DFDL4S++ Version 1.5.0 - Release Notes

1. NEW RELEASE DESCRIPTION

DFDL4S++ is a C++ library providing a sub-set of the methods exposed by the DFDL4S Java library.

DFDL4S is a generic binary data binding library written in Java and based on the Data Format Description Language (DFDL), see more details at:
https://eop-cfi.esa.int/index.php/applications/dfdl4s

1.1 Software and Hardware Requirements

DFDL4S++ is available for the following computer platforms:

- Linux (64-bit)
  o g++ compiler 64bit (v4.8+)
- Mac OS X Intel 10.5 or above (64-bit)
  o Apple LLVM v8.1.0 (clang-802.0.42) 64 bit
- Windows XP / Vista / 7 (64-bit)
  o Microsoft Visual Studio 14.0 Express 64 bit

The DFDL4S++ library requires:
- Version 1.8 or higher of the Java Development kit
- 50+ Mb of hard disk space
- 2 GB RAM

1.2 Installation Packages

A DFDL4S++ distribution package consists of one single archive (one per ache platform):

- DFDL4S-CPP-1.5-linux64.tar.gz
- DFDL4S-CPP-1.5-mac64.tar.gz
- DFDL4S-CPP-1.5-win64.tar.gz

1.3 Installation Hints

In order to install DFDL4S++, the distribution package needs to be unzipped into the selected installation directory.

The following directories are created:
- lib: contains the library binary files
- include: contains C++ header files
- examples: contains examples on how to write, build an run a C++ program using DFDL4S++
- docs: contains the Developer Manual and doxygen documentation

Please check Section 3.2 of the DFDL4S++ developer manual for further information about the installation steps. The developer manual can be found in the docs directory of the distribution package.

1.4   Documentation

For information related to usage of the DFDL4S++ library, please refer to the documentation of DFDL4S C++ API, in particular:

- Developer Manual:
  DFDL4S++_Developers_Manual_S2G-DME-TEC-SUM113-1C.pdf
- Mission Specification Schemas:
  Mission_Specification_Schemas_S2G-DME-TEC-SUM092-1B.pdf

Both documents can be downloaded from the following web page:
https://eop-cfi.esa.int/Repo/PUBLIC/DOCUMENTATION/APPLICATIONS/DFDL4S/

2. NEW FUNCTIONALITIES

This new release is a consolidation release between the Java and C++ interfaces of the DFDL4S library. In particular, the following changes have been implemented since DFDL4S++ v1.0:

- Core set of classes and methods exposed in line with the DFDL4S Java library v1.5.0
- New developer user manual and updated doxygen documentation
- Updated example (Example.cpp) in the distribution package with the usage of the supported DFDL4S++ API methods.

3. CLOSED SPRS

N/A

4. KNOWN PROBLEMS

[DFDL4S-ANR-0029] Empty constructors not available
e.g. Element and Document cannot be initialised like this:
Element el;
but they can be only initialised as assignment using e.g. get methods.
Note that an object cannot be re-used (see also Example.cpp).

[DFDL4S-ANR-0030] childAt() does not work properly in certain conditions
e.g. in a loop that creates nofPackets packets and fills them:

```
for (id=0;id<nofPackets;id++)
  {
  dfdl_lib.appendElements( &document_1, &schema, data );
  Element el = document.childAt( id );
  }
```

This does not work, the accessed element is always the first.

The workaround (see also Example.cpp) is to create the file with all packets, close the file, re-open it and fill each packet:

```
std::vector<unsigned char> data( nofPackets*size, 0 );
dfdl_lib.appendElements( &document_1, &schema, data );
document_1.close();

Document document_2 = dfdl_lib.interpretDocument( schema_file, filename );
```

```
for (id=0;id<nofPackets;id++)
  {
  Element el = document_2.childAt( id );
```

5. **REPORTING PROBLEMS**

For any problems or questions please send an e-mail to the DFDL4S helpdesk:
dfdl4s@eopp.esa.int