Plugin development

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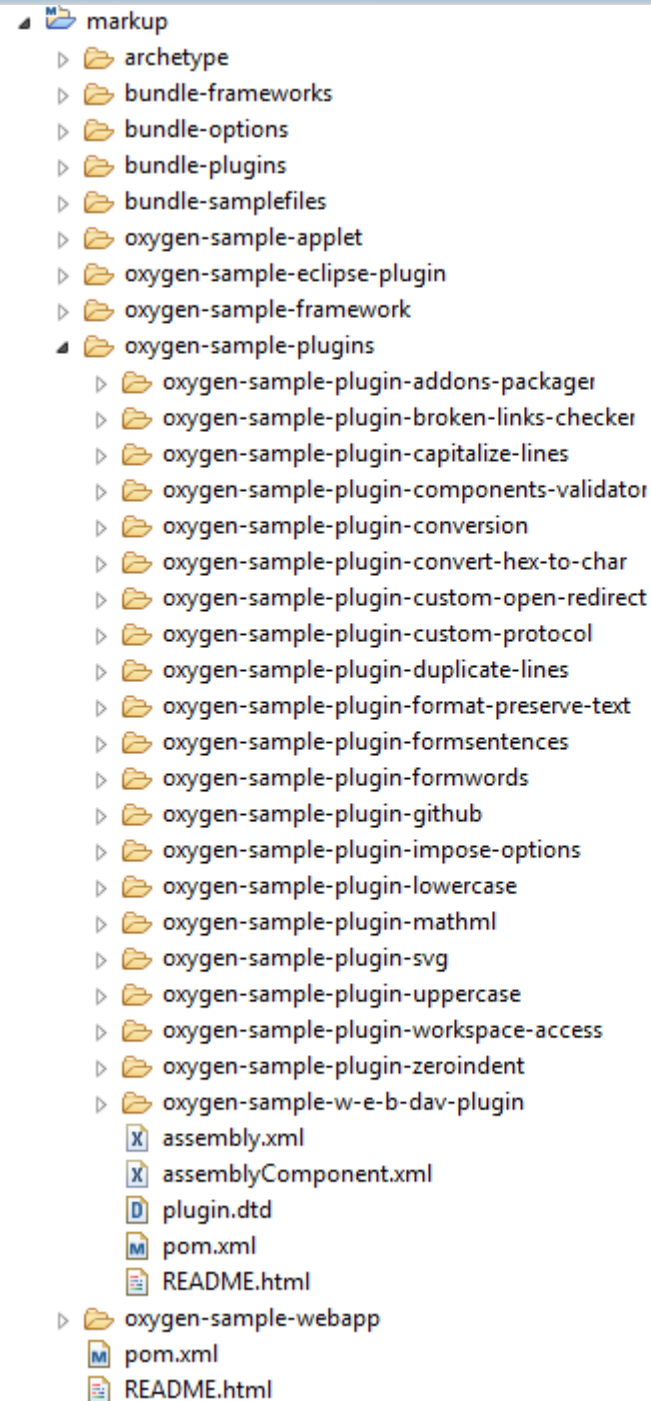
Prerequisites

- Install JDK

- Install Maven on your system

- Configure .m2/settings.xml

  - Repository: http://www.oxygenxml.com/maven

- Install the Eclipse IDE for Java EE Developers (or an Eclipse with the m2e plugin), version 4.3 or later:

  - https://www.eclipse.org/downloads/

The SDK

- a collection of Maven artifacts

- a multi-module startup project

  - Demo: create one in Eclipse

SDK project structure

```
⊿ 📦 markup
   ▷ 📂 archetype
   ▷ 📂 bundle-frameworks
   ▷ 📂 bundle-options
   ▷ 📂 bundle-plugins
   ▷ 📂 bundle-samplefiles
   ▷ 📂 oxygen-sample-applet
   ▷ 📂 oxygen-sample-eclipse-plugin
   ▷ 📂 oxygen-sample-framework
   ⊿ 📂 oxygen-sample-plugins
      ▷ 📂 oxygen-sample-plugin-addons-packager
      ▷ 📂 oxygen-sample-plugin-broken-links-checker
      ▷ 📂 oxygen-sample-plugin-capitalize-lines
      ▷ 📂 oxygen-sample-plugin-components-validator
      ▷ 📂 oxygen-sample-plugin-conversion
      ▷ 📂 oxygen-sample-plugin-convert-hex-to-char
      ▷ 📂 oxygen-sample-plugin-custom-open-redirect
      ▷ 📂 oxygen-sample-plugin-custom-protocol
      ▷ 📂 oxygen-sample-plugin-duplicate-lines
      ▷ 📂 oxygen-sample-plugin-format-preserve-text
      ▷ 📂 oxygen-sample-plugin-formsentences
      ▷ 📂 oxygen-sample-plugin-formwords
      ▷ 📂 oxygen-sample-plugin-github
      ▷ 📂 oxygen-sample-plugin-impose-options
      ▷ 📂 oxygen-sample-plugin-lowercase
      ▷ 📂 oxygen-sample-plugin-mathml
      ▷ 📂 oxygen-sample-plugin-svg
      ▷ 📂 oxygen-sample-plugin-uppercase
      ▷ 📂 oxygen-sample-plugin-workspace-access
      ▷ 📂 oxygen-sample-plugin-zeroindent
      ▷ 📂 oxygen-sample-w-e-b-dav-plugin
        X assembly.xml
        X assemblyComponent.xml
        D plugin.dtd
        M pom.xml
        📄 README.html
   ▷ 📂 oxygen-sample-webapp
     M pom.xml
     📄 README.html
```
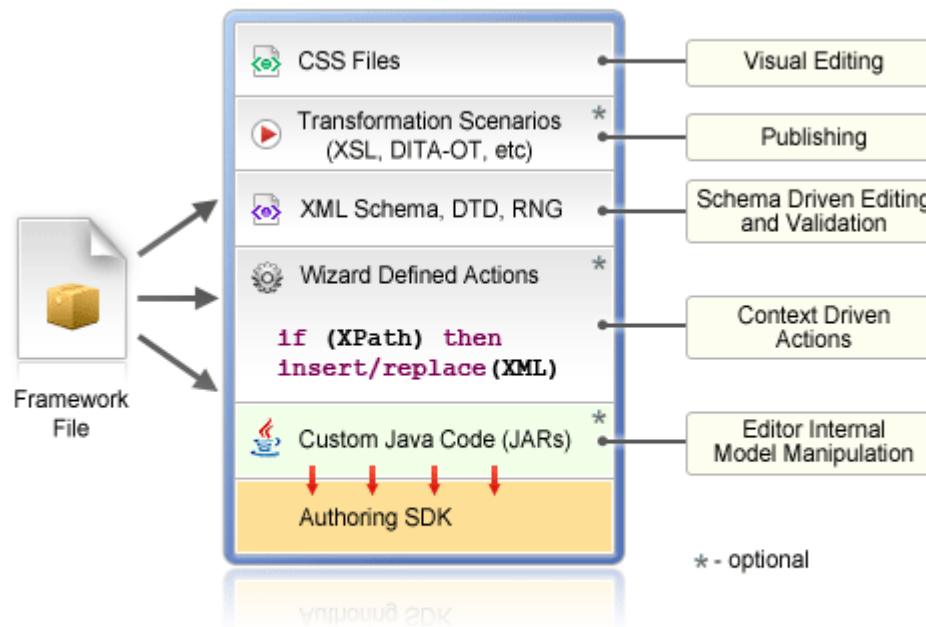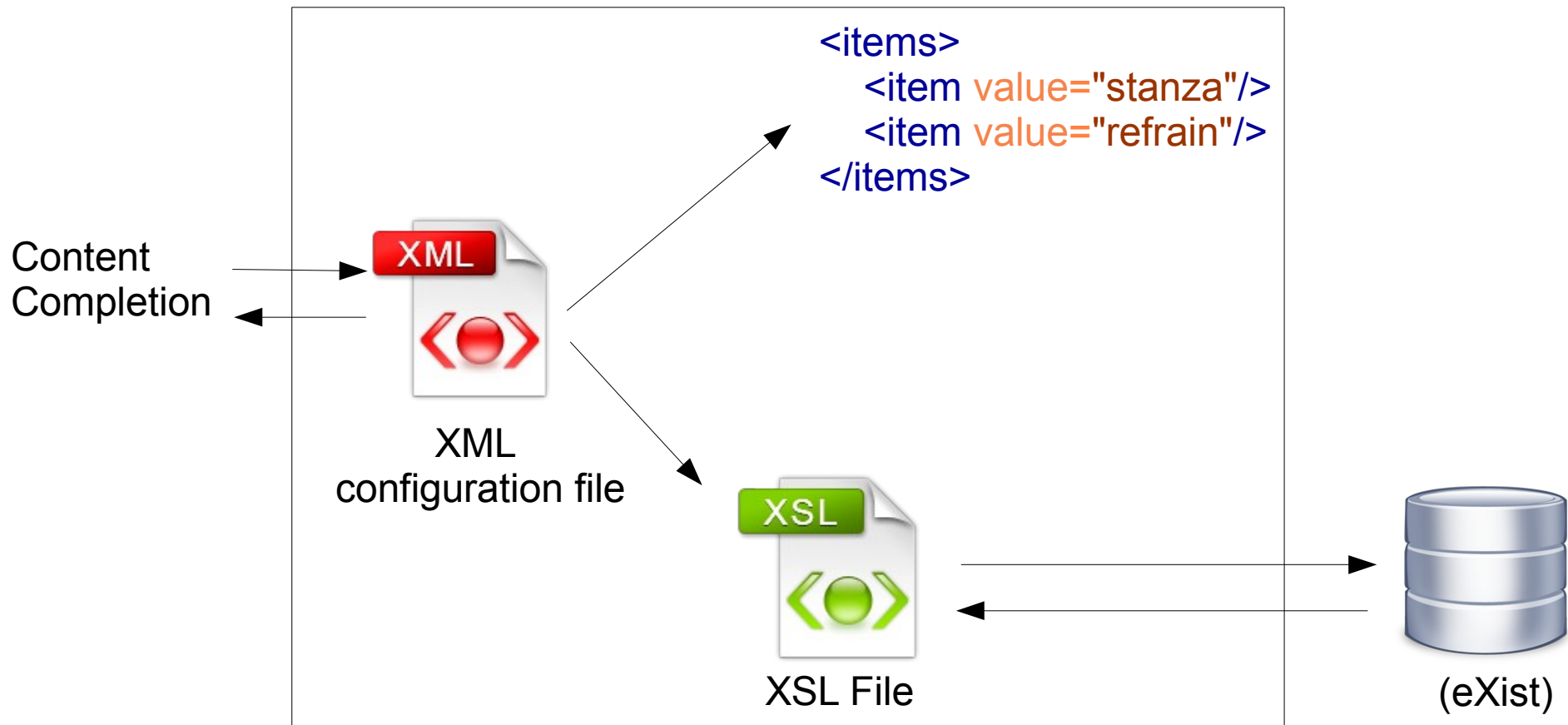
SDK project structure
- helpers -

- **bundle-**frameworks

- **bundle-**options

- **bundle-**plugins

- **bundle-**samplefiles

Author Framework Development

Author framework development


```
<items>
    <item value="stanza"/>
    <item value="refrain"/>
</items>
```

Content Completion

XML configuration file

XSL File

(eXist)

Java API: **ro.sync.contentcompletion.xml.SchemaManagerFilter**

Author Framework Development

oxygen-sample-**framework**

- – Simple Documentation Framework
- – The source code for DITA, DocBook, TEI, and XHTML extensions

Component/Applet Integration

Custom Desktop Application
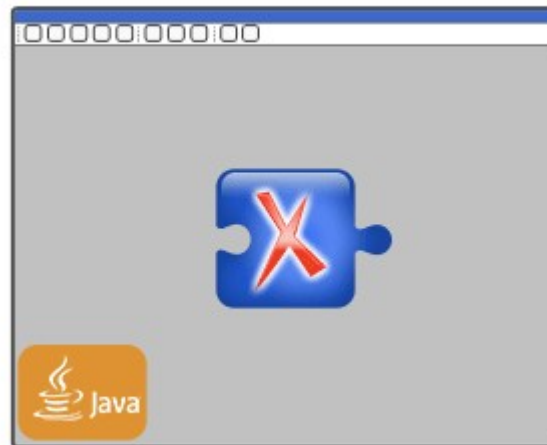
Java Applet
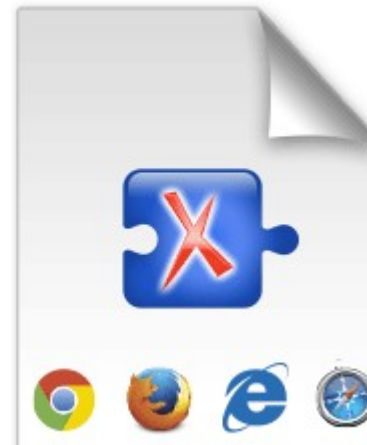
Component/Applet Integration

oxygen-sample-**applet**

- **bundle-options**
- **bundle-plugins**
- **bundle-frameworks**

oXygen XML WebApp Integration
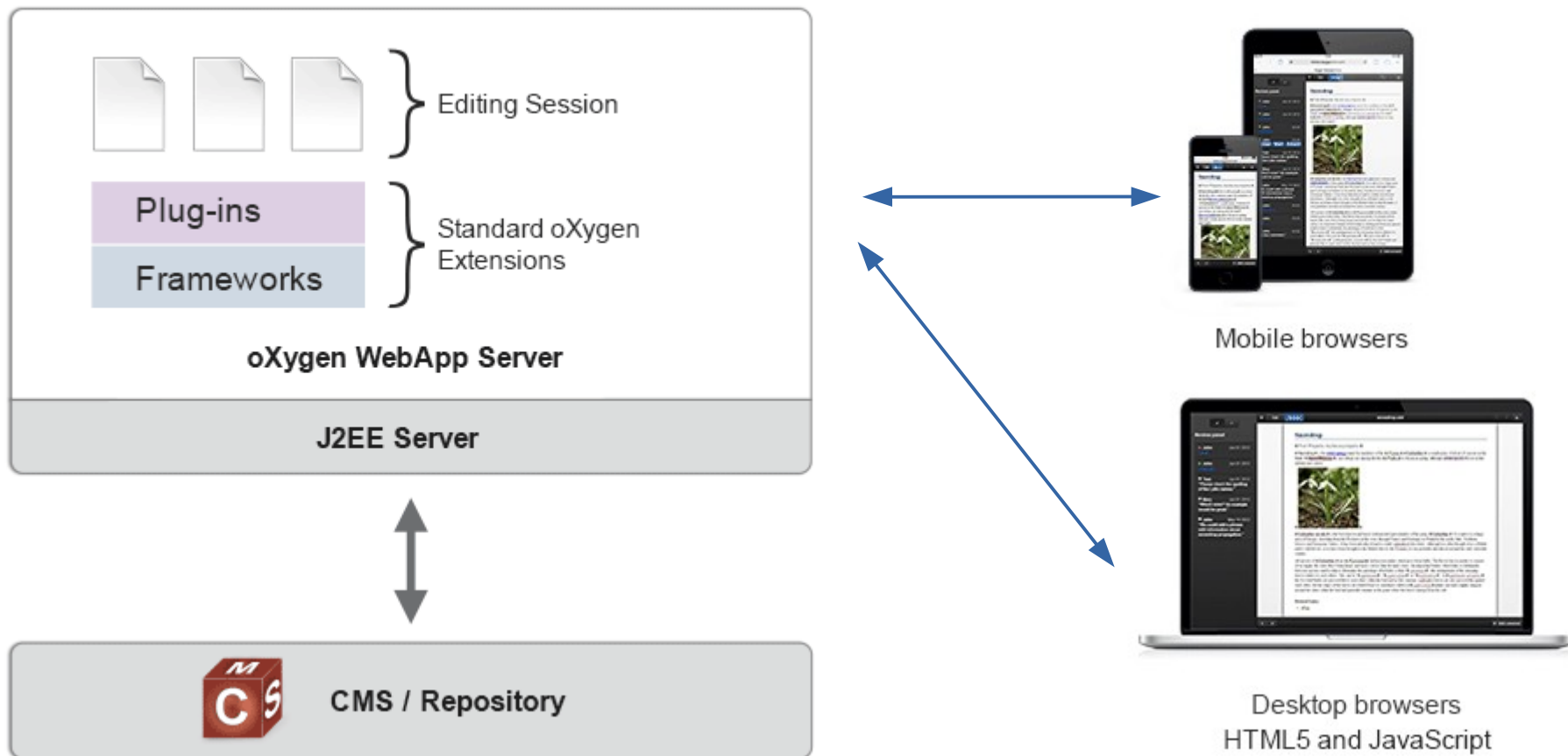
oXygen XML WebApp Integration

oxygen-sample-**webapp**

- bundle-options

- bundle-frameworks

- bundle-plugins
  - (oxygen-sample-plugin-custom-protocol)
- bundle-samplefiles
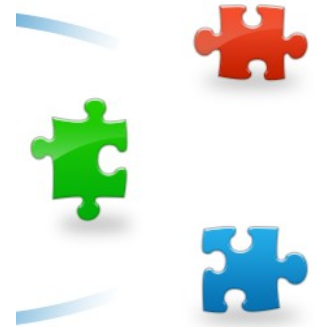
Eclipse IDE Integration

- oxygen-sample-**eclipse-plugin**
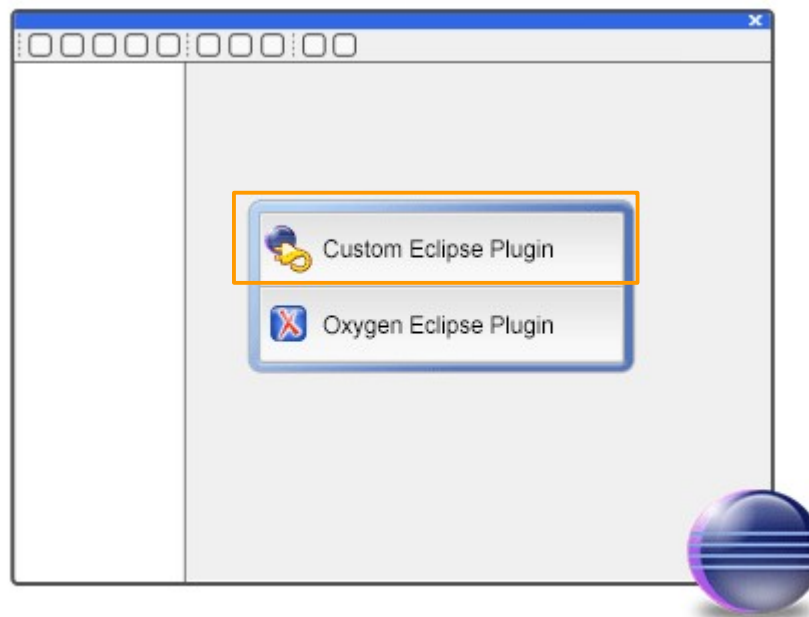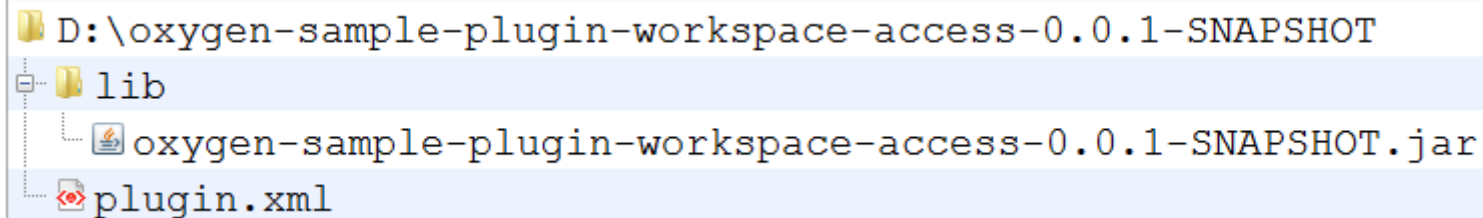
Plugins for the Standalone Distribution

oXygen

Developed plugins
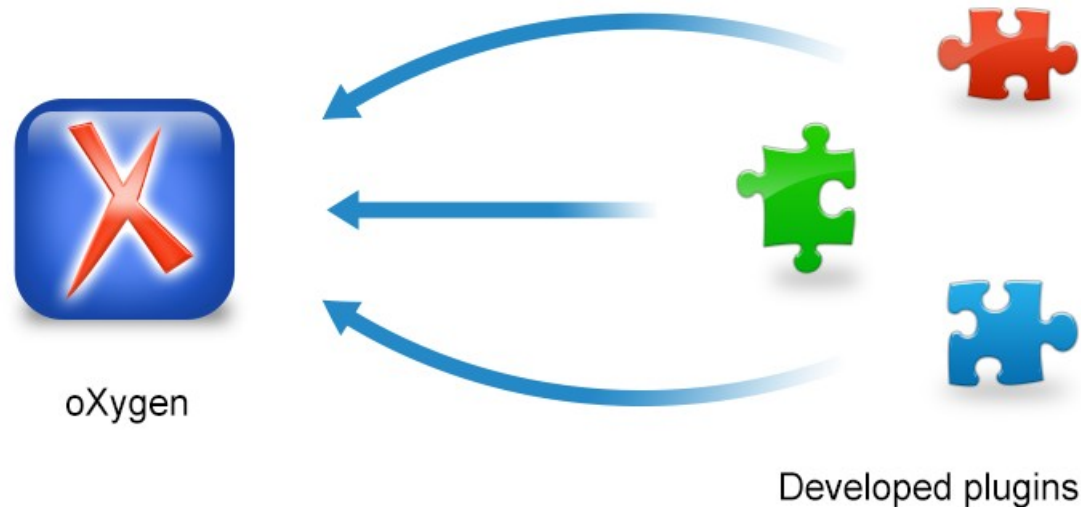
Plugins for the Standalone Distribution

- oxygen-**sample-plugins**
  - oxygen-sample-plugin-**addons-packager**
  - oxygen-sample-plugin-**custom-protocol**
  - oxygen-sample-plugin-**workspace-access**

Plugin structure

```
D:\oxygen-sample-plugin-workspace-access-0.0.1-SNAPSHOT
├─ lib
│    └─ oxygen-sample-plugin-workspace-access-0.0.1-SNAPSHOT.jar
└─ plugin.xml
```

Plugin descriptor

```xml
<plugin
 id="com.oxygenxml.plugin.WorkspaceAccess"
 name="CustomWorkspaceAccess"
 description="Test"
 version="${project.version}"
 vendor="SyncRO"
 class="demo.prague.markup.workspace.WorkspaceAccessPlugin"
 classLoaderType="preferReferencedResources">
  <runtime>
        <library name="lib/${project.build.finalName}.jar"/>
  </runtime>

  <extension type="WorkspaceAccess"
    class="demo.prague.markup.workspace.CustomWorkspaceAccessPluginExtension"/>

  <view id="SampleWorkspaceAccessID" initialSide="WEST" initialRow="0"/>

  <toolbar id="SampleWorkspaceAccessToolbarID" initialSide="NORTH"
      initialRow="1"/>

</plugin>
```
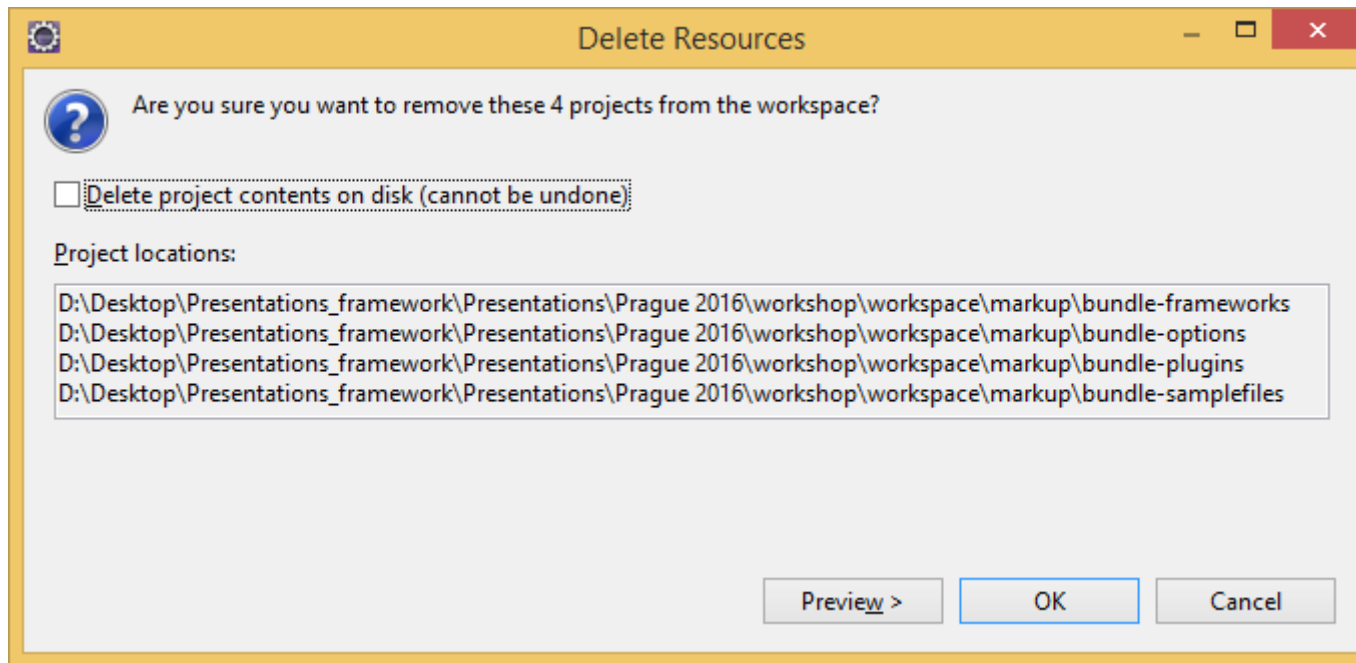
EXTENSION TYPES:

URLStreamHandler
WorkspaceAccess
OpenRedirect
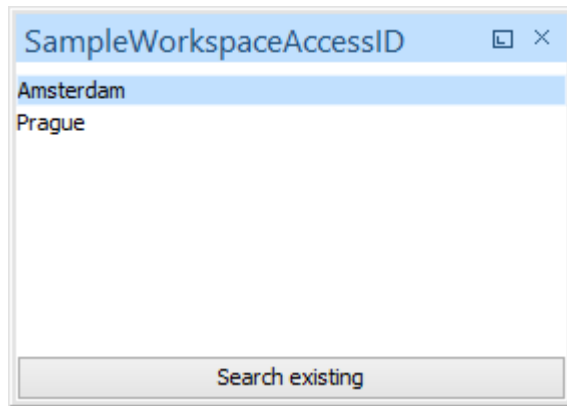Components Validator

…..........

Cleanup
- Keep what you need -

Workspace Access

- Views

- Toolbars

- Menubar

- Editors

- Utilities (UtilAccess & XMLUtilAccess)

Helper View requirements

<xref href="https://en.wikipedia.org/wiki/Prague" format="html">Prague</xref>

Workspace Access plugin

```java
public class WorkspaceAccessPlugin extends Plugin {
  /**
   * The static plugin instance.
   */
  private static WorkspaceAccessPlugin instance = null;

  /**
   * Constructs the plugin.
   *
   * @param descriptor The plugin descriptor
   */
  public WorkspaceAccessPlugin(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 WorkspaceAccessPlugin getInstance() {
    return instance;
  }
}
```

Workspace Access plugin

```java
/**
 * 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)
   */
  @Override
  public void applicationStarted(final StandalonePluginWorkspace pluginWorkspaceAccess) {

  }

  /**
   * @see ro.sync.exml.plugin.workspace.WorkspaceAccessPluginExtension#applicationClosing()
   */
  @Override
  public boolean applicationClosing() {
    return true;
  }
}
```

Contribute a view

```java
// Intercept the view creation.
pluginWorkspaceAccess.addViewComponentCustomizer(new ViewComponentCustomizer() {
  @Override
  public void customizeView(ViewInfo viewInfo) {
    if ("SampleWorkspaceAccessID".equals(viewInfo.getViewID())) {
      // Our view, that we contributed from plugin.xml
      JPanel viewPanel = new JPanel(new BorderLayout());
      entriesList = new JList<String>(terms.keySet().toArray(new String[0]));

      entriesList.addMouseListener(new MouseAdapter() {
        public void mouseClicked(java.awt.event.MouseEvent e) {
          if (e.getClickCount() == 2 && !e.isPopupTrigger()) {
            Object selectedValue = entriesList.getSelectedValue();
            if (selectedValue != null) {
              String match = (String) selectedValue;

              insertEntry(match);
            }
          }
        }
      });


      viewPanel.add(entriesList, BorderLayout.CENTER);

      viewInfo.setComponent(viewPanel);
    }
  }
});
```
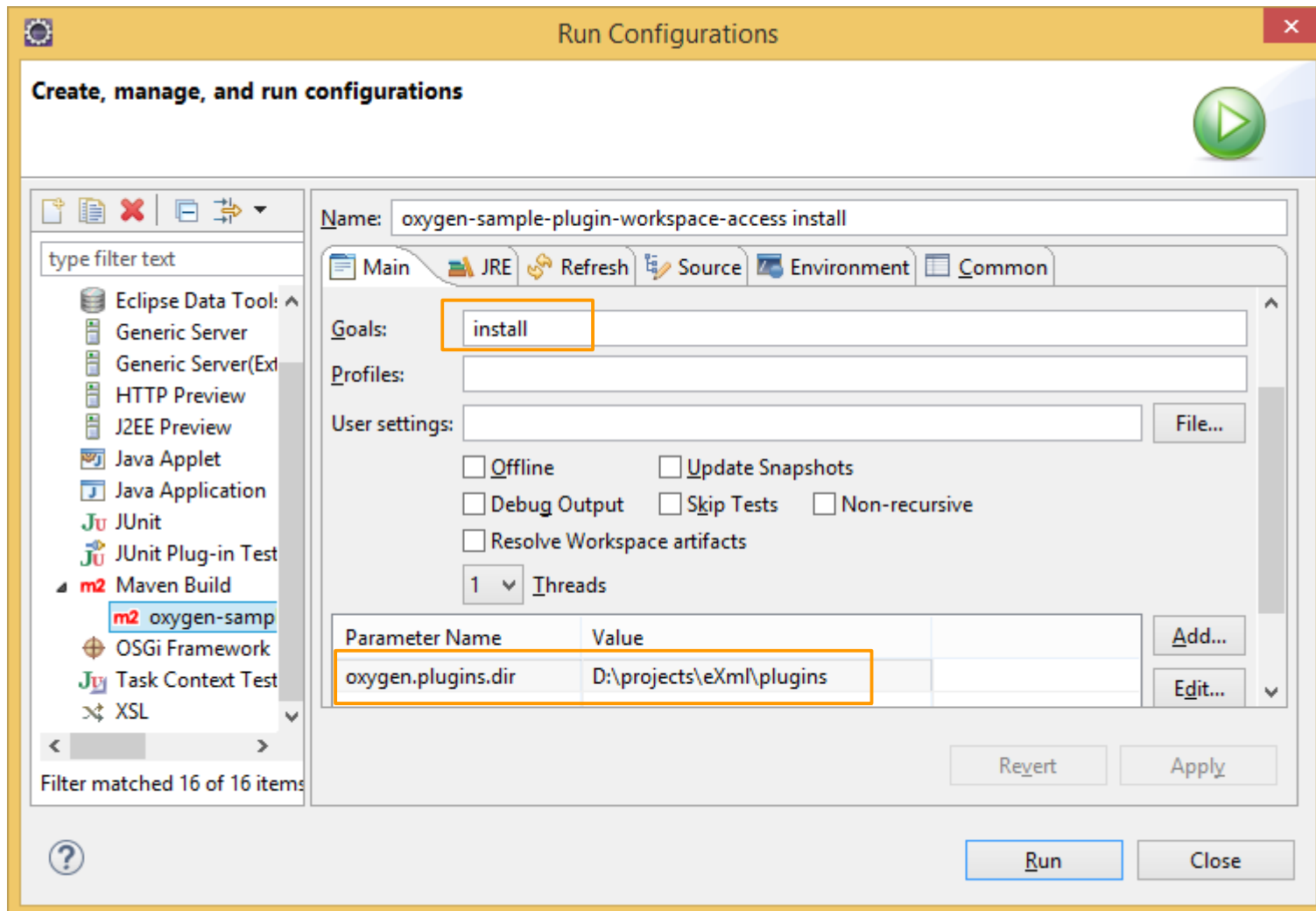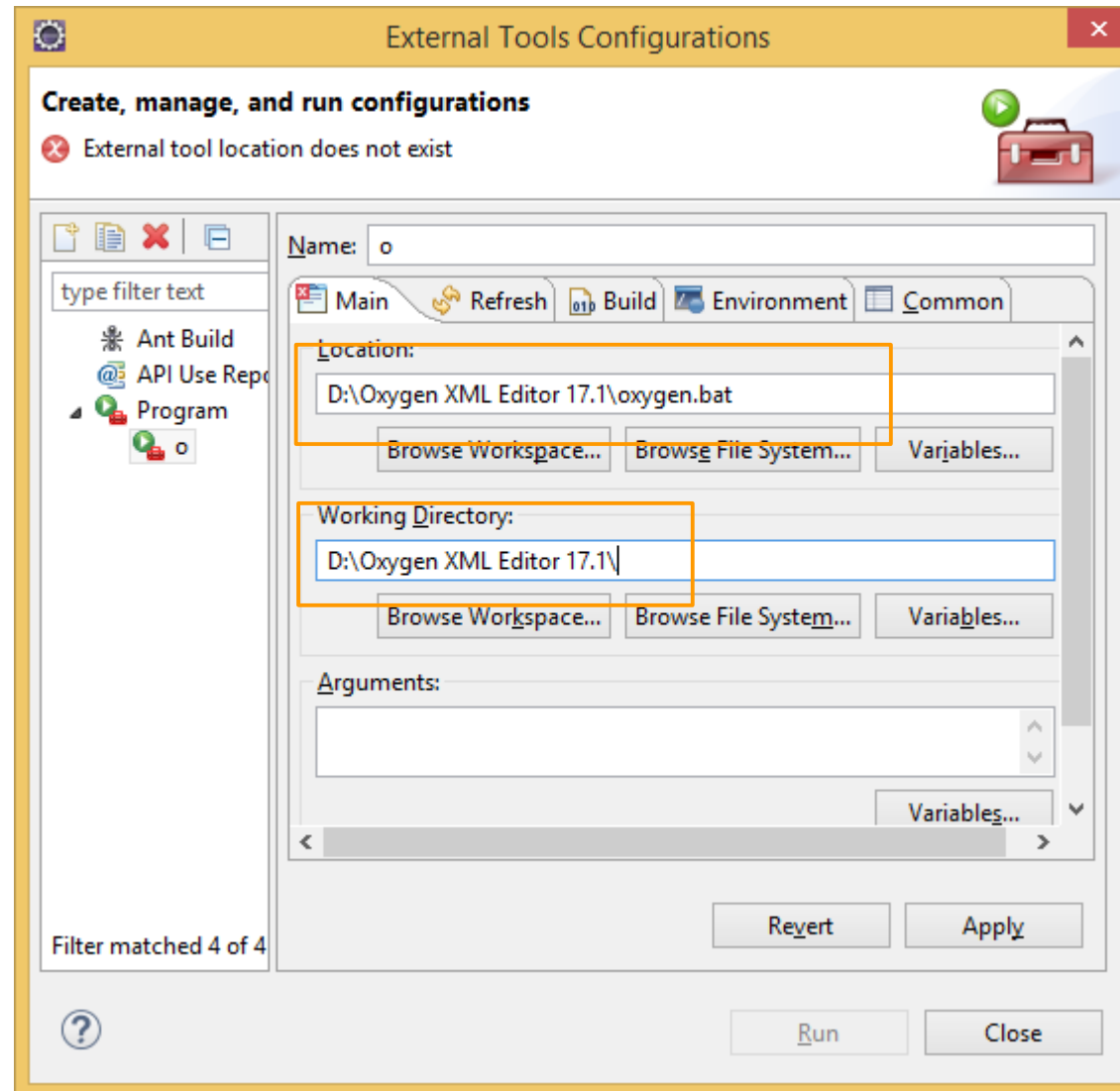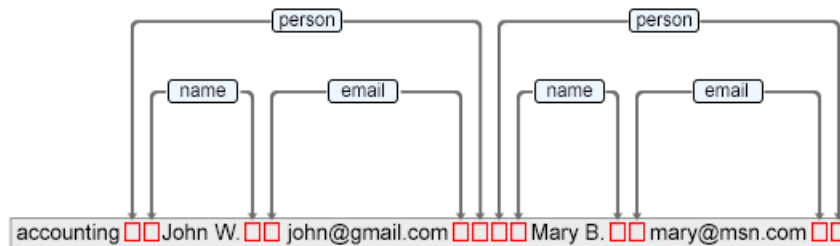
Deploy

Run as-> Maven build...

Launch Oxygen

Text page

Author page

- Author node model
- Author document controller

Add a toolbar item

```xml
<toolbar id="SampleWorkspaceAccessToolbarID" initialSide="NORTH" initialRow="1"/>
```

```java
pluginWorkspaceAccess.addToolbarComponentsCustomizer(new ToolbarComponentsCustomizer() {
  @Override
  public void customizeToolbar(ToolbarInfo toolbarInfo) {
    if ("SampleWorkspaceAccessToolbarID".equals(toolbarInfo.getToolbarID())) {
      Action action = new AbstractAction() {
        @Override
        public void actionPerformed(ActionEvent e) {
          pluginWorkspaceAccess.showView("SampleWorkspaceAccessID", true);
        }
      };
      action.putValue(Action.NAME, "Show Reference View");
      // Get an image.
      ToolbarButton b = new ToolbarButton(action, false);

      b.setIcon(new ImageIcon(getClass().getResource("/images/ShowHelp16.png")));
      toolbarInfo.setComponents(new JComponent[] {b});
    }
  }
});
```

Highlights – Text Page

```java
WSXMLTextEditorPage textPage = (WSXMLTextEditorPage) currentPage;
try {
  WSXMLTextNodeRange[] ranges = textPage.findElementsByXPath("//xref");
  JTextArea textComponent = (JTextArea) textPage.getTextComponent();
  Highlighter highlighter = textComponent.getHighlighter();
  // TODO Not great because we will remove highlights added by someone else.
  highlighter.removeAllHighlights();

  HighlightPainter painter = new DefaultHighlighter.DefaultHighlightPainter(Color.PINK);
  for (int i = 0; i < ranges.length; i++) {
    int start = textPage.getOffsetOfLineStart(ranges[i].getStartLine()) + ranges[i].getStartColumn() - 1;
    int end = textPage.getOffsetOfLineStart(ranges[i].getEndLine()) + ranges[i].getEndColumn() - 1;

    highlighter.addHighlight(start, end, painter);
  }

} catch (XPathException e) {
  e.printStackTrace();
}
```

Highlights – Author Page

```java
WSAuthorEditorPage authorPage = (WSAuthorEditorPage) currentPage;

AuthorDocumentController documentController = authorPage.getDocumentController();
AuthorNode[] nodes = documentController.findNodesByXPath("//xref", true, true, true);

AuthorHighlighter highlighter = authorPage.getHighlighter();
// TODO Not great because we will remove highlights added by someone else.
highlighter.removeAllHighlights();
RectangleHighlightPainter painter =
        new RectangleHighlightPainter(ro.sync.exml.view.graphics.Color.COLOR_YELLOW);
for (int i = 0; i < nodes.length; i++) {
  highlighter.addHighlight(nodes[i].getStartOffset(), nodes[i].getEndOffset(), painter, null);
}
```

Persistent highlights – Author Page

```
<?oxy_custom_start prop1="val1"....?> xml content <?oxy_custom_end?>
```

```
WSAuthorEditorPage authorPage = (WSAuthorEditorPage) currentPage;

AuthorPersistentHighlighter persistentHighlighter =
                                  authorPage.getPersistentHighlighter();
```

Editor events

```
// Step 4. contribute to contextual menu. Listen for page open events.
pluginWorkspaceAccess.addEditorChangeListener(new WSEditorChangeListener() {
  @Override
  public void editorOpened(URL editorLocation) {
    final WSEditor editorAccess = pluginWorkspaceAccess.getEditorAccess(editorLocation, PluginWorkspace.MAIN_EDITING_AREA);
    install(editorAccess);
    editorAccess.addPageChangedListener(new WSEditorPageChangedListener() {
      @Override
      public void editorPageChanged() {
        install(editorAccess);
      }
    });
  }
}, PluginWorkspace.MAIN_EDITING_AREA);
```

Contextual menu

```
WSEditorPage currentPage = editorAccess.getCurrentPage();
if (currentPage instanceof WSXMLTextEditorPage) {
  ((WSXMLTextEditorPage) currentPage).removePopUpMenuCustomizer(textPopupCustomizer);
  ((WSXMLTextEditorPage) currentPage).addPopUpMenuCustomizer(textPopupCustomizer);
} else if (currentPage instanceof WSAuthorEditorPage) {
  ((WSAuthorEditorPage) currentPage).removePopUpMenuCustomizer(authorPopupCustomizer);
  ((WSAuthorEditorPage) currentPage).addPopUpMenuCustomizer(authorPopupCustomizer);
}
```

INSTALL

```
// Step 4.1. Text page popUp customizer.
textPopupCustomizer = new TextPopupMenuCustomizer() {
  @Override
  public void customizePopUpMenu(Object popUp, WSTextEditorPage textPage) {
    JPopupMenu jPopupMenu = (JPopupMenu) popUp;
    customize(jPopupMenu);
  }
};

// Step 4.1. Author page popUp customizer.
authorPopupCustomizer = new AuthorPopupMenuCustomizer() {
  @Override
  public void customizePopUpMenu(Object popUp, AuthorAccess authorAccess) {
    JPopupMenu jPopupMenu = (JPopupMenu) popUp;
    customize(jPopupMenu);
  }
};
```

CUSTOMIZE

Add-ons

Check for updates

oXygen

Add-ons updates

Update Site
(HTTP)
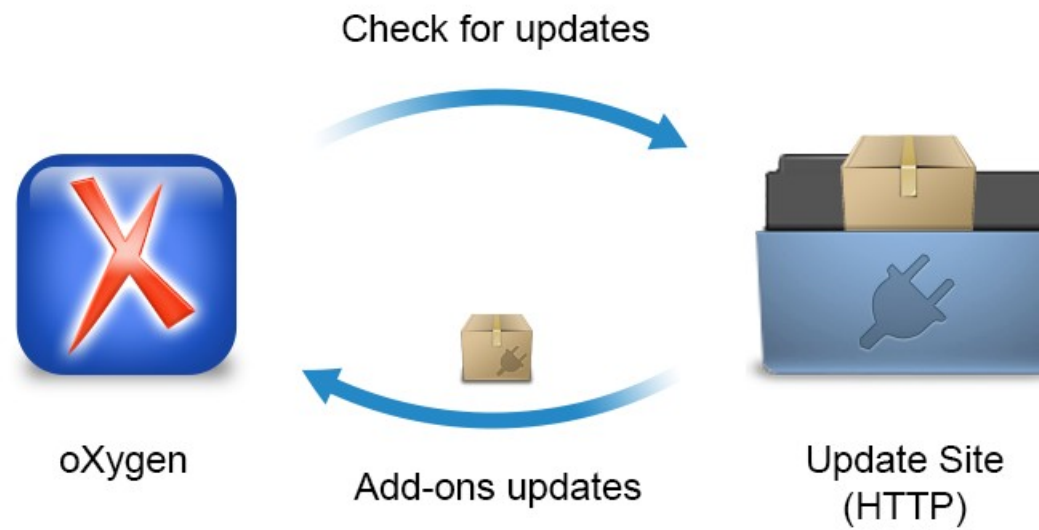
Thank you!

Questions?

XML Editor
http://www.oxygenxml.com
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