

ASAM e.V.

ASAM MDF, ASAM ODS, and ASAM OpenX

Dr. Ralf Nörenberg

ASAM Board Member
HighQSoft GmbH

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Novi, Michigan



Association for Standardization of
Automation and Measuring Systems

ASAM standards portfolio

Combining standards

Simulation

OpenCRG OpenDRIVE **OpenLABEL**
OpenSCENARIO OSI

Data Management & Analysis

CEA **ODS**

Test Automation

ACI ASAP 3 ATX GDI iLinkRT
MCD-3 MC OTX Extensions XIL



Measurement & Calibration

ARTI CDF CMP CPX HMS
MCD-1 CCP / XCP MCD-1 POD
MCD-2 MC MCD-2 CERP **MDF**

Diagnostics

MCD-2 D MCD-3 D SOVD

ECU Networks

MCD-2 NET

Software Development

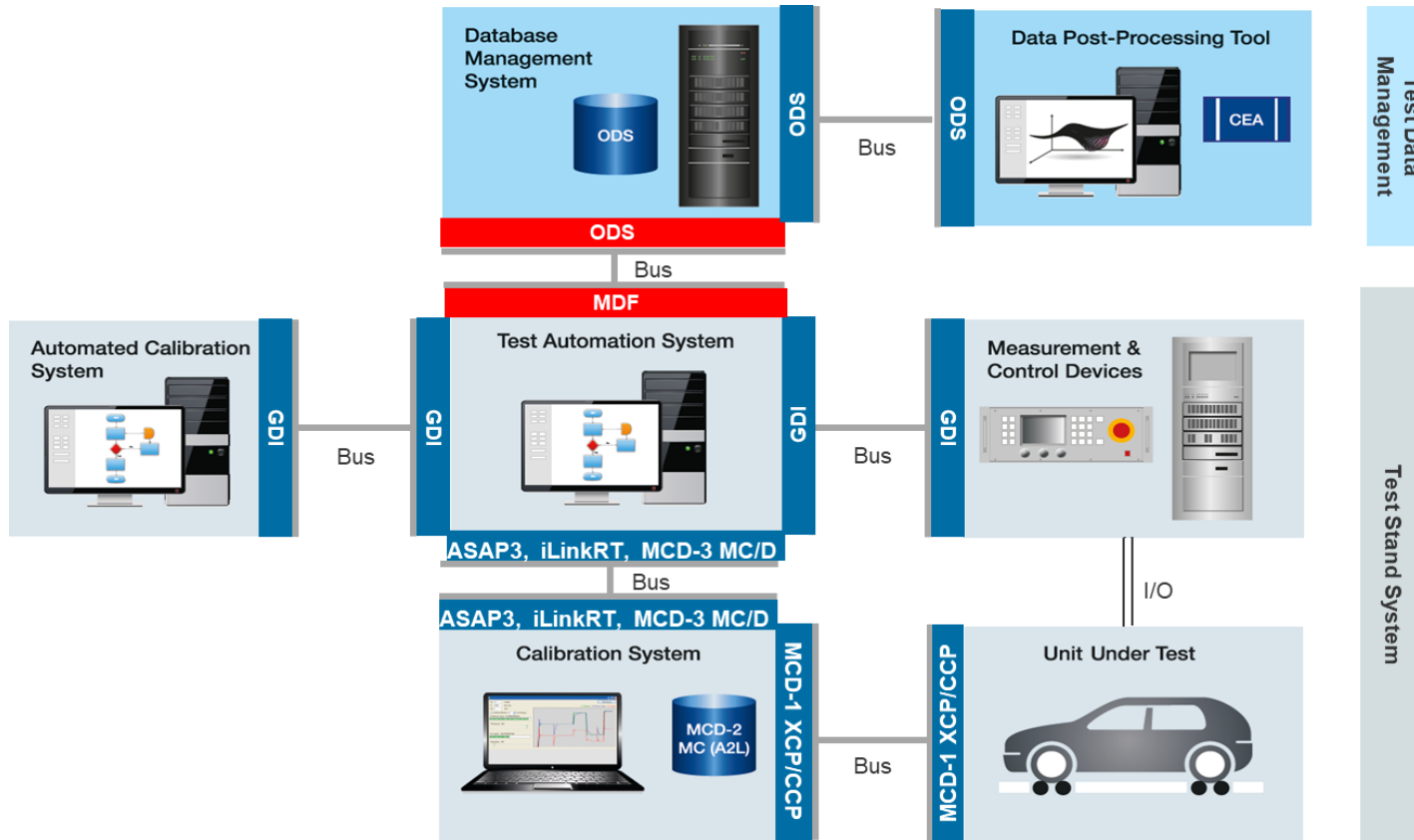
CC FSX ISSUE LXF MBFS MDX SCDL

<https://www.asam.net/standards/>

Status: Oct 11, 2022

ASAM standards supporting processes in test systems

Application in a test system



ASAM MDF is a standard for storing newly captured, measured data into a file (container)

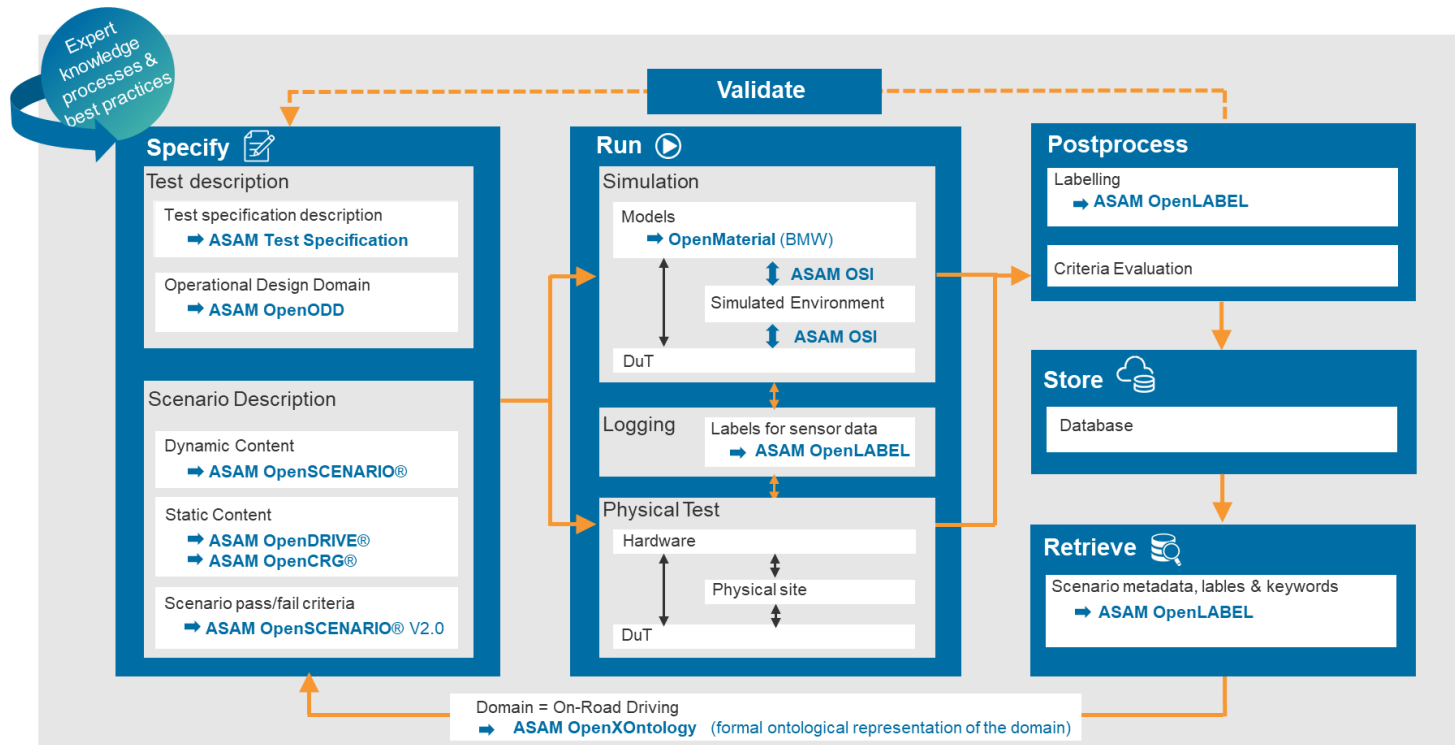
... and a primary input format for ...

ASAM ODS, a standard for measured data storage. It supports standardizing measured data from all domains, formats and types.

Scenario-based testing with ASAM OpenX®

ASAM OpenX are a series of standards and initiatives in the simulation domain, capturing “ADAS”-data for scenario-based testing.

For the validation loop, new types of raw data are captured, and new types of analysis artefacts are produced such as:



- **object lists and labels**
- **scenarios**

For analysis, a combined look into data of all domains is required.

What is the **outlook** on enabling this?

ASAM MDF Project

Current status

Currently, the project group

- integrates **Lidar / Radar / Video** data can be stored within the MDF file together with Measurement Data
- Rosbag-files (point clouds) can be stored or referenced from the MDF file.

In future,

- A potential outlook is the **integration of scenarios** via „Range-Events“ and corresponding meta information (which are linked to MDF-events)
- Integration of „**object lists**“ of dynamic lengths is a task for 2023 (for example: list of recognized vehicles)

ASAM ODS Project

Current status

Currently, the project group

- Works with the ASAM MDF group to integrate **Lidar / Radar / Video** data into ASAM MDF and support it with ASAM ODS
- defines a server interface for direct access to MDF files
 - Information can directly be accessed within the files (reducing table size in ASAM ODS)
 - A **hybrid storage** in ASAM ODS and ASAM MDF is possible (allows hot & cold storage)

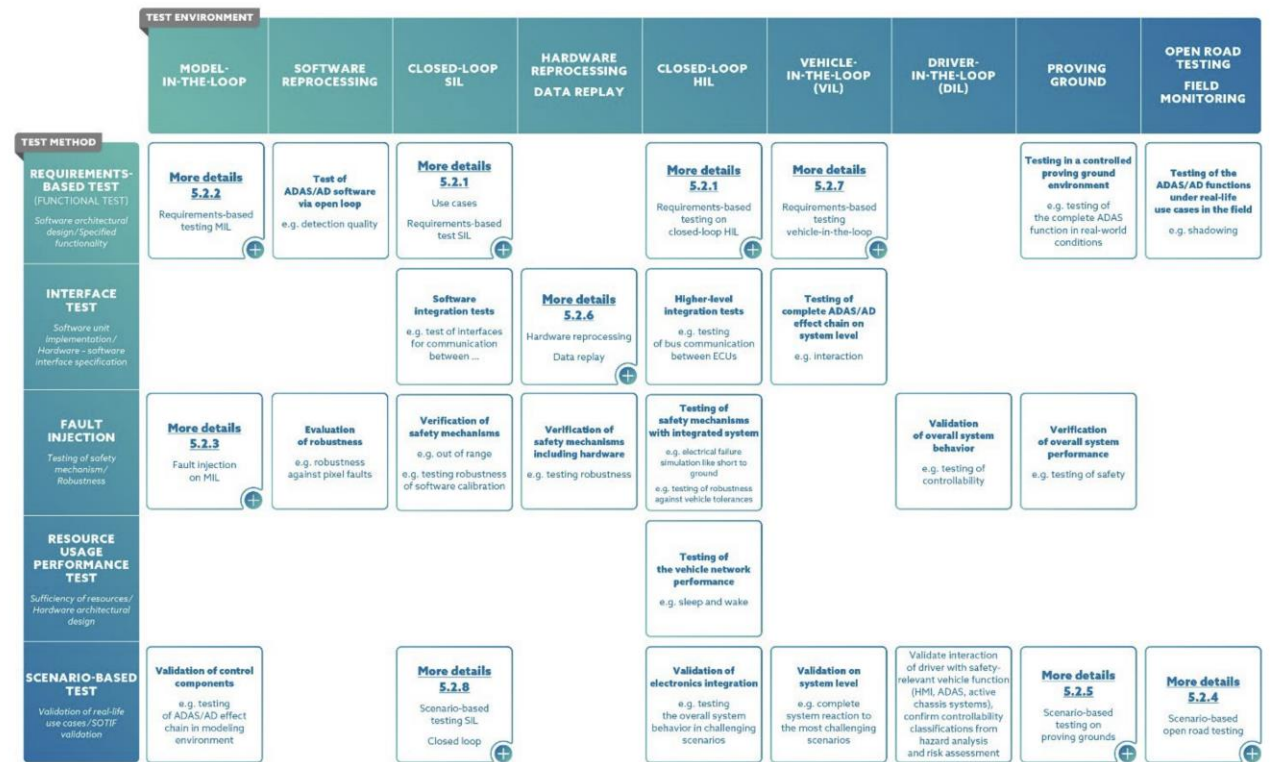
The ASAM ODS file-interface can be used to generally read data streams (**integration of alternative data sources & technologies**).

ASAM Test Specification Study Group

Current status

Results of the study group “**ASAM Test Specification**” indicate the following challenges (among others):

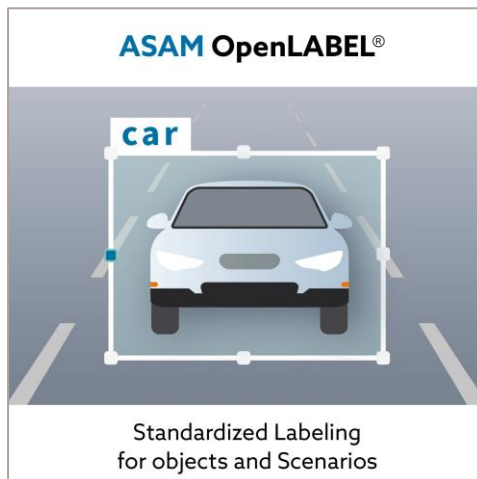
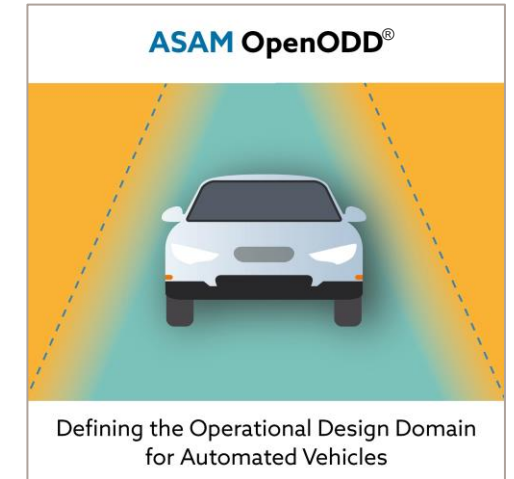
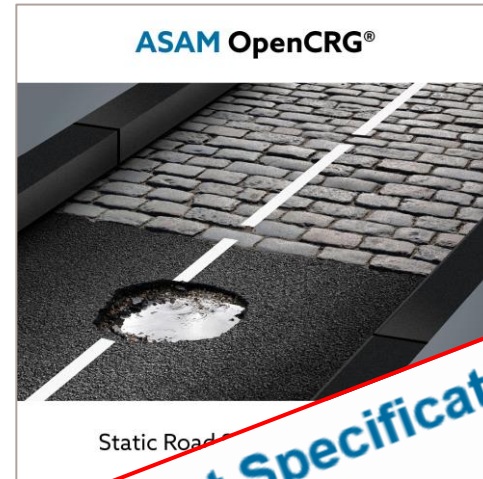
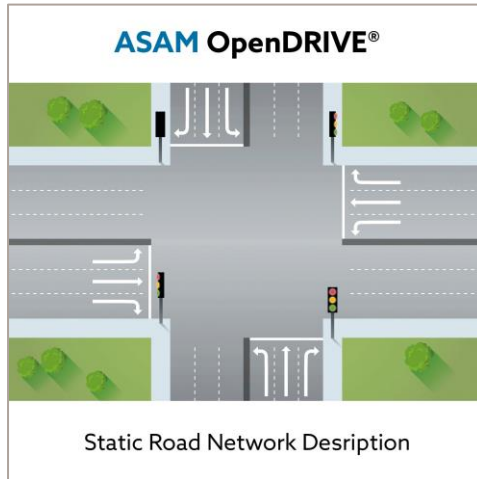
- **Consolidation** of RAW data artefacts in an eco-system (storage/access)
- **Interoperability** of captured data with new artefacts (scenarios/libraries/labels/...)



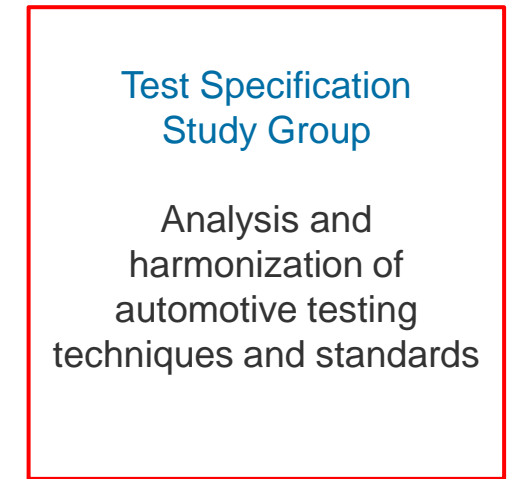
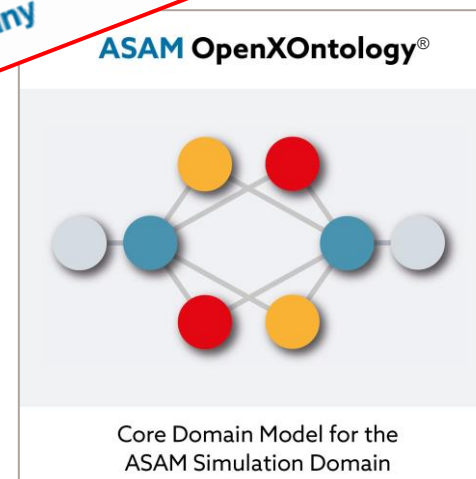
Topics will be further discussed....

In Sub-groups of the “Test Specification Study Group”

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ASAM Test Specification Workshop
Nov 17, 2022 | 9:00 am - 16:00 CET
at ASAM e.V. in Hohenkirchen, Germany



Dr. Ralf Nörenberg
ASAM Board Member / CEO of HighQSoft GmbH

Phone: +49 176 10474402

Email: ralf.noerenberg@asam.net / ralf.noerenberg@highqsoft.de