StreamServe Persuasion SP5 XMLOUT

User Guide

Rev A

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About XMLOUT

The StreamServer can produce XML output, and send this output to some kind of destination. The contents and structure of the XML output is configured using the XMLOUT tool.

Templates

When you create the XMLOUT configuration, you can use DTDs or XML documents as templates. See *XML document templates* on page 7.

Output configuration

When you create an XMLOUT configuration, you define an XML structure to which you map blocks and fields defined in the corresponding Event configuration. See *Configuring XML formatted output* on page 13.

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About XMLOUT

XML document templates

When you create an XMLOUT configuration, you can use the following types of templates:

- **External DTDs**. Load an external DTD to the XMLOUT tool, and display all elements and attributes in the Templates view. You create the XML document structure by dragging element by element from the template to the Process view.

- **Internal DTD subsets**. You create the internal DTD subset from the XMLOUT tool. The DTD subset is included in the XML document prolog, and its elements and attributes are displayed in the Templates view. You create the XML document structure by dragging element by element from the template to the Process view.

- **XML documents**. Load the XML document to the XMLOUT tool, and display all elements and attributes in the Templates view. You create the XML document structure by dragging the root element to the Document node in the Process view. The whole structure is imported from the template, and you must manually delete all unnecessary nodes from the Process view. You can use an existing XML document, or use the XMLOUT tool to generate an XML document based on an external DTD, an internal DTD subset, or an XSD (XML schema). See *Generating XML document templates from DTDs and XSDs* on page 8.

Resources

External DTSs, XSDs, and XML document templates are all resources that you load to the XMLOUT tool. Before you load a resource, you must import the corresponding file to a resource set connected to the corresponding Message.

To load an XML document template

1   In the Process view, right-click the Resources folder and select **Import XML File**. The Select Resource dialog box opens.

2   Browse to the sample folder and select the resource.

3   The template is added to the Resources folder and the Templates view.

To load a DTD | XSD

1   In the Process view, right-click the Resources folder and select **Load DTD as resource** | **Load DTD as resource**. The Select Resource dialog box opens.

2   Browse to the sample folder and select the resource.

3   The template is added to the Resources folder and the Templates view.

To create an internal DTD subset

1 In the Process view, right-click the **Prolog** node and select **Edit Internal DTD**. The Edit Internal DTD dialog box opens.

2 Edit the DTD and click **Validate** to check if it follows the general DTD syntax.

3 Click **OK**.

4 The DTD is added to the Prolog node, and a template is added to the Templates view.

Generating XML document templates from DTDs and XSDs

If you have the appropriate DTD/XSD, you can use the XMLOUT tool to generate a template based on the DTD/XSD.

Methods

You can use two methods to generate an XML document template based on a DTD/XSD:

• **Manually – typical**. With this method, you can specify the number of instances and recursion level for the elements. What you specify here applies to all elements. You can also specify which element is the root element, and where to store the temporary file. See *Typical configuration* on page 9.

• **Manually – custom**. With this method, you can customize the number of instances and recursion level per element. You can also specify which element is the root element, and where to store the temporary file. See *Custom configuration* on page 10.

Recursion level and Number of instances

The DTD/XSD contains information about the number of allowed instances of an element type within another element type. This information does not explicitly say "five type A elements, ten type B elements" etc. Instead it says "one type A element, one or more type B elements, zero or more type C elements" etc. If no more information were provided, the XMLOUT tool would not know when to stop generating the XML template. To know when to stop, the XMLOUT tool needs the following input:

• **Recursion level** – specifies how many instances of itself an element type can contain. See *Recursion level*.

• **Number of instances** – specifies how many instances of other element types an element type can contain. See *Number of instances*.

Example 1   *Recursion level*

This DTD example illustrates how many instances of itself the `<article>` element can contain when Recursion level is set to 1 and 2.

Element declaration
`<!ELEMENT article (description)>` `<!ELEMENT description (article?)>`

Recursion level 1	Recursion level 2

`<article>`
  `<description>`
    `<article/>`
  `</description>`
	`<article>`
	  `<description>`
	    `<article>`
	      `<description>`
	        `<article>`
	      `</description>`

Example 2   *Number of instances*

This DTD example illustrates how many instances of the `<description>` element the `<article>` element can contain when Number of instances is set to 1 and 3.

Element declaration
`<!ELEMENT article (description*)>` `<!ELEMENT description (article?)>`

1 instance	3 instances

`<article>`
  `<description/>`
`</article>`
	`<article>`
	  `<description/>`
	  `<description/>`
	  `<description/>`
	`</article>`

Typical configuration

With this method, you can specify the number of instances and recursion level for the elements. What you specify here applies to all elements. The generated template will include all possible combinations of the elements declared in the DTD/XSD.

To generate and load the template

1   In the Resources folder, right-click the DTD | XSD and select **Autogenerate XML Document**. The XML Builder – Settings dialog box opens.

2   Select **Typical**, configure the settings, and click **OK**. The XML document template is loaded.

Settings	
Number of instances	Defaults to 1. You can increase the number.

Settings	
Recursion level	Defaults to 1. You can increase the number.
Document element	Defaults to the element that is most likely to be the root element.
XML result file	Path to the result file (generated template).

Custom configuration

With this method, you can customize the number of instances and recursion level for each element.

The generated template will, by default, include the elements that are unambiguously declared in the DTD/XSD. You must insert all other elements manually.

XML Builder initial settings	
Document element	Defaults to the element that is most likely to be the root element.
XML result file	Path to the result file (generated template).

To generate and load the template

1   In the Resources folder, right-click the DTD/XSD and select **Autogenerate XML Document**. The XML Builder – Settings dialog box opens.

2   Select **Custom**.

3   Specify the **Document element** (root element) and click **OK**. The XML Builder – Add Element Children dialog box opens.

4   For each active element, you can add new sub-elements. See *Figure 1* on page 11. Click **OK** to continue with the next element in turn.

5   When you have reached the last element, and clicked **OK**, a preview of the final XML document template is displayed in the XML Builder – Result Tree dialog box. You can edit the attribute values.

6   Click **OK**. The XML document template is generated and loaded.
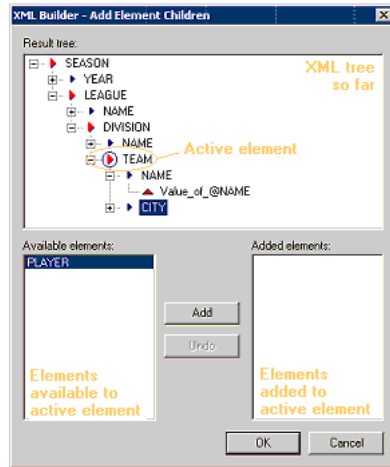
Figure 1   Add element children

Configuring XML formatted output

You use the XMLOUT tool to configure the contents and structure of XML formatted output from the StreamServer. With the XMLOUT tool, you can configure the following:

- **Indentation, empty elements, and escape sequences**
  The XML structure in the output will by default be automatically indented, and empty elements will be displayed as `</element>`. Characters `<`, `>`, etc. will by default be substituted with numeric sequences. To change the default settings, you must select **Tools** > **Options** and edit the options. See *Options dialog box* on page 33.

- **The XML structure**
  Create the structure of elements, attributes, text nodes, processing instructions, etc.

- **Blocks**
  Recurring data is defined as fields within blocks in the Event configuration. The block and field configuration defined in the Event tool are available in a separate Event view in the XMLOUT tool. In the XMLOUT tool, you drag the blocks from the Event view, and drop them on the appropriate element in the Process view. See *Adding blocks* on page 22.

- **Text nodes**
  A text node is either a variable, static text, or field. You can add text nodes to elements, attributes, etc. See *Adding text nodes* on page 23.

- **Free blocks**
  Free blocks can be added before the first instance of a main block, after the last instance of a main block, or be invoked using the *CallBlock* scripting function. See *Free blocks* on page 27.

- **Sort criteria for blocks**
  For each block defined in the XMLOUT tool, you can specify one or more sort keys. When the StreamServer processes the data, it will sort the blocks according to the sort keys. See *Sorting* on page 29.

- **Output format for fields and variables**
  You can specify which format to use for the output from fields and variables. See *Output format for fields and variables* on page 28.

Example: creating an XMLOUT configuration

In this example, you have the Event configuration in *Example 3*, and want the StreamServer to generate output according to *Example 4*.

Example 3   *Event configuration*
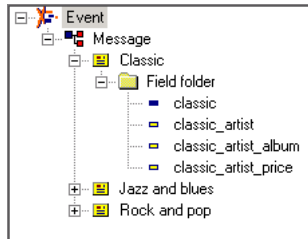
Example 4   *Sample output*

```
<?xml version="1.0"?>
<!DOCTYPE Document [
<!ELEMENT Document (#PCDATA|Element_label|Element_artist)*>
<!ELEMENT Element_label (#PCDATA)>
<!ELEMENT Element_artist (#PCDATA|Element_album|Element_price)*>
<!ELEMENT Element_album (#PCDATA)>
<!ELEMENT Element_price (#PCDATA)>]>
<Document>
  <Element_label>CLASSIC MUSIC</Element_label>
  <Element_artist>Brahms
    <Element_album>Symphonie A</Element_album>
    <Element_price>25</Element_price>
  </Element_artist>
  <Element_label>JAZZ AND BLUES</Element_label>
  <Element_artist>Gillespie
    <Element_album>Jabbadabba</Element_album>
    <Element_price>44</Element_price>
  </Element_artist>
  <Element_label>ROCK AND POP</Element_label>
  <Element_artist>Sting
    <Element_album>Save the jungle</Element_album>
    <Element_price>23</Element_price>
  </Element_artist>
</Document>
```

Configuring the prolog

The figure below illustrates where in the XMLOUT configuration you specify the XML header, and the internal DTD subset used in this example.

```
                                <?xml version="1.0"?>

⊟──◻▸ Prolog
   │──▨ XML header:            <!DOCTYPE Document [
   └──▨ Internal DTD Subset    <!ELEMENT Document (#PCDATA|Element_label|Element_artist)*>
                               <!ELEMENT Element_label (#PCDATA)>
                               <!ELEMENT Element_artist (#PCDATA|Element_album|Element_price)*>
                               <!ELEMENT Element_album (#PCDATA)>
                               <!ELEMENT Element_price (#PCDATA)>]>
```
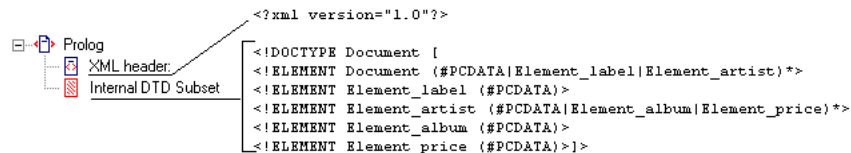
Configure the XML header

1   Select the XML Header item. The corresponding settings are displayed in the Properties view.

2   Keep the settings.

Property	Value
Label	XML header:
Description	
XML version	1.0
XML encoding	
Standalone	
Item type	Element

Add the internal DTD subset

1 Right-click the Prolog item and select **Edit Internal DTD**. The Edit Internal DTD dialog box opens.

2 Enter the DTD subset shown below, click **Validate** and **OK**. The internal DTD subset is added as an item below the Prolog item, and as a template to the Templates view.

```
<!ELEMENT Document (#PCDATA|Element_label|Element_artist)*>
<!ELEMENT Element_label (#PCDATA)>
<!ELEMENT Element_artist (#PCDATA|Element_album|Element_price)*>
<!ELEMENT Element_album (#PCDATA)>
<!ELEMENT Element_price (#PCDATA)>]>
```

Configuring the document

You first add the blocks from the Message immediately below the root element. You then use the internal DTD subset as a template to add elements to the XML tree. Finally, when the XML tree is complete, you add fields and static text to the elements.

Add the blocks

1 Drag the **Classic** block from the Event view, and drop it on the **Document** node in the Process view. The Classic block is added, within a block container, below the Document node.

2 Do the same with the **Jazz and blues** and **Rock and pop** blocks.
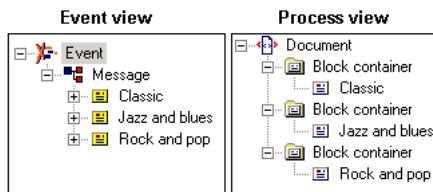
Add the elements

The steps below describe how to add elements to, and above, the Classic block container. The same steps apply to the other blocks.

1 Expand all block container nodes.

2 Right-click **Element_label** in the Template view, drag it to the `Classic` block container, and release the mouse button. A shortcut menu opens.

3 Select **Copy Item above Selection**. `Element_label` is added above the `Classic` block container.

4 Right-click the **Classic** block and select **Add** > **Element**. A new element is added to the `Classic` block.

5 Right-click **Element_artist** in the Template view, drag it to the new element, and release the mouse button. A shortcut menu opens.

6 Select **Replace This Item**. `Element_artist` is added to the `Classic` block.

7 Drag **Element_album** from the Template view and drop it on `Element_artist`. `Element_album` is added as a sub node to `Element_artist`.

8 Drag **Element_price** from the Template view and drop it on `Element_artist`. `Element_album` is added as a sub node to `Element_artist`.
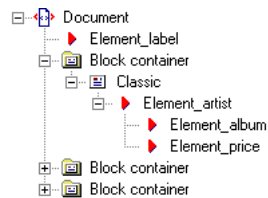
Add the fields and static text

The steps below describe how to add fields to elements in the `Classic` block and static text to `Element_label` above the `Classic` block container. The same steps also apply to the two other blocks.

1 Right-click **Element_label** and select **Add** > **Static Text**. A Static Text node is added to `Element_label`.

2 In the **Label** field for the Static Text node, enter `CLASSIC MUSIC`.

3 In the Event view, right-click the field **Classic_artist**, drag it to **Element_album**, and release the mouse button. A shortcut menu opens.

4 Select **Copy Item above Selection**. The field is added above `Element_album`.

5 Drag the field **Classic_artist_album** from the Event view and drop it on **Element_album**. The field is added into `Element_album`.

6 Drag the field **Classic_artist_price** from the Event view and drop it on **Element_price**. The field is added into `Element_price`.
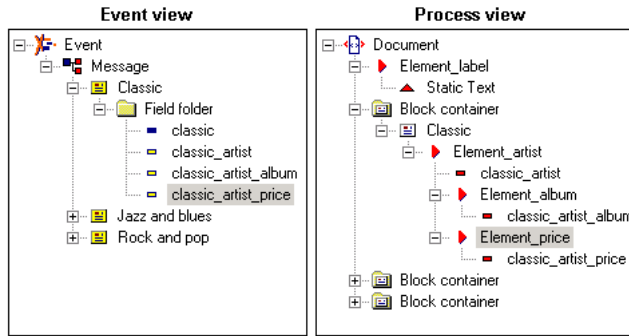
Prolog configuration

The prolog can contain XML and `<!DOCTYPE...>` declarations, comments, and processing instructions.

XML declaration

Select the XML Header item and configure the properties. See *XML header* on page 39.

DOCTYPE declaration

You can use external DTDs, internal DTD subsets, and a combination of both in the `<!DOCTYPE...>` declaration.

Declaring an external DTD

You can define an external DTD in two ways:

- Specify the path to the DTD.
- Specify the path to the DTD, and load the DTD as a template. The template resource must be available in a Resource Set connected to the Message.

To specify path only

1   Right-click the Prolog item and select **Define External DTD**. The external DTD is added as an item below the Prolog item.

2   In the Properties view, specify the settings. See *External DTD* on page 39.

To specify path and load template

1   Right-click the Prolog item and select **Import External DTD**. The Select Resource dialog box opens.

2   Browse to, and select, the DTD resource. The DTD is added as an item below the Prolog item, and as a template to the Templates view.

3   In the Properties view, specify the settings. See *External DTD* on page 39.

Declaring an internal DTD subset

1   Right-click the Prolog item and select **Edit Internal DTD**. The Edit Internal DTD dialog box opens.

2   Enter the DTD subset shown below, click **Validate** and **OK**. The internal DTD subset is added as an item below the Prolog item, and as a template to the Templates view.

Comments in the prolog

To add a comment

Right-click the Prolog item and select **Add** > **Comment**. The new comment is added.

To configure a comment

Configure the comment according to *Comment* on page 41.

Processing instructions in the prolog

To add a processing instruction

Right-click the Prolog item and select **Add** > **Processing Instruction**. The new processing instruction is added.

To configure a processing instruction

Configure the processing instruction according to *Processing instruction* on page 42.

Document configuration

If you have templates, you can create the XML structure by dragging nodes from the Templates view to the Process view. You can also add nodes manually by right-clicking existing nodes in the Process view and selecting **Add** > *node*.

To configure the document using a DTD template

1   In the Templates view, expand the DTD.

2   Right-click the template root element, drag it to the **Document** node in the Process view, and release the mouse button. A shortcut menu opens.

3   In the shortcut menu, select **Replace this item**. The Document node is replaced by the template root element.

4   Continue to drag elements and attributes from the template, and drop them on the appropriate nodes in the Process view.

5   Drag the blocks from the Event view, and drop them on the appropriate elements in the Process view.

6   In each block, create the structure of element, attributes, etc.

7   Drag the fields from the Event view, and drop them on the appropriate nodes in the Process view.

To configure the document using an XML document template

1   In the Templates view, expand the XML document.

2   Right-click the template element you want to use as root element, drag it to the **Document** node in the Process view, and release the mouse button. A shortcut menu opens.

3   In the shortcut menu, select **Replace this item**. The Document node is replaced by the template root element and all its sub nodes.

4   Remove the nodes you do not need.

5   Drag the blocks from the Event view, and drop them on the appropriate elements in the Process view.

6   In each block, create the structure of element, attributes, etc.

7   Drag the fields from the Event view, and drop them on the appropriate nodes in the Process view.

Drag-and-drop options

If you drag-and-drop nodes using the left mouse button, the new node is inserted in the node where you drop it. If you use the right mouse button, you will get more options for inserting the new node – `replace existing`, `copy into`, `copy above`, `copy below`, and `cancel`.

Adding blocks

You can add blocks to the following items:

• Elements

• Block containers

To add a block

Drag the block from the Event view, and drop it on the appropriate element or block container in the Process view.

To configure a block

Configure the block according to *Block* on page 48.

Block container

Block containers in XMLOUT are equivalent to frames in PageOUT. When you drop a block on an element in the Process view, the block is automatically encapsulated in a block container. You can add several blocks to a block container, and you can add blocks to several block containers.

If you add several blocks to one block container, the order in which block data is delivered depends on the order in which data is received – and whether or not sorting is enabled in the Event configuration.

If you add the blocks to several block containers, block data from the first block container will be delivered first, data from the second block container next, and so on.

See *Block container* on page 48 for more information

XML structure in blocks

When you add a block to an element in the Process view, it does not contain anything. You must manually build the structure of elements, static text, etc. within each block. You can do this using shortcut menu commands. You can also drag nodes from a template, or from the surrounding XML structure.

Adding elements

You can add elements to the following items:

• Comments

• Elements

• Blocks

• Before first instance blocks

• After last instance blocks

• Free blocks

To add an element

Right-click the item and select **Add** > **Element**. The new element is added to the item.

To configure an element

Configure the element according to *Element* on page 44.

Adding attributes

You can add attributes to Element items.

To add an attribute

Right-click the element and select **Add** > **Attribute**. The new attribute is added to the element.

To configure an attribute

Configure the attribute according to *Attribute* on page 45.

Adding text nodes

A text node is either a variable, static text, or a field. You can add text nodes to the following items:

- Comments
- CDATA sections
- Elements
- Attributes
- Blocks
- Before first instance blocks
- After last instance blocks
- Free blocks

Adding variables

To add a new variable

Right-click the item and select **Add** > **Variable**. The new variable is added to the item.

To add a variable defined in the Event configuration

Drag the variable from the Event view, and drop it on the appropriate item in the Process view.

To configure a variable

Configure the variable according to *Variable* on page 46.

Adding static text

Right-click the item and select **Add** > **Static Text**. The static text node is added to the item.

To configure a static text node

Configure the static text node according to *Static text* on page 45.

Adding fields

Drag the field from the Event view, and drop it on the appropriate item in the Process view.

To configure a field

Configure the field according to *Field* on page 46.

Adding comments

You can add comments to the following items:

- Prolog
- Elements
- Blocks
- Before first instance blocks
- After last instance blocks
- Free blocks

To add a comment

Right-click the item and select **Add** > **Comment**. The new comment is added to the item.

To configure a comment

Configure the comment according to *Comment* on page 41.

Adding processing instructions

You can add processing instructions to the following items:

- Prolog
- Comment
- Elements

- Blocks
- Before first instance blocks
- After last instance blocks
- Free blocks

To add a processing instruction

Right-click the item and select **Add** > **Processing Instruction**. The new processing instruction is added to the item.

To configure a processing instruction

Configure the processing instruction according to *Processing instruction* on page 42.

Adding CDATA sections

You can add CDATA sections to the following items:

- Comment
- Elements
- Blocks
- Before first instance blocks
- After last instance blocks
- Free blocks

To add a CDATA section

Right-click the item and select **Add** > **CDATA Section**. The new CDATA section is added to the item.

To configure a CDATA section

Configure the CDATA section according to *CDATA section* on page 42.

Epilog configuration

The epilog can contain any information that is covered in the prolog except for `<!DOCTYPE...>` and XML declarations.

Comments in the epilog

To add a comment

Right-click the Epilog item and select **Add** > **Comment**. The new comment is added.

To configure a comment

Configure the comment according to *Comment* on page 41.

Processing instructions in the epilog

To add a processing instruction

Right-click the Epilog item, and select **Add** > **Processing Instruction**. The new processing instruction is added.

To configure a processing instruction

Configure the processing instruction according to *Processing instruction* on page 42.

Editing scripts before and after the epilog

1   Right-click the Epilog item, and select **Edit** > **Script Before | Script After**. The script editor opens.

2   Edit the script and click **OK**.

Free blocks

There are three types of free blocks:

- **Before First Instance Block**. This block will be added before the first instance of a main block, i.e. a block specified in the corresponding Event.

- **After Last Instance Block**. This block will be added after the last instance of a main block.

- **Free Block**. This block can be invoked using the *CallBlock* scripting function. See the *Scripting reference*.

Free block – CallBlock invoked

To add the block

Right-click the Free blocks folder and select **Add Free Block**. The new free block is added to the Free blocks folder.

To configure the block

Configure the free block according to *Free block* on page 51.

Before first instance block

To add the block

Right-click the main block and select **Add** > **Before First Instance Block**. The new free block is added to the main block.

To configure the block

Configure the free block according to *Before first instance block* on page 50.

After last instance block

To add the block

Right-click the main block and select **Add** > **After Last Instance Block**. The new free block is added to the main block.

To configure the block

Configure the free block according to *After last instance block* on page 50.

Output format for fields and variables

In the Event tool you can configure fields and variables to handle numeric or date formatted data. Which format to use is determined by the input data. In the XMLOUT tool, you can specify which format to use for the output from the corresponding field or variable. You can use the same format as specified in the Event tool, or you can select a new format.

For example, if the input is `02/08/12`, and you want to change this to `08.12.02` in the output, you must first specify the format `yy/mm/dd` in the Event tool. You then specify the new output format `mm.dd.yy`, in the XMLOUT tool.

Format tables

Numeric and date formats are made available through format tables. Before you specify any formats, you must add a format table to a resource set connected to the Message. You can import `Formats.txt` from

`<StreamServe installation>\Applications\StreamServer\<version>\Tools\Samples`

to the resource set.

The first time you specify a format, a resource selection dialog box opens. In this dialog box, you must browse to, and select, the format table you want to use. This table will be selected by default the next time you specify a format for any of the fields or variables in the XMLOUT configuration.

To select a new numeric | date format for a field or variable

1. In the Process view, select the field or variable. The properties are displayed in the Properties view.

2. In the **Output format** field, click the browse button. The Formats dialog box opens.

3. Select the **Numeric** | **Date** category.

4. Double-click the new **Format**.

Note: Do not use the Numeric formats `k` and `d`. They should only be used in the Event configuration.

To add a new format

In the Formats dialog box, in the **Format** field, enter the new format and click **Add**. You can also add new formats directly to the format table resource. See *Formats dialog box* on page 35.

Sorting

You can use sort keys to specify the order in which block data will be added to the output. If no sort keys are used, data will be added in the same order as specified in the Event configuration, i.e. in the same order as in the Message.

To specify sort keys for a block

1   In the Process view, right-click the block and select **Edit** > **Sort Criteria**. The Edit Sort Criteria dialog box opens.

2   Edit the sort criteria and click **OK**.

Syntax

`"<field>":"<type><order>"`

For example:

`"customer_name":"SA"`

`<type>` is either `S` (alpha-numeric) or `N` (numeric)

`<order>` is either `A` (ascending) or `D` (descending)

Multiple sort keys

Multiple sort keys are separated by spaces. Data will be sorted according to the first key. Block instances that equally fulfill the first sort will be sorted according to the next key, and so on.

Example 5   *Sort keys for the name and age fields*
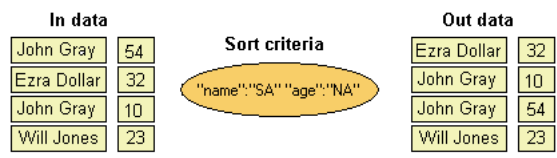
Unlinked blocks and fields

If a field or block is removed from the Event configuration, the corresponding fields in the XMLOUT configuration are not removed. Instead the links are broken.

Exporting data from unlinked fields

You can configure unlinked fields to be exported as variables, static text, or not at all. You can select **Tools** > **Default Unlinked Export** and set export options that apply to all unlinked fields. See *Set Unlinked Field Properties dialog box* on page 34.

You can also set the export settings separately for each field. See *Field* on page 46.

Deleting unlinked objects

You can delete the unlinked objects separately. You can also select **Tools** > **Delete all Unlinked Objects** to delete all unlinked objects at the same time.

XMLOUT tool GUI reference

Main window

The Main window contains five views:

- Event view

  This is the structure created in the corresponding Event tool. You can drag fields and blocks from this view to the Process view.

- Process view

  This is where you create the XMLOUT configuration.

- Template view

  This is where you display XML document templates, DTDs, and XSDs.

- Preview view

  This is where you preview the XML output.

- Properties view

  Select a node in the Process view, and configure the corresponding properties in the Properties view.

Menus and menu commands

File menu

New	Clear the existing XMLOUT configuration and start with a new Process view.
Open	Open an existing XMLOUT configuration. The XMLOUT configuration must have been saved as a `*.dxo` file.
Save	Save the XMLOUT configuration as data embedded in the corresponding Message file in the Design Center Project.
Save As	Save the XMLOUT configuration as a separate `*.dxo` file.
Exit	Exit the XMLOUT tool.

Edit menu

Standard Windows options.

View menu

Status Bar	Show/hide the status bar.
Event Browser	Show/hide the Event view.
Process Browser	Show/hide the Process view.
Toggle View Mode	The View Mode determines the display names for the fields in the Event view and Process view. You can toggle between the following modes: • Label • Description • Sample content
Toggle Operation Nodes	Show/hide operation nodes. Operation nodes can include scripts and sort key definitions.

Insert menu

Contains all available item types, i.e. fields, elements, etc., that you can add to the XMLOUT configuration.

Tools menu

Import Event	Applicable only when using the XMLOUT tool as a standalone application. Imports an Event configuration.
Link All Objects	Link all unlinked fields and blocks. Unlinked blocks and fields in the Process view will be linked to blocks and fields with the same name in the Event view.
Unlink object	Manually cut the link between a field in the Process view, and the corresponding field in the Event view.
Default unlinked export	Set export options that apply to all unlinked fields. See *Set Unlinked Field Properties dialog box* on page 34.
Delete all Unlinked Objects	Delete all unlinked objects at the same time.
Import External DTD	Add an eternal DTD to the `<!DOCTYPE...>` declaration and, at the same time, load the DTD as a template.

Define External DTD	Add an eternal DTD to the `<!DOCTYPE...>` declaration.
Load DTD as Resource	Load a DTD as a template.
Edit Internal DTD	Add an internal DTD subset to the `<!DOCTYPE...>` declaration and, at the same time, load the DTD as a template.
Load XSD as Resource	Load an XSD as a resource. From this XSD, you can generate an XML document template.
Import XML File	Load an XML document template.
Auto generate XML Document	Select a DTD or XSD in the Resource folder, and auto generate an XML document template.
Edit Script	Select an item in the Process view, and edit a before or after script.
Edit Sort Criteria	Select a block item in the Process view, and edit the sort keys for the block.
Preview Export	Preview the export from the XMLOUT tool.
Customize	Open the Customize dialog box. See *Customize dialog box* on page 34.
Options	Edit the settings for indentation, empty elements, and escape sequences. See *Options dialog box* on page 33.

Dialog boxes

Options dialog box

Settings	
Output format	Determines whether or not to indent the lines in the XML output.
	Auto Indent – Auto indent the lines. Decreases performance.
	Raw – Left align all lines.
	Stream – The output is a stream of data on a single line. High performance, but not suitable for the human eye.

Settings	
Empty element style	Determines how to display empty elements: `<element></element>` or `</element>`
Escape sequences	Determines the format of escape sequences for the following characters: `&`, `<`, `>`, `"`, `'`, and `´` **Use predefined entity** Use `&` etc. Some XML parsers require that the entities are declared in the DTD. If you do not select this option, the numeric sequences `&` etc. will be used instead. All XML parsers can understand numeric sequences. **Note:** Characters used in static text will not be substituted.

Set Unlinked Field Properties dialog box

Settings	
Do not export	Do not export the field.
Export as variable	Export the field as a variable. Do not use white spaces in the variable name. Do not enter the $-prefix.
Export as static text	Select to export the Label, Description, Sample Data, or a custom Text.

Customize dialog box

Toolbars tab

Turn toolbars on and off, turn tooltips on and off, and modify the appearance of the toolbars.

Commands tab

Display information about the toolbar buttons.

Formats dialog box

Settings	
Category	**General** – Data will be handled as a regular string of characters.
	Numeric – Data will be handled as numeric data. This category must have been specified for the field or variable in the Event configuration.
	Date – Data will be handled as date formatted data. This category must have been specified for the field or variable in the Event configuration.
Format	Select an existing format or add a new format. Do not use the numeric formats k and d. They should only be used in the Event configuration.
Select Resource	Browse to and select an alternative format resource.

Numeric format description	
Z	If the value of a leading or trailing digit is zero, the digit is replaced by a space, " ".
B	If the value of a leading or trailing digit is zero, the digit is removed.
9	The digit is always displayed.
#	A digit on either side of a decimal separator, or the last sign if no decimal separator exists. The digit is always displayed, except if the field value is zero (0 or 0.0 or similar).
Example	Z ZZZ ZZZ ZZ#,##

Date format description	
d	Day
m	Month
y	Year
Example	dd/mm/yyyy

XML Builder – Settings dialog box

Used for: Generating a template from a DTD/XSD.

Settings	
Mode	**Typical** – Generate a typical XML document. This document will contain all possible combinations specified in the DTD/XSD.
	Custom – Generate a custom XML document. See *Generating XML document templates from DTDs and XSDs* on page 8.
Number of instances	The number of instances of other element types an element type can contain. See *Generating XML document templates from DTDs and XSDs* on page 8.
Recursion level	The number of instances of itself an element type can contain. See *Generating XML document templates from DTDs and XSDs* on page 8.
Document element	The root element in the generated template.
XML result file	The location of the temporary file for the template. If you want to keep the generated template, you can import it as a resource to the appropriate Resource Set, and later load it to the XMLOUT tool.

XML Builder – Add Element Children dialog box

Used for specifying which elements to include in a customized sample.

XML Builder – Result Tree

Used for displaying a preview of the final XML document sample. You can edit the attribute values.

Event view

This is the structure created in the corresponding Event tool. You can drag fields and blocks from this view to the Process view.

Process view

This is where you create the XMLOUT configuration.

Prolog

The prolog can contain XML and `<!DOCTYPE...>` declarations, comments, and processing instructions.

Shortcut menu commands	
Import External DTD	Add an eternal DTD to the `<!DOCTYPE...>` declaration and, at the same time, load the DTD as a template.
Define External DTD	Add an eternal DTD to the `<!DOCTYPE...>` declaration.
Edit Internal DTD	Add an internal DTD subset to the `<!DOCTYPE...>` declaration and, at the same time, load the DTD as a template.
Add Comment	Add a comment below. See *Comment*.
Add Processing Instruction	Add a Processing Instruction. See *Processing instruction*.

Document

The Document item is the root element in the XML document. See *Document* on page 43.

Epilog

The epilog can contain any information that is covered in the prolog except for `<!DOCTYPE...>` and XML declarations.

Shortcut menu commands	
Edit Script Before	Insert or edit a before script.
Edit Script After	Insert or edit an after script.
Add Comment	Add a comment below. See *Comment*.
Add Processing Instruction	Add a Processing Instruction. See *Processing instruction*.

Free blocks

To the Free Blocks folder, you can add free blocks that must be invoked using the *CallBlock* scripting function. See the *Scripting reference*.

Item types

XML header

This item type specifies the XML declaration, for example:

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

Shortcut menu commands	
Edit Script Before	Insert or edit a before script.
Edit Script After	Insert or edit an after script.

Settings	
Label	Label displayed in the Process view.
Description	Optional information about this item. This information is not exported from the XMLOUT tool.
XML version	The XML version. For example 1.0.
XML encoding	The XML encoding. For example UTF-8. The same code page must be specified for the output connector.S
Standalone	Standalone document declaration.
Item type	Processing Instruction.

References

www.w3.org

External DTD

This item type declares an external DTD, for example:

```
<!DOCTYPE chapter SYSTEM "mybook.dtd">
```

Shortcut menu commands	
Edit Script Before	Insert or edit a before script.
Edit Script After	Insert or edit an after script.

Settings	
Label	Label displayed in the Process view.
Public identifier	You can increase performance with a public identifier. Contact those responsible for the DTD for information about the public identifier.
System identifier	System identifier of the external DTD. The system identifier must point to an instance of a resource via a URI. You must always specify a system identifier. The system identifier will be used if the public is not recognized.
Item type	External DTD.

References

www.w3.org

Internal DTD subset

This item type specifies an internal DTD subset, for example:

```
<!ELEMENT music (#PCDATA | CL)*>
<!ELEMENT CL (#PCDATA | Composer | Artist)*>
<!ELEMENT Composer (#PCDATA)>
<!ELEMENT Artist (#PCDATA)>
```

Shortcut menu commands	
Edit DTD	Open the Edit Internal dialog box, and specify the DTD subset.
View	Open the Templates view. You can expand the DTD subset and display the elements.
Autogenerate XML Document	Automatically generate an XML document template based on the DTD subset. See *XML document templates* on page 7.

Settings	
Label	Label displayed in the Process view.
Description	Optional information about this item. This information is not exported from the XMLOUT tool.
Item type	Internal DTD subset.

References

www.w3.org

Comment

This item type adds comments to the XML output. For example:

```
<!-- declarations for <head> & <body> -->
```

Comments can contain any data except the literal string `--`. You can place comments anywhere in your document.

Shortcut menu commands	
Edit Script Before	Insert or edit a before script.
Edit Script After	Insert or edit an after script.
Add Element	Include an element in the comment. See *Element*.
Add Processing Instruction	Include a processing instruction in the comment. See *Processing instruction*.
Add CDATA Section	Include a CDATA section in the comment. See *CDATA section*.
Add Field	Include a field in the comment. See *Field*. You must first select the field in the Event view.
Add Variable	Include a variable in the comment. See *Variable*.
Add Static text	Include a static text in the comment. See *Static text*.
Add Block Container	Include a block container, and a block, in the comment. See *Block container*. You must first select a block in the Event view.

Settings	
Label	• Label displayed in the Process view. • Comment in the XML output. To this you can add items using the shortcut menu.
Description	Optional information about this item. This information is not exported from the XMLOUT tool.
Item type	Comment.

References

www.w3.org

CDATA section

This item adds CDATA sections to the XML output. For example:

`<![CDATA[ *p = &q; b = (i <= 3); ]]>`

The only string that must not be used in a CDATA section is `]]>`.

Shortcut menu commands	
Edit Script Before	Insert or edit a before script.
Edit Script After	Insert or edit an after script.
Add Field	Include a field in the CDATA section. See *Field*. You must first select the field in the Event view.
Add Variable	Include a variable in the CDATA section. See *Variable*.
Add Static text	Include a static text in the CDATA section. See *Static text*.

Settings	
Label	• Label displayed in the Process view. • CDATA in the XML output. To this you can add items using the shortcut menu.
Description	Optional information about this item. This information is not exported from the XMLOUT tool.
Item type	CDATA Section.

References

www.w3.org

Processing instruction

This item adds processing instructions to the XML output. For example:

`<?word document='my_doc.doc' ?>`

The string `?>` cannot be placed within a processing instruction, which means nested processing instructions are not allowed.

Shortcut menu commands	
Edit Script Before	Insert or edit a before script.
Edit Script After	Insert or edit an after script.

Settings	
PI target	Identifies the application to which the instruction is directed. Can be any name that does not start with xml.
PI value	Optional data passed to the application.
Description	Optional information about this item. This information is not exported from the XMLOUT tool.
Item type	Processing Instruction.

References

www.w3.org

Document

This item type specifies the root element in your XML document.

Shortcut menu commands	
Edit Script Before	Insert or edit a before script.
Edit Script After	Insert or edit an after script.
Add Element	Add an element below the root element. See *Element*.
Add Attribute	Add an attribute to the root element. See *Attribute*.
Add Comment	Add a comment below the root element. See *Comment*.
Add Processing Instruction	Add a processing instruction below the root element. See *Processing instruction*.
Add CDATA Section	Add a CDATA section below the root element. See *CDATA section*.
Add Field	Add a field below the root element. See *Field*. You must first select the field in the Event view.
Add Variable	Add a variable below the root element. See *Variable*.
Add Static text	Add a static text below the root element. See *Static text*.
Add Block Container	Add a block container below the root element. See *Block container*.

Settings	
Label	• Label displayed in the Process view. • Element name in the XML output.

Settings	
Description	Optional information about this item. This information is not exported from the XMLOUT tool.
Item type	Element.
Has attributes	Shows whether or not the root element has attributes.

Element

This item type specifies elements at any level below the root element.

Shortcut menu commands	
Edit Script Before	Insert or edit a before script.
Edit Script After	Insert or edit an after script.
Add Element	Add an element below the element. See *Element*.
Add Attribute	Add an attribute to the element. See *Attribute*.
Add Comment	Add a comment below the element. See *Comment*.
Add Processing Instruction	Add a processing instruction below the element. See *Processing instruction*.
Add CDATA Section	Add a CDATA section below the element. See *CDATA section*.
Add Field	Add a field below the element. See *Field*. You must first select the field in the Event view.
Add Variable	Add a variable below the element. See *Variable*.
Add Static text	Add a static text below the element. See *Static text*.
Add Block Container	Add a block container below the element. See *Block container*.

Settings	
Label	• Label displayed in the Process view. • Element name in the XML output.
Description	Optional information about this item. This information is not exported from the XMLOUT tool.
Item type	Element.
Has attributes	Shows whether or not the element has attributes.
Owner element	The element one level above.

Attribute

This item type adds an attribute to an element.

Shortcut menu commands	
Edit Script Before	Insert or edit a before script.
Edit Script After	Insert or edit an after script.
Add Field	Add a field as value to the attribute. See *Field*. You must first select the field in the Event view.
Add Variable	Add a variable as value to the attribute. See *Variable*.
Add Static text	Add a static text as value to the attribute. See *Static text*.

Settings	
Label	• Label displayed in the Process view. • Attribute name in the XML output.
Description	Optional information about this item. This information is not exported from the XMLOUT tool.
Item type	Attribute
Owner element	The element that owns this attribute.
Attribute Value type	Shows whether you have defined the attribute value as a static text, variable, or field. If the attribute value is empty, "Unknown" is displayed.

Static text

This item type:

- Adds text to an element, i.e. create a text node below an element.
- Adds text to a CDATA section.
- Adds text to a comment.
- Sets an attribute value.

Shortcut menu commands	
Edit Script Before	Insert or edit a before script.
Edit Script After	Insert or edit an after script.

Settings	
Label	• Label displayed in the Process view.
	• Text in the XML output.
Description	Optional information about this item. This information is not exported from the XMLOUT tool.
Item type	Static Text.
Output format	Used to select numeric or date format. See *Output format for fields and variables* on page 28.

Variable

This item type:

- Adds data to an element, i.e. create a text node below an element.
- Adds data to a CDATA section.
- Adds data to a comment.
- Sets an attribute value.

Shortcut menu commands	
Edit Script Before	Insert or edit a before script.
Edit Script After	Insert or edit an after script.

Settings	
Label	• Label displayed in the Process view.
	• Variable name displayed in the XML preview.
Description	Optional information about this item. This information is not exported from the XMLOUT tool.
Sample content	Descriptive text.
Item type	Variable.
Output format	Used to select numeric or date format. See *Output format for fields and variables* on page 28.

Field

This item type:

- Adds data to an element, i.e. create a text node below an element.

- Adds data to a CDATA section.
- Adds data to a comment.
- Sets an attribute value.

Shortcut menu commands	
Edit Script Before	Insert or edit a before script.
Edit Script After	Insert or edit an after script.
Unlink	The field is normally linked to a field in the Event view. You can unlink the field, and use the Unlinked export property to specify what to do with the field data.

Settings	
Label	• Label displayed in the Process view. • Variable name displayed in the XML preview.
Description	Optional information about this item. This information is not exported from the XMLOUT tool.
Sample content	Descriptive text entered in the Event configuration.
Item state	**Linked** – The field is linked to a field defined in the corresponding Event. **Unlinked** – The field is not linked to any field in the Event configuration. Use the Unlinked export property to specify what to do with the field data.
Unlinked export	Determines whether or not to export an unlinked field. **Do not export** – Do not export the field. **Export as static text** – Use Fixed Export Type below to specify what to export as static text. **Export as variable** – Use Variable Name below to specify what to export.
Fixed Export Type	*Below "Export as static text".* Select to export the Label, Description, Sample Data, or a fixed string. Use Fixed Export Value below to specify what to export as Fixed String.
Fixed Export Value	*Below "Fixed Export Type > Export Fixed String".* The text to export. Must not contain quotation marks.

Settings	
Variable Name	*Below "Export as variable".*
	The variable name. You cannot type the $-prefix when you enter the variable name. The prefix is automatically included in the export.
Item type	Field.
Output format	Used to select numeric or date format. See *Output format for fields and variables* on page 28.

Block container

Block containers in XMLOUT are equivalent to frames in PageOUT. When you drop a block on an element in the Process view, the block is automatically encapsulated in a block container.

Shortcut menu commands	
Edit Script Before	Insert or edit a before script.
Edit Script After	Insert or edit an after script.
Add Block	Add a block to the block container. See *Block*. You must first select the block in the Event view.

Settings	
Label	• Label displayed in the Process view.
	• Name displayed in the XML preview.
Description	Optional information about this item. This information is not exported from the XMLOUT tool.
Item type	Block container.

Block

This item type maps blocks defined in the corresponding Event to node sets in the XML document. You first add the block, then specify the node set (elements, fields, etc.) within the block.

Shortcut menu commands	
Edit Script Before	Insert or edit a before script.
Edit Script After	Insert or edit an after script.

Shortcut menu commands	

Edit Sort Criteria	Edit sort keys for the block.
	
	Syntax
	
	`"<field>":"<type><order>"`
	
	where:
	
	`<type>` is either `S` (alpha-numeric) or `N` (numeric)
	
	`<order>` is either `A` (ascending) or `D` (descending)
	
	Multiple sort keys
	
	Multiple sort keys are separated with space.
	
	Example
	
	`"customer_name":"SA" "customer_number":"NA"`

Add Element	Add an element to the block. See *Element*.
Add Comment	Add a comment to the block. See *Comment*.
Add Processing Instruction	Add a processing instruction to the block. See *Processing instruction*.
Add CDATA Section	Add a CDATA section to the block. See *CDATA section*.
Add Field	Add a field to the block. See *Field*. You must first select the field in the Event view.
Add Variable	Add a variable to the block. See *Variable*.
Add Static text	Add a static text to the block. See *Static text*.
Add Block Container	Add a block container to the block. See *Block container*.
Add Before First Instance Block	Add a before first instance block to the block. See *Before first instance block*.
Add After Last Instance Block	Add an after last instance block to the block. See *After last instance block*.
Unlink	You can manually unlink a block and all its fields from the corresponding block and fields in the Event configuration.

Settings	
Label	• Label displayed in the Process view. • Name displayed in the XML preview.
Description	Optional information about this item. This information is not exported from the XMLOUT tool.

Settings	
Item type	Block.

Before first instance block

This item type specifies a free block that will be added before the first instance of a main block, i.e. a block specified in the corresponding Event.

Shortcut menu commands	
Edit Script Before	Insert or edit a before script.
Edit Script After	Insert or edit an after script.
Add Element	Add an element to the free block. See *Element*.
Add Comment	Add a comment to the free block. See *Comment*.
Add Processing Instruction	Add a processing instruction to the free block. See *Processing instruction*.
Add CDATA Section	Add a CDATA section to the free block. See *CDATA section*.
Add Field	Add a field to the free block. See *Field*. You must first select the field in the Event view.
Add Variable	Add a variable to the free block. See *Variable*.
Add Static text	Add a static text to the free block. See *Static text*.

Settings	
Label	Label displayed in the Process view.
Description	Optional information about this item. This information is not exported from the XMLOUT tool.
Item type	Block Before First Instance.
Owner block	The main block that invokes this free block.

After last instance block

This item type specifies a free block that will be added after the last instance of a main block, i.e. a block specified in the corresponding Event.

Shortcut menu commands	
Edit Script Before	Insert or edit a before script.

Shortcut menu commands	
Edit Script After	Insert or edit an after script.
Add Element	Add an element to the free block. See *Element*.
Add Comment	Add a comment to the free block. See *Comment*.
Add Processing Instruction	Add a processing instruction to the free block. See *Processing instruction*.
Add CDATA Section	Add a CDATA section to the free block. See *CDATA section*.
Add Field	Add a field to the free block. See *Field*. You must first select the field in the Event view.
Add Variable	Add a variable to the free block. See *Variable*.
Add Static text	Add a static text to the free block. See *Static text*.

Settings	
Label	Label displayed in the Process view.
Description	Optional information about this item. This information is not exported from the XMLOUT tool.
Item type	Block After Last Instance.
Owner block	The main block that invokes this free block.

Free block

This item type specifies a free block that can be invoked using the `CallBlock` scripting function.

Shortcut menu commands	
Edit Script Before	Insert or edit a before script.
Edit Script After	Insert or edit an after script.
Add Element	Add an element to the free block. See *Element*.
Add Comment	Add a comment to the free block. See *Comment*.
Add Processing Instruction	Add a processing instruction to the free block. See *Processing instruction*.
Add CDATA Section	Add a CDATA section to the free block. See *CDATA section*.
Add Variable	Add a variable to the free block. See *Variable*.

Shortcut menu commands	
Add Static text	Add a static text to the free block. See *Static text*.

Settings	
Label	Label displayed in the Process view.
Description	Optional information about this item. This information is not exported from the XMLOUT tool.
Item type	Free Block.

Resources

To the Resources folder, you can add XML template resources.

Shortcut menu commands	
Import External DTD	Add an eternal DTD to the `<!DOCTYPE...>` declaration and, at the same time, load the DTD as a template.
Load DTD as Resource	Load a DTD as a template.
Load XSD as Resource	Load an XSD as a resource. From this XSD, you can generate an XML document template.
Import XML File	Load an XML document template.

Properties view

Select a node in the Process view, and configure the corresponding properties in the Properties view.