Manual LabVIEW Data Converter Xml 1.0 Library

This document describes the usage and installation of the LabVIEW library “Data Converter Xml“ version 1.0.

1 General Information

The „Data Converter Xml“ LabVIEW library allows the conversion of arbitrary data structures to XML and back. The generated XML is of simple structure and easy to read.

The data conversion is based on the usage of control references of clusters. The main goal for the library was to achieve high flexibility regarding useable data structures. Besides standard data types and clusters it is also possible to use LabVIEW classes including data inheritance. Using cluster references, data can be placed anywhere in the XML structure.

The library is also tolerant against changes in data structure. If for example data elements are added in future software versions, old XML files can still be read. Warnings are generated for the missing data elements in the XML data by the parser.

Supported data types are:

- Standard data types Boolean, Integer, Float, String, Path
- Cluster and array of cluster
- Reference of cluster
- LabVIEW class and array of class objects including data inheritance

2 System Requirements

2.1 Operating System

The library can be used on Windows with 32 and 64 bit.

2.2 LabVIEW

The library can be used with LabVIEW 2010 and following versions.

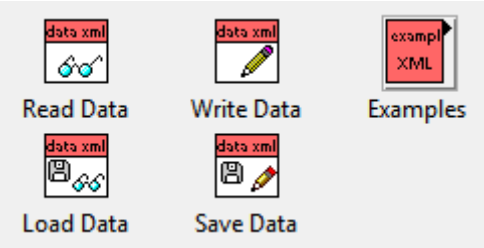
3 Installation

3.1 LabVIEW Library

The installer installs files directly to the LabVIEW directory (..\program files\National Instruments\LabVIEW xx\..)

The library is installed into the addons folder in the vi.lib folder as "Data Converter XML".

The functions palette is installed under Addons.



3.2 LabVIEW Examples

The examples are installed in ..\LabVIEW xx\vi.lib\addons\Data Converter XML\examples
The examples can be accessed from the functions palette.

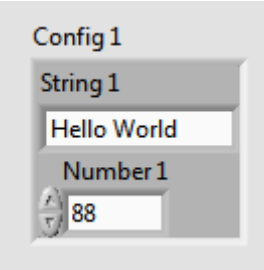
3.3 Deinstall

The deinstall has to be carried out manually. Just remove the folder:
..\LabVIEW xx\vi.lib\addons\Data Converter XML

4 Functional Principle

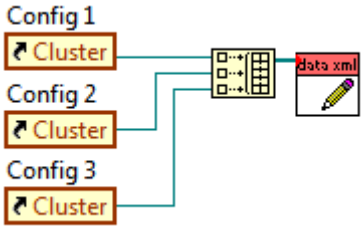
The library is completely based on the usage of controls references to clusters. A data structure can be set up in a cluster. A reference to this cluster is passed to the converter function, which will then go through all controls and generate a XML data structure from it or parse a XML document to fill the data into the cluster. So also the reading from the XML document is controlled by the elements in the cluster and not by the nodes in the XML document.

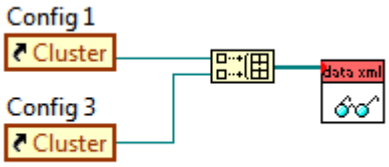
The generated XML is kept simple. Data type information is not added, because this information is known by the cluster data type.




```
<?xml version="1.0" encoding="UTF-8" standalone="no" ?>
<Data>
  <Config_1>
    <String_1>Hello World</String_1>
    <Number_1>88.0000000000E+0</Number_1>
  </Config_1>
</Data>
```

The read and write functions take an array of cluster references as input, which makes it possible to write multiple clusters into the XML root node, which is named "Data". The read function can use less controls to read from the XML file. This allows a very flexible use of the configuration data.



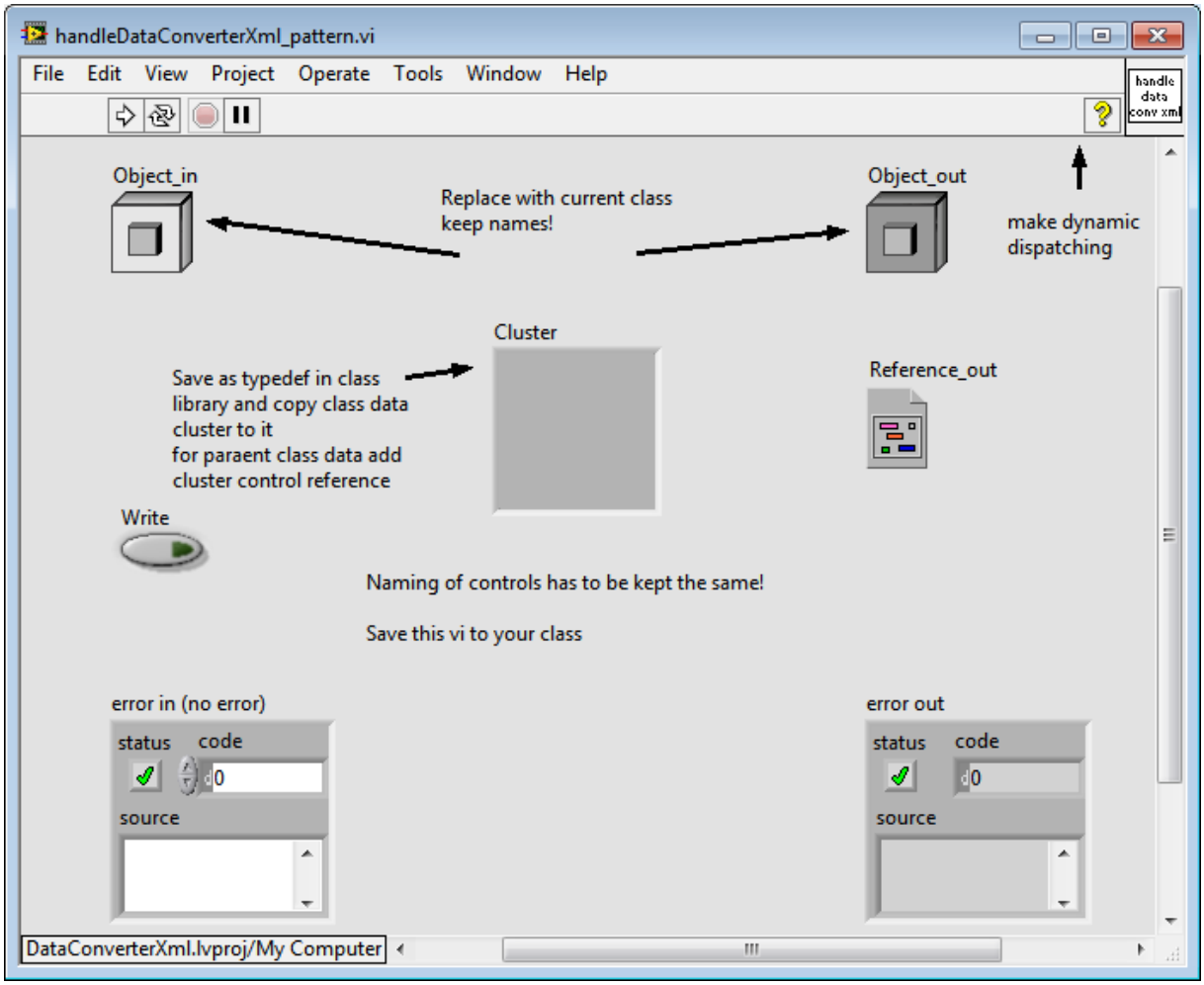


4.1 Standard Data

The library can convert standard data types integer, unsigned integer, float, boolean string and path.

4.2 LabVIEW Classes

The library can also be easily used with LabVIEW classes. For this a method has to be added to the class, which transfers the class data into a cluster. A vi pattern for this method is contained in the library and has to be adopted for each class.



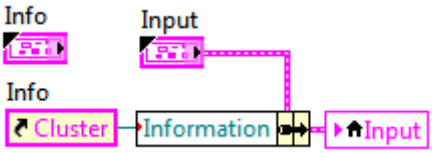
The library can save also the inherited class data with this approach.

4.3 Arrays

Arrays of standard data, cluster, class objects and references can be used with the library.

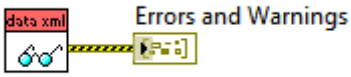
4.4 Cluster References

By using cluster references within a cluster, it is possible to inline a cluster into another cluster. This gives high flexibility and does not generate the need to create huge cluster data types.



4.5 Missing Data Elements

The library is tolerant against missing data elements. If for example controls are added to a cluster in a future software version, an old XML file can still be used with the cluster. The parser generates a list of warnings for the missing elements.



5 Support

For support contact:

Ackermann Automation GmbH
Kelsterbacher Strasse 15-19
60528 Frankfurt am Main
www.ackermann-automation.de

Tel.: +49(0)69-40562742
Fax: +49(0)69-40562816
info@ackermann-automation.de