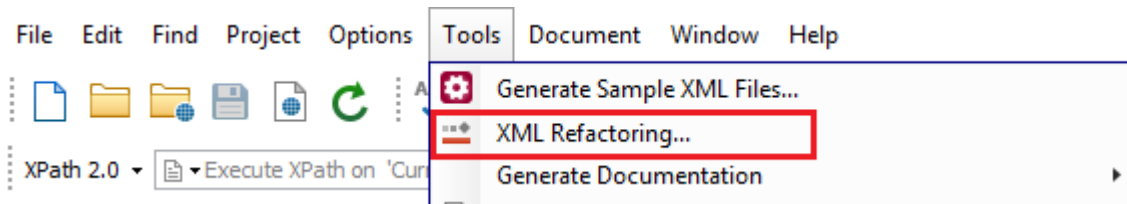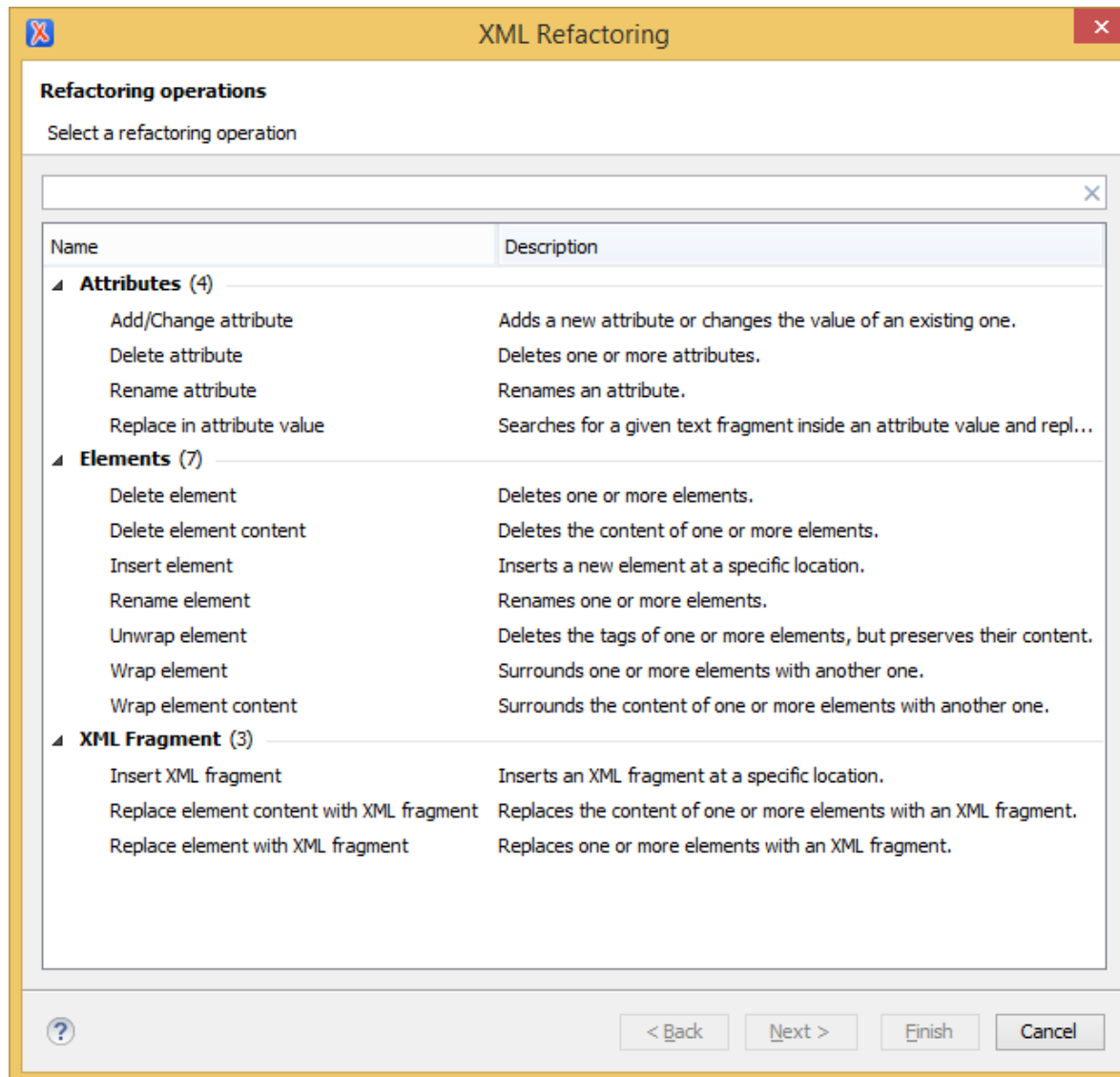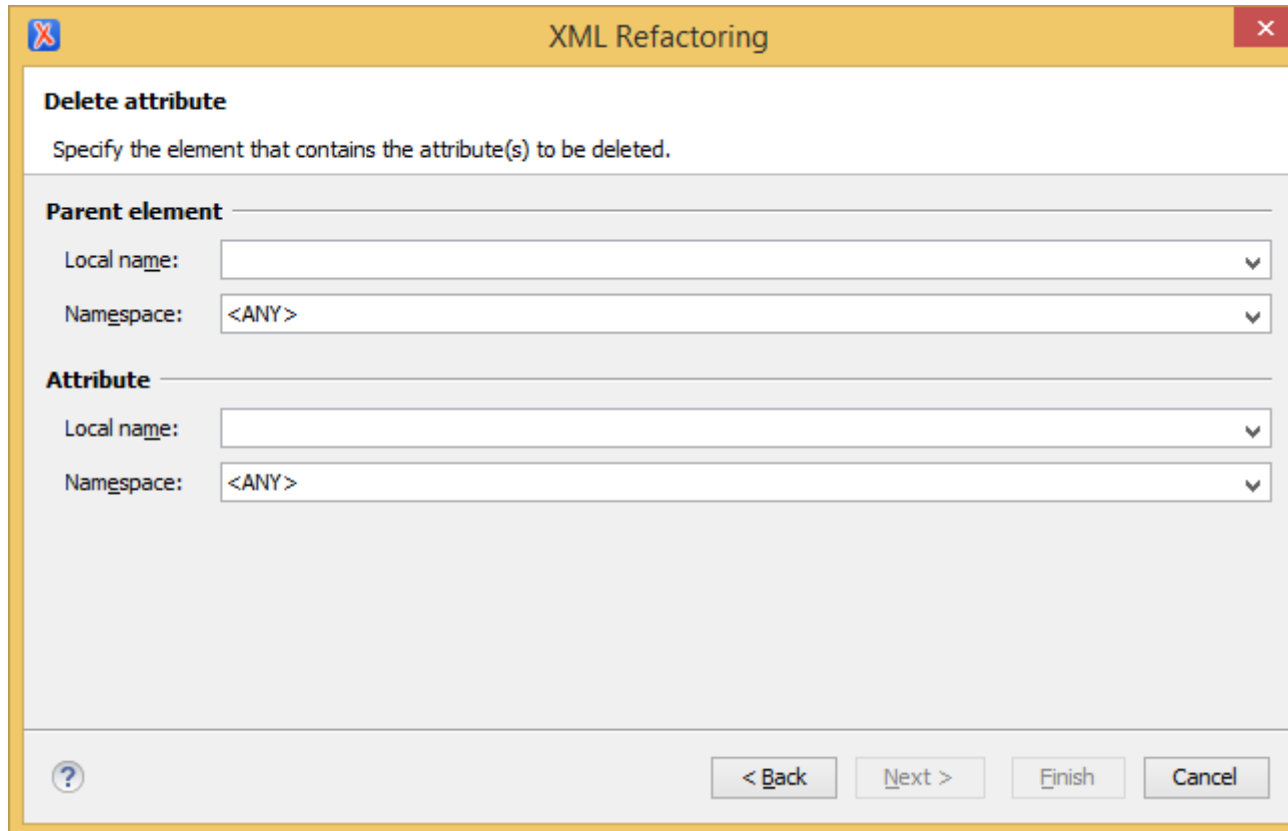
Where to find it

- Toolbar

- Main menu

- Project view

- DITA Map Manager

Choose operation

Configure parameters

Select scope

Summary

Two parts:
1. the user perspective.
    - using **predefined operations** for various tasks
2. the developer perspective.
    - creating a **custom operation**
    - **sharing** it with the team

Change Attribute Value

Use the XML Refactoring tool to modify an entry from a multi-value attribute

```
<para os="linux;windows;mac">
    Before installing the photo...</para>
```

```
<para os="linux;win;mac">
    Before installing the photo...</para>
```

Predefined operations

Attribute operations

- **Add/Change** attribute
- **Delete** attribute
- **Remove** attribute
- **Replace** in attribute value

Element operations

- **Insert** element
- **Rename** element
- **Wrap** element
- **Wrap** element content
- **Unwrap** element
- **Delete** element
- **Delete** element content

XML fragment operations

- **Insert** XML fragment
- **Replace** element with XML fragment
- **Replace** element **content** with XML fragment

Convert an element

Q:How to convert the first bolded paragraph from a section to a title?

A: By combining two built-in operations:
1. **Rename** element
2. **Unwrap** element

```
<section>
    <p><b>Lock your phone</b></p>
    <p>To lock your phone, press the <term>Lock</term> key with this icon <image
        href="../image/Lock.jpg" id="image_pmp_g14_2g" height="1em"/>.</p>
</section>
```

```
<section>
    <title>Lock your phone</title>
    <p>To lock your phone, press the <term>Lock</term> key with this icon <image
        href="../image/Lock.jpg" id="image_pmp_g14_2g" height="1em"/>.</p>
</section>
```
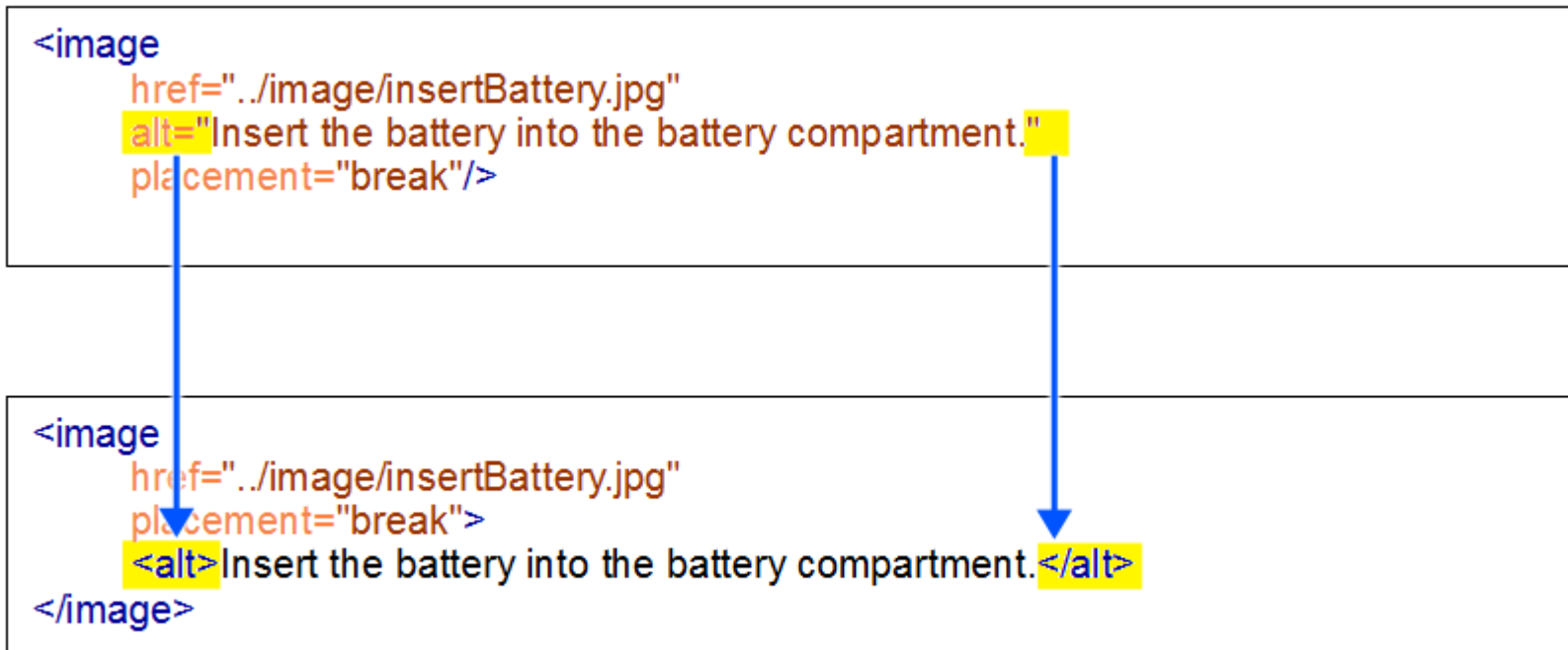
XML Refactoring process

XML Refactoring process
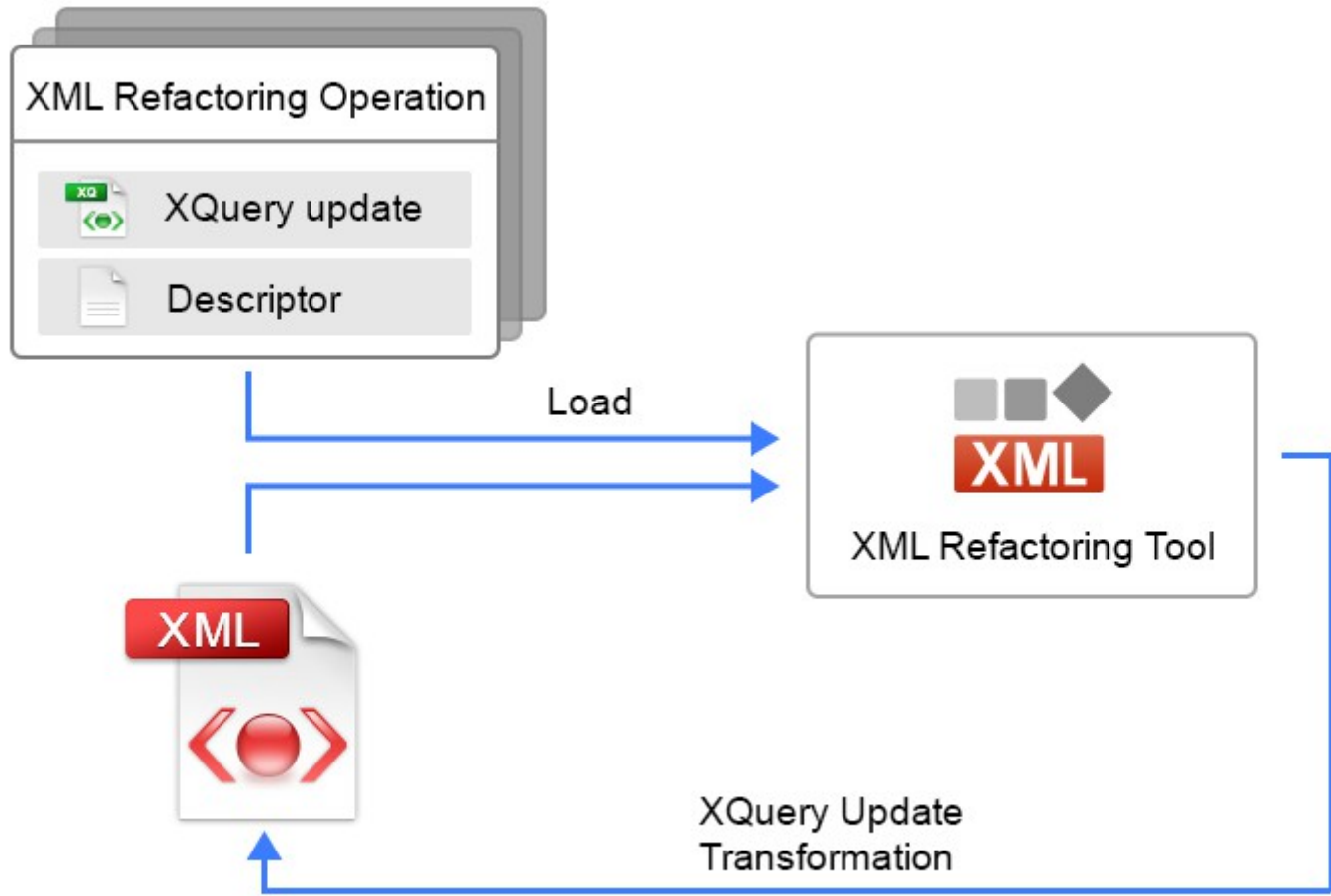
XML Refactoring Tool

- preserve attributes order

- preserve DOCTYPE

- preserve entities

Convert an attribute to an element

Q: How to convert the **alt** attribute to an element with the same name?

A: By creating a **custom operation**

```xml
<image
    href="../image/insertBattery.jpg"
    alt="Insert the battery into the battery compartment."
    placement="break"/>
```

```xml
<image
    href="../image/insertBattery.jpg"
    placement="break">
    <alt>Insert the battery into the battery compartment.</alt>
</image>
```

XQuery Script

```
<refactoringOperationDescriptor
        name="Convert attribute to element">
    <description>Converts the specified attribute….</description>
    <parameters>
        <description>Specify the attribute...</description>
        <section label="Parent element">
            <elementParameter id="elemID">
                <localName
                    label="Name"
                    name="element_localName">
                </localName>
                <namespace
                    label="Namespace"
                    name="element_namespace">
                </namespace>
            </elementParameter>
        </section>
    </parameters>
</refactoringOperationDescriptor>
```
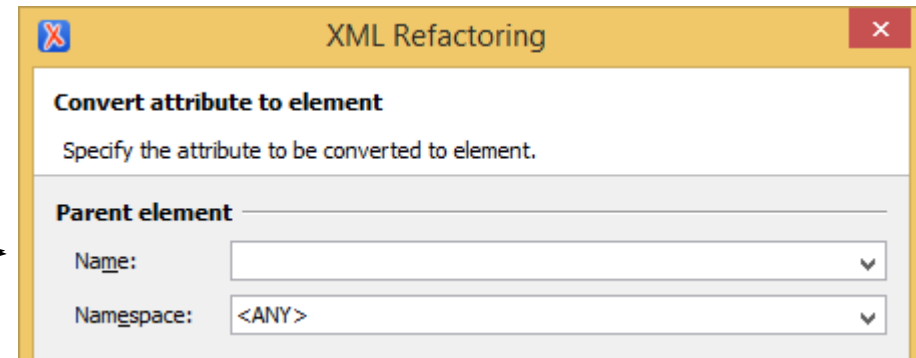
```
(: Local name of the attribute's parent element. :)
declare variable $element_localName
    as xs:string external;

(: Namespace of the attribute's parent element. :)
declare variable $element_namespace as xs:string external;
```

Descriptor

```
<refactoringOperationDescriptor
        name="Convert attribute to element">
   <description>Converts the specified attribute….</description>
   <parameters>
      <description>Specify the attribute...</description>
      <section label="Parent element">
         <elementParameter id="elemID">
            <localName
                label="Name"
                name="element_localName">
            </localName>
            <namespace
                label="Namespace"
                name="element_namespace">
            </namespace>
         </elementParameter>
      </section>
   </parameters>
</refactoringOperationDescriptor>
```
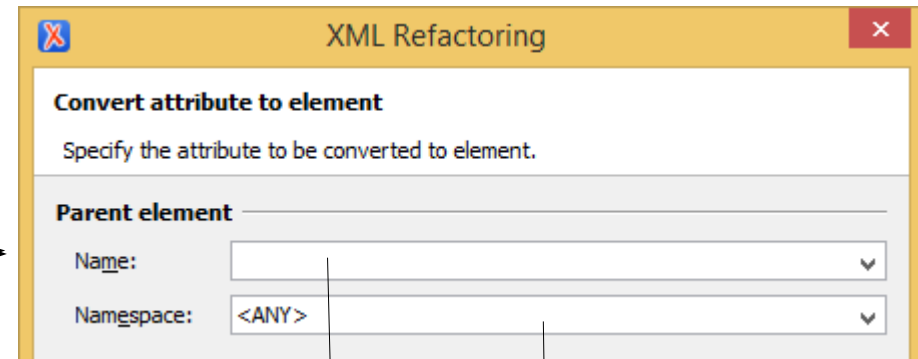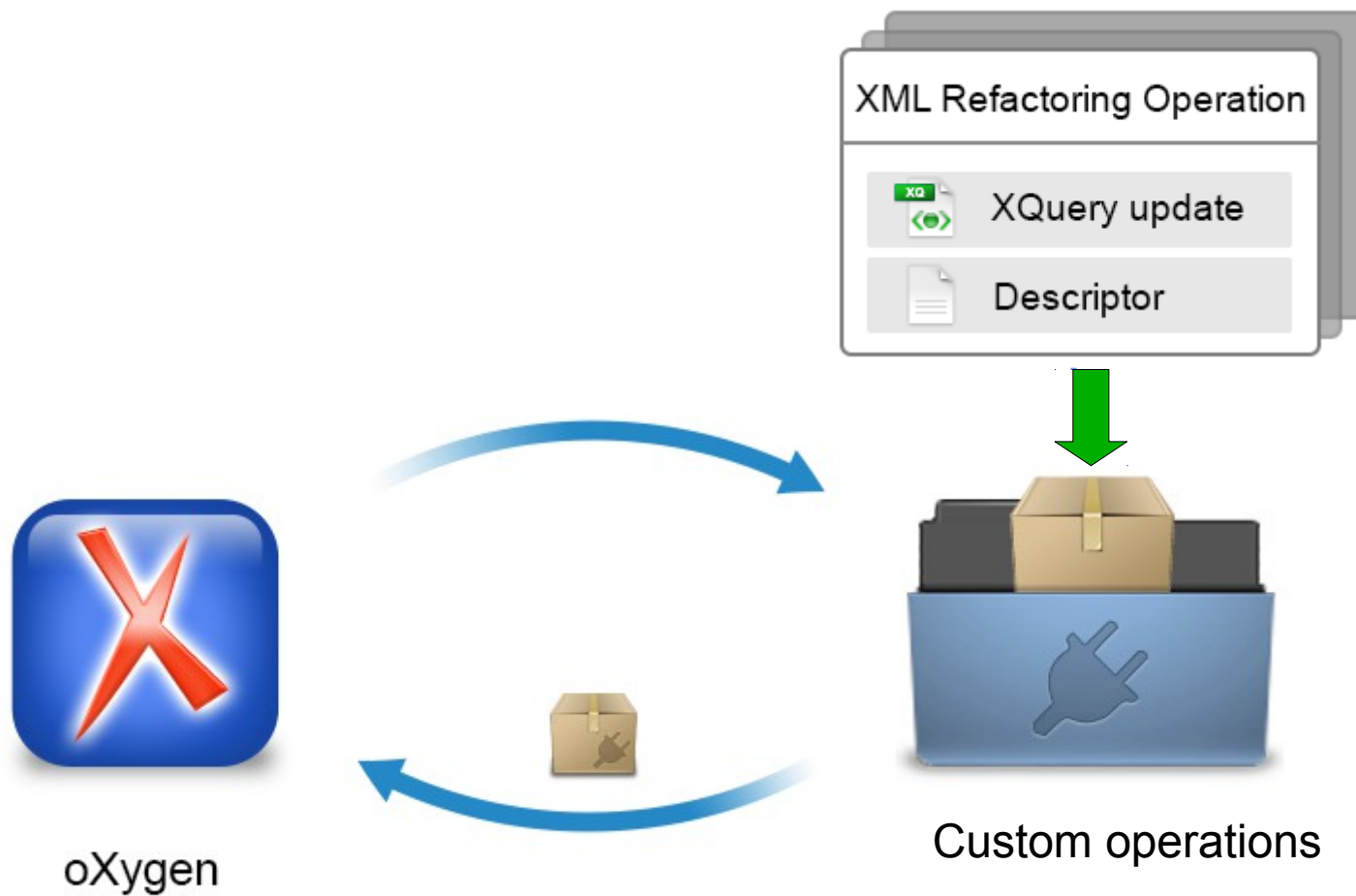
XML Refactoring

Convert attribute to element

Specify the attribute to be converted to element.

Parent element

Name:

Namespace: <ANY>

Working together

```xml
<refactoringOperationDescriptor
        name="Convert attribute to element">
    <description>Converts the specified attribute….</description>
    <parameters>
        <description>Specify the attribute...</description>
        <section label="Parent element">
            <elementParameter id="elemID">
                <localName
                    label="Name"
                    name="element_localName">
                </localName>
                <namespace
                    label="Namespace"
                    name="element_namespace">
                </namespace>
            </elementParameter>
        </section>
    </parameters>
</refactoringOperationDescriptor>
```

XML Refactoring

Convert attribute to element

Specify the attribute to be converted to element.

Parent element
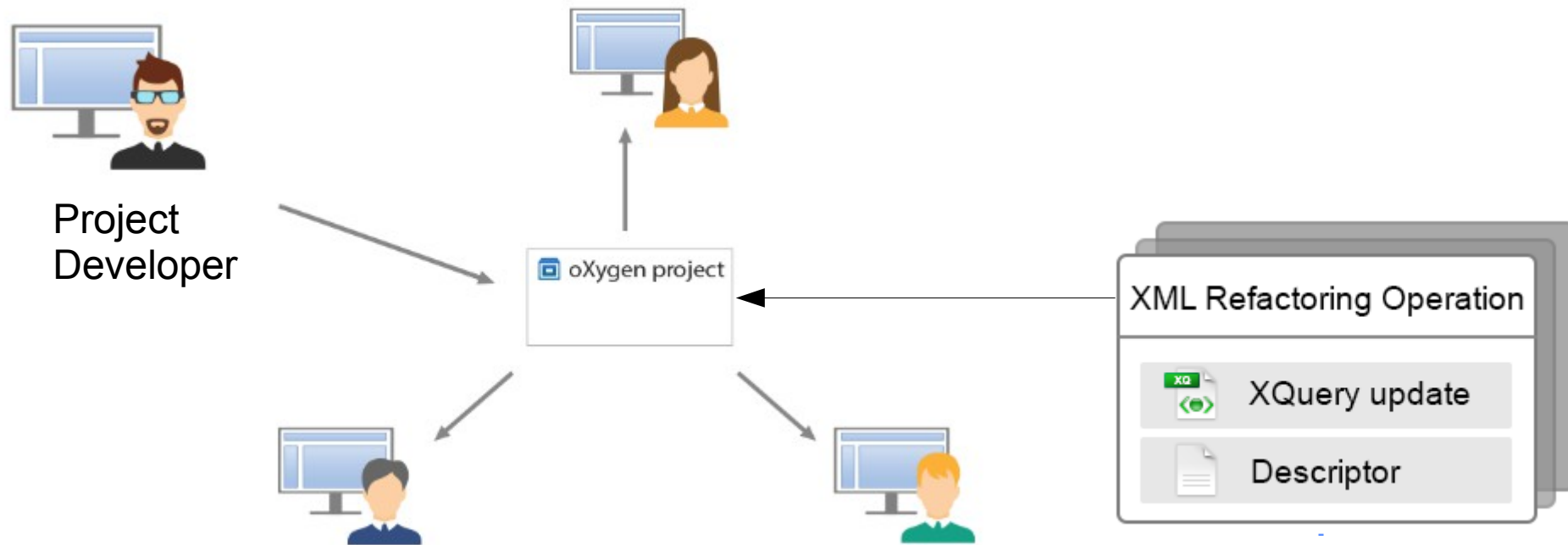
Name:

Namespace: <ANY>

```
(: Local name of the attribute's parent element. :)
declare variable $element_localName as xs:string external;

(: Namespace of the attribute's parent element. :)
declare variable $element_namespace as xs:string external;
```
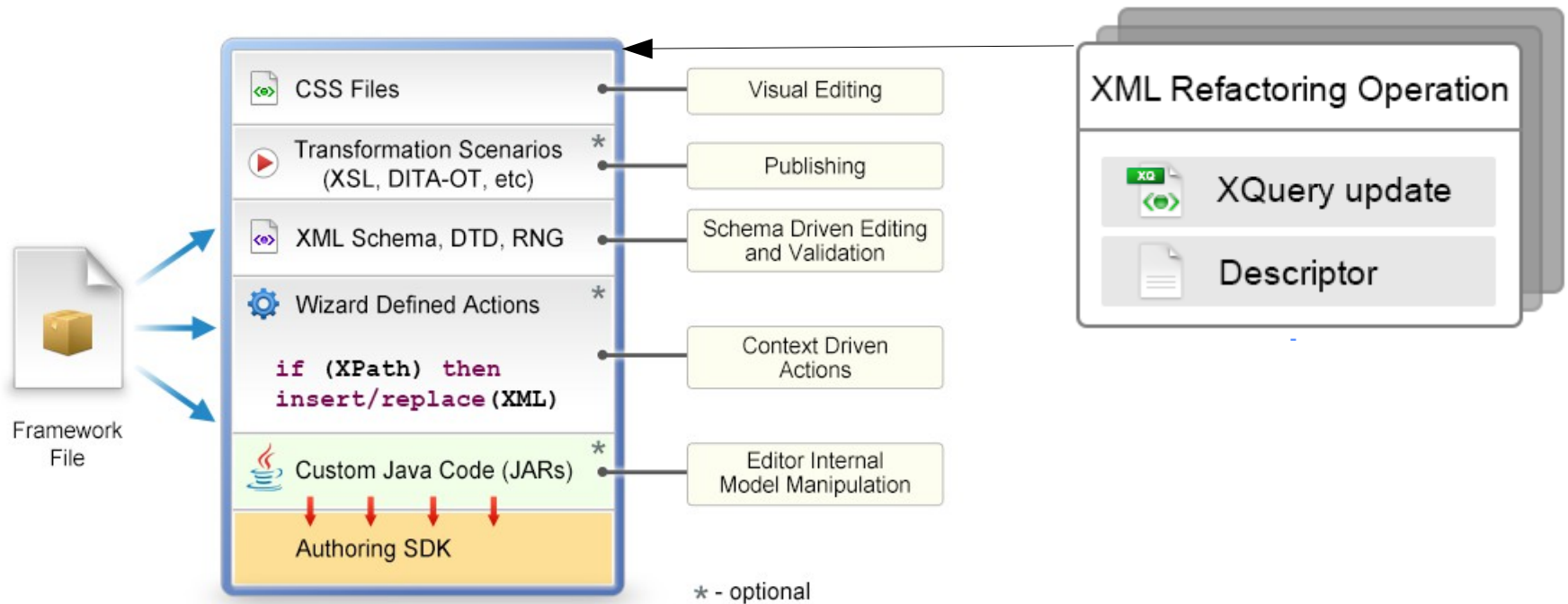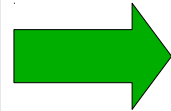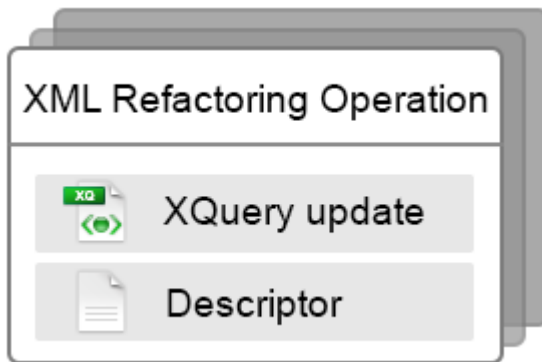
Sharing

XML Refactoring Operation

XQuery update

Descriptor

oXygen

Custom operations

Sharing - Options/Project

Project
Developer

oXygen project

XML Refactoring Operation

XQuery update

Descriptor

Sharing - The framework

Sharing - The framework

Sharing - oXygen plugin

oXygen

Developed plugins
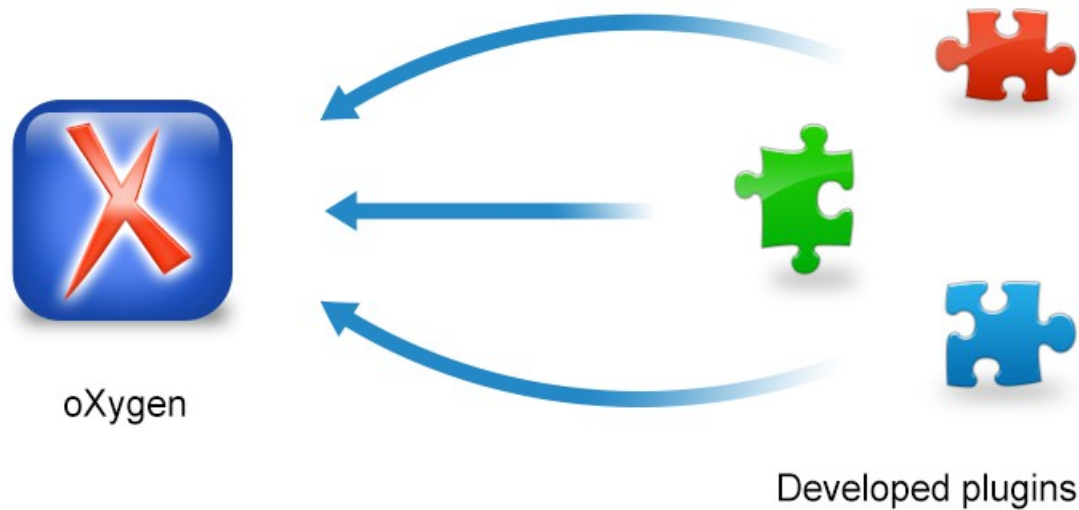
oXygen plugin descriptor

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE plugin PUBLIC "-//Oxygen Plugin" "../plugin.dtd">

<plugin
   id="refactoring.operations"
   name="Refactoring operations plugin"
   description="Contains operation descriptors and related scripts"
   version="1.0">
   <extension type="RefactoringOperationsProvider">
      <folder path="customDir/"/>
      <folder path="customDir2"/>
   </extension>
</plugin>
```
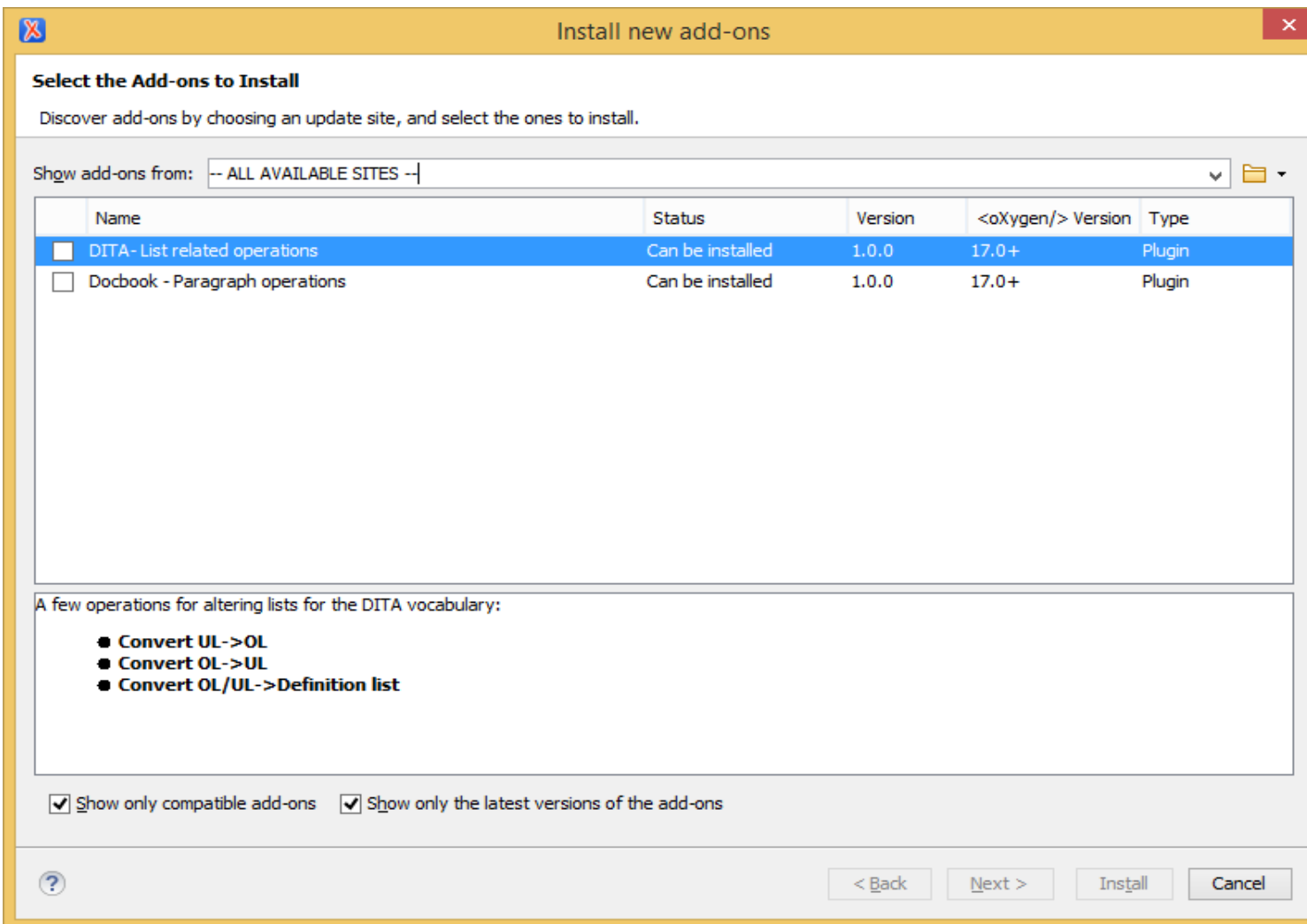
oXygen plugin descriptor

Plugin/Framework –> add-ons deployment

Plugin/Framework –> add-ons deployment

Sharing – the other way

- [oXygen Installation Directory]/**refactoring**/

Future plans

- Define **custom operations** based on **XSLT scripts**

- Add **Favorites support**

- Editor contextul menu

- **Any sugestions???**

feedback

Thank you!

Questions?

XML Editor
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