

S2G Version 2.0 - Release Notes

1. NEW RELEASE DESCRIPTION

1.1 Software and Hardware Requirements

The S2G application is available for the following computer platforms:

- Windows XP / 7 (32-bit & 64-bit)
- Mac OS X Intel 10.5 or above (64-bit)
- Linux (64-bit)

The S2G software requires:

- A version 1.6 of the Java Runtime Environment
- 50 MB of hard disk space
- 1 GB RAM (Windows), 2 GB RAM (Linux, Mac OS X)

1.2 Installation Packages

An S2G distribution package consists of one archive for each supported computer platform:

	32-bit	64-bit
Mac OS X Intel	-	s2g-macosx.cocoa.x86_64.zip
Linux	-	s2g-linux.gtk.x86_64.zip
Windows	s2g-win32.win32.x86.zip	s2g-win32.win32.x86_64.zip

1.3 Installation Hints

In order to install S2G, the distribution package needs to be unzipped into the selected installation directory.

Please check Section 3 of the S2G user manual for further information about the installation steps.

2. NEW FUNCTIONALITIES

This new release provides the following functionalities with respect to v1.0.9:

- S2G-AN-030: The S2G Data Viewer is able to navigate from Transfer Frame (TF) level to Instrument Source Packet (ISP) level. The list of either partial or complete ISPs are displayed and it is possible to expand the complete ISPs
- S2G-AN-031: The S2G Data Viewer allows extraction of ISPs from TFs as follows:
 - Enable discarding of idle ISPs
 - Generation of mapping file between TFs and ISPs, i.e. #TF → [#ISP, #ISP, #ISP]. An additional column with TF number is added to ISP list
 - Configuration of data transformation parameters (see S2G-AN-034)
 - During the transformation a report is generated with basic info and the

anomalies detected on the input (see S2G-AN-039)

- S2G-AN-032: The S2G Data Viewer allows extraction of TFs from CADUs as follows:
 - Enable discarding of idle TFs
 - Support CADU with clear field, CADU with data field which is interleaved and scrambled (see S2G-AN-033) and CADU data field which is only scrambled
 - During the transformation a report is generated with basic info and the anomalies detected on the input (see S2G-AN-039)
- S2G-AN-033: For the transformation to TF of CADU with data field which is interleaved and/or scrambled, S2G allows to configure the following parameters:
 - Parameters scramble: Order of the polynomial
 - Parameters interleaving: Interleaving depth
- S2G-AN-034: For the transformation of TFs into ISPs, S2G allows to configure the following parameters:
 - Custom cut-off size: maximum file size (without cutting packets), number of packets
 - Selection flag: ISPs separated by APID or ISPs altogether
- S2G-AN-038: S2G allows performing RS correction on CADU (transform Scrambled CAU to Descrambled CADU).
- S2G-AN-039: During data transformation a report is generated with basic info and the anomalies detected on the input
 - The report includes a generic section describing
 - Name and size of the input and output files
 - Number of input and output data units
 - Date and duration of the operation
 - The following checks are performed during data transformation
 - CADU
 - Detect incorrect CADU (size/pattern match ASM)
 - Detect RS error in CADUs (when TF in clear are generated). Both correctable and non-correctable errors are reported.
 - TF
 - Detect incorrect TF (size/pattern match header)
 - Check CRC error (if available in the frame trailer)
- S2G-AN-047: A generic 2D plotting mechanism has been implemented in S2G. The following default plots are possible:
 - ISP
 - SSC vs Packet#
 - Timestamp vs Packet#
 - APID vs Timestamp
 - APID vs Packet#
 - User selectable DFDL data unit field vs Packet#
 - User selectable offset from the beginning of the data unit vs Packet#
 - TF
 - Virtual Channel vs TF#
 - Frame Count vs TF#
 - User selectable DFDL data unit field vs TF#

- S2G-AN-053: The following recommendations on the DFDL engine have been implemented:
 - Use of `dfdl:format` to establish global default properties
 - DFDL namespace has been corrected (missing trailing slash in DFDL namespace)
 - The value of length kind "expression" has been replaced by "explicit", and an expression is detected based on the existence of brackets (as defined by the standard)
 - DFDL and DMX properties have been separated and put into different annotations under distinct namespaces.
 - S2G's DFDL expression evaluation engine has been upgraded as needed by the implemented features
- S2G-AN-054: S2G shall be resistant to incomplete TF and allow re-synchronization in case of errors.

3. CLOSED SPRS

The following SPRs have been closed:

- S2G-AN-028: The handling of little-big endian as implemented in S2G had a limitation in the interpretation of data unit headers. The `dfdl:format` approach followed by the DFDL standard has been implemented, and used across all schemas (see S2G-AN-053). This allows the correct handling of big-little endian properties.

4. ADDITIONAL COMMENTS AND KNOWN PROBLEMS

4.1 Mission Support

The S2G distribution package already includes mission configuration files for all supported missions.

The "Mission Files" section of the S2G website (<http://eop-cfi.esa.int/index.php/docs-and-mission-data/mission-data>) contains the following mission data files for each supported mission:

- Any updates to the mission configuration files (XML files and schemas) wrt latest S2G version available in the website
- Example data files

4.2 Known Issues

The current S2G release has the following limitations:

- None

4.3 Hints and Tips

Please check the S2G user manual for further information.

5. REPORTING PROBLEMS

For any problems or questions please send an e-mail to the S2G helpdesk:
s2g@eopp.esa.int