

Concept for Demonstration of (some) Verification and Validation at the ITEA Review March 2015

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Abstract

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1 Verification of the WP3 “First Iteration” Release

Terminology (here)

Release The full SCADE model (executable) in the release

Component A component (sub-model) contained the **Release**

This concept contains some proposals how to demonstrate some VnV on the **model**. Part of it is to be performed by the DLR. It concept presents *some* activities, it is not meant to be comprehensive. I.e., there may be other activities.

Here, it is assumed that the openETCS development process is a rather ordinary instantiation of the illustrative development process No. 2 of the EN 50128 (to be described in a revision/elaboration of D2.3). The **Release** is considered as part of a *Detailed SW Design* of the OBU. This would have to be verified against the artifacts from a previous design step, the *SW Architecture and Design*.

Three potential demonstrations of VnV.

1. Verification of a **component**— left side of the “V”. For that, a Papyrus model of the component would be constructed, figuring as a part of the SW A&D Specification. RT-Tester would be employed for test generation and execution. This parallels work done by the U Bremen on Ceiling Speed Monitoring. Tbd by DLR with support from U Bremen. Perhaps (who can give a hint?) the component “ReceiveEuroBaliseFromAPI” can be taken here.

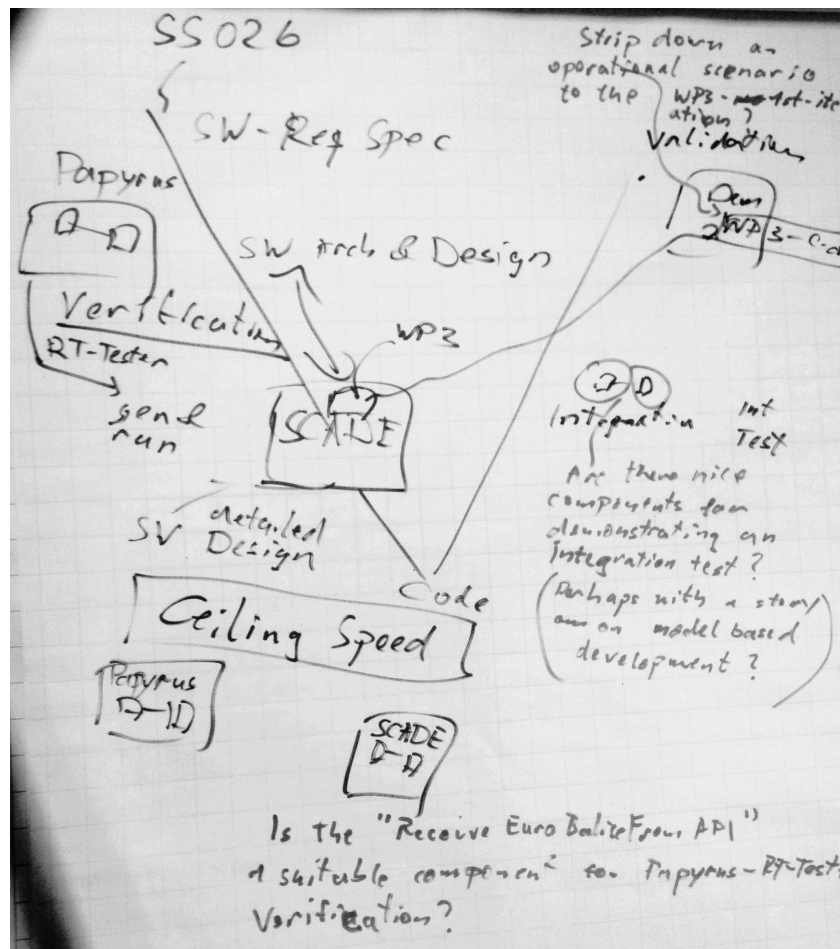


Figure 1: Sketch of VnV demonstration wrt. development steps

2. Integration test of two (or more) **components**—middle of the right side of the “V”. Two **components** which collaborate somehow are taken, and a function which employs both is tested. This is an instance of a standard integration test. Necessary (EN 50128), but nothing particular of openETCS methods in it. Here, the code generated from the components will stand for *implementation code* (previous scenario: detailed design).
3. Validation demonstration—top right of the “V”. According to the EN 50128, this takes place after SW/HW integration, perhaps partly with emulated HW. As long as there is no demonstrator incorporating the **release**, this cannot really be done. But one may demonstrate what would happen: Rephrasing an operational/functional scenario to what will happen at the interface of the **release** may show the contribution of the **release** (again, the code generated from it acts as implementation) to the validation.

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