OETCS/WP3/DOW

openETCS

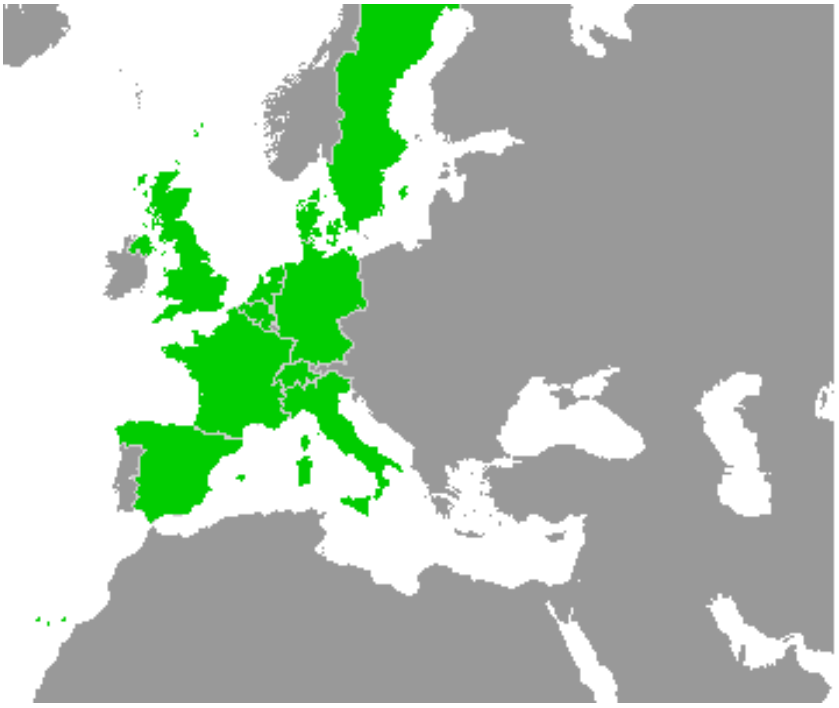
ITEA2 Project
2012 – 2015

Work-Package 3: “Modelling”

openETCS Modelling WP (WP3) Description of Work

Stanislas Pinte and WP3 participants

September 2013



openETCS Modelling WP (WP3) Description of Work

Stanislas Pinte

T3.5 & T3.6 Task Leader

WP3 participants

OpenETCS

Description of work

Prepared for ITEA2 openETCS consortium
Europa

Abstract: This document contains the description of work planned for WP3. This revision is necessary, taking into account all the work that has been done until now in the project.

The revised DoW consists of four chapters for the four Tasks of WP3.

Table of Contents

Introduction

TODO

1 Participants and Planning

TODO: to be completed after Braunschweig meeting

2 T3.5 SSRS and System Specifications Model(s)

The functional decomposition & API (architecture) is a functional breakdown of the subsystem. It makes explicit the boundaries of the onboard subsystem itself, and also provides the internal functional allocations (architecture) of this subsystem. This internal decomposition & API (architecture) is composed of functions and flows of data between these functions. From the API we will derive the limits of this System.

All the objects described will be unambiguously named (in particular IO) in a data dictionnary.

This functional decomposition will be described using a semi-formal language.

This allocations (architecture) is useful for the following reasons: • it makes the system easier to maintain; • it provides the boundaries of the system; • it eases the safety analyses and the V&V (with the internal cut out, and the unambiguous flows of data); • it also helps with modeling by providing some structure.

The second part of the SSRS is the requirements list. The requirements from the SRS are allocated toward the functions of the SSRS (the architecture), possibly split and rewritten in order to restrict their scope to these functions (of course, traceability is mandatory). They are also rewritten in order to match the objects named in the architecture (in particular internal and external IO). The requirements are provided in natural language (even if the objects are unambiguously named). The formalization layer is coming below the SSRS, with the model.

The architecture objects (functions, streams...) and the requirements are tagged VitalNon Vital. *The SSRS will be composed of two parts: 1/ the functional decomposition and the API (architecture) and 2/ the requirements.*

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3 T3.6 Functional Model(s)

In this task, the WP3 participants shall model the functions of the Subset-026 and SSRS/System Specifications models using the various toolchains identified in the document D7.1.

WP3 participants shall group themselves together according to the toolchain used for modelling:

1. *SCADE toolchain*
2. *ERTMSFormalSpecs toolchain*
3. *B toolchain*

Each group shall deliver the following artifacts:

1. *A toolchain documentation*
2. *A document describing the modelling process followed*
3. *The model*
4. *The model tests*
5. *If available under OSS license, the toolchain used to model and test the model*
6. *A traceability report, tracing the model back to Subset-026 and SSRS/System Specifications models*
7. *A report of coverage of the specifications by the model*
8. *A report of coverage of specifications by tests*
9. *A report of the execution of tests against the model*
10. *A report listing all modelling issues encountered during modelling and/or testing*

At regular intervals, each modelling group shall meet in order to:

- *Exchange and discuss modelling issues*
- *Work on strategies to connect the model for integration and cross-testing*
- *Synchronize with WP4, in order to ensure the models meet necessary requirements from WP4 to be verified and validated*

4 T3.7 System Architecture Model(s)

TODO: to be completed by T3.7 leader or WP3 leader

5 T3.8 Platform independent executable model (PIEM)

TODO: to be completed by T3.8 leader or WP3 leader

