THE OMEGA FORMAT – A COMPREHENSIVE OPEN-SOURCE MEASUREMENT DATA FORMAT

Find it on Github: https://github.com/ika-rwth-aachen/omega_format

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The OMEGA-Format is a HDF5 based data-format designed to store reference data in an object-list-based structure together with map and weather information. It was developed out of the learnings of the Pegasus and L3Pilot project and is key in enabling the application of automated algorithms for the VVM argumentation.
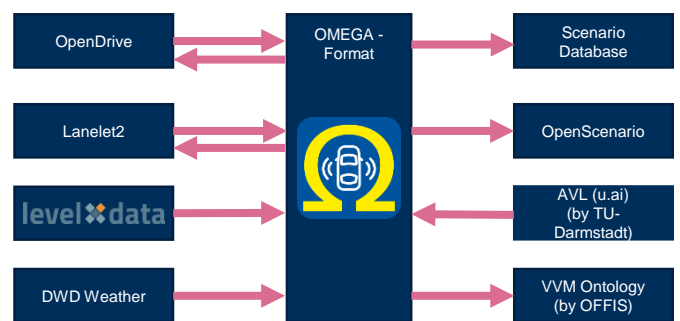
Purpose

The goal of the OMEGA-Format, is to be a unified data format, that includes information of dynamic objects, map data and weather information tailored to the need of the VVM-Project and beyond to the general scope of analysis of ADS systems. In comparison to other formats, it is the only format that separately models layer 3 of the 6-layer-model and therefore can adapt to changing information in road networks. In addition, it can represent all data that is captured and labelled in VVM, so no information is lost. There is a clear differentiation from the Omega-format to formats like OpenScenario, that are designed for simulation instructions. The OMEGA Format is designed for measurement data, captured e.g., from real world drives or simulation runs.

Use in VVM

The OMEGA-Format is used as the unified input for the Advanced Scenario Engine. Through a multitude of different converters, many of the established formats can be transformed to the OMEGA-Format.
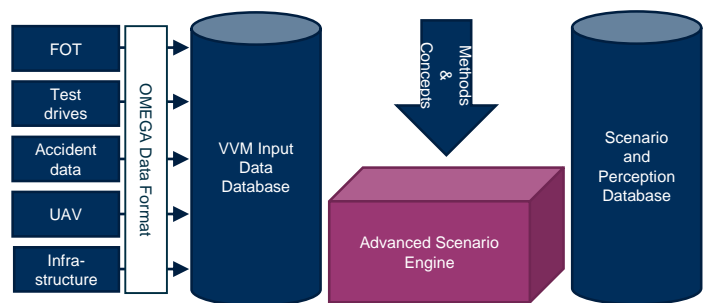
This unified format is inevitable to enable the automated scenario extraction. Moreover, it enables the translation to the VVM ontology and is therefore a key factor for the criticality analysis. Additionally, it is designed as an interface to the perception format, ensuring the automated analysis of sensors and perception failures.

Projektpartner

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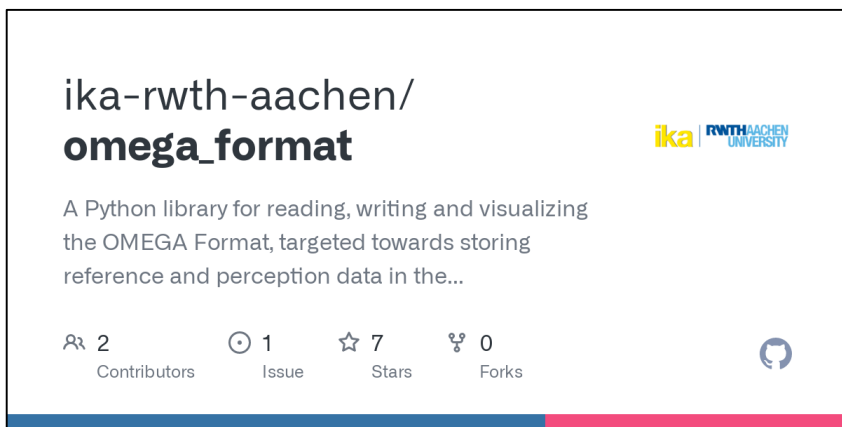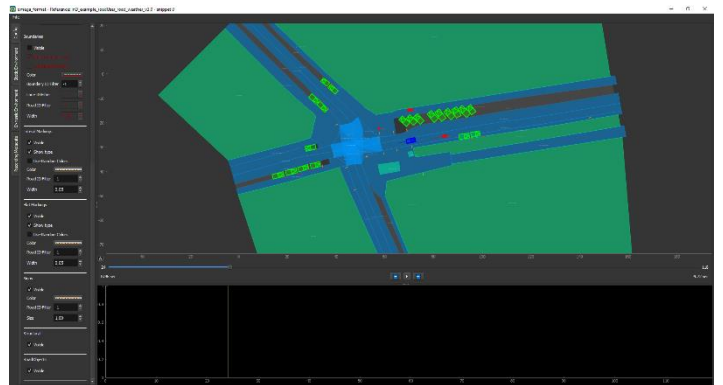
Michael Schuldes, IKA

Structure

The OMEGA-Format is a hierarchical structure stored in the HDF5-Format. The over all entities synchronous timestamps enable a simplification of analyzing algorithms. The map information is stored inspired by the Lanelet2 format. Lanes are defined through a set of border polylines.
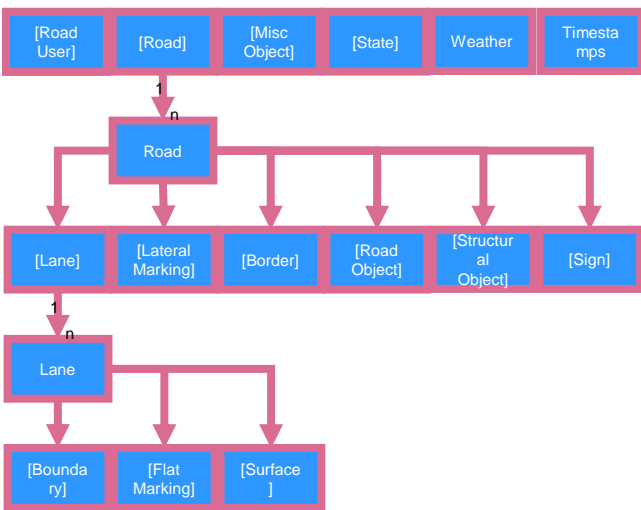
Tooling

A rich set of tools exists for the OMEGA-Format. Python and C++ APIs enable the easy creation, reading and importantly, the validation and sanity checking for data in the OMEGA-Format. This tooling is completed by an intuitive, modular visualization library, that enables the inspection of such files.

ika-rwth-aachen/
omega_format

A Python library for reading, writing and visualizing the OMEGA Format, targeted towards storing reference and perception data in the...

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Contributors	Issue	Stars	Forks

→ The OMEGA-Format is key in enabling automated algorithms required for the VVM Argumentation

→ The OMEGA-Format for measurement data is accessible Open-Source on Github for a collaborative development

www.vvm-projekt.de   Twitter @vvm-project   LinkedIn VVM Project

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