Examples

This chapter covers the following topics:

- About the Examples
- Defining a Control with a Corresponding Tag Handler
- Defining an XML Macro
- Additional Information

About the Examples

These examples assume that you expect the label of an input field not at the left of the field but above the field (two separate rows). Furthermore, you want to have several such fields within a single row (inline control).

For these examples, you will proceed as follows:

1. You create your own editor extension with the name *editor_test.xml*.

   Important:
   Do not use the Application Designer editor extensions for your own controls. Place your own controls within your own extension file. Thus, there will be no conflicts when upgrading your installation to a newer Application Designer build.

2. You build a control named DLFIELD (double line field) which will be available in the library "test". Therefore, you have to name your control "test:dlfield". See also *Library Concept* in the *Customized Controls* documentation.

3. You define an XML macro which determines that the control consists of two rows, one for the label and another for the field. The rows themselves are placed into a column container.

The composition of controls looks roughly like this:

```
COLTABLE0
  TR
    LABEL
  TR
    FIELD
```

Defining a Control with a Corresponding Tag Handler

The definition of a control with a corresponding tag handler is quite simple. It consists of

- the name of the control,
- the list of attributes, and

- the list of embedding container controls.

You will now define a control with the following properties: `name` (label name), `width` (width of column container) and `valueprop` (name of the adapter property to which the field is bound). The control will be available within the row containers TR and ITR.

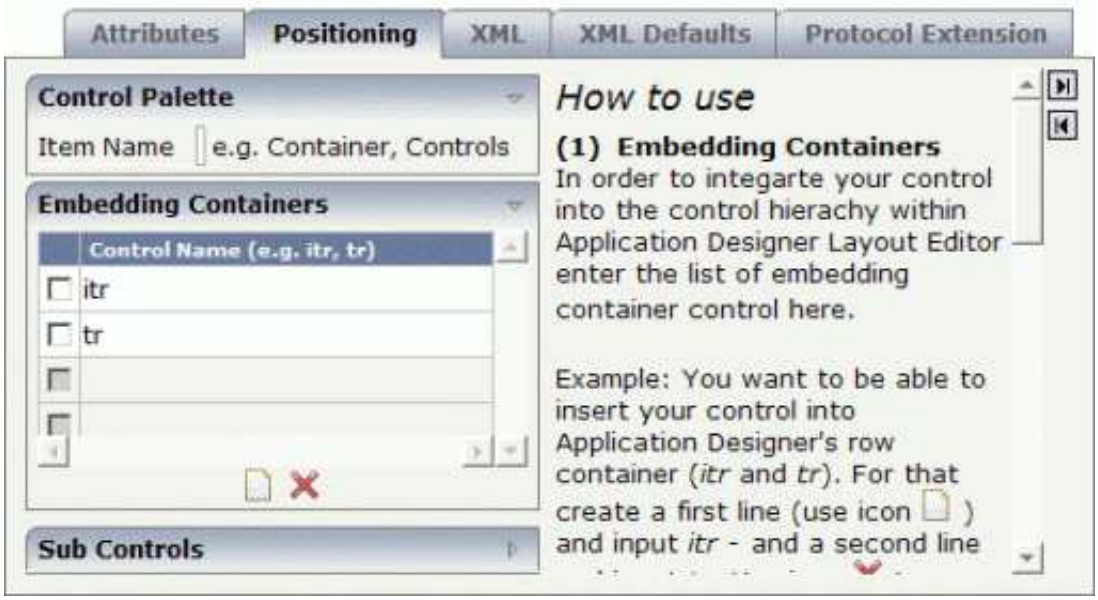
Note:
For further information on the tag handler, see *Control Concept* in the *Customized Controls* documentation.

To define a new control

1. Invoke the Control Editor.
2. Create your own editor extension with the name *editor_test.xml*
3. Add a new control with the name "test:dlfield".

   Note:
   The editor extension *editor_demo.xml* contains a control with the name "demo:dlfield". When you have completed the example, your new "test:dlfield" extension should be similar to "demo:dlfield".
4. Select your new control in the tree.
5. To create the list of attributes, specify the following information on the **Attributes** tab:

6. Specify the following information on the **Positioning** tab:



This determines that your control can be selected from the **MyControls** section of the controls palette and that it can be inserted into the row containers TR and ITR.

7. Save your changes.

8. Have a look at the generated XML file (*editor_test.xml*). It should look as follows:

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

<!--
Dynamic extension of editor.xml file.
-->

<controllibrary>
  <editor>

  <!--
  ****************************************************************************
  * DATATYPEs
  ****************************************************************************
  -->


  <!--
  ****************************************************************************
  * TAGs
  ****************************************************************************
  -->

  <!-- TEST:DLFIELD -->
  <tag name="test:dlfield">
    <attribute name="name"/>
    <attribute name="width" datatype="width"/>
    <attribute name="valueprop" datatype="property"/>
    <taginstance>
    </taginstance>
    <protocolitem>
    </protocolitem>
  </tag>
```

```
    <tagsubnodeextension control="itr" newsubnode="test:dlfield"/>
    <tagsubnodeextension control="tr" newsubnode="test:dlfield"/>

    <taggroupsubnodeextension group="MyControls" newsubnode="test:dlfield"/>

    </editor>
  </controllibrary>
```

Defining an XML Macro

You define an XML macro in the XML file - without any coding. The basic data of an XML macro is the same as that of a control with tag handler. It consists of:

- the name of the control,
- the list of attributes, and
- the list of embedding container controls.

In addition, you define the following:

- the XML macro,
- additional properties and methods (optional), and
- additional JavaScript libraries (optional).

With the XML macro, you describe the control’s composition out of other controls. A macro attribute can be referenced by enclosing the attribute name in "$" characters (for example, "$myattribute$").

With a simple composing control, no further information is required.

Additional data (additional properties, methods, libraries) is only required if you want to bind the control to a so-called "server-side representative". The control’s properties and methods are bound to a dedicated Java class. Within this class, you typically encapsulate certain tasks/functionality used by the control.

The following topics are covered below:

- XML Macro for a Simple Composing Control
- XML Macro with a Server-Side Representative

XML Macro for a Simple Composing Control

You will now continue with the "test:dlfield" control from the previous example.

You will add an XML macro to the "test:dlfield" control which defines the following:

- The control consists of a row for the label and a second row for the field.
- The rows themselves are placed into a column container.

- The property `width` is delegated to the column container. The label and field have a width of 100%.
- The property `name` is delegated to the corresponding property of the label.
- The property `valueprop` is delegated to the corresponding property of the field.

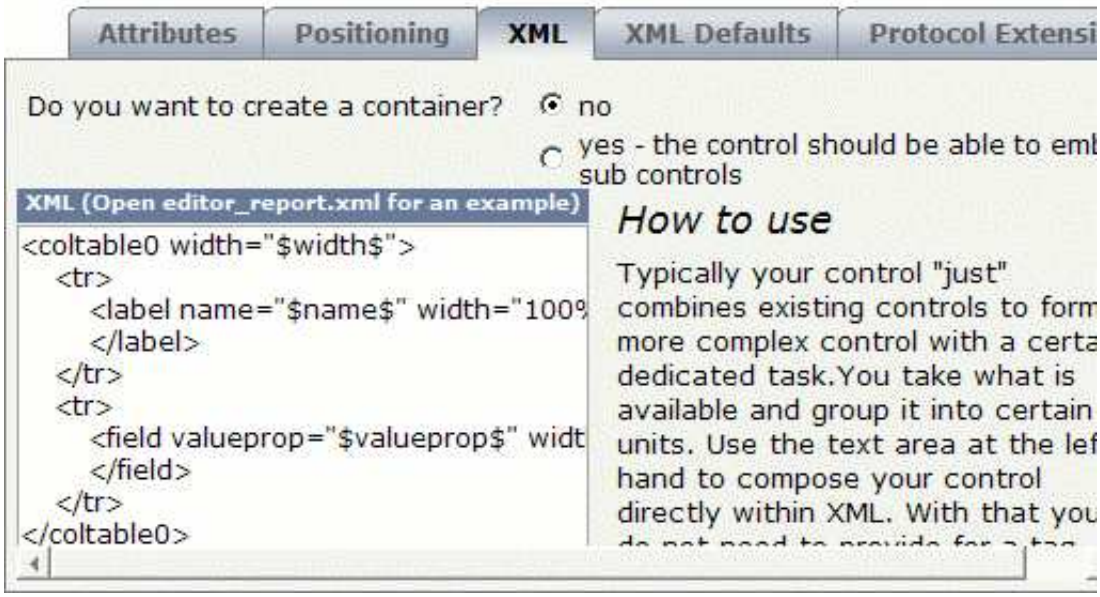
The XML macro looks like this:

```
<coltable0 width="$width$">
    <tr>
        <label name="$name$" width="100%" asplaintext="true">
        </label>
    </tr>
    <tr>
        <field valueprop="$valueprop$" width="100%">
        </field>
    </tr>
</coltable0>
```

To define the XML macro

1. Specify the above XML macro on the **XML** tab of the "test:dlfield" control.

   The tab should now look as follows:



2. Save your changes.
3. Have a look at the generated XML file (*editor_test.xml*). It should now look as follows:

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

   <!--
   Dynamic extension of editor.xml file.
   -->

   <controllibrary>
     <editor>
   ```

```
  <!--
  ******************************************************************************
  * DATATYPEs
  ******************************************************************************
  -->


  <!--
  ******************************************************************************
  * TAGs
  ******************************************************************************
  -->

  <!-- TEST:DLFIELD -->
  <tag name="test:dlfield">
    <attribute name="name"/>
    <attribute name="width" datatype="width"/>
    <attribute name="valueprop" datatype="property"/>
    <taginstance>
        <coltable0 width="$width$">
        <tr>
        <label name="$name$" width="100%" asplaintext="true">
        </label>
        </tr>
        <tr>
        <field valueprop="$valueprop$" width="100%">
        </field>
        </tr>
        </coltable0>
    </taginstance>
    <protocolitem>
    </protocolitem>
  </tag>
  <tagsubnodeextension control="itr" newsubnode="test:dlfield"/>
  <tagsubnodeextension control="tr" newsubnode="test:dlfield"/>

  <taggroupsubnodeextension group="MyControls" newsubnode="test:dlfield"/>

  </editor>
</controllibrary>
```

The control is now ready for use. The Layout Painter will offer the control for the containers ITR and TR.

XML Macro with a Server-Side Representative

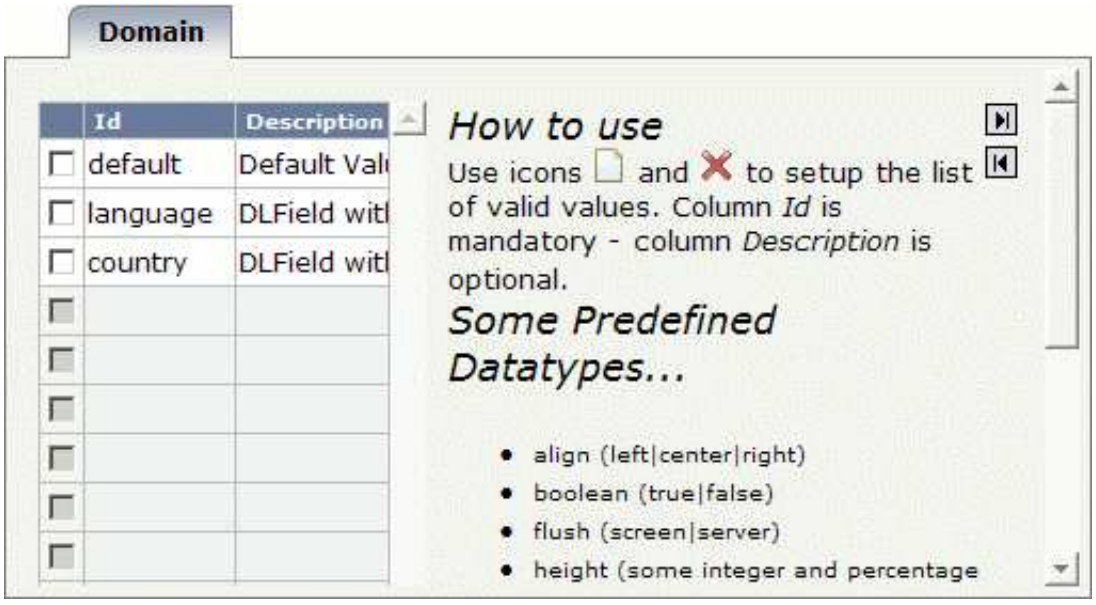
This example demonstrates how to build an XML macro that refers to a server-side representative. You will now extend the "test:dlfield" control from the previous example as follows:

- If the field is used to enter a country or language, it provides a value help.
- For reuse, the computation of valid values is encapsulated within a server-side representative (Java class `DLFIELDInfo`).
- The field (i.e. the properties `valueprop` and `popupprop`) is bound to properties of class `DLFIELDInfo`.

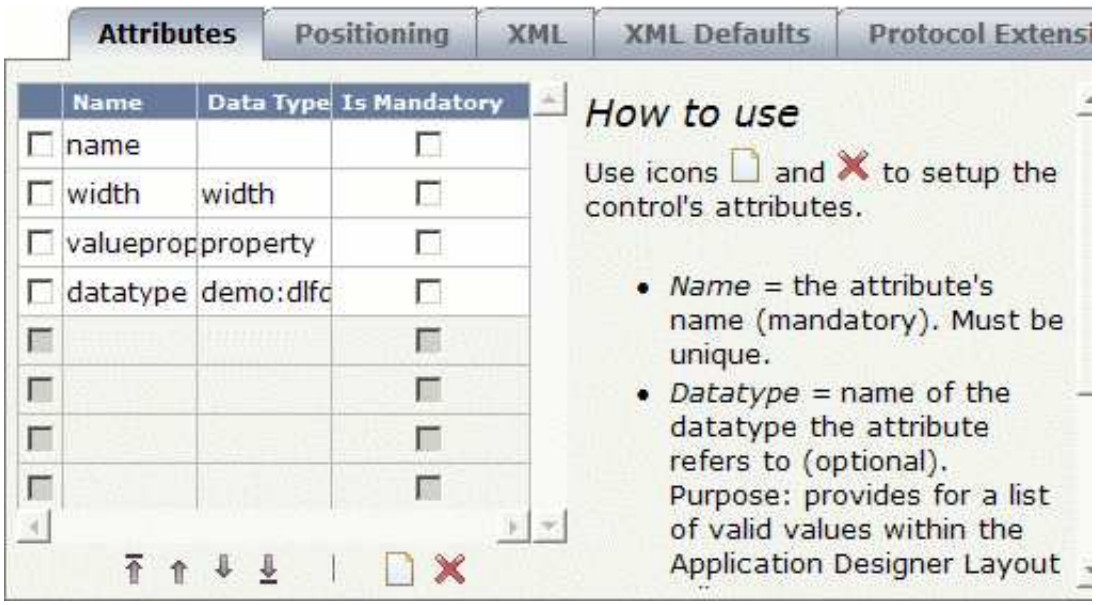
Thus, the page adapter just has to provide for a `DLFIELDInfo` object; it does not have to compute the value help by itself.

To define an XML macro that refers to a server-side representative

1. Add a new data type with the name "test:dlfdatatype".
2. Select the new data type in the tree.
3. Specify the following values on the **Domain** tab:



4. Select the control "test:dlfield" in the tree.
5. On the **Attributes** tab, add the attribute `datatype` and define "test:dlfdatatype" as the data type.



Until now, you have used the attribute `valueprop` to bind the field's input value to an adapter property.

Using the server-side representative concept, the adapter now provides a property (referenced by the property `valueprop`) that returns an instance of such a representative (`DLFIELDInfo`). The field value and the value help are handled within that class. The following shows the coding of the class `DLFIELDInfo`:

```
package com.softwareag.cis.test35;

import com.softwareag.cis.server.util.ValidValueLine;
import java.util.*;
import com.softwareag.cis.server.*;
import com.softwareag.cis.server.util.*;
import com.softwareag.cis.util.*;

public class DLFIELDInfo
{
        private final static String ML_APP = "release35";
        private Adapter m_adapter;

        //Constructor

        public DLFIELDInfo(Adapter adapter)
        {
                m_adapter = adapter;
        }

    // -----------------------------------------------------------------------
    // properties
    // -----------------------------------------------------------------------

    // property >fieldValue<
    String m_fieldValue;
    public String getFieldValue() { return m_fieldValue; }
    public void setFieldValue(String value) { m_fieldValue = value; }

    // property >hasPopupHelp<
    public boolean getHasPopupHelp()
    {
        return m_fieldDatatype != null &&
               m_fieldDatatype.length() != 0;
    }

    // property >fieldDatatype<
    String m_fieldDatatype;
    public String getFieldDatatype() { return m_fieldDatatype; }
    public void setFieldDatatype(String value) { m_fieldDatatype = value; }

    // -----------------------------------------------------------------------
    // methods
    // -----------------------------------------------------------------------

    /** */
    public ValidValueLine[] findValidValuesForFieldValue()
    {
        String text1 = m_adapter.replaceLiteral(ML_APP, "dlfi_code_1");
        String text2 = m_adapter.replaceLiteral(ML_APP, "dlfi_code_2");
        String text3 = m_adapter.replaceLiteral(ML_APP, "dlfi_code_3");
        String text4 = m_adapter.replaceLiteral(ML_APP, "dlfi_code_4");
        String text5 = m_adapter.replaceLiteral(ML_APP, "dlfi_code_5");
```

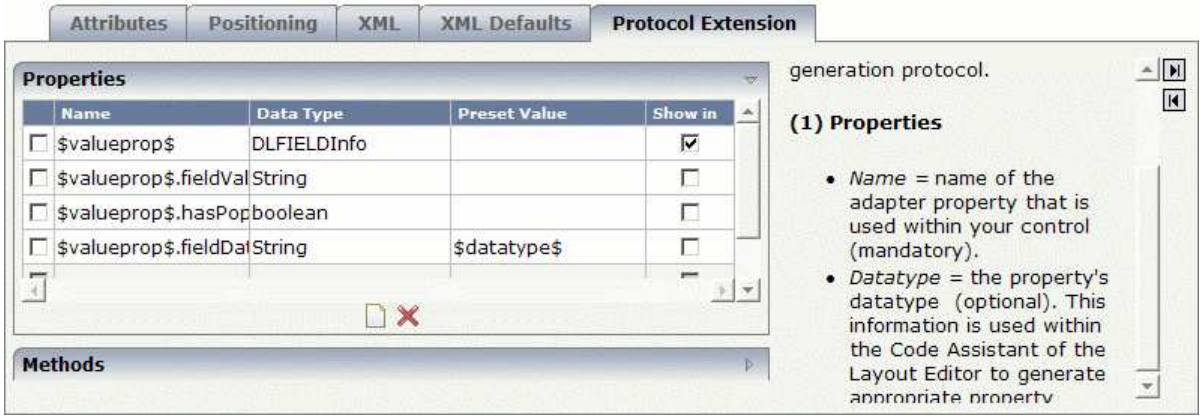
```
            String text6 = m_adapter.replaceLiteral(ML_APP, "dlfi_code_6");
            String text7 = m_adapter.replaceLiteral(ML_APP, "dlfi_code_7");
            String text8 = m_adapter.replaceLiteral(ML_APP, "dlfi_code_8");
            String text9 = m_adapter.replaceLiteral(ML_APP, "dlfi_code_9");
            String text10 = m_adapter.replaceLiteral(ML_APP, "dlfi_code_10");

            if (m_fieldDatatype != null &&
                m_fieldDatatype.equalsIgnoreCase(text1))
            {
                return new ValidValueLine[]
                {
                      new ValidValueLine(text2, text3),
                      new ValidValueLine(text4, text5)
                };
            }
            if (m_fieldDatatype != null &&
                    m_fieldDatatype.equalsIgnoreCase(text6))
            {
                return new ValidValueLine[]
                {
                      new ValidValueLine(text2, text7),
                      new ValidValueLine(text8, text9)
                };
            }
            throw new Error(text10);
        }
    }
```

6. Select the **XML** tab and change the existing macro as follows:

```
<coltable0 width="$width$">
    <tr>
        <label name="$name$" width="100%" asplaintext="true">
        </label>
    </tr>
    <tr>
        <field valueprop="$valueprop$.fieldValue" popupmethod="openIdValueCombo" popupprop="$valueprop$.hasPopupHelp" width="100%">
        </field>
    </tr>
</coltable0>
```

7. Add the used properties to the **Protocol Extension** tab so that it looks as follows.



The properties `$valueprop$`, `$valueprop$.fieldValue` and `$valueprop$.hasPopupHelp` will be included in the access path of the layout.

You can specify whether a property is to be shown within the Code Assistant of the Layout Painter. Select only the properties that must be provided by the adapter itself (in this example, this is property `$valueprop$`). Do not select the properties that are provided by the control representative. This class is written once and used multiple times within your adapters.

The property `$valueprop$.fieldDatatype` is used to pass the value of the attribute `datatype` from the control to the class `DLFIELDInfo`. The value is set once when the page is loaded. With this, the `DLFIELDInfo` class determines whether pop-up help is available and computes the list of valid values for the pop-up help.

8. Save your changes.

9. Have a look at the generated XML file (*editor_test.xml*). It should now look as follows:

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

<!--
Dynamic extension of editor.xml file.
-->

<controllibrary>
  <editor>

  <!--
  ****************************************************************************
  * DATATYPEs
  ****************************************************************************
  -->

  <!-- TEST:DLFDATATYPE -->
  <datatype name="test:dlfdatatype">
    <value id="default" name="Default value."/>
    <value id="language" name="DLFIELD with language code."/>
    <value id="country" name="DLFIELD with cuntry code."/>
  </datatype>


  <!--
  ****************************************************************************
  * TAGs
  ****************************************************************************
  -->

  <!-- TEST:DLFIELD -->
  <tag name="test:dlfield">
    <attribute name="name"/>
    <attribute name="width" datatype="width"/>
    <attribute name="valueprop" datatype="property"/>
    <attribute name="datatype" datatype="test:dlfdatatype"/>
    <taginstance>
        <coltable0 width="$width$">
        <tr>
        <label name="$name$" width="100%" asplaintext="true">
        </label>
        </tr>
        <tr>
        <field valueprop="$valueprop$.fieldValue" popupmethod="openIdValueCombo" popupprop="$valueprop$.hasPopupHelp" width="100%">
        </field>
        </tr>
        </coltable0>
    </taginstance>
    <protocolitem>
        <addproperty name="$valueprop$" datatype="DLFIELDInfo" useincodegenerator="true"/>
        <addproperty name="$valueprop$.fieldValue" datatype="String"/>
        <addproperty name="$valueprop$.hasPopupHelp" datatype="boolean"/>
        <addproperty name="$valueprop$.fieldDatatype" datatype="String" presetvalue="$datatype$"/>
    </protocolitem>
  </tag>
  <tagsubnodeextension control="itr" newsubnode="test:dlfield"/>
  <tagsubnodeextension control="tr" newsubnode="test:dlfield"/>

  <taggroupsubnodeextension group="MyControls" newsubnode="test:dlfield"/>

  </editor>
</controllibrary>
```

The control is now ready for use. The Layout Painter will offer the control for the containers ITR and TR.

Additional Information

The demo workplace shows the DLFIELD control at work. Open the section **Release 1.3.5** and start the page **Macro Controls > Simple Example**.

The resources of this demo are included in the Application Designer installation. Have a look:

- Layout: *<your-webapplication>/cisdemos/xml/35_dlfield.xml*.
- Adapter: *<your-webapplication>/cisdemos/src/com/softwareag/cis/test35/DLFIELDAdapter.java*.
- Server-side representative:
  <your-webapplication>/cisdemos/src/com/softwareag/cis/test35/DLFIELDInfo.java.