

SAVOIR Communications Architecture – TAS-F

The CCSDS SOIS recommended practices define a static architecture and a list of services for the implementation of a communication stack for the platform on-board software.

The goals of this GSTP activity were:

- 1) To provide an assessment of the SOIS recommended practices, so as to highlight their applicability, shortcomings or drawbacks;
- 2) To prototype the implementation of a novel communication stack based on the SOIS services in an on-board architecture by Thales Alenia Space;
- 3) To perform an assessment of the performance of the SOIS services implementation;
- 4) To provide an informed assessment on the feasibility of an implementation of SOIS recommended practices and on the achievement of the goals set for SOIS;
- 5) To provide feedback for the improvement of SOIS and a roadmap for the adoption of the recommended practices.

The SOIS communication stack developed by Thales Alenia Space was integrated in a reference mission of TAS-F, which features (among others) the use of several Spacewire point-to-point links, a 1553B bus, discrete I/O links and complex RTUs.

The SOIS implementation was performed by Thales Alenia Space by considering the use of SOIS in a Component-based, Model-Driven Engineering (MDE) development process comparable to the one promoted by the SAVOIR On-board Software Reference Architecture (OSRA), and therefore can provide valuable indications on the goodness of fit of SOIS as one of the constituents of the OSRA Execution Platform.

The results in terms of possible improvements to the current SOIS recommended practices, lesson learnt via the implementation activity, and a roadmap for the evolution of the SOIS recommended practices will be presented.