

webMethods EntireX

EntireX XML Mapping Editor

Version 10.7

October 2020

This document applies to webMethods EntireX Version 10.7 and all subsequent releases.

Specifications contained herein are subject to change and these changes will be reported in subsequent release notes or new editions.

Copyright © 1997-2020 Software AG, Darmstadt, Germany and/or Software AG USA, Inc., Reston, VA, USA, and/or its subsidiaries and/or its affiliates and/or their licensors.

The name Software AG and all Software AG product names are either trademarks or registered trademarks of Software AG and/or Software AG USA, Inc. and/or its subsidiaries and/or its affiliates and/or their licensors. Other company and product names mentioned herein may be trademarks of their respective owners.

Detailed information on trademarks and patents owned by Software AG and/or its subsidiaries is located at <http://softwareag.com/licenses>.

Use of this software is subject to adherence to Software AG's licensing conditions and terms. These terms are part of the product documentation, located at <http://softwareag.com/licenses/> and/or in the root installation directory of the licensed product(s).

This software may include portions of third-party products. For third-party copyright notices, license terms, additional rights or restrictions, please refer to "License Texts, Copyright Notices and Disclaimers of Third-Party Products". For certain specific third-party license restrictions, please refer to section E of the Legal Notices available under "License Terms and Conditions for Use of Software AG Products / Copyright and Trademark Notices of Software AG Products". These documents are part of the product documentation, located at <http://softwareag.com/licenses> and/or in the root installation directory of the licensed product(s).

Use, reproduction, transfer, publication or disclosure is prohibited except as specifically provided for in your License Agreement with Software AG.

Document ID: EXX-EEXXXMLMAPPINGEDITOR-107-20220422

Table of Contents

| | |
|---|----|
| 1 About this Documentation | 1 |
| Document Conventions | 2 |
| Online Information and Support | 2 |
| Data Protection | 3 |
| 2 Using the XML Mapping Editor | 5 |
| Starting the XML Mapping Editor | 6 |
| The XML Mapping Editor Pages | 8 |
| XML Schema Export | 22 |
| XML Mapping Editor Settings | 25 |
| Removing Unused Namespaces | 25 |
| 3 EntireX XML Tester | 29 |
| Introduction to the EntireX XML Tester | 30 |
| EntireX XML Tester Options | 31 |
| Using the EntireX XML Tester | 34 |
| Using the Broker and RPC User ID/Password | 38 |
| Using Conversational RPC | 40 |
| 4 Using the XML Mapping Editor in Command-line Mode | 43 |
| Command-line Options | 44 |
| Example | 44 |
| 5 IDL to XML Mapping with the XML Mapping Editor | 45 |
| Mapping IDL to XML Automatically | 46 |
| Mapping IDL to XML Manually | 54 |
| Defining the XML Encoding | 59 |
| Validity Checks | 61 |
| Generating an XML Schema from IDL-XML Mapping | 62 |
| 6 Mapping IDL Data Types to an XML Schema (XSD) | 63 |
| 7 Software AG IDL to WSDL Mapping | 69 |
| Mapping IDL Data Types to WSDL Data Types | 70 |
| Default Namespace | 75 |
| Min/Max Occurrence | 77 |
| Default Service Name | 77 |

1 About this Documentation

| | |
|--|---|
| ▪ Document Conventions | 2 |
| ▪ Online Information and Support | 2 |
| ▪ Data Protection | 3 |

Document Conventions

| Convention | Description |
|----------------|--|
| Bold | Identifies elements on a screen. |
| Monospace font | Identifies service names and locations in the format <code>folder.subfolder.service</code> , APIs, Java classes, methods, properties. |
| <i>Italic</i> | Identifies: Variables for which you must supply values specific to your own situation or environment. New terms the first time they occur in the text. References to other documentation sources. |
| Monospace font | Identifies: Text you must type in. Messages displayed by the system. Program code. |
| { } | Indicates a set of choices from which you must choose one. Type only the information inside the curly braces. Do not type the { } symbols. |
| | Separates two mutually exclusive choices in a syntax line. Type one of these choices. Do not type the symbol. |
| [] | Indicates one or more options. Type only the information inside the square brackets. Do not type the [] symbols. |
| ... | Indicates that you can type multiple options of the same type. Type only the information. Do not type the ellipsis (...). |

Online Information and Support

Product Documentation

You can find the product documentation on our documentation website at <https://documentation.softwareag.com>.

In addition, you can also access the cloud product documentation via <https://www.software-ag.cloud>. Navigate to the desired product and then, depending on your solution, go to “Developer Center”, “User Center” or “Documentation”.

Product Training

You can find helpful product training material on our Learning Portal at <https://knowledge.softwareag.com>.

Tech Community

You can collaborate with Software AG experts on our Tech Community website at <https://tech-community.softwareag.com>. From here you can, for example:

- Browse through our vast knowledge base.
- Ask questions and find answers in our discussion forums.
- Get the latest Software AG news and announcements.
- Explore our communities.
- Go to our public GitHub and Docker repositories at <https://github.com/softwareag> and <https://hub.docker.com/publishers/softwareag> and discover additional Software AG resources.

Product Support

Support for Software AG products is provided to licensed customers via our Empower Portal at <https://empower.softwareag.com>. Many services on this portal require that you have an account. If you do not yet have one, you can request it at <https://empower.softwareag.com/register>. Once you have an account, you can, for example:

- Download products, updates and fixes.
- Search the Knowledge Center for technical information and tips.
- Subscribe to early warnings and critical alerts.
- Open and update support incidents.
- Add product feature requests.

Data Protection

Software AG products provide functionality with respect to processing of personal data according to the EU General Data Protection Regulation (GDPR). Where applicable, appropriate steps are documented in the respective administration documentation.

2 Using the XML Mapping Editor

- Starting the XML Mapping Editor 6
- The XML Mapping Editor Pages 8
- XML Schema Export 22
- XML Mapping Editor Settings 25
- Removing Unused Namespaces 25

See also [Using the EntireX XML Tester](#).

Starting the XML Mapping Editor

> To start the XML Mapping Editor

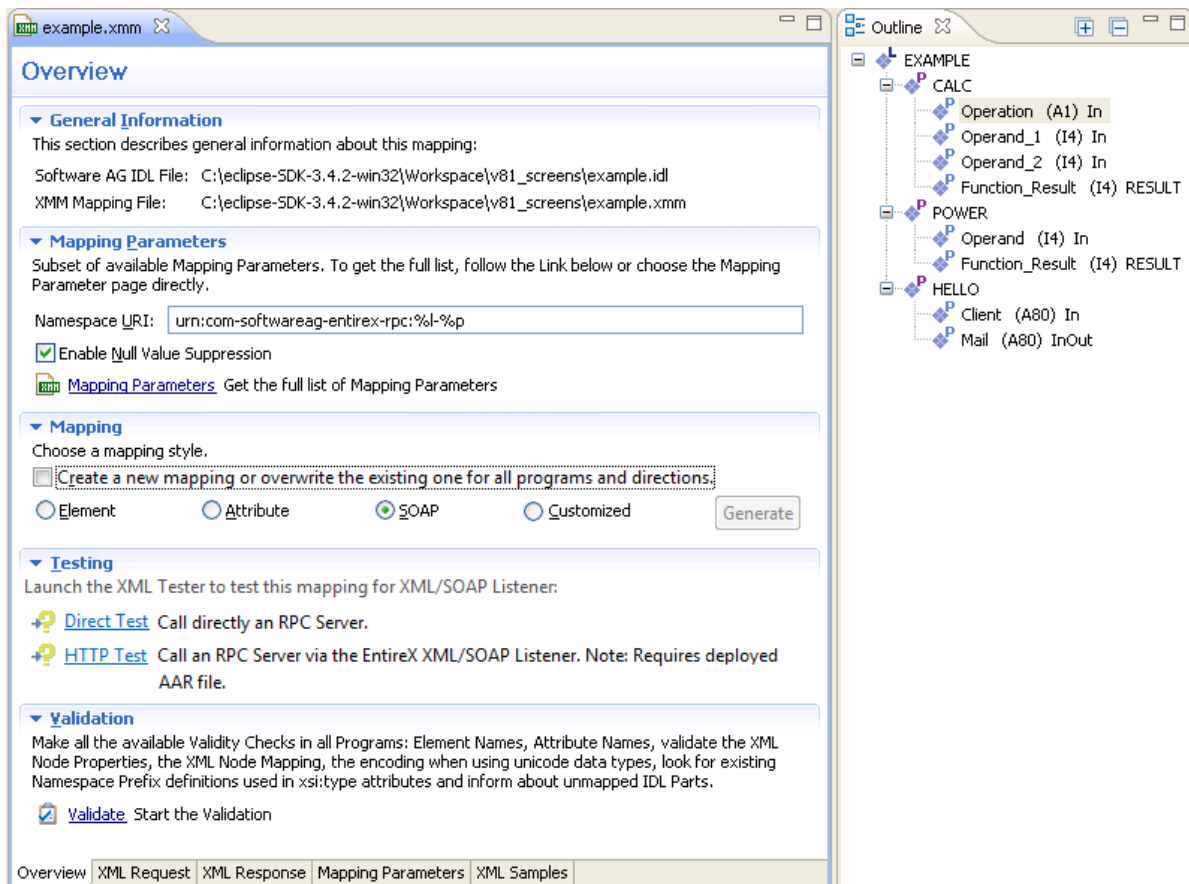
In the Software AG Designer

- Double click on an XMM file.

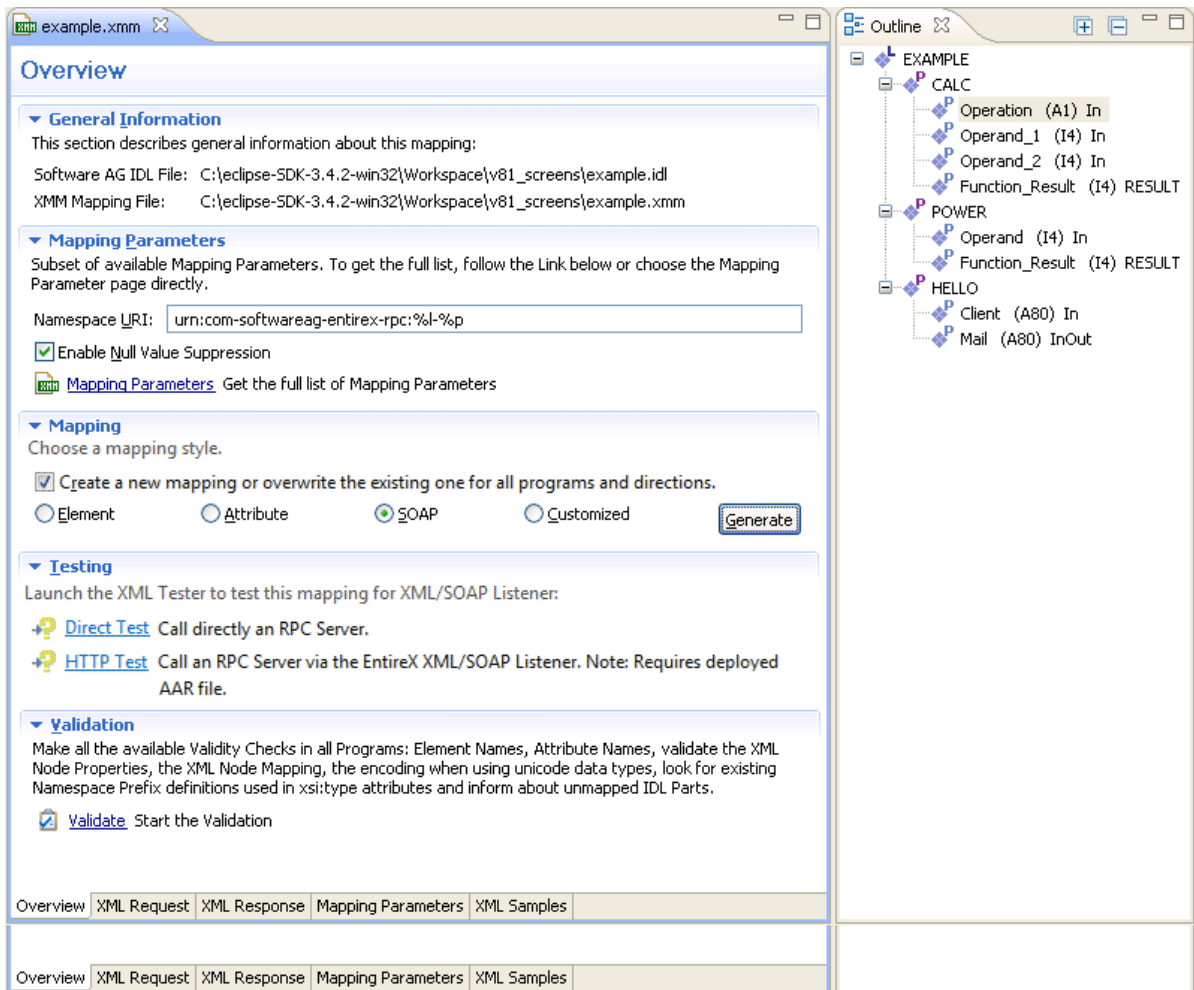
Or:

Select an IDL or XMM file and choose **Open With > EntireX XML Mapping Editor**.

If the XMM file for the selected IDL file exists, the XML Mapping Editor loads this. The check box **Create a new mapping or overwrite the existing one for all programs and directions** is cleared. If you check the check box, you can choose the required mapping style and then press **Generate** button to overwrite the existing mapping.



If no XMM file exists for the IDL file, the check box **Create a new mapping or overwrite the existing one for all programs and directions** is checked the mapping style is set to "SOAP" as default value. Choose the required mapping style and press **Generate**.



➤ To close the XML Mapping Editor

- From the **File** menu, choose **Close**.

Or:

Click the **Close** icon in the editor title bar.

If the current XML mapping has not yet been saved, a dialog box appears from which the close operation can be stopped or the IDL-XML mapping can be saved. An XML mapping that is not clean is indicated with a leading asterisk in the file name, displayed in the editor title.

The XML Mapping Editor Pages

- [Overview Page](#)
- [XML Request Page](#)
- [XML Response Page](#)
- [Mapping Parameters Page](#)
- [XML Sample Documents Page](#)

Overview Page

The **Overview Page** is the central page and provides sections for file information, the most important mapping parameters, mapping generation, testing and validation.

The screenshot shows the XML Mapping Editor interface for a file named 'example.xmm'. The 'Overview' tab is active, displaying the following sections:

- General Information:** This section describes general information about this mapping. It lists the Software AG IDL File as 'C:\eclipse-SDK-3.4.2-win32\Workspace\v81_screens\example.idl' and the XMM Mapping File as 'C:\eclipse-SDK-3.4.2-win32\Workspace\v81_screens\example.xmm'.
- Mapping Parameters:** This section provides a subset of available Mapping Parameters. It includes a text input field for 'Namespace URI' with the value 'urn:com-softwareag-entirex-rpc:%l-%p'. There is a checked checkbox for 'Enable Null Value Suppression' and a link to 'Mapping Parameters' with the text 'Get the full list of Mapping Parameters'.
- Mapping:** This section allows choosing a mapping style. It includes a checked checkbox for 'Create a new mapping or overwrite the existing one for all programs and directions.' Below this are four radio buttons: 'Element', 'Attribute', 'SOAP' (which is selected), and 'Customized'. A 'Generate' button is located to the right of these options.
- Testing:** This section provides instructions to launch the XML Tester to test this mapping for XML/SOAP Listener. It includes two links: '+? Direct Test' (Call directly an RPC Server.) and '+? HTTP Test' (Call an RPC Server via the EntireX XML/SOAP Listener. Note: Requires deployed AAR file.).
- Validation:** This section provides instructions to make all the available Validity Checks in all Programs: Element Names, Attribute Names, validate the XML Node Properties, the XML Node Mapping, the encoding when using unicode data types, look for existing Namespace Prefix definitions used in xsi:type attributes and inform about unmapped IDL Parts. It includes a checked checkbox for 'Validate' with the text 'Start the Validation'.

At the bottom of the interface, there is a navigation bar with the following tabs: Overview, XML Request, XML Response, Mapping Parameters, and XML Samples. The 'Overview' tab is currently selected.

These sections are:

■ **General Information**

This section describes the names and locations of the selected XML mapping (XMM) file and the related IDL file.

■ **Mapping Parameters**

Provides the **Namespace** and **Null Value Suppression** controls and contains a link to the **Mapping Parameters Page**.



Note: Press **Update Null Value Suppression** to apply the mapping parameters (see [Mapping Parameters Page](#)) to a generated mapping.

■ **Mapping**

Starts the mapping generation for all programs.



Note: Existing mappings will be overwritten!

■ **Testing**

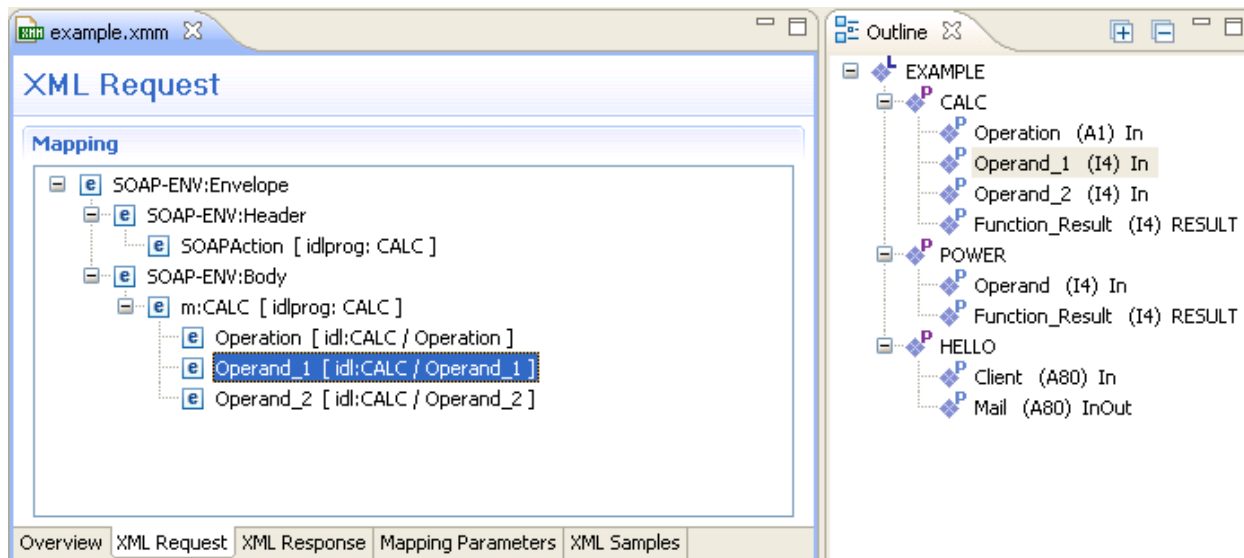
Allows you to launch the EntireX XML Tester in Quick mode or HTTP mode.

■ **Validation**

Performs validity checks in all programs and reports the result in a new dialog. Detected problems will be displaced in the **Problems** view.

XML Request Page

This page contains the **Mapping** tree of the XML Request, which is linked together by mapping paths with the IDL tree in the **Outline** view.



The XML Request shows the XML tree loaded or created so far for the selected IDL program. The XML tree can be modified in various ways. See [IDL to XML Mapping with the XML Mapping Editor](#).

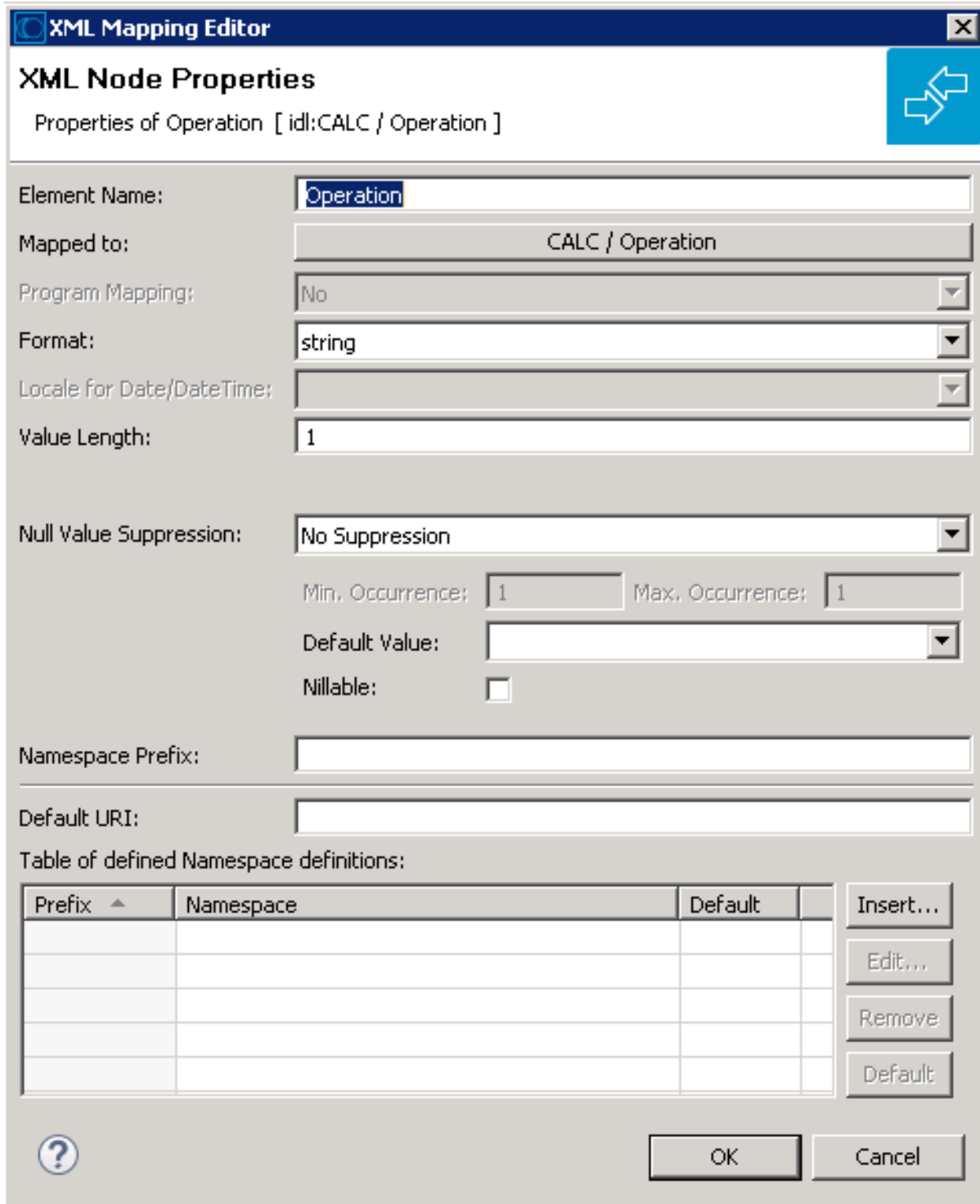
The **Outline** view shows the IDL tree of the currently selected IDL file. The IDL tree display has the same functionality as the IDL Editor's tree display; however, due to the fact that every IDL program must be separately mapped, only one of the IDL program tree nodes can be expanded.

Use the right mouse button to display the context menu. Double-click on a tree node to display detailed information on that node. The following keyboard options are also available in the XML request mapping area:

| Key | Description |
|----------------|---|
| A or SHIFT+INS | Create new parameter node after currently selected one. |
| D or DELETE | Delete the selected IDL tree node. |
| F | Find IDL node with given name pattern. |
| I or ALT+INS | Create a new group parameter node. |
| L | Create new IDL library node. |
| M | Find mapped XML node for selected IDL tree node. |
| N or INS | Create new parameter node. |
| O or CTRL+INS | Create new RPC program node. |
| P or ALT+ENTER | Open property dialog on selected IDL tree node. |
| R | Rename the selected IDL tree node. |
| F3 | Follow-up of M, find next mapped XML node for selected IDL tree node. |

XML Node Properties Dialog

The XML Node Properties dialog contains the XML node details, the bottom panel contains namespace settings.



> To open the XML Node Properties Dialog

- Double-click on an XML node in the tree display.

Or:

Choose the Properties menu item in the context menus.

Or:

Select an XML tree node and press Enter.

The XML Node Properties can be modified. The node details panel consists of two subpanels.

The upper panel contains the following:

| Item | Description | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|-----------|-----|--------|--------------------|---------------|---|-----------------|--|-----------------|----|-----------------|----|-----------------|----|---------|------------|------|---|-------------------|---|----------|---|-------|--------|---------|---|--------|-------|--------|--------------|--|--|
| Element or attribute name | Name of the element or attribute. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mapped to | The IDL mapping link in the full path name format. For error (fault) trees, context information. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Program Mapping | <table border="1"> <tr> <td colspan="2">Combo Box</td> </tr> <tr> <td>No</td> <td>No Program Mapping</td> </tr> <tr> <td>Element value</td> <td>The value of this node identifies the program</td> </tr> <tr> <td>Element name</td> <td>The name of this node identifies the program</td> </tr> </table> | Combo Box | | No | No Program Mapping | Element value | The value of this node identifies the program | Element name | The name of this node identifies the program | | | | | | | | | | | | | | | | | | | | | | | | |
| Combo Box | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| No | No Program Mapping | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Element value | The value of this node identifies the program | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Element name | The name of this node identifies the program | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Format | <table border="1"> <thead> <tr> <th>Format</th> <th>IDL</th> </tr> </thead> <tbody> <tr> <td>string</td> <td>A, AV, K, KV</td> </tr> <tr> <td>-</td> <td>G</td> </tr> <tr> <td>I1 (deprecated)</td> <td>I1</td> </tr> <tr> <td>I2 (deprecated)</td> <td>I2</td> </tr> <tr> <td>I4 (deprecated)</td> <td>I4</td> </tr> <tr> <td>I8 (deprecated)</td> <td>I4</td> </tr> <tr> <td>integer</td> <td>I1, I2, I4</td> </tr> <tr> <td>date</td> <td>D</td> </tr> <tr> <td>time (deprecated)</td> <td>T</td> </tr> <tr> <td>dateTime</td> <td>T</td> </tr> <tr> <td>float</td> <td>F4, F8</td> </tr> <tr> <td>Boolean</td> <td>L</td> </tr> <tr> <td>binary</td> <td>B, BV</td> </tr> <tr> <td>number</td> <td>N, P, NU, PU</td> </tr> <tr> <td colspan="2">For Tamino/special nodes: Describes the data type of the Tamino node (for example, integer, string).</td> </tr> </tbody> </table> | Format | IDL | string | A, AV, K, KV | - | G | I1 (deprecated) | I1 | I2 (deprecated) | I2 | I4 (deprecated) | I4 | I8 (deprecated) | I4 | integer | I1, I2, I4 | date | D | time (deprecated) | T | dateTime | T | float | F4, F8 | Boolean | L | binary | B, BV | number | N, P, NU, PU | For Tamino/special nodes: Describes the data type of the Tamino node (for example, integer, string). | |
| Format | IDL | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| string | A, AV, K, KV | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| - | G | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| I1 (deprecated) | I1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| I2 (deprecated) | I2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| I4 (deprecated) | I4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| I8 (deprecated) | I4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| integer | I1, I2, I4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| date | D | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| time (deprecated) | T | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| dateTime | T | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| float | F4, F8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Boolean | L | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| binary | B, BV | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| number | N, P, NU, PU | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| For Tamino/special nodes: Describes the data type of the Tamino node (for example, integer, string). | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Locale for Date/DateTime | Set language used for Date/DateTime format depending on pattern. For example, pattern yyyy- MMM -dd with locale=English is shown as 20- Dec -2017, and | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Item | Description |
|------------------------------|--|
| | locale=German as 20- Dez -2017. If the default "-" is specified, the value of the current JVM is used. |
| Value Length | <p>The length parameter contains the length or precision of the data type, that is,</p> <ul style="list-style-type: none"> ■ length of string for alphanumeric ■ length of field in bytes for binary ■ length of string representation for floating point ■ length of string representation for integers ■ length of string for Kanji ■ length of bit vector for logical (Boolean) <p>Length V is legal for string types. It denotes variable-length strings, e.g. alphanumeric or Kanji.</p> <p>For Tamino/special nodes: Length of the storage reserved for the data must match format.</p> |
| Default Value | Must match the data type of the node, e.g. do not use alphanumeric defaults for integer nodes. Defaults that cannot be interpreted by the runtime component are ignored. See also Assigning Default Values . |
| Namespace Prefix | Contains the namespace prefix to the tag name. |
| Min. Occurrence | The minimum and maximum occurrence properties are numeric values greater than or equal to zero. They describe the number of allowed occurrences of the node in the incoming XML, and the number of occurrences to be generated in the outgoing XML. The minimum occurrences value must be less than or equal to the maximum occurrences value. Incorrect settings will be found in the validity check Validate XML node properties. If Min. Occurrence is greater than 0 for incoming documents, the corresponding attribute or element is required, that is, it must be set. |
| Max. Occurrence | See Min. Occurrence. |
| Null Value Suppression (NVS) | <p>Specify suppression of null values (NVS), that is, whether empty elements or attributes may be omitted in the outgoing (generated) XML documents. Mainly determined by Min.Occurrences and Max. Occurrences as follows:</p> <ul style="list-style-type: none"> ■ For min = 0, max = 0, there is no NVS. ■ For min = 0, max = 1, the element / attribute may be omitted if empty. ■ For min = 0, max > 1, you can omit all empty elements or just omit empty elements at the end of the sequence (trimming). ■ For min = 1, max = 1, there is no NVS. ■ For min = 1, max > 1, you can omit all empty elements or just omit empty elements at the end of the sequence (trimming). ■ For 0 < min < max, you can omit all empty elements or just omit empty elements at the end of the sequence (trimming). |

| Item | Description | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------|---|--------|-------------|--------|-------------------|---|-------------------|-----------------|---|-----------------|---|-----------------|---|---------|---|------|--|-------------------|--|----------|--|-------|-----|---------|-------|--------|---|--------|-----|
| | <p>It is also possible to suppress an attribute (independent of its value) if the associated element has a null value and null value suppression is enabled; to do this choose Depends on element in property Null Value Suppression.</p> <p>For the data types, the following null values are defined:</p> <table data-bbox="475 447 1471 1129"> <tr> <td>Format</td> <td>NVS Default</td> </tr> <tr> <td>string</td> <td>"" (empty string)</td> </tr> <tr> <td>-</td> <td>"" (empty string)</td> </tr> <tr> <td>I1 (deprecated)</td> <td>0</td> </tr> <tr> <td>I2 (deprecated)</td> <td>0</td> </tr> <tr> <td>I4 (deprecated)</td> <td>0</td> </tr> <tr> <td>integer</td> <td>0</td> </tr> <tr> <td>date</td> <td></td> </tr> <tr> <td>time (deprecated)</td> <td></td> </tr> <tr> <td>dateTime</td> <td></td> </tr> <tr> <td>float</td> <td>0.0</td> </tr> <tr> <td>Boolean</td> <td>false</td> </tr> <tr> <td>binary</td> <td>Only BV with length =0; Only binaries corresponding to IDL parameter with type BV have an NVS default [element/attribute with data length=0].</td> </tr> <tr> <td>number</td> <td>0.0</td> </tr> </table> | Format | NVS Default | string | "" (empty string) | - | "" (empty string) | I1 (deprecated) | 0 | I2 (deprecated) | 0 | I4 (deprecated) | 0 | integer | 0 | date | | time (deprecated) | | dateTime | | float | 0.0 | Boolean | false | binary | Only BV with length =0; Only binaries corresponding to IDL parameter with type BV have an NVS default [element/attribute with data length=0]. | number | 0.0 |
| Format | NVS Default | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| string | "" (empty string) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| - | "" (empty string) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| I1 (deprecated) | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| I2 (deprecated) | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| I4 (deprecated) | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| integer | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| date | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| time (deprecated) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| dateTime | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| float | 0.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Boolean | false | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| binary | Only BV with length =0; Only binaries corresponding to IDL parameter with type BV have an NVS default [element/attribute with data length=0]. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| number | 0.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Null Value | <p>If NVS is switched on, this value is compared with the values of the XML document and it is decided whether the values need to be transmitted. The defaults are in the table for NullValue Suppression (NVS).</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Nillable | <p>If NVS is set to "No Suppression", the Nillable option is available in the dialog. If the option is selected, an empty element is represented as an empty-element tag with attribute <code>xsi:nil="true"</code>. This means that if a nillable group element only has elements without value and without attributes, only the enclosing group tag with attribute <code>xsi:nil="true"</code> is displayed.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Time Pattern | <p>Optional for date, time (deprecated) and dateTime.</p> <p>The default patterns conform to the XSD Schema 2001 specification:</p> <p>date: yyyy-MM-dd, for example 2003-04-15 dateTime: yyyy-MM-dd'T'HH:mm:ss, for example 2003-04-15T18:48:23</p> <p>If you want to define your own time pattern (for example with "Day in week" or "General Time Zone"), see the Java documentation for <code>SimpleDateFormat</code>.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Correlation of Occurrence Setting and Null Value Suppression

The value for null value suppression has a higher priority than the occurrence setting of affected elements or attributes. The following rules apply:

1. **NVS="Suppress Element"/"Suppress Attribute"**
Setting NVS to "Suppress Element" or "Suppress Attribute" results in a value of minimum occurrence of zero, which makes it optional.
2. **NVS="No Suppression"**
Setting NVS to "No Suppression" means that the element/attribute is always displayed so the value of #minOccur must be 1 - otherwise the element/attribute would be optional and could be suppressed.
3. **NVS for arrays**
For arrays, the dependency of minimum occurrence and Null Value Suppression is more complex:
 - a. **NVS set to "No Suppression"**
For an array with fixed size the setting is #minOccur = #maxOccur = #array size.

An array with variable size will contain all non-suppressable elements, but at least #minOccur elements. Empty elements will be generated to guarantee the number of #minOccur.
 - b. **NVS set to value other than "No Suppression"**
The number of array elements is at least #minOccur (empty elements will be generate and appended if number of elements is lower than #minOccur).

The lower panel is only available for element nodes and contains namespace-related properties:

| Item | Description |
|-------------------------------|--|
| Namespace URI | A default Namespace (xmlns=) for this element node. |
| Namespace definitions (table) | A table of namespace prefix / URI assignments for this element node. The listed namespaces are defined for this element and all subelements, as described in the XML namespaces specification document. Two buttons, Add and Delete, allow you to add or delete namespace definitions, respectively. |

Using the Context Menu

The context menu of the XML tree enables you to modify the XML structure. It contains menu items to insert new nodes, remove or rename nodes, remove an IDL mapping, change the XML part type to element or attribute, move the selected node to the top or bottom of the current subtree, move the selected node up or down within the subtree, or show the XML Node Properties dialog.

➤ To open the context menu

- Select the XML tree node and click the right mouse button.

| Menu Item | Shortcut | Description |
|------------------|------------------|---|
| New child node | Ctrl-N | Insert a child node under the selected node. |
| Insert before | Ctrl-B | Insert a new node before the selected node. |
| Insert after | Insert | Insert a new node after the selected node. |
| Set to Attribute | Ctrl-S | Turn an attribute into an element. Also works for multiple selected nodes. |
| Set to Element | Ctrl-E | Turn an element into an attribute. Also works for multiple selected nodes. |
| Bring to top | Ctrl-T | Move the selected node to the top of the current subtree. |
| Bring to bottom | Ctrl-O | Move the selected node to the bottom of the current subtree. |
| Move up | Ctrl-U | Move the selected node up within the subtree. |
| Move down | Ctrl-D | Move the selected node down within the subtree. |
| Cut | Ctrl-X | Cut the selected node. |
| Copy | Ctrl-C | Copy the selected node. |
| Paste | Ctrl-V, Ctrl-P | Paste a node from the clipboard (after copy or cut). |
| Unmap | Ctrl-M | Unmap the selected IDL and XML nodes, i.e, remove link. Also works for multiple selected nodes. |
| Delete | Delete/Backspace | Remove the selected node. Also works for multiple selected nodes. |
| Rename | Ctrl-R | Rename the selected node. |
| Properties | Alt-Enter | Open the XML Details Panel. |

Using Drag-and-drop

You can use drag-and-drop operations within the XML tree instead of move and cut-and-paste. Select a node (even with subnodes) and drag it to another place. The dragged subtree is then inserted after, before or under the corresponding drop node (to insert it under the drop node, use the **Ctrl** key as a toggle).

Some drag-and-drop operations are illegal, e.g. dragging a node into one of its descendant nodes (children). This would result in a cyclic reference and is thus forbidden.

Dropping a dragged node into an attribute node will convert the attribute node to an element node. This is because attributes may not have descendant nodes.



Caution: If you drag a subtree into or out of an array, the IDL mapping links of all nodes of that subtree will be deleted. This is because the cardinality of the node occurrence has changed, and the resulting IDL mapping is very likely to be incorrect.

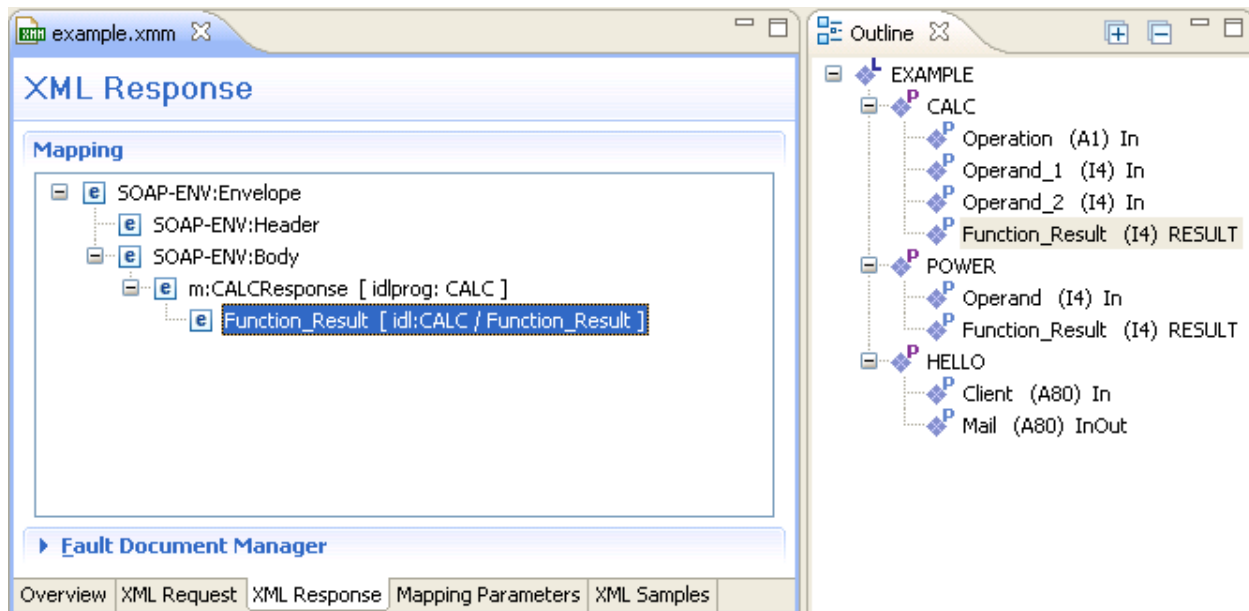
Drag-and-drop from an IDL Tree Node to the XML Tree

If you drag an IDL tree node onto an XML tree node, the IDL-XML mapping link for that XML node is changed. The new XML-IDL mapping of this XML tree node is to the dragged IDL node. The IDL tree is not changed.

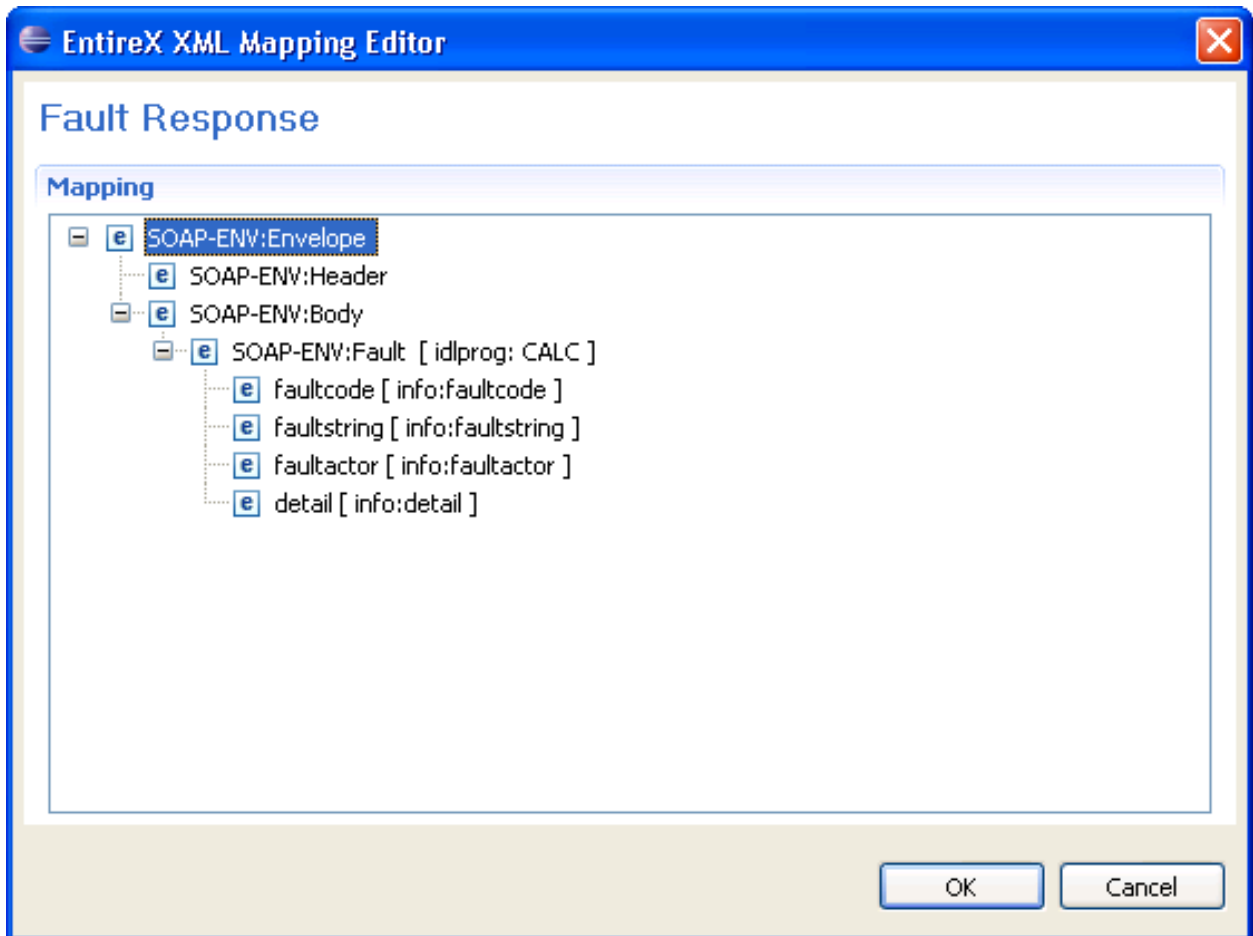
This is a quick way to change IDL mappings for XML parts. Note that there is no immediate check for duplicate assignment of an IDL node; however, the validity checks will detect it.

XML Response Page

This page contains the Mapping Tree of the XML Response, which is linked together by mapping paths with the IDL tree in the Outline View. The page extends the XML Request page with an additional section, Fault Document Manager, at the bottom.



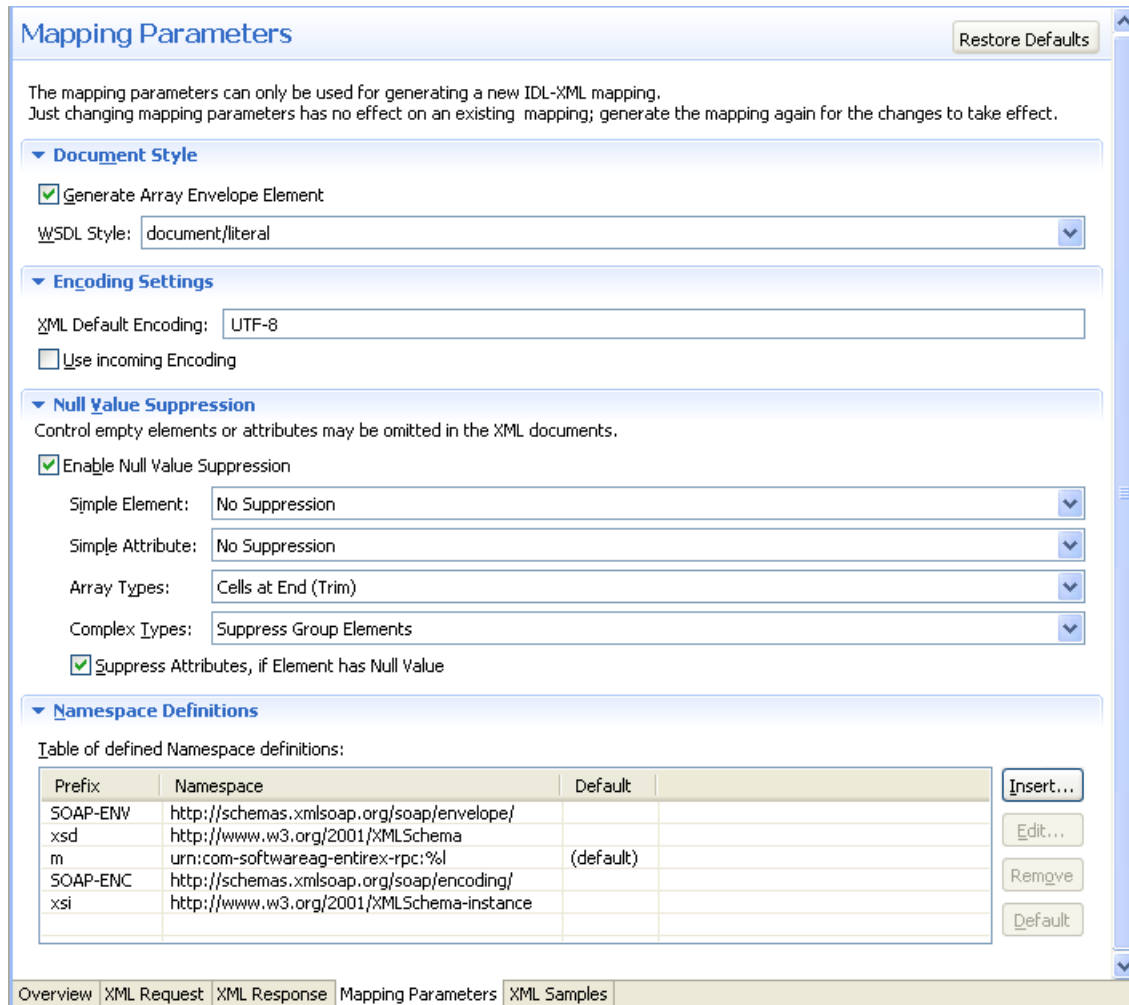
The Fault Document Manager contains the entry for the XML Fault Response Document. By selecting the entry, the **Edit...** button will be enabled. Press **Edit...** to display the following dialog:



The same operations as for the XML Request and XML Response trees are possible. Confirm the changes with **OK**, or click **Cancel** to exit without changes.

Mapping Parameters Page

This page covers the Mapping Parameters to affect the Mapping Structure. The default values for that page will be managed in the preferences and can be loaded by using the **Restore Defaults** button in the upper right corner.



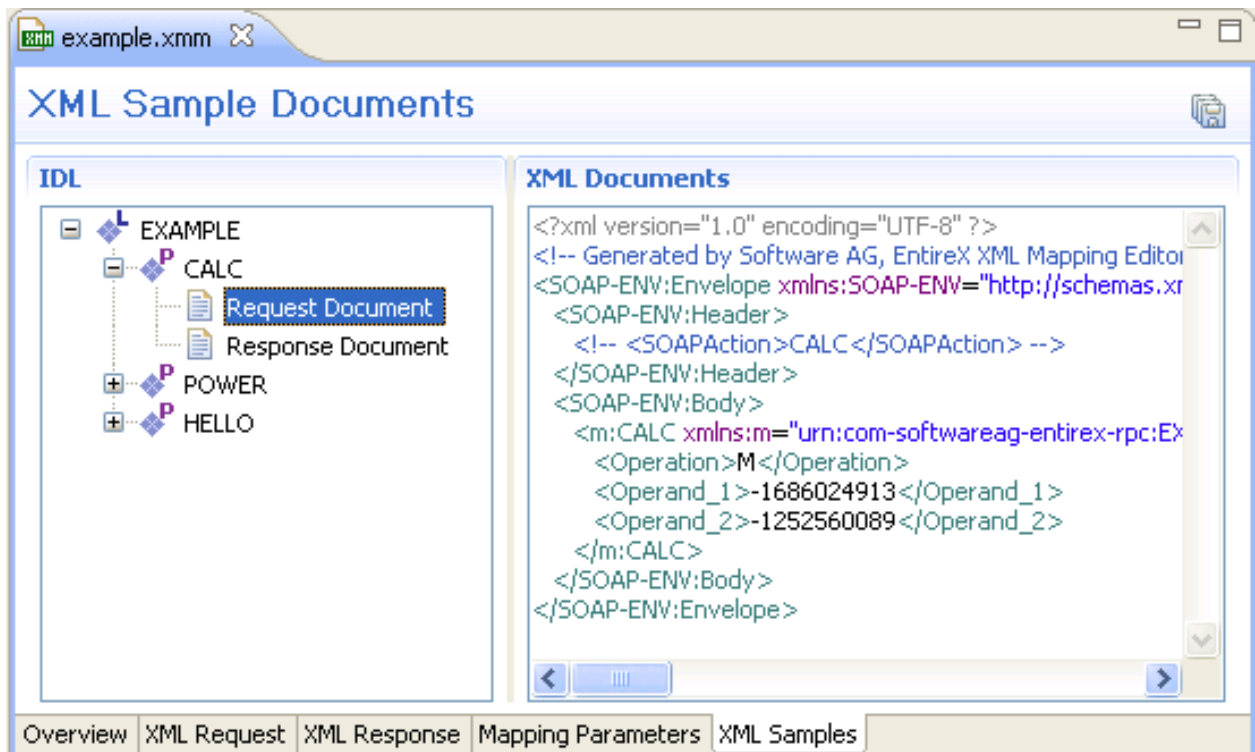
| Parameter | Description |
|--|---|
| Generate Array Envelope Element | Determines whether for each array a surrounding additional element (envelope) is generated or not. |
| WSDL Style | Prepare the SOAP Mapping for selected WSDL Style. Possible values: document/literal or RPC/encoded. |
| XML Default Encoding | This encoding is used for the XML/SOAP document sent if the box Use incoming encoding is not checked (for XML-based clients), or if the RPC Server for XML/SOAP is used. |
| Use Incoming Encoding | Check this box to enable the XML/SOAP Wrapper to use same encoding for the incoming document as for the outgoing document. |
| Enable Null Value Suppression ⁽¹⁾ | Switch on/off the null value suppression. ⁽¹⁾ |
| Simple Element ⁽¹⁾ | Suppress Elements. Possible Values: No Suppression or Suppress Element. ⁽¹⁾ |
| Simple Attribute ⁽¹⁾ | Suppress Attributes. Possible Values: No Suppression or Suppress Attribute. ⁽¹⁾ |

| Parameter | Description |
|------------------------------|--|
| Array Types ⁽¹⁾ | Suppress Array Types. Possible Values: No Suppression, All empty cells or Cells at end (Trim). ⁽¹⁾ |
| Complex Types ⁽¹⁾ | Suppress Complex Types. Possible Values: No Suppression Suppression (no special handling of complex types - null value suppression defined for 'Simple Element' is used), or Suppress Group Elements. ⁽¹⁾ |
| Namespace Definitions Table | Manage all Namespaces with prefix and URI. |

⁽¹⁾ For more details on null value suppression, see below or *Null Value Suppression* under *Writing Advanced Applications with the XML/SOAP Wrapper*.

XML Sample Documents Page

This page allows the generation and modification of XML Sample Documents. They can be used to test the Mapping by sending the generated Request Document to the EntireX XML Tester. Another useful point is to compare the XML Sample Document structure with the real XML Document returned by your application to detect differences, for example Namespace Definitions, typos or anything else.



All generated XML Sample Documents can be stored in parallel to the selected XMM file by using the Save All toolbar button in the upper right corner of this page or the Save command in the context menu. The generated file name is built as follows:

[xmm name] .[library name].[program name].[direction (request | response)].xml

For example: example.EXAMPLE.CALC.request.xml

If a file already exists, a dialog will prompt you for confirmation to overwrite it.

Using the Context Menu of XML Samples

The XML Samples context menu allows the generation of XML Sample Documents.

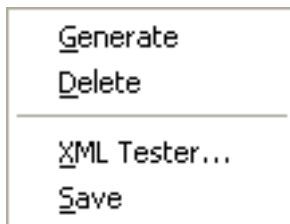
There are two different menus:

- **Library** or **Program** is selected



Generate All means both directions (Request and Response). When a Library is selected, the commands here will be inherited by all Programs.

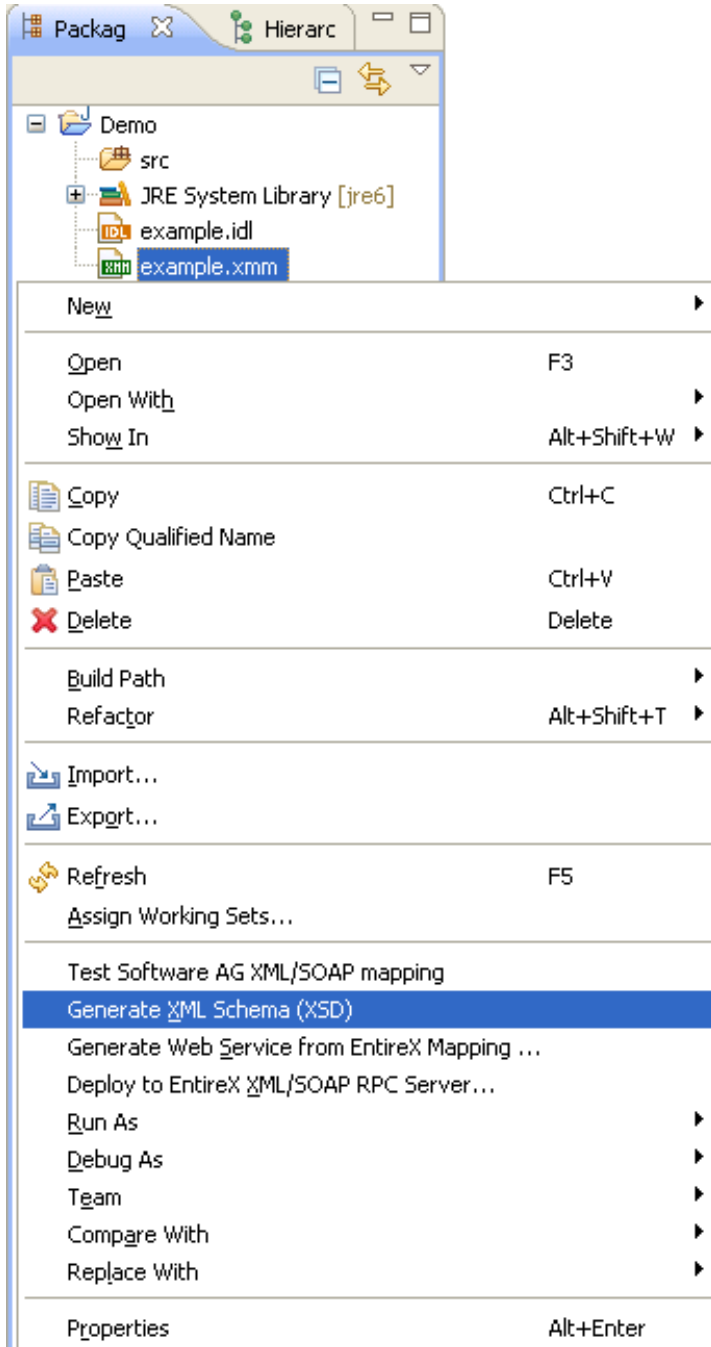
- **Request** or **Response** Document is selected



The **EntireX XML Tester...** command sends the selected XML Sample Document to the EntireX XML Tester as Direct Test and enters the name of the XMM file.

XML Schema Export

The current XML Mapping can be exported as XML Schema, using the context menu of the XMM file. The XML Schema style "Russian Doll" or "Venetian Blind" can be selected in the preferences.



The generated XML Schema files will be stored in parallel to the selected XMM file, where one file represents the direction (request or response) and the defined prefixed element.

For example: a SOAP mapping creates four files from the example CALC program: two prefixes ("SOAP-ENV" and "m"), and two directions (request and response). The generated file name is built as follows.

```
[xmm name].[library name].[program name].[direction (request | response)][(optional).additional prefix].xsd
```

Example

- example.EXAMPLE.CALC.request.xsd
- example.EXAMPLE.CALC.request.m.xsd
- example.EXAMPLE.CALC.response.xsd
- example.EXAMPLE.CALC.response.m.xsd

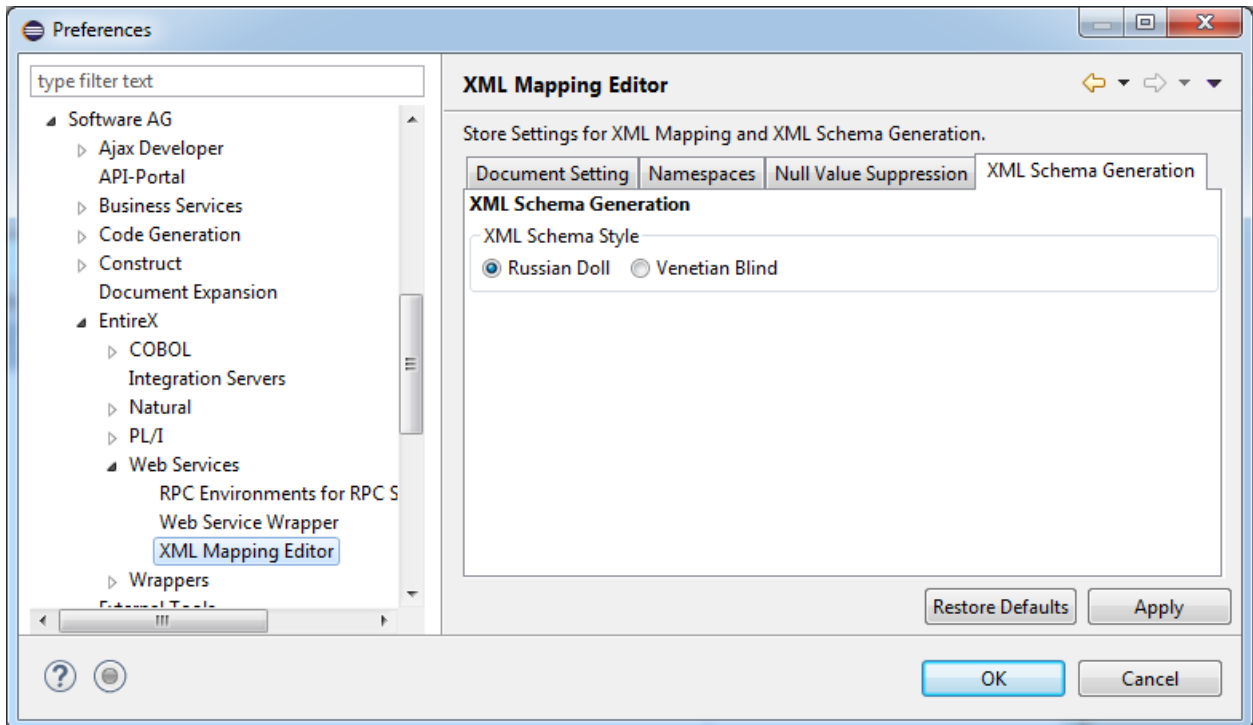
If a file already exists, a dialog will prompt you for confirmation to overwrite it.

XML Mapping Editor Settings

The preference page XML Mapping Editor manages the default values.

For XML Schema the style "Russian Doll" or "Venetian Blind" can be selected.

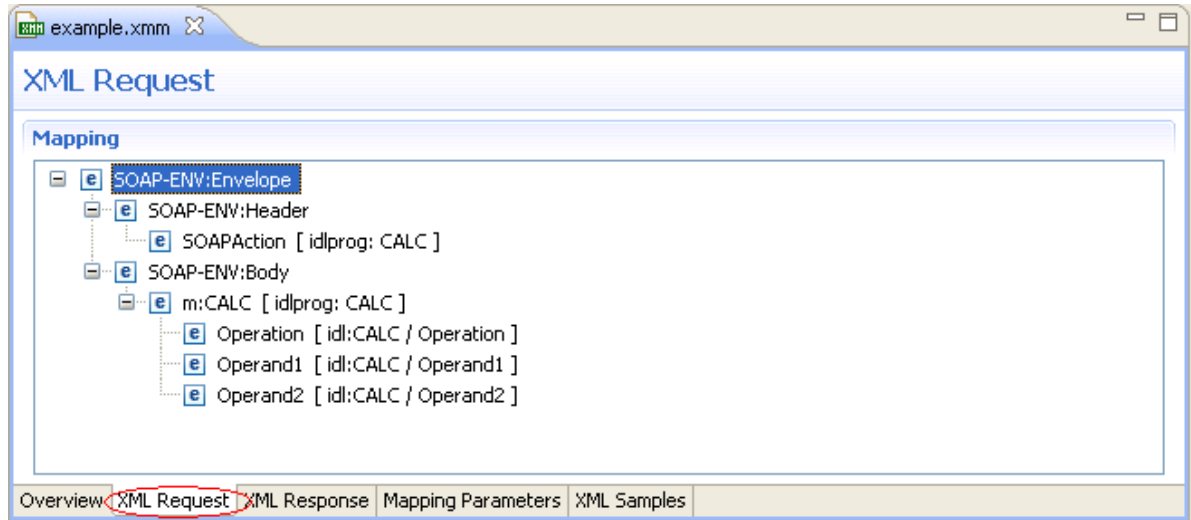
All other parameters are described under *Mapping Parameters*.



Removing Unused Namespaces

➤ To remove one or more unused namespaces

- 1 Open the XML Mapping Editor for the XMM file.
- 2 Select tab **XML Request**.



- 3 Select the element that defines namespace(s) to be removed.
- 4 From the context menu, choose **Properties**.

XML Mapping Editor XML Node Properties
Properties of SOAP-ENV:Envelope

Element Name:

Mapped to:

Program Mapping:

Format:

Locale for Date/DateTime:

Value Length:

Null Value Suppression:

Min. Occurrence: Max. Occurrence:

Default Value:

Nullable:

Namespace Prefix:

Default URI:

Table of defined Namespace definitions:

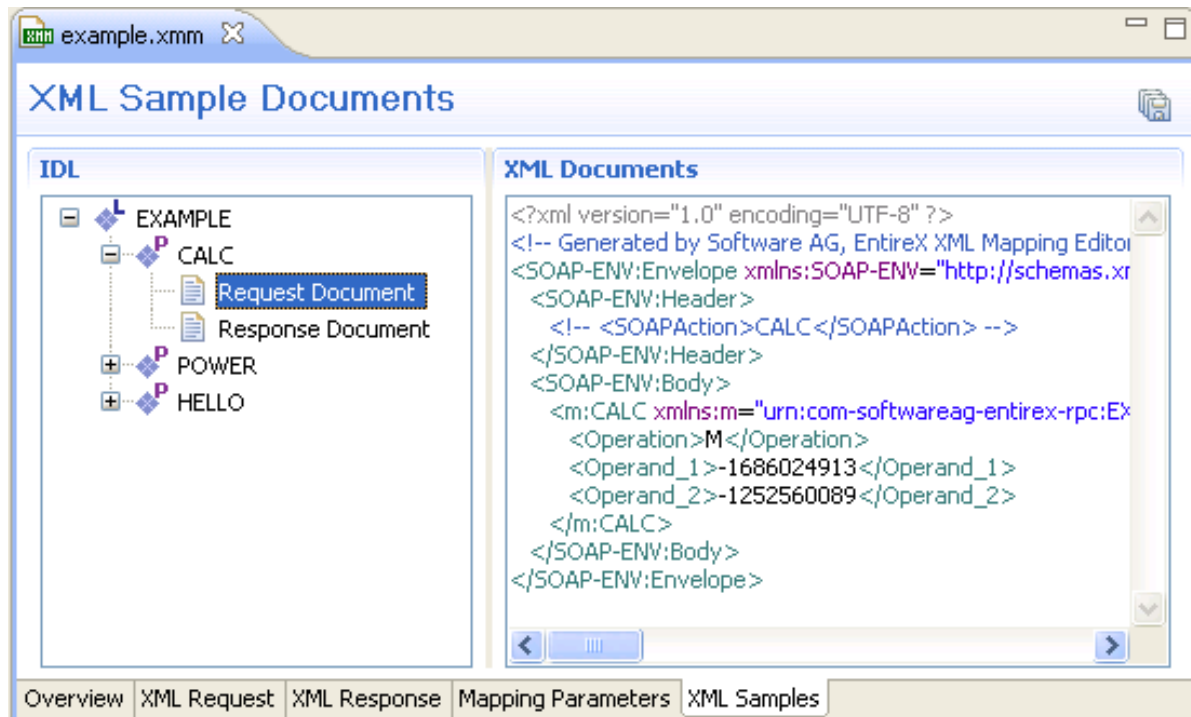
| Prefix ▲ | Namespace | Default | |
|----------|--|---------|--|
| SOAP-ENC | http://schemas.xmlsoap.org/soap/encoding/ | | |
| SOAP-ENV | http://schemas.xmlsoap.org/soap/envelope/ | | |
| xmm | http://namespace.softwareag.com/entirex/xml... | | |
| xsd | http://www.w3.org/2001/XMLSchema | | |
| xsi | http://www.w3.org/2001/XMLSchema-instance | | |
| | | | |

Buttons: Insert..., Edit..., Remove, Default

Buttons: ? OK Cancel

- 5 Select (unused) namespace entry/entries in list and choose **Remove**.
- 6 Press **OK**.
- 7 Repeat these steps for the XML response (select the **XML Response** tab and repeat the steps above).

- 8 Save the XMM file.
- 9 Switch to **XML Samples** tab, which shows the following:



- 10 The XMM file defines the following:

```
...
<FromXml>
<Method relatedIdlLibrary="EXAMPLE" relatedIdlProgram="CALC" encoding="UTF-8"
useIncomingEncoding="true">
<XmlNode name="Envelope" length="0" min="1" max="1" namespacePrefix="SOAP-ENV"
nullSuppression="NVS_NONE" nullValue="" >
<XmlNamespaceDef ↵
prefix="SOAP-ENV" uri="http://schemas.xmlsoap.org/soap/envelope/">
<XmlNamespaceDef ↵
prefix="SOAP-ENC" uri="http://schemas.xmlsoap.org/soap/encoding/">
<XmlNode name="Header" length="0" min="1" max="1" namespacePrefix="SOAP-ENV"
nullSuppression="NVS_NONE" nullValue="" >
<XmlNode name="SOAPAction" format="string" type="xsd:string" length="0" min="1" ↵
max="1"
default="CALC" nullSuppression="NVS_NONE" nullValue="" programNode="ev" >
</XmlNode>
...
```


3 EntireX XML Tester

- Introduction to the EntireX XML Tester 30
- EntireX XML Tester Options 31
- Using the EntireX XML Tester 34
- Using the Broker and RPC User ID/Password 38
- Using Conversational RPC 40

Introduction to the EntireX XML Tester

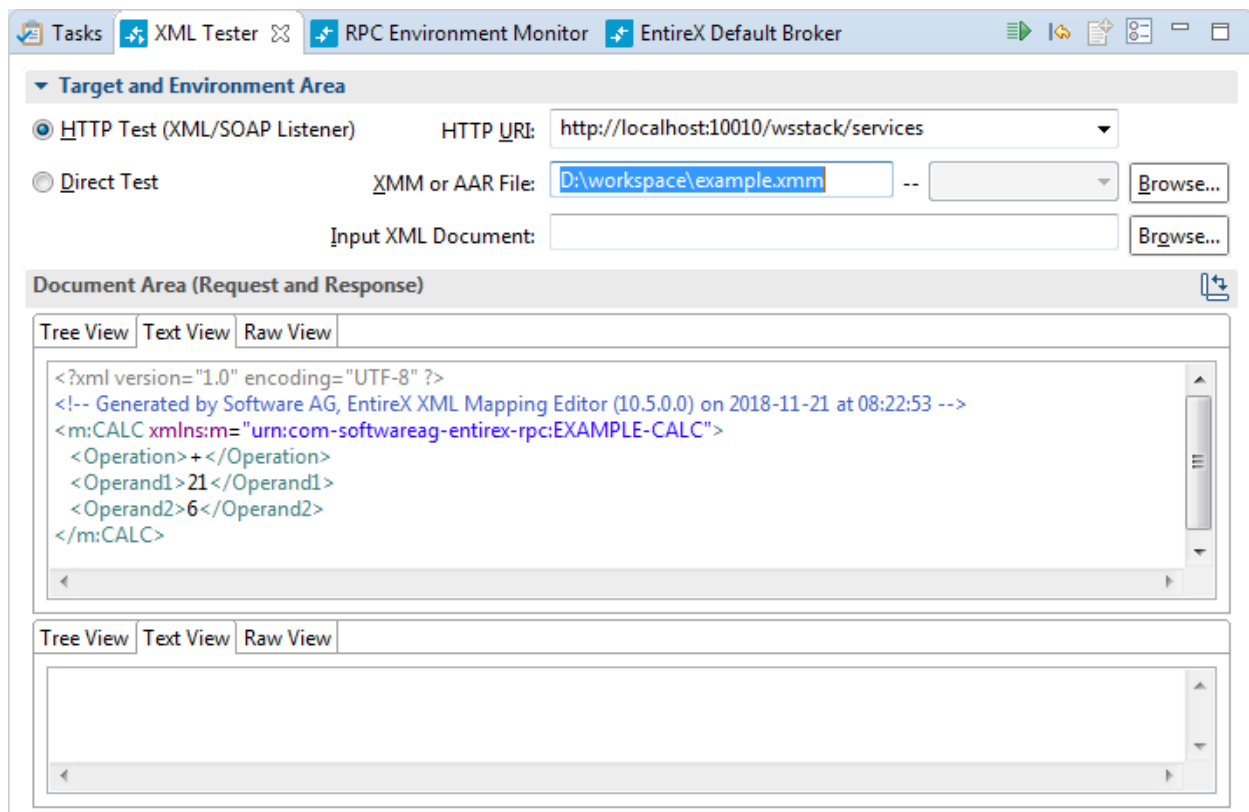
Using the EntireX XML Tester you can send an XML document to the EntireX Listener for XML/SOAP.

The EntireX XML Tester supports drag-and-drop editing, and you can restore the last used session within a workspace. If the mapping file has changed, the views for request and response are cleared.



The EntireX XML Tester is provided by the Designer as an Eclipse View and can be opened from the XML Mapping Editor or XML/SOAP Wrapper. It is also accessible from **Windows > Show View > Other... > Software AG > XML Tester**. The following test modes are available:



- Direct Test (Using the Java Interface)
- HTTP Test (Using the EntireX Listener for XML/SOAP)

See sample screen and description of options below.



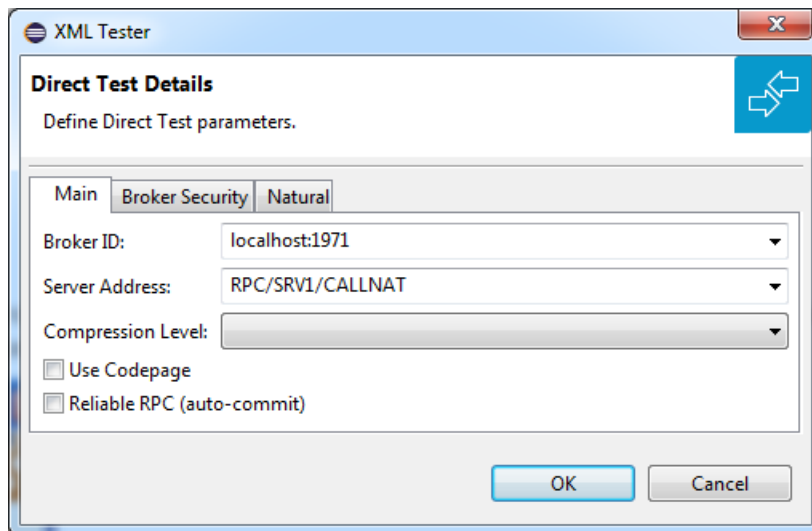
EntireX XML Tester Options

| Name | Type | Description |
|----------------------------|--|--|
| Direct Test | Check box | Check this box to test the Java interface of the XML/SOAP Runtime. If checked, the Settings action will open the Direct Test Details dialog. |
| XMM or AAR File | Text field | The AAR file, which contains one or more mapping files (XMM files), or the XMM file, which contains the mapping information. Accept absolute path. If the file does not exist, the action Create Sample XML... is disabled. When the file is found, the Broker ID and Server Address are read and the corresponding fields in the Direct Test Details dialog are filled. |
| | Combo box | Behavior depends on content of field XMM or AAR File : <ul style="list-style-type: none"> ■ If this field contains an AAR file, this combo is enabled and filled with all the mappings stored in the archive. Select the mapping you want from the list. ■ If this field contains an XMM file, the combo box is disabled. |
| Browse... | Button | Open a File open dialog to select the XMM or AAR file from the file system. |
| HTTP Test | Check box | Check this box to test the HTTP interface (EntireX Listener for XML/SOAP) of the XML/SOAP Runtime. If checked, the Settings action will open the HTTP/HTTPS Parameters dialog. |
| HTTP URI to contact | Combo box | URI of the EntireX Listener for XML/SOAP. Will store the last ten called URLs. |
| Input XML Document to send | Text field | File name of the XML Document to be sent. |
| Browse... | Button | Open a File open dialog to select the XML Document file from the file system. |
| Create Sample XML... | Action  | Open the Create Sample XML... dialog, see below. If the text file for the XMM file does not contain a valid file path, the Create Sample XML... button is disabled. |
| input - area | Tree/Text/Raw view | Input field for the XML data to be sent to the Broker, this area is filled with the text/tree representation of the selected file, see Input XML Document to send . If empty, the Play action is disabled. |
| output - area | Tree/Text/Raw view | Output field for the XML data response from the Broker. By default, the response will be displayed in platform encoding. But if the XML data request contains a valid encoding in the XML declaration, this encoding will be used and a tooltip text will inform you of this. This view will also display the status and errors. |
| Settings | Action  | Open either Direct Test Details or HTTP/HTTPS Parameters dialog. See Direct Test and HTTP Test above. |

| Name | Type | Description |
|-----------|--|---|
| Play/Stop | Action  | Start/stop the test. This action is disabled if there is no text in the input - area . |
| Reset | Action  | Reset the input and output areas. |

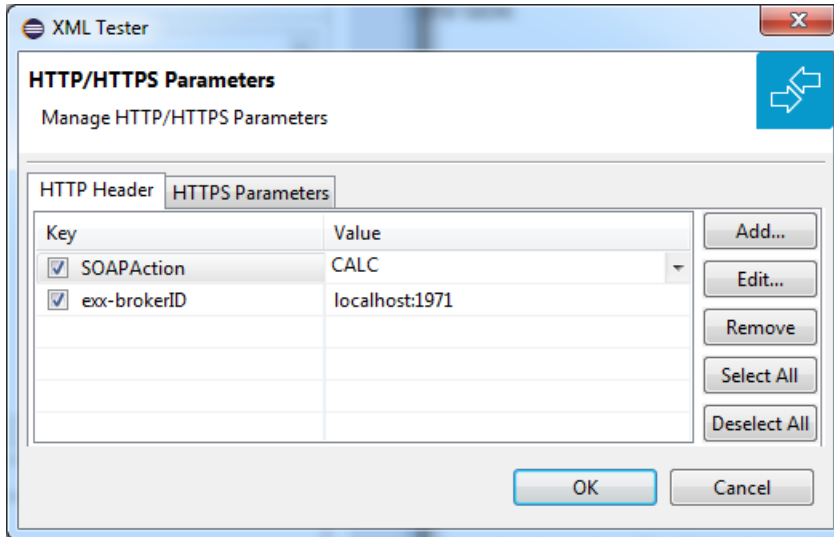
Direct Test Details Dialog

Use the **Direct Test Details** dialog to change the Direct Test parameters. The Broker ID, Server Address, the Security Settings, the Natural Settings can be modified for this EntireX XML Tester session. **Compression Level** is a non-editable box that contains all possible values. **Broker ID** and **Server Address** are editable dialog boxes and hold the last five used values. Use the **Reliable RPC** check box to turn reliable messaging on or off (mode is AUTO-COMMIT). See *Reliable RPC*.

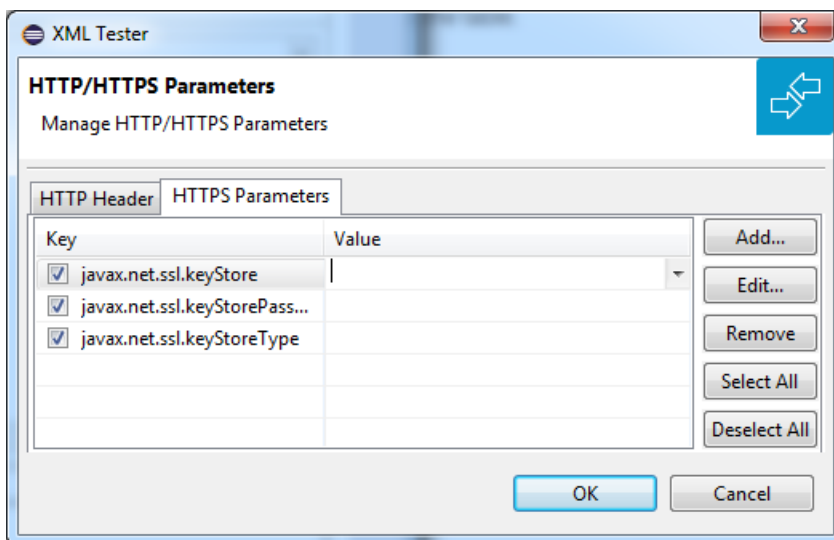


HTTP/HTTPS Parameters Dialog

With the **HTTP Header** tab you can add more information for the call and set the SOAPAction. An entry must be selected to be active. The **Value** box holds the last five used values for the corresponding property. It is editable, which means you can change a value by clicking directly in the table.



With the **HTTPS Parameters** tab you can set parameters required for an HTTPS connection. An entry must be selected to be active. The **Value** box holds the last five used values for the corresponding property. It is editable, which means you can change a value by clicking directly in the table.

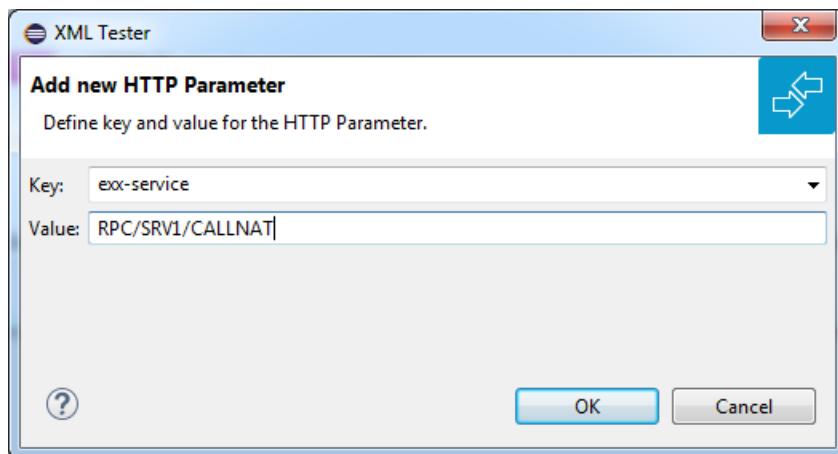


Add New HTTP Parameter Dialog

With the **Add new HTTP(S) Parameter** dialog you can add a new HTTP or HTTPS parameter. All Software AG's predefined HTTP parameters are listed in the **Key** box. For HTTPS, the **Key** box contains predefined properties for HTTPS communication.

Edit HTTP Parameter Dialog

With the **Edit HTTP(S) Parameter** dialog you can change the value of a property. The **Value** box is editable and holds the last five used values. The **Key** value for all predefined properties cannot be modified.



Using the EntireX XML Tester

Using the EntireX XML Tester you can send an XML document to the EntireX Listener for XML/SOAP.

> To open the EntireX XML Tester

- In perspectives other than EntireX, choose **Window > Show View > EntireX XML Tester**, in other perspectives, choose **Window > Show View > Other ... > Software AG > XML Tester**.

Or:

Choose **Window > Open Perspective > Other...** and select EntireX Perspective. The **EntireX XML Tester** view is part of this perspective.

Or:

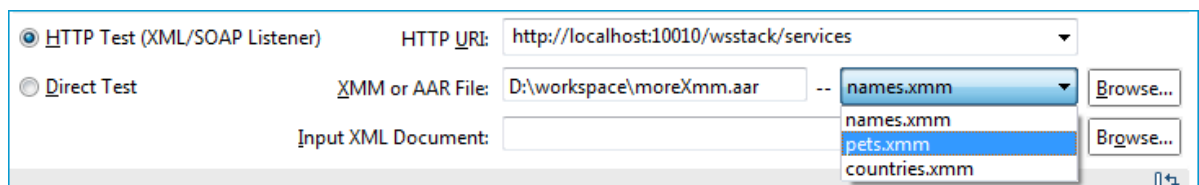
In the XML Mapping Editor, switch to the **Overview** page, choose **Direct Test** or **HTTP Test** in the testing section.

Or:

In the XML Mapping Editor, switch to page **XML Samples**, select one document, choose **EntireX XML Tester** in the context menu.

➤ To run a test

- 1 Load the mapping information. In field **XMM or AAR File**, enter the absolute path to the AAR or XMM file that is being tested (you can use the **Browse...** button or a drag-and-drop operation). If you enter an AAR file, all mappings contained in the archive are listed in the combo box next to the **XMM or AAR File** field.

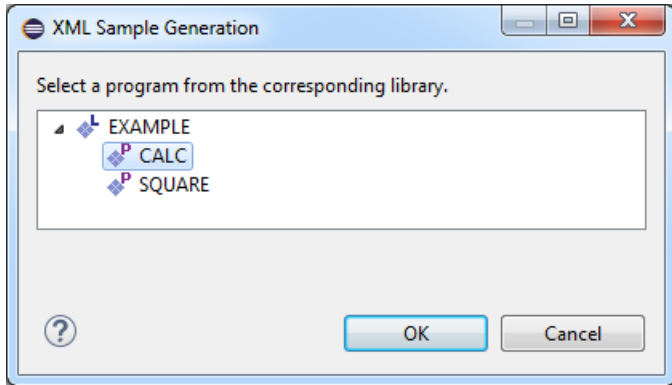


- 2 Select the testing interface (Java or HTTP):
 - Java interface: the **XMM or AAR File** field must contain the full path and name of an XMM or AAR archive. Choose the **Direct Test** option to use this interface.
 - HTTP interface: enter the name of the URI of the running EntireX Listener for XML/SOAP. Choose the **HTTP Test** option to use this interface.
- 3 Complete the input area:
 - Type your XML document.
 - Use the **Create Sample XML...** button and follow the dialog.

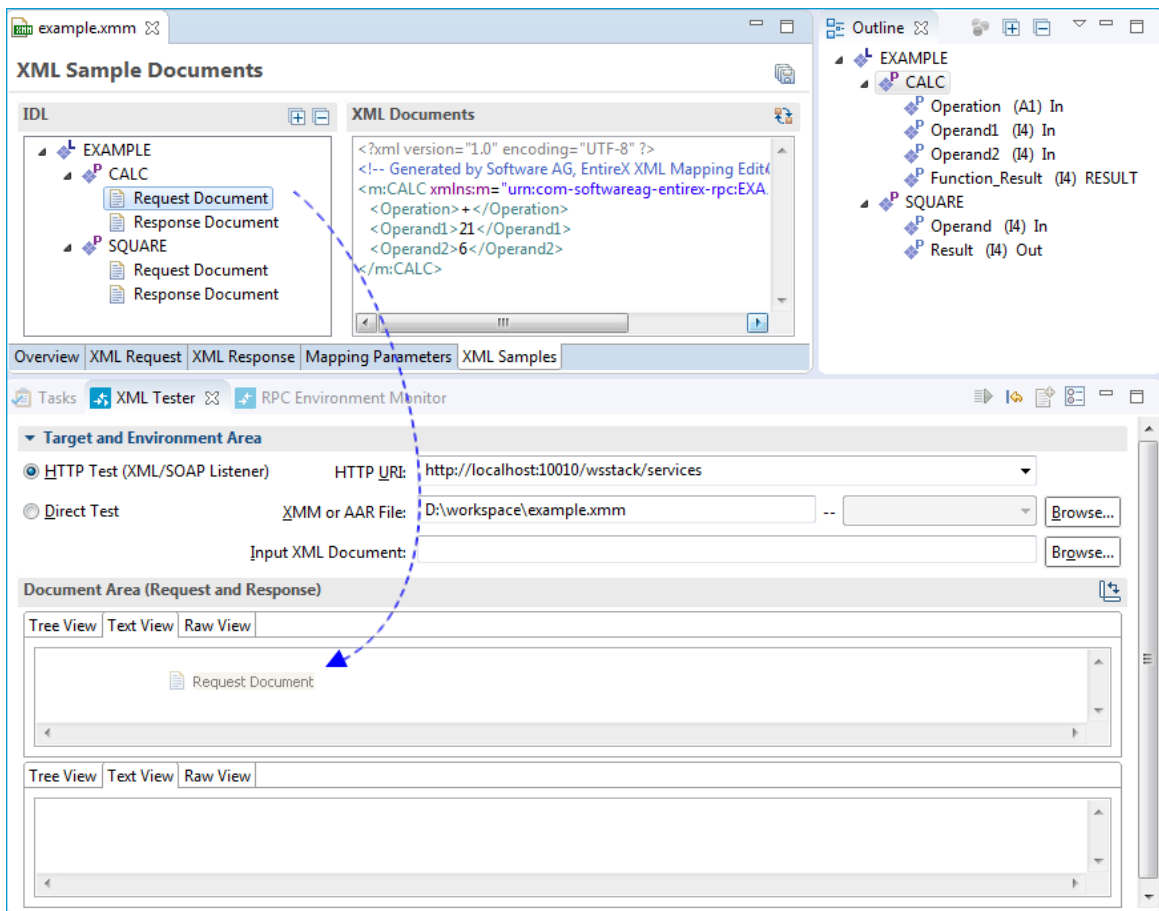


Note: If the IDL file contains only one library with one program, this is used for the sample generation without opening the dialog.

Example dialog:



- Load sample document, using drag-and-drop operation on the sample page of XML Mapping Editor or file browser.



The following tabs are available:

- The **Text View** tab will try to color the request syntactically, making the XML easier to read.

- The **Raw View** tab is initially empty. When the first request is sent, it is filled with the exact message sent together with information on the request method and the used HTTP headers with their values.
 - From then on the **Raw View** is displayed and is updated with the last sent request.
 - Select an existing XML document (you can use the **Browse** button) and enter it in the field **Input XML file to send**.
- 4 If the testing interface is Java, the **Settings** action will open the **Direct Test Details** dialog.

The dialog contains the three tabs with the following settings:

- Main
- Broker Security
- Natural Security

See [Direct Test Details Dialog](#).

- 5 If using option **HTTP Test**, the **Settings** action will open the **HTTP/HTTPS Parameters** dialog. The dialog contains two tabs with settings for the HTTP call:

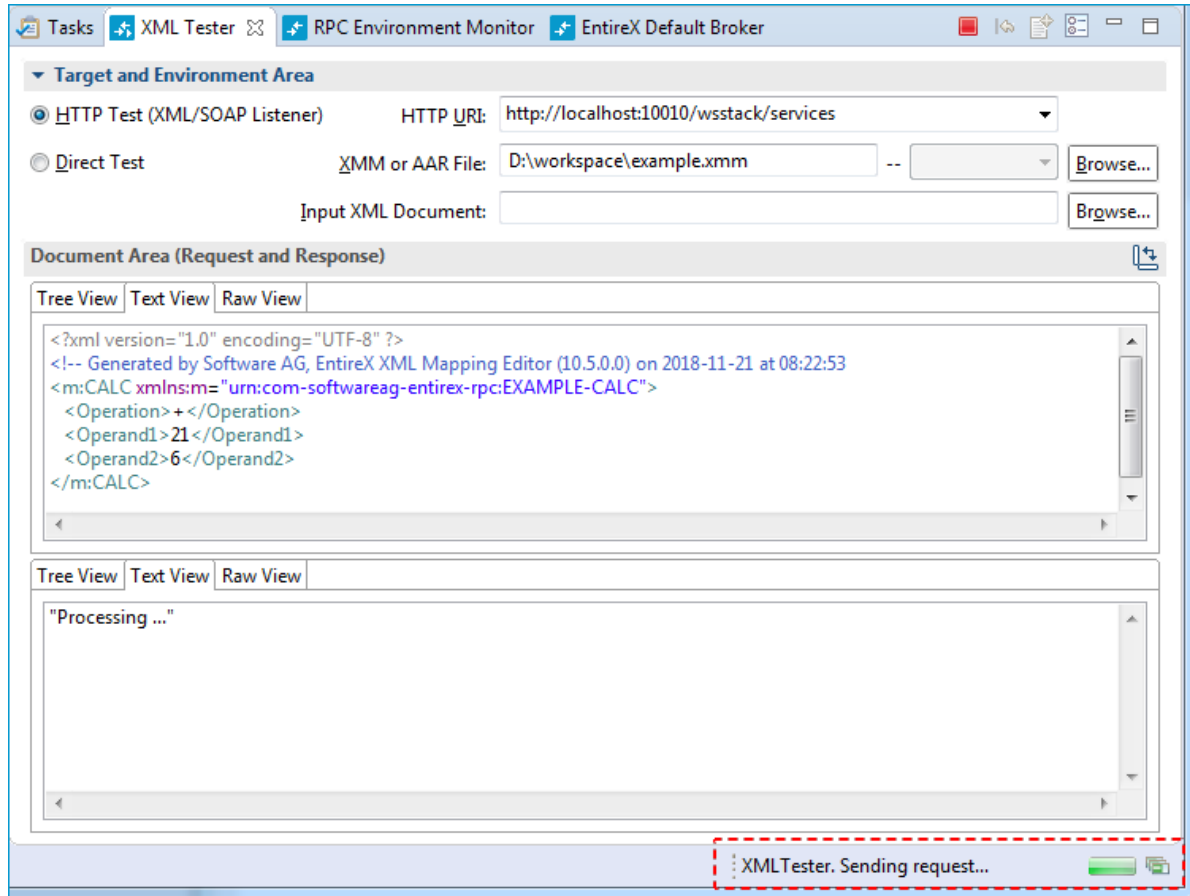
- HTTP Header
- HTTPS Parameters

See [HTTP/HTTPS Parameters Dialog](#).

- 6 Send the request by choosing action **Play**. If the testing interface is HTTP, the **Sending request** dialog appears. Here you have several options:

- hide the dialog by pressing **Run in Background** button
- cancel the request. This will terminate the session with the server
- show details about all running Eclipse jobs

A progress bar on the Eclipse status bar shows to indicate that the request is being sent.



If you used the **Direct Test** option, you cannot cancel the request.

- 7 When a response is received, it is displayed in the output area. Errors are also displayed in the output area.

The **Text View** tab displays the XML response as formatted and syntactically colored text. The **Raw View** tab displays the response “as is”. Information on the used request method, response code and HTTP headers with their values is displayed for the XML response.

Using the Broker and RPC User ID/Password

EntireX supports two user ID/password pairs: a broker user ID/password pair and an (optional) RPC user ID/password pair sent from RPC clients to RPC servers. With EntireX Security, the broker user ID/password pair can be checked for authentication and authorization.

The RPC user ID/password pair is designed to be used by the receiving RPC server. This component's configuration determines whether the pair is considered or not. Useful scenarios are:

- Credentials for Natural Security

- Impersonation in the respective RPC Server documentation
- Web Service Transport Security with the RPC Server for XML/SOAP, see *XML Mapping Files*
- Service execution with client credentials for EntireX Adapter Listeners, see *Configuring Listeners*
- etc.

Sending the RPC user ID/password pair needs to be explicitly enabled by the RPC client. If it is enabled but no RPC user ID/password pair is provided, the broker user ID/password pair is inherited to the RPC user ID/password pair.

The check box **Enable Natural Logon** (see below) enables sending the RPC user ID/password pair in Direct Test mode. In HTTP test mode, the HTTP parameter `exx-natural-security` has to be set. If you do so, we strongly recommend using SSL/TLS. See *SSL/TLS, HTTP(S), and Certificates with EntireX*.

➤ To use the broker and RPC user ID/password with Direct Test mode

- 1 Specify a broker user ID and broker user password in the **Broker Security** tab.
- 2 Activate the **Natural** tab and check the check box **Enable Natural Logon** to enable sending the RPC user ID/password pair.
- 3 If different user IDs and/or passwords are used for broker and RPC, enter `RPC User ID` and `RPC User Password` in the **Natural** tab to provide a different RPC user ID/password pair.
- 4 By default the library name sent to the RPC server is retrieved from the IDL file (see `library-definition` under *Software AG IDL Grammar* in the IDL Editor documentation). The library name can be overwritten. This is useful if communicating with a Natural RPC server. Specify a Natural library in the **Natural** tab.

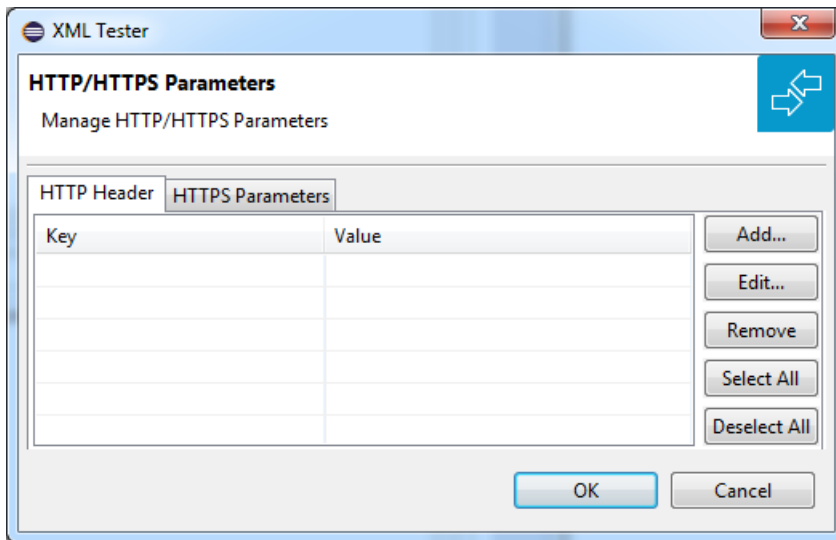
➤ To use the broker and RPC user ID/password with HTTP Test mode

- 1 Activate the **HTTP Header** tab.
- 2 Add `exx-user` and `exx-password` as HTTP parameters.
- 3 Add HTTP parameter `exx-natural-security` to enable sending the RPC user ID/password pair.
- 4 If different user IDs and/or passwords are used for broker and RPC, add `exx-rpc-user` and `exx-rpc-password` as HTTP parameters to provide a different RPC user ID/password pair.
- 5 By default the library name sent to the RPC server is retrieved from the IDL file (see `library-definition` under *Software AG IDL Grammar* in the IDL Editor documentation). The library name can be overwritten. This is useful if communicating with a Natural RPC server. Specify a Natural library in HTTP parameter `exx-natural-library`.

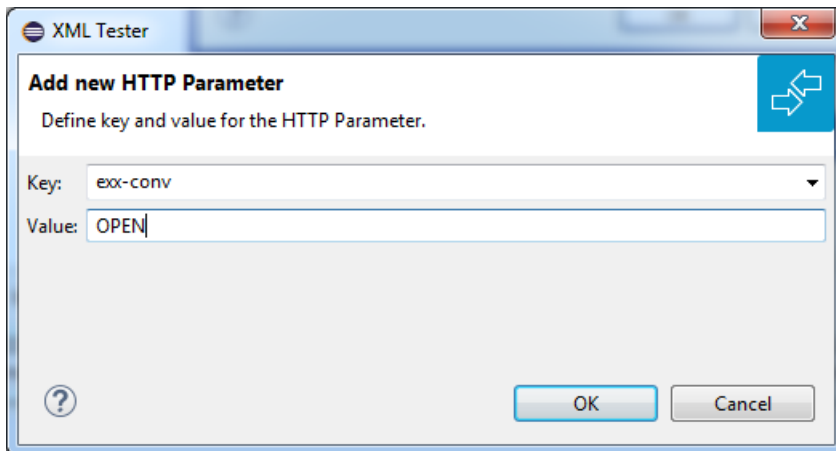
Using Conversational RPC

> To use conversational RPC with HTTP Test mode

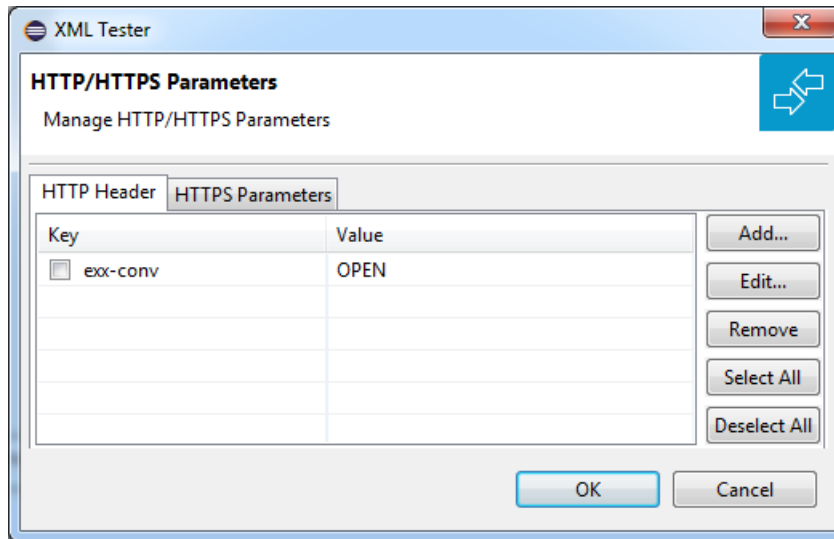
1 Open **Settings**.



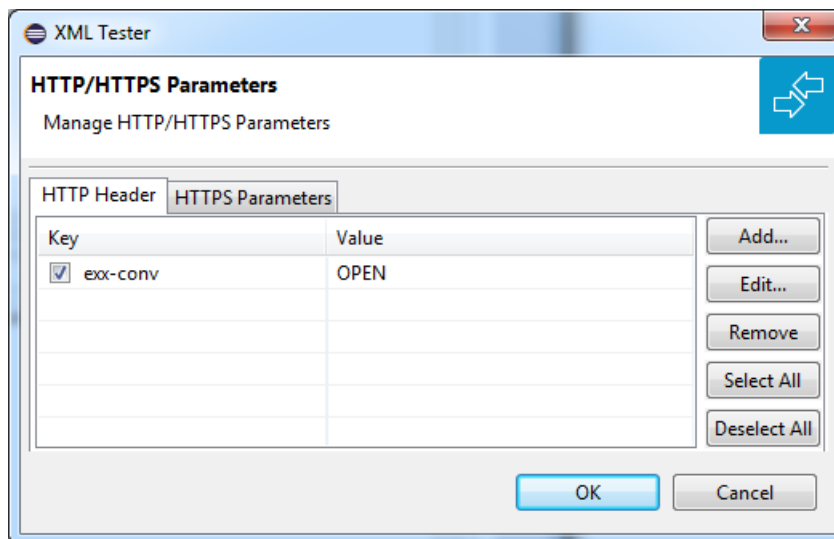
2 Add key `exx-conv` and set value to "OPEN".



3 Press **OK**.



- 4 Select `exx-conv`.



- 5 Press **OK**.
- 6 Send the request.
- 7 The response contains the `exx-xml-sessionID` used for conversational communication. This parameter is also added to HTTP/HTTPS parameters for the next call(s) automatically. The parameter `exx-conv` is deactivated simultaneously.

- 8

```
<!-- snippet with exx-xml-sessionID in response document -->
  <axis2ns1:EntireX xmlns:axis2ns1="urn:com.softwareag.entirex.xml.rt">
    <exx-xml-sessionID>XML610C044029044C05</exx-xml-sessionID>
  </axis2ns1:EntireX>
<!-- snippet -->
```
- 9 To finish the conversation, open the settings again, activate the `exx-conv` and set its value to "COMMIT" or "BACKOUT".
- 10 The conversation is closed with the next sent call.

4 Using the XML Mapping Editor in Command-line Mode

- Command-line Options 44
- Example 44

Command-line Options

See *Using EntireX in the Designer Command-line Mode* for the general command-line syntax. The table below shows the command-line options for the XML Mapping Editor.

| Task | Command | Option | Description |
|---|--------------------|------------|---|
| Create SOAP-conformant XML mapping for all programs. | -map:soap | | |
| | -map:soap1.1 | | Supported for compatibility with older versions. |
| Create attribute-preferred XML mapping for all programs. | -map:xmlattributes | | |
| Create element-preferred XML mapping for all programs. | -map:xmlelements | | |
| Create element-preferred XML mapping with XML Schema for all programs | -map:xmlwithxsd | -namespace | If <i>namespace</i> is specified, the namespace URI for the program node. XML Schema uses this namespace URI as the target namespace. |
| Create sample XML documents for all programs. | -xml:sample | | |

Example

```
<workbench> -map:soap /Demo/example.idl
```

where *<workbench>* is a placeholder for the actual EntireX design-time starter as described under *Using EntireX in the Designer Command-line Mode*.

The generated XML mapping file (XMM) will be stored in parallel to the IDL file, for example in project *Demo*.

Status and processing messages are written to standard output (stdout), which is normally set to the executing shell window.

5 IDL to XML Mapping with the XML Mapping Editor

- Mapping IDL to XML Automatically 46
- Mapping IDL to XML Manually 54
- Defining the XML Encoding 59
- Validity Checks 61
- Generating an XML Schema from IDL-XML Mapping 62

The EntireX XML Mapping Editor allows you to map XML document structures to IDL libraries, programs and parameters. The mappings can be defined for the request and response to the server application, or from the server to the client. The input for the XML Mapping Editor can be a Software AG IDL file and/or an IDL-XML mapping file (perhaps produced by a previous XML Mapping Editor session or by importing a WSDL file, XML Document or XML Schema). The output is an IDL-XML mapping file, other XML structure definitions (such as sample XML files), and perhaps a created or changed IDL file.

There are two ways to create an IDL to XML mapping: automatically (and then modify the resulting structures manually), or manually.

Mapping IDL to XML Automatically

- [Scope](#)
- [Mappings](#)
- [SOAPAction](#)
- [Using Mapping Parameters](#)
- [Mapping Parameters](#)
- [Document Style](#)
- [Encoding Settings](#)
- [Null Value Suppression](#)
- [Namespace Definitions](#)

Scope

The following approaches are available:

- Map all programs in the current IDL file with the element-preferred strategy.
- Map all programs in the current IDL file with the attribute-preferred strategy.
- Create a SOAP mapping for all programs in the current IDL file.
- Mapping and XML Schema generation for all programs in the current IDL file. This creates an element-preferred mapping.

The mapping strategies generate XML tree nodes for all IDL parameters with the appropriate direction:

- For IN and INOUT IDL parameters, XML Request nodes are generated.
- For INOUT and OUT IDL parameters, XML Response nodes are generated.
- Fault trees (Error trees) are generated, see **Fault Document Manager** under [XML Response Page](#).

Format, length and default values of the XML nodes are set according to the IDL parameter:

In the table below, the following metasympols and informal terms are used for the IDL.

- The metasympols "[" and "]" enclose optional lexical entities.
- The informal term *number* (or in some cases *number1.number2*) is a sequence of numeric characters, for example 123.

| Software AG IDL | Description | XML Data Type |
|--------------------------------------|--|--|
| <i>Anumber</i> | Alphanumeric | Variable-length string node with maximum length. |
| AV | Alphanumeric variable length | Variable-length string node. |
| AV[<i>number</i>] | Alphanumeric variable length with maximum length | Variable-length string node with maximum length. |
| <i>Bnumber</i> | Binary | binary node with length of binary representation (base 64) |
| BV | Binary variable length | Variable-length binary node. |
| BV[<i>number</i>] | | Variable-length binary node with maximum length. |
| D | Date | XML date node. The length depends on the specified time pattern length. This is trimmed, and what is included in single quotes will be counted (without the single quotes). For example: 'T'HH:mm:ss has length=9. |
| F4 | Floating point (small) | float node of length 32. |
| F8 | Floating point (large) | float node of length 64. |
| I1 | Integer (small) | integer node of length 4. |
| I2 | Integer (small) | integer node of length 6. |
| I4 | Integer (small) | integer node of length 11 |
| <i>Knumber</i> | Kanji | Variable-length string node with maximum length. |
| KV | Kanji variable length | Variable-length string node. |
| KV[<i>number</i>] | Kanji variable length with maximum length | Variable-length string node with maximum length. |
| L | Logical | Boolean node. |
| <i>Nnumber1</i> [. <i>number2</i>] | Unpacked decimal | number node. If <i>number</i> > 0, length increased by 2, otherwise by 1. |
| <i>NUnumber1</i> [. <i>number2</i>] | Unpacked decimal unsigned | number node. If <i>number</i> > 0, length increased by 2, otherwise by 1. |
| <i>Pnumber1</i> [. <i>number2</i>] | Packed decimal | number node. If <i>number</i> > 0, length increased by 2, otherwise by 1. |
| <i>PUNumber1</i> [. <i>number2</i>] | Packed decimal unsigned | number node. If <i>number</i> > 0, length increased by 2, otherwise by 1. |

| Software AG IDL | Description | XML Data Type |
|-----------------|---|---|
| T | Time | dateTime node. The length depends on the specified time pattern length. This is trimmed, and what is included in single quotes will be counted (without the single quotes). For example: <code>yyy-MM-dd'T'HH:mm:ss</code> has length=19. |
| <i>Unumber</i> | Unicode | Variable-length Unicode node with maximum length. |
| UV | Unicode variable length | Variable-length Unicode node. |
| <i>UVnumber</i> | Unicode variable length with maximum length | Variable-length Unicode node with maximum length. |

The resulting XML structures can be modified, see [Mapping IDL to XML Manually](#).

The automatic mapping process can be fine-tuned by mapping parameters to be set before mapping.

For information on the attribute-preferred and element-preferred strategies see *XML Structures and IDL-XML Mapping* in the XML/SOAP Wrapper documentation.

Mappings

For SOAP additional type attributes are generated. They describe the XML Schema compliant data types of the elements.

SOAPAction

The SOAPAction tag in the SOAP header will be moved to the HTTP header. The SOAPAction element is generated automatically with SOAP mapping. Verify the default setting. If SOAPAction is missing, insert it: select the SOAPHeader node and add a new child node with the name SOAPAction. Then select the new element node with the name SOAPAction, open the XML Details panel and enter the value for that HTTP header into the Default attribute field. The NullValueSuppression property should have the value "Suppress Element".

Using Mapping Parameters

➤ To use the mapping parameters

- 1 Switch to the Mapping Parameters page or define the XML Mapping Editor preferences.
- 2 Check the check boxes, dialog boxes and complete the text fields you need.

Mapping Parameters

The mapping parameters are on the following sections.

Document Style

Mapping Parameters
Restore Defaults

The mapping parameters can only be used for generating a new IDL-XML mapping.
Just changing mapping parameters has no effect on an existing mapping; generate the mapping again for the changes to take effect.

Document Style

Generate Array Envelope Element

WSDL Style:

Encoding Settings

Null Value Suppression

Namespace Definitions

Overview
XML Request
XML Response
Mapping Parameters
XML Samples

| Parameter | Description |
|---------------------------------|---|
| Generate Array Envelope Element | Determines whether for each array a surrounding additional element (envelope) is generated or not. |
| WSDL Style | Prepare the SOAP Mapping for selected WSDL Style. Possible values: document/literal or rpc/encoded. |

Encoding Settings

Mapping Parameters
Restore Defaults

The mapping parameters can only be used for generating a new IDL-XML mapping. Just changing mapping parameters has no effect on an existing mapping; generate the mapping again for the changes to take effect.

▶ Document Style

▼ Encoding Settings

XML Default Encoding:

Use incoming Encoding

▶ Null Value Suppression

▶ Namespace Definitions

Overview
XML Request
XML Response
Mapping Parameters
XML Samples

| Parameter | Description |
|-----------------------|---|
| XML Default Encoding | This encoding is used for the sent XML/SOAP document if the box Use incoming encoding is not checked (for XML-based clients), or if the RPC Server for XML/SOAP is used. |
| Use Incoming Encoding | Check this box to enable the XML/SOAP Wrapper to use same encoding for the incoming document as for the outgoing document. |

Null Value Suppression

Mapping Parameters
Restore Defaults

The mapping parameters can only be used for generating a new IDL-XML mapping. Just changing mapping parameters has no effect on an existing mapping; generate the mapping again for the changes to take effect.

▶ Document Style

▶ Encoding Settings

▼ Null Value Suppression

Control empty elements or attributes may be omitted in the XML documents.

Enable Null Value Suppression

Simple Element:

Simple Attribute:

Array Types:

Complex Types:

Suppress Attributes, if Element has Null Value

▶ Namespace Definitions

Overview
XML Request
XML Response
Mapping Parameters
XML Samples

| Parameter | Description |
|-------------------------------|---|
| Enable null value suppression | Switch on/off the null value suppression. |
| Simple Element | Suppress Elements. Possible Values: No Suppression or Suppress Element. |
| Simple Attribute | Suppress Attributes. Possible Values: No Suppression or Suppress Attribute. |
| Array Types | Suppress Array Types. Possible Values: No Suppression, All empty cells or Cells at end (Trim). |
| Complex Types | Suppress Complex Types. Possible Values: No Suppression (no special handling of complex types - null value suppression defined for 'Simple Element' is used), or Suppress Group Elements. |

For more details on null value suppression, see *Null Value Suppression* under *Writing Advanced Applications with the XML/SOAP Wrapper*.

Namespace Definitions

Mapping Parameters
Restore Defaults

The mapping parameters can only be used for generating a new IDL-XML mapping. Just changing mapping parameters has no effect on an existing mapping; generate the mapping again for the changes to take effect.

- ▶ Document Style
- ▶ Encoding Settings
- ▶ Null Value Suppression
- ▼ **Namespace Definitions**

Table of defined Namespace definitions:

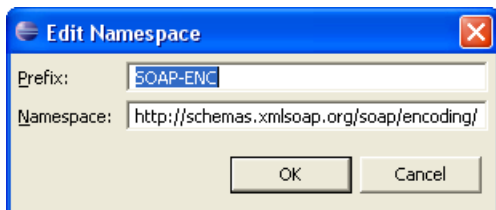
| Prefix | Namespace | Default | |
|----------|---|-----------|-----------|
| SOAP-ENV | http://schemas.xmlsoap.org/soap/envelope/ | | Insert... |
| xsd | http://www.w3.org/2001/XMLSchema | | Edit... |
| m | urn:com-softwareag-entirex-rpc:%l | (default) | Remove |
| SOAP-ENC | http://schemas.xmlsoap.org/soap/encoding/ | | Default |
| xsi | http://www.w3.org/2001/XMLSchema-instance | | |

Overview
XML Request
XML Response
Mapping Parameters
XML Samples

| Parameter | Description |
|-----------------------------|--|
| Namespace Definitions Table | Manage all Namespaces with prefix and URI. |

New namespace definitions can be entered with **Add...** . To change an entry choose **Edit...** . All selected entries can be deleted with the **Remove** button. With the **Default** button you mark the Namespace used for the Payload Root node, e.g. in XML Mapping the Root Element and in SOAP Mapping the first element in the SOAP-Body.

The Edit dialog (and similar Add dialog) looks like:



➤ To map automatically with your preferred result

- On the Mapping section of the Overview Page choose the preferred Mapping style and press the **Generate All** button.

The various generated XML Structures can be modified, see [Mapping IDL to XML Manually](#).

If errors/warnings have occurred, the Validity Check window will be displayed. The errors/warnings for all programs will be found in the Problems View. In the first line of this View you will find a short summary of the problems. If you click on an error/warning, the XML structure for it is displayed with the invalid node highlighted.



Caution: There are rare cases when the SOAP default mapping generates warnings (for example for IDL files with cascaded arrays). A dialog is displayed stating that illegal mappings have been generated. The warnings mostly deal with duplicate element names. You may ignore them as long as you do not use the mapping for WSDL or XML Schema. For details, see the Problem View.

Mapping IDL to XML Manually

This section covers the following topics:

- [Summary of Steps](#)
- [Choosing XML Request or XML Response XML Structure](#)
- [Adding an XML Node](#)
- [Grouping XML Elements or Attributes](#)
- [Mapping an IDL Node to an XML Node](#)
- [Unmapping XML Nodes](#)
- [Deleting Nodes](#)
- [Deleting XML Structures](#)
- [Modifying the Element or Attribute Name](#)
- [Changing Elements to Attributes and Vice Versa](#)
- [Assigning Default Values](#)

Summary of Steps

➤ **To map an IDL file manually to an XML structure or modify an IDL-XML mapping file**

- 1 Choose direction (XML Request or XML Response).
- 2 Add/modify XML nodes.
- 3 Map IDL nodes to XML nodes.

Choosing XML Request or XML Response XML Structure

➤ **To choose the XML Structure**

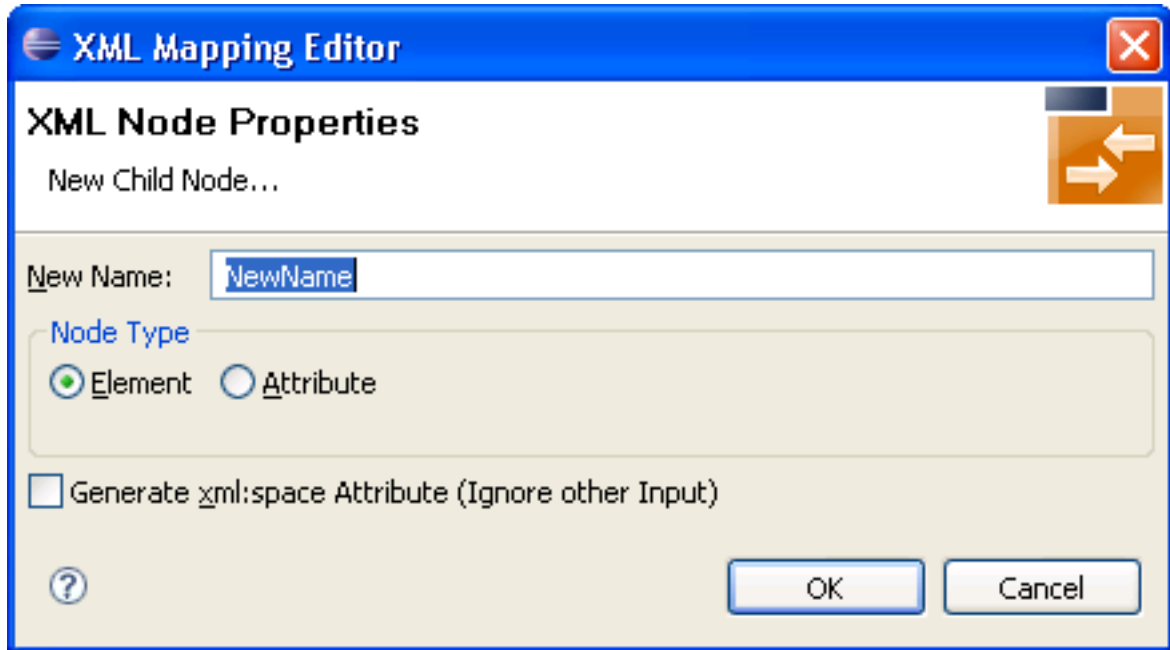
- 1 Select the XML Request to get the IDL IN and INOUT Parameter Mapping.
- 2 Select the XML Response to get the IDL OUT and INOUT Parameter Mapping.

Adding an XML Node

➤ **To create a child node to an existing (selected) XML node**

- 1 Click on the existing node.
- 2 From the context menu, choose **New child node**.

A dialog window is displayed.



- 3 Enter the new node's name and type (element or attribute) and use **OK**.

➤ **To insert a new node before or after an existing (selected) XML node**

- 1 From the context menu, choose **Insert before** or **Insert after**, respectively.
A dialog window is displayed.
- 2 Enter the new node's name and type (element or attribute) and use **OK**.

Note that new attribute nodes do not have a format, length and default property assigned. You must assign at least a format to the node before saving the mapping file. See [Direct Test Details Dialog](#). Use the [Validity Checks](#) to make sure that all nodes have the necessary properties.

Grouping XML Elements or Attributes

You can introduce new elements by grouping one or more existing elements or attributes. See also *XML Structures and IDL-XML Mapping* in the XML/SOAP Wrapper documentation.

➤ **To group XML elements or attributes**

- Add a new XML part and move the existing nodes into the new node.

You can use cut-and-paste or a drag-and-drop operation to reorder the XML parts. Four move functions are available in the XML context menu: **Bring to top**, **Bring to bottom**, **Move up**, **Move down**, which are equivalent to drag-and-drop operation. See [Using the Context Menu](#) and [Using Drag-and-drop](#).

Mapping an IDL Node to an XML Node

➤ To add (or modify) an IDL-XML node mapping link

- 1 Click into the **Mapped to** field in the *XML Node Properties Dialog*.

A dialog displays the possible IDL mapping links.

- 2 Choose one of the menu items to map the IDL node to the XML node.

If the XML node had a previous IDL mapping link, it is released.

Or:

Use a drag-and-drop operation to move the IDL node to be mapped directly to the XML node. If the XML node had a previous IDL mapping link, it is released. See *Using Drag-and-drop*.

Or:

Use the keyboard to tab into the Mapped to text field, and press **Enter**. This will open the dialog Mapped to. Select a mapping link from the list and use the **OK** button to confirm. Use the **Cancel** button to cancel the action.

IDL-XML mapping uses the full path notation. This notation is a slash-separated list of IDL node names, starting with the program name, ending with the addressed IDL node, and containing all IDL nodes between program and the IDL node (the path from the program name to the node).

➤ To modify the format of the XML node

- Select an entry from the dialog box in the *XML Node Properties Dialog*.

The dialog box contains the possible format values. You cannot add new format codes.

Unmapping XML Nodes

➤ To unmap XML nodes

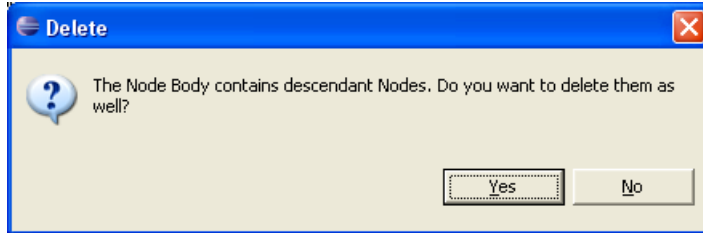
- 1 Select one or more XML nodes mapped to IDL node(s).
- 2 From the context menu, choose **Unmap**.


This will unlink the IDL and XML nodes.

Deleting Nodes

➤ To delete arbitrary elements or attributes

- 1 Select the node(s) to delete.
- 2 From the context menu, choose **Delete**. If nodes have descendants, the following window is displayed:



- 3 To delete the subtree attached to the node, choose **Yes**.
 - 4 To keep the elements of the subtree and move them one level higher, choose **NO**.
-  **Caution:** If IDL nodes are not mapped in the incoming XML request, the result for the runtime component is that the corresponding IDL parameters are filled with zero strings.

Deleting XML Structures

➤ To delete the complete IDL to XML mapping (all XML Structures)

- In the mapping menu, choose the item **New mapping for all programs**.

➤ To delete the currently selected XML Structures

- In the mapping menu, choose the item **New mapping**.

Modifying the Element or Attribute Name

In the automatically mapped structures the XML node names are built from the IDL parameter names.

➤ To change the node name

- Choose **Rename** from the context menu.

Or:

Double-click on the name field in the *XML Node Properties Dialog*.

To avoid accidental changes, there is no other way to modify the name.

When the name of an XML part is modified, various checks of the XML structure are performed, e.g. attribute name duplication, IDL mapping legality. The IDL-XML-mapping link is not influenced by the name change.

Changing Elements to Attributes and Vice Versa

You have the possibility to switch the node type between element and attribute. Note that attributes may not have descendant nodes and namespace definitions.

> To switch between elements and attributes

- From the context menu, choose **Set to Element** and **Set to Attribute**.

This function works for multiple nodes, too.



Important: Arrays must always be modelled with elements.

Assigning Default Values

Every XML part can contain default values in case elements are missing in the incoming XML document.

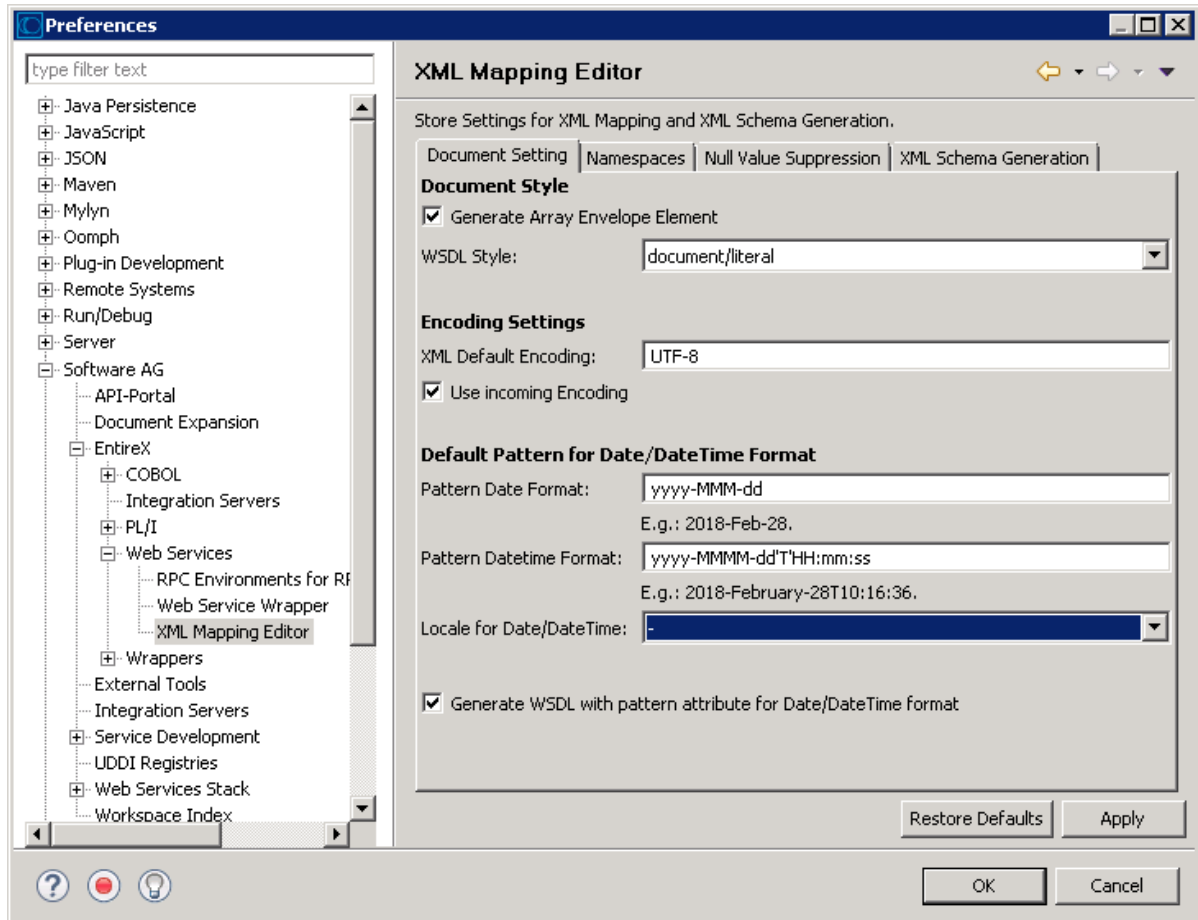
> To set the default values

- In the *XML Node Properties Dialog*, enter a **Default Value**.

Defining the XML Encoding

> To define default encoding for IDL to XML mapping

- 1 Open the IDL properties and choose the XML tab



- 2 Modify the Encoding Settings section:

- For scenarios with the *Listener for XML/SOAP*:
 - **XML Default Encoding (default: UTF-8)**
This is the encoding that will be used to write the mapping file itself. If **Use incoming Encoding** is disabled, this encoding will be used for the response documents.

- **Use incoming Encoding (default: checked)**
If this check box is checked, the same encoding of the incoming document will be used for the response documents. The **XML Default Encoding** is not used.
- For scenarios with the *RPC Server for XML/SOAP*:
 - **XML Default Encoding (default: UTF-8)**
This is the encoding that will be used to write the mapping file itself. This encoding will be used for the outgoing XML documents.
 - **Use incoming Encoding**
Not used.

Validity Checks

The Validity check is automatically performed for automatic mapping and when an existing IDL-XML mapping file is opened, but can also be performed manually.

The following validity checks are available:

1. Checks that all elements have unique tags - produces warnings
2. Checks that all attributes of an element have unique names (mandatory)
3. Checks that the generated XML parts have correct property values (mandatory), e.g. minimum occurrences less than or equal to maximum occurrences
4. Checks that the IDL mapping is valid (mandatory) and the IDL parameters are not mapped to multiple XML parts (warning)
5. Checks that all IDL parameter nodes are mapped to one or more XML parts, (so that the runtime component finds XML values for all IDL parameters or vice versa) (warning)

The first four of the checks apply to XML tree nodes, that is, search for invalid settings or mapping rules of XML elements or attributes. The fifth check applies to the IDL tree.

The check messages may be divided into warnings (message text starts with (W)) and errors. Warnings can even be caused by automatic mapping. Generally, they can be ignored. Errors should not be ignored.

Generating an XML Schema from IDL-XML Mapping

➤ **To save the XML structure tree as an XML Schema (XSD) document**

- An XML Schema can be generated from the current XML Mapping using the context menu of the XMM file. The XML Schema style "Russian Doll" or "Venetian Blind" can be selected in the preferences.

See [Mapping IDL Data Types to an XML Schema \(XSD\)](#) for mapping of IDL data types to XSD.

See also *XML Schema Parser Standards Conformance* and *XML Schema Writer Standards Conformance* under *XML Schema Standards Conformance (XML/SOAP Wrapper)* in the XML/SOAP Wrapper documentation.

6 Mapping IDL Data Types to an XML Schema (XSD)

In the table below, the following metasymbols and informal terms are used for the IDL.

- The metasymbols "[" and "]" enclose optional lexical entities.
- The informal term *number* (or in some cases *number1.number2*) is a sequence of numeric characters, for example 123.

| IDL Data Type | Description | XMM | XSD |
|------------------------|--|--------|---|
| <i>A</i> <i>number</i> | Alphanumeric | string | <pre><xsd:element name="<i>name</i>" form="unqualified"> <xsd:simpleType> <xsd:restriction base="xsd:string"> <xsd:maxLength value="<i>number</i>" /> </xsd:restriction> </xsd:simpleType> </xsd:element></pre> |
| AV | Alphanumeric variable length | string | <pre><xsd:element name="<i>name</i>" form="unqualified"> <xsd:simpleType> <xsd:restriction ↵ base="xsd:string"></xsd:restriction> </xsd:simpleType> </xsd:element></pre> |
| AV[<i>number</i>] | Alphanumeric variable length with maximum length | string | <pre><xsd:element name="<i>name</i>" form="unqualified"> <xsd:simpleType> <xsd:restriction base="xsd:string"> <xsd:maxLength value="<i>number</i>" /> </xsd:restriction> </xsd:simpleType> </xsd:element></pre> |

| IDL Data Type | Description | XMM | XSD |
|---------------------|--|-----------------|---|
| <i>Bnumber</i> | Binary | binary | <pre><xsd:element name="<i>name</i>" form="unqualified"> <xsd:simpleType> <xsd:restriction base="xsd:base64Binary"> <xsd:length value="<i>base64Length</i>" /> </xsd:restriction> </xsd:simpleType> </xsd:element></pre> <p>Note: $base64Length = 4 * \text{rounded up}(number / 3)$</p> |
| BV | Binary variable length | binary | <pre><xsd:element name="<i>name</i>" form="unqualified"> <xsd:simpleType> <xsd:restriction ↵ base="xsd:base64Binary"></xsd:restriction> </xsd:simpleType> </xsd:element></pre> |
| BV[<i>number</i>] | Binary variable length with maximum length | binary | <pre><xsd:element ↵ name="<i>name</i>" form="unqualified"> ↵ <xsd:simpleType> <xsd:restriction base="xsd:base64Binary"> <xsd:maxLength value="<i>base64Length</i>" /> </xsd:restriction> </xsd:simpleType> </xsd:element></pre> <p>Note: $base64Length = 4 * \text{rounded up}(number / 3)$</p> |
| D | Date | date:yyyy-MM-dd | <pre><xsd:element name="<i>name</i>" form="unqualified"> <xsd:simpleType> <xsd:restriction ↵ base="xsd:date"></xsd:restriction> </xsd:simpleType> </xsd:element></pre> |
| F4 | Floating point (small) | float | <pre><xsd:element name="<i>name</i>" form="unqualified"> <xsd:simpleType> <xsd:restriction ↵ base="xsd:float"></xsd:restriction> </xsd:simpleType> </xsd:element></pre> |
| F8 | Floating point (large) | float | <pre><xsd:element ↵ name="<i>name</i>" form="unqualified"> <xsd:simpleType> <xsd:restriction ↵ base="xsd:double"></xsd:restriction> </xsd:simpleType> </xsd:element></pre> |

| IDL Data Type | Description | XMM | XSD |
|----------------|-----------------------|---------|---|
| I1 | Integer (small) | integer | <pre><xsd:element name="name" form="unqualified"> <xsd:simpleType> <xsd:restriction base="xsd:byte"> <xsd:totalDigits value="3"/> <xsd:fractionDigits value="0"/> </xsd:restriction> </xsd:simpleType> </xsd:element></pre> |
| I2 | Integer (medium) | integer | <pre><xsd:element name=" name" ← form="unqualified"> <xsd:simpleType> <xsd:restriction base="xsd:short"> <xsd:totalDigits value="5"/> <xsd:fractionDigits value="0"/> </xsd:restriction> </xsd:simpleType> </xsd:element></pre> |
| I4 | Integer (large) | integer | <pre><xsd:element name=" name" ← form="unqualified"> <xsd:simpleType> <xsd:restriction base="xsd:int"> <xsd:totalDigits value="10"/> <xsd:fractionDigits value="0"/> </xsd:restriction> </xsd:simpleType> </xsd:element></pre> |
| <i>Knumber</i> | Kanji | string | <pre><xsd:element name=" name" ← form="unqualified"> <xsd:simpleType> <xsd:restriction base="xsd:string"> <xsd:maxLength value="number"/> </xsd:restriction> </xsd:simpleType> </xsd:element></pre> |
| KV | Kanji variable length | string | <pre><xsd:element name=" name" ← form="unqualified"> <xsd:simpleType> <xsd:restriction ← base="xsd:string"></xsd:restriction> </xsd:simpleType> </xsd:element></pre> |

| IDL Data Type | Description | XMM | XSD |
|---------------------------------------|---|---------|--|
| KV[<i>number</i>] | Kanji variable length with maximum length | string | <pre><xsd:element name="name" ↵ form="unqualified"> <xsd:simpleType> <xsd:restriction base="xsd:string"> <xsd:maxLength value="number"/> </xsd:restriction> </xsd:simpleType> </xsd:element></pre> |
| L | Logical | boolean | <pre><xsd:element name="name" form="unqualified"> <xsd:simpleType> <xsd:restriction ↵ base="xsd:boolean"></xsd:restriction> </xsd:simpleType> </xsd:element></pre> |
| N <i>number1</i> [. <i>number2</i>] | Unpacked decimal | numeric | <pre><xsd:element name="name" form="unqualified"> <xsd:simpleType> <xsd:restriction base="xsd:decimal"> <xsd:totalDigits value="number1 ↵ + number2"/> <xsd:fractionDigits value="number2"/> </xsd:restriction> </xsd:simpleType> </xsd:element></pre> <p>Note: default of <i>number2</i> is 0.</p> |
| NU <i>number1</i> [. <i>number2</i>] | Unpacked decimal unsigned | numeric | <pre><xsd:element name="name" form="unqualified"> <xsd:simpleType> <xsd:restriction base="xsd:decimal"> <xsd:totalDigits value="number1 ↵ + number2"/> <xsd:fractionDigits value="number2"/> </xsd:restriction> </xsd:simpleType> </xsd:element></pre> <p>Note: default of <i>number2</i> is 0.</p> |
| P <i>number1</i> [. <i>number2</i>] | Packed decimal | numeric | <pre><xsd:element name="name" form="unqualified"> <xsd:simpleType> <xsd:restriction base="xsd:decimal"> <xsd:totalDigits value="number1 ↵ + number2"/> <xsd:fractionDigits value="number2"/> </xsd:restriction> </xsd:simpleType> </xsd:element></pre> <p>Note: default of <i>number2</i> is 0.</p> |

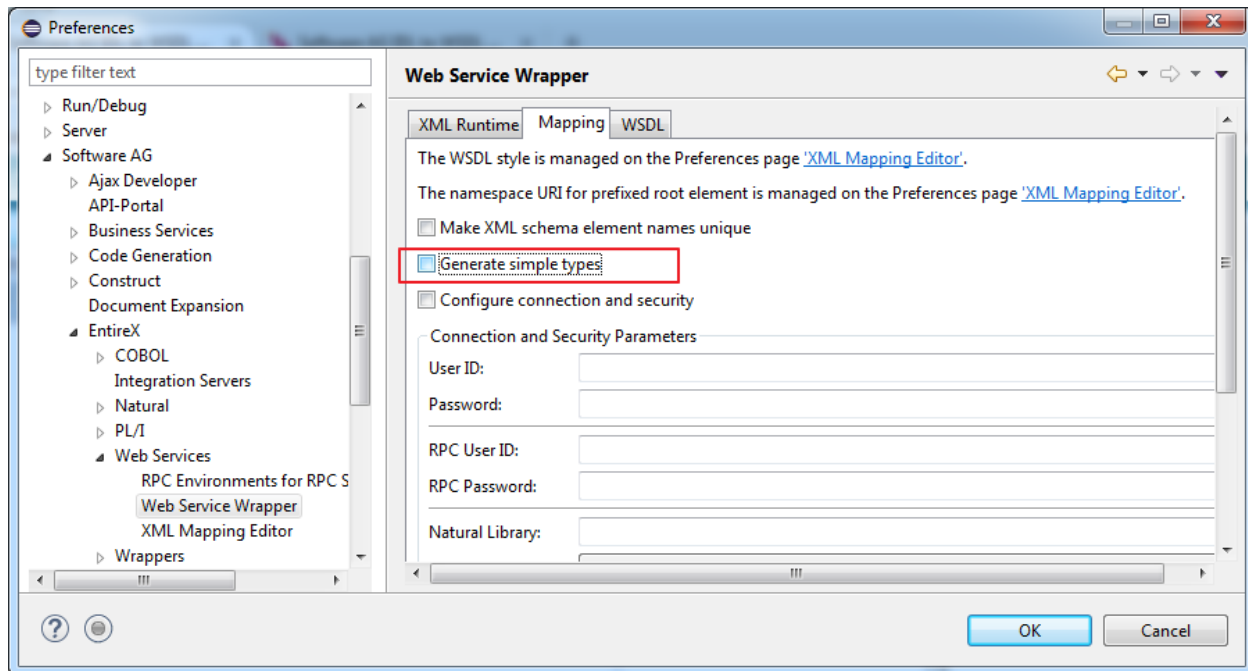
| IDL Data Type | Description | XMM | XSD |
|----------------------------------|---|-------------------------------|--|
| <code>PUnumber1[.number2]</code> | Packed decimal unsigned | numeric | <pre><xsd:element name="name" form="unqualified"> <xsd:simpleType> <xsd:restriction base="xsd:decimal"> <xsd:totalDigits value="number1 ← + number2" /> <xsd:fractionDigits value="number2" /> </xsd:restriction> </xsd:simpleType> </xsd:element></pre> <p>Note: default of <i>number2</i> is 0.</p> |
| <code>T</code> | Time | dateTime:yyyy-MM-dd'T'H:mm:ss | <pre><xsd:element name="name" form="unqualified"> <xsd:simpleType> <xsd:restriction ← base="xsd:dateTime"></xsd:restriction> </xsd:simpleType> </xsd:element></pre> |
| <code>Unumber</code> | Unicode | unicode | <pre><xsd:element name="name" form="unqualified"> <xsd:simpleType> <xsd:restriction base="xsd:string"> <xsd:maxLength value="number" /> </xsd:restriction> </xsd:simpleType> </xsd:element></pre> |
| <code>UV</code> | Unicode variable length | unicode | <pre><xsd:element ← name="name" form="unqualified"> <xsd:simpleType> <xsd:restriction ← base="xsd:string"></xsd:restriction> </xsd:simpleType> </xsd:element></pre> |
| <code>UVnumber</code> | Unicode variable length with maximum length | unicode | <pre><xsd:element name="name" form="unqualified"> <xsd:simpleType> <xsd:restriction base="xsd:string"> <xsd:maxLength value="number" /> </xsd:restriction> </xsd:simpleType> </xsd:element></pre> |

7 Software AG IDL to WSDL Mapping

- Mapping IDL Data Types to WSDL Data Types 70
- Default Namespace 75
- Min/Max Occurrence 77
- Default Service Name 77

Mapping IDL Data Types to WSDL Data Types

The generation of WSDL depends on the option **Generate simple types** under **Preferences > Software AG > EntireX > Web Services > Web Service Wrapper > Mapping**.



- If **Generate simple types** is *checked*, the description is extended by `xsd:simpleType` definition if more detailed information such as length or format is available for an element.
- If this option is *not checked*, an element is represented with name and type; no further information is available.

In the table below, the following metasympols and informal terms are used for the IDL.

- The metasympols "[" and "]" enclose optional lexical entities.
- The informal term *number* (or in some cases *number1.number2*) is a sequence of numeric characters, for example 123.

| IDL Data Type | Description | XMM | WSDL (Generate simple types Checked) | WSDL (Generate simple types not Checked) |
|---------------------|---|--------|--|---|
| <i>Anumber</i> | Alpha-numeric | string | <pre><xsd:element name="name"> <xsd:simpleType> <xsd:restriction ↵ base="xsd:string"> <xsd:maxLength ↵ value="number"/> </xsd:restriction> </xsd:simpleType> </xsd:element></pre> | <pre><xsd:element name="name" type="xsd:string"/></pre> |
| AV | Alpha-numeric variable length | string | <pre><xsd:element name="name" type="xsd:string"/></pre> | <pre><xsd:element name="name" type="xsd:string"/></pre> |
| AV[<i>number</i>] | Alpha-numeric variable length with maximum length | string | <pre><xsd:element name="name"> <xsd:simpleType> <xsd:restriction ↵ base="xsd:string"> <xsd:maxLength value=" ↵ number "/> </xsd:restriction> </xsd:simpleType> </xsd:element></pre> | <pre><xsd:element name="name" type="xsd:string"/></pre> |
| <i>Bnumber</i> | Binary | binary | <pre><xsd:element name="name"> <xsd:simpleType> <xsd:restriction ↵ base="xsd:base64Binary"> <xsd:length ↵ value="base64Length"/> </xsd:restriction> </xsd:simpleType> </xsd:element></pre> <p>Note: $base64Length = 4 * \text{rounded up}(number / 3)$</p> | <pre><xsd:element name="name" type="xsd:base64Binary"/></pre> |
| BV | Binary variable length | binary | <pre><xsd:element name="name" type="xsd:base64Binary"/></pre> | <pre><xsd:element name="name" type="xsd:base64Binary"/></pre> |
| BV[<i>number</i>] | Binary variable length with maximum length | binary | <pre><xsd:element name="name"> <xsd:simpleType> <xsd:restriction ↵ base="xsd:base64Binary"> <xsd:maxLength ↵ value="base64Length"/> </xsd:restriction></pre> | <pre><xsd:element name="name" type="xsd:base64Binary"/></pre> |

| IDL Data Type | Description | XMM | WSDL (Generate simple types Checked) | WSDL (Generate simple types not Checked) |
|----------------|------------------------|-----------------|--|---|
| | | | <pre></xsd:simpleType> </xsd:element></pre> <p>Note: $base64Length = 4 * \text{rounded up}(number / 3)$</p> | |
| D | Date | date:yyyy-MM-dd | <pre><xsd:element name="name"> <xsd:simpleType> <xsd:restriction base="xsd:date"> <xsd:pattern value="[0-9]{4}- ↵ ((0[1-9]) (1[012]))-((0[1-9]) ([12][0-9]) (3[01]))"/> </xsd:restriction> </xsd:simpleType> </xsd:element></pre> | <pre><xsd:element name="name" type="xsd:date"/></pre> |
| F4 | Floating point (small) | float | <pre><xsd:element name="name" type="xsd:float"/></pre> | <pre><xsd:element name="name" type="xsd:float"/></pre> |
| F8 | Floating point (large) | float | <pre><xsd:element name="name" type="xsd:double"/></pre> | <pre><xsd:element name="name" type="xsd:double"/></pre> |
| I1 | Integer (small) | integer | <pre><xsd:element name="name" type="xsd:byte"/></pre> | <pre><xsd:element name="name" type="xsd:byte"/></pre> |
| I2 | Integer (medium) | integer | <pre><xsd:element name="name" type="xsd:short"/></pre> | <pre><xsd:element name="name" type="xsd:short"/></pre> |
| I4 | Integer (large) | integer | <pre><xsd:element name="name" type="xsd:int"/></pre> | <pre><xsd:element name="name" type="xsd:int"/></pre> |
| <i>Knumber</i> | Kanji | string | <pre><xsd:element name="name"> <xsd:simpleType> <xsd:restriction base="xsd:string"> <xsd:maxLength value="number"/> </xsd:restriction> </xsd:simpleType> </xsd:element></pre> | <pre><xsd:element name="name" type="xsd:string"/></pre> |

| IDL Data Type | Description | XMM | WSDL (Generate simple types Checked) | WSDL (Generate simple types not Checked) |
|---------------------------------------|---|---------|--|--|
| KV | Kanji variable length | string | <code><xsd:element name="name" type="xsd:string"/></code> | <code><xsd:element name="name" type="xsd:string"/></code> |
| KV[<i>number</i>] | Kanji variable length with maximum length | string | <code><xsd:element name="name"> <xsd:simpleType> <xsd:restriction ↵ base="xsd:string"> <xsd:maxLength ↵ value="<i>number</i>" /> </xsd:restriction> </xsd:simpleType> </xsd:element></code> | <code><xsd:element name="name" type="xsd:string"/></code> |
| L | Logical | boolean | <code><xsd:element name="name" type="xsd:boolean"/></code> | <code><xsd:element name="name" type="xsd:boolean"/></code> |
| N <i>number1</i> [. <i>number2</i>] | Unpacked decimal | numeric | <code><xsd:element name="name"> <xsd:simpleType> <xsd:restriction ↵ base="xsd:decimal"> <xsd:totalDigits ↵ value="<i>number1</i> + <i>number2</i>" /> <xsd:fractionDigits ↵ value="<i>number2</i>" /> </xsd:restriction> </xsd:simpleType> </xsd:element></code> Note: default of <i>number2</i> is 0. | <code><xsd:element name="name" type="xsd:decimal"/></code> |
| NU <i>number1</i> [. <i>number2</i>] | Unpacked decimal unsigned | numeric | <code><xsd:element name="name"> <xsd:simpleType> <xsd:restriction ↵ base="xsd:decimal"> <xsd:totalDigits ↵ value="<i>number1</i> + <i>number2</i>" /> <xsd:fractionDigits ↵ value="<i>number2</i>" /> </xsd:restriction> </xsd:simpleType> </xsd:element></code> Note: default of <i>number2</i> is 0. | <code><xsd:element name="name" type="xsd:decimal"/></code> |

| IDL Data Type | Description | XMM | WSDL (Generate simple types Checked) | WSDL (Generate simple types not Checked) |
|---|-------------------------|---|---|---|
| <i>P</i> <i>number1</i> [. <i>number2</i>] | Packed decimal | numeric | <pre><xsd:element name="name"> <xsd:simpleType> <xsd:restriction ↵ base="xsd:decimal"> <xsd:totalDigits ↵ value="number1 + number2"/> <xsd:fractionDigits ↵ value="number2"/> </xsd:restriction> </xsd:simpleType> </xsd:element></pre> <p>Note: default of <i>number2</i> is 0.</p> | <pre><xsd:element name="name" type="xsd:decimal"/></pre> |
| <i>PU</i> <i>number1</i> [. <i>number2</i>] | Packed decimal unsigned | numeric | <pre><xsd:element name="name"> <xsd:simpleType> <xsd:restriction ↵ base="xsd:decimal"> <xsd:totalDigits ↵ value="number1 + number2"/> <xsd:fractionDigits ↵ value="number2"/> </xsd:restriction> </xsd:simpleType> </xsd:element></pre> <p>Note: default of <i>number2</i> is 0.</p> | <pre><xsd:element name="name" type="xsd:decimal"/></pre> |
| <i>T</i> | Time | dateTime :yyyy- MM-dd 'T'H:mm:ss | <pre><xsd:element name="name"> <xsd:simpleType> <xsd:restriction ↵ base="xsd:dateTime"> <xsd:pattern ↵ value="[0-9]{4}-((0[1-9] (1[012]))-(0[1-9] ↵ ([12][0-9]) (3[01]))T((0[1][0-9] (2[0-3]))(:[0-5][0-9]) ↵ {2})"/> </xsd:restriction> </xsd:simpleType> </xsd:element></pre> | <pre><xsd:element name="name" type="xsd:dateTime"/></pre> |

| IDL Data Type | Description | XMM | WSDL (Generate simple types Checked) | WSDL (Generate simple types not Checked) |
|-----------------|---|---------|---|---|
| <i>Unumber</i> | Unicode | unicode | <pre><xsd:element name="name"> <xsd:simpleType> <xsd:restriction ↵ base="xsd:string"> <xsd:maxLength ↵ value="number"/> </xsd:restriction> </xsd:simpleType> </xsd:element></pre> | <pre><xsd:element name="name" type="xsd:string"/></pre> |
| UV | Unicode variable length | unicode | <pre><xsd:element name="name" type="xsd:string"/></pre> | <pre><xsd:element name="name" type="xsd:string"/></pre> |
| <i>UVnumber</i> | Unicode variable length with maximum length | unicode | <pre><xsd:element name="name"> <xsd:simpleType> <xsd:restriction ↵ base="xsd:string"> <xsd:maxLength ↵ value="number"/> </xsd:restriction> </xsd:simpleType> </xsd:element></pre> | <pre><xsd:element name="name" type="xsd:string"/></pre> |

Default Namespace

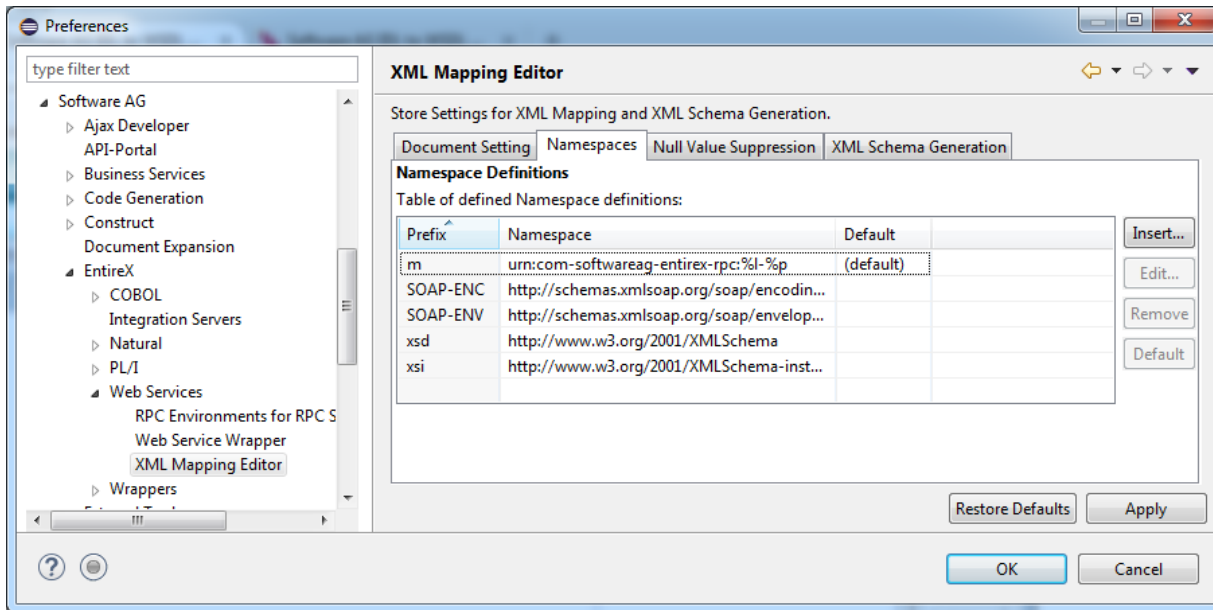
The Default Namespace used by Web Services Wrapper and the XML Mapping Editor is set to “urn:com-softwareag-entirex-rpc:%l-%p”,

where %l is replaced by the IDL library name, and

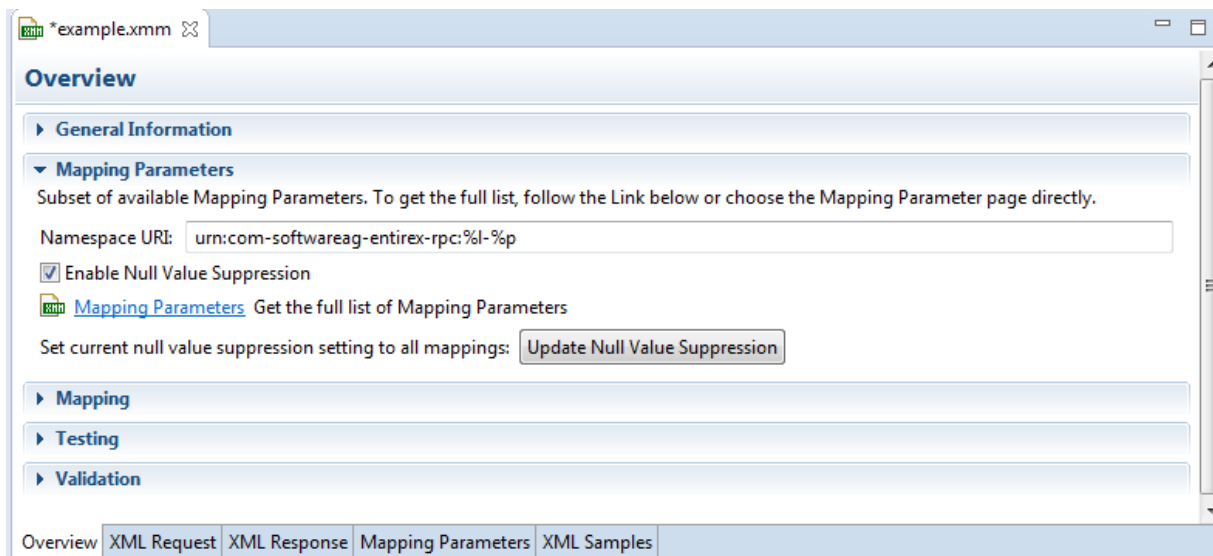
%p is replaced by the IDL program name

If another namespace is required

- Change the setting on **Preferences** page of XML Mapping Editor.



- Change the setting on tab **Overview** in the XML Mapping Editor before generating the XML Mapping File or creating the web service.



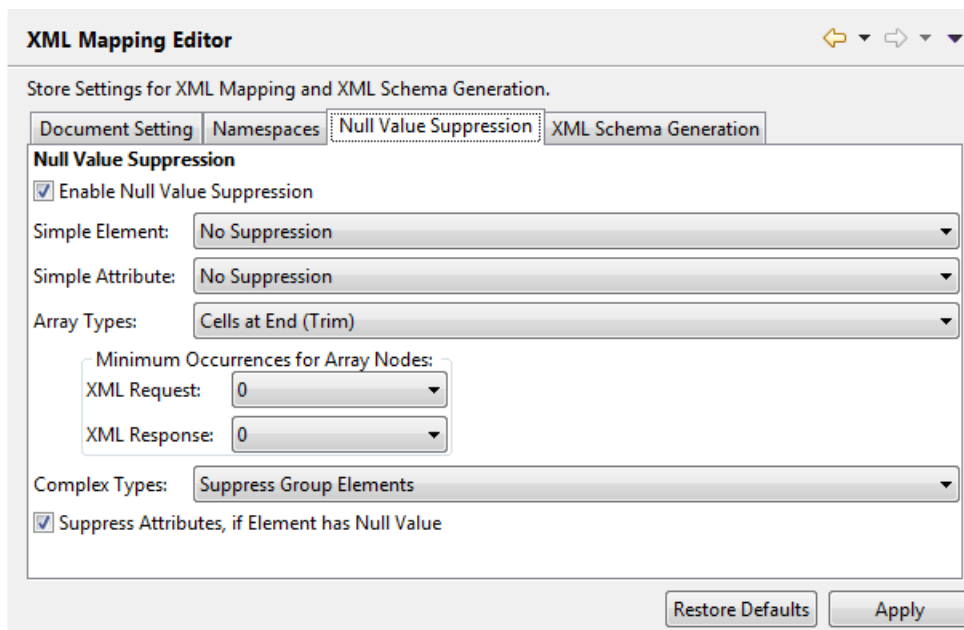
Min/Max Occurrence

minOccurs/maxOccurs in WSDL

The attributes for `minOccurs` and `maxOccurs` are only present in WSDL if the value is not the default value (default = 1). This means that for disabled null value suppression, the attribute `minOccurs` does not appear in WSDL.

minOccurs/maxOccurs for Arrays

The value of `minOccurs` is set to zero (by default) for request and response if null value suppression for arrays is disabled (= "No Suppression"). You can change this setting globally in the **Preferences**.



The screenshot shows the 'XML Mapping Editor' window with the 'Null Value Suppression' tab selected. The window title is 'XML Mapping Editor' and it contains a subtitle 'Store Settings for XML Mapping and XML Schema Generation.' Below the subtitle are four tabs: 'Document Setting', 'Namespaces', 'Null Value Suppression', and 'XML Schema Generation'. The 'Null Value Suppression' tab is active and contains the following settings:

- Enable Null Value Suppression
- Simple Element: No Suppression
- Simple Attribute: No Suppression
- Array Types: Cells at End (Trim)
- Minimum Occurrences for Array Nodes:
 - XML Request: 0
 - XML Response: 0
- Complex Types: Suppress Group Elements
- Suppress Attributes, if Element has Null Value

At the bottom right of the window are two buttons: 'Restore Defaults' and 'Apply'.

Default Service Name

The default of service name is IDL file name. The service name can be changed in the Web Services Wrapper Wizard.

