Reference Architecture as Foundation for Risk and Threat Analysis

Introduction

The project "Reference Architecture for Secure Smartgrids Austria" (RASSA)-architecture is developing a foundation for secure, interoperable architecture components dedicated for future smart grids in Austria. A key feature of this blueprint is its tool supported model driven design approach [1], enabling users, to estimate risks of components introduced into the models as a decision base for a deeper threat analysis. The design of this architecture is carried out in coordination with all relevant Austrian stakeholders.

Motivation

The uniquely established RASSA stakeholder process is supported by "Technologieplattform Smart Grids Austria". During the RASSA-architecture project, parts of the reference architecture will be instantiated to validate relevant smart grid components. This poster shows the progress of this undertaking and illustrates the potential of integrating reactive and active security attributes and counter measures [2] within a reference architecture for Austrian smart grids.

Modeling Progress

A preliminary model of an Austrian harmonised market role model was created (see Fig. 1), based on the entso-e market role model [3]. To shift the model based approach to a model driven approach, not just a digital file was created, but it was modelled in software, the SGAM-Toolbox1 (see Fig. 2).

Advantages of models are not just visible through linked inheritance and transparent complexity (see Fig. 3), but through possible digital remixing, international expansion, or systemwide automated risk and threat security evaluations.

Conclusion

First relevant risk and threat analysis parameters of RASSA are modelled (see Fig. 4). First steps modelling international reference architecture frameworks, such as the entso-e market role model have been successful, as well as the extendibility of the used framework SGAM-Toolbox shown through an interconnected, inheriting Austrian model (see Fig. 3).


Findings presented are from project Architecture as part of the Initiative Reference Architecture for Secure Smartgrids Austria, which was commissioned by the Austrian Climate and Energy Fund and supported by the Austrian Research Promotion Agency (FFG project number 848811) as part of the 1st Call Energieforschungsprogramm in the main area Intelligente Netze.