

## Project Proposal Summary Sheet

<b>Project Number</b>	P_2023_02
<b>Project name</b>	ASAM ODS
<b>Domain</b>	Data Management & Analysis
<b>Impacted standard(s)</b>	No
<b>Project type</b>	Minor
<b>Start date</b>	01.08.2023
<b>End date</b>	31.07.2025
<b>TSC Submission:</b>	11.07.2023
<b>Proposer(s)</b>	Hans Beckers
<b>ASAM Office Responsible (OR)</b>	Bernd Wenzel
<b>Initiating Companies</b>	Peak Solution HighQSoft MüllerBBM Karakun
<b>ASAM funds</b>	NA
<b>Backwards Compatibility</b>	The new version is backward compatible to ASAM ODS V 6.2.0.

For more information on the ASAM project process and the proposal phase in particular, please refer to the [ASAM Project Guide](#).

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# 1 Executive Summary

ASAM ODS V6.3.0 will be a minor release which will include a new associate standard for an application model for openMDM 5.

A concept for an ADAS-application model shall be defined which will be aligned with the ASAM OpenTestSpecification concept group.

For the current standard the following extensions and fixes are planned. The definition of streaming data in the ASAM MDF V4.x standard shall be implemented in the ASAM ODS standard. Furthermore, specific needs of event-based data shall be covered. An example for developing an application model will be added based on the engine model, which has been used in the ASAM ODS Cross Tests. ATFX files which use NVH and geometry models will be provided as examples.

The ASAM ODS project group will offer a cross tests for ATFX files and the HTTP-API inside this project.

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## 2 Overview / Goals

### 2.1 Motivation

Multiple topics with independent motivations shall be addressed by the next working cycle:

The handling of event-based measurement data, an API for Client activation, and the support for single value search are required. The ASAM ODS associated standard “Instrumentation” was introduced in ASAM ODS V6.1.1. and was extended in ASAM ODS V6.2.0 There are still some aspects that need to be added to the application model, which shall be done in this project. The ASAM ODS working group often has been asked for further examples. ASAM ODS intends to extend the set of available examples, also in form of Jupyter Notebooks. One new example should be the development of an application model based on a simplified Engine Model. Additional examples shall be created for handling NVH and geometry data in ASAM ODS ATFX files. All examples will be added to the deliverable.

According to the project results of the project P\_2021\_04\_ASAM\_MDF\_Image-Radar-Lidar-Sensor-Logging\_Minor the ASAM ODS Standard shall be updated to be able to handle such streaming data. Therefore, an own ASAM ODS associated standard will be created.

Any existing and upcoming change requests shall be solved during the project phase.

The compatibility of ATFX files and the usage of the HTTP API shall be investigated in future cross tests.

The openMDM working group aims for a documentation of the openMDM 5 application model within the ASAM ODS standard to highlight the relationship of the two standardization efforts. Due to the long experience in documenting ASAM ODS application models, the ASAM ODS working group will document the model together with the specialists of the openMDM working group. Furthermore, the openMDM API encapsulates the access to ODS databases by means of an own API which makes the creation of ODS applications easier for those use cases where the openMDM model and its template mechanism fulfill all requirements. A core set of API endpoints for a selected example shall be documented in order to demonstrate usage of the openMDM application model.

ADAS is a big point of interest for ASAM e.V. using ASAM ODS has the following advantages:

- Reuse of an existing, mature, and widespread standard for the management of a variety of data related to the validation of ADAS/AD, including metadata, time series data, bus data, streaming data, etc.
- Enough structure and flexibility to adapt to different ADAS/AD-specific data storage requirements
- Ways and means to define the relationship and usage of the different ADAS standards involved in a testing or homologation effort and combine those with the additional data such as for instance measurement results – possibly resulting in an application data model for ADAS data
- Standardized API for different tools in simulation and test to find and download scenarios, test cases, and recorded data (e.g., for reprocessing, evaluation, etc.)
- Standardized usage and exchange of ADAS/AD test data throughout the industry, e.g., when
  - Ordering internal and external test/simulation execution
  - Providing of packages for homologation
  - Analyzing test and simulation results across department/company boundaries

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- Reusing recorded and calculated test data sets to derive new insights or as the basis for software and hardware reprocessing
  - Existing format for exchanging model and test data (ATFX)

The ASAM Test Specification Study Group published the report [“EVOLVING LANDSCAPES OF COLLABORATIVE TESTING FOR ADAS & AD”](#), which defined a starting point for an ADAS Application Model for ODS. As followup to the report was initiated in May 2023 the “ASAM OpenTestSpecification Concept Project”. This project shall define a concept for an application model for ADAS functionality as a possible associate standard to ASAM ODS.

## **2.2 Relations to Other Standards, Projects or Organizations**

### **2.2.1 Standard and Standardization activities**

- ASAM MDF
- ASAM OpenTestSpecification

### **2.2.2 Backward Compatibility to earlier releases**

The new standard shall be fully compatible to ASAM ODS V6.2.0

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## 3 Technical Content

### 3.1 Extend ASAM ODS Base Standard

The ODS Base standard shall be extended for

- Using ASAM ODS in cloud environments (e.g., encryption mechanism, token handling), excluding managed services (this shall be handled as CR 4591)
- Extend standard for event-based measurements
- Extend standard for API for client activation
- Extend standard for single value search
- Adjustment of AS instrumentation
- Introduce a new AS for streaming
- Process Bugzilla CRs (e.g. value matrix handling)

### 3.2 Execution of ASAM ODS Cross-Tests

Two ASAM ODS Cross-Tests shall be executed within the timeline of this project.

- Scenarios for NVH-ATFX files shall be created and tested.
- Scenarios and examples for use of the HTTP-API shall be created and tested.

The project group is to decide whether or not to publish the results of the cross-tests in the form of an anonymous report accompanying the publication. The voting result shall be reported to the TSC via a controlling report.

### 3.3 openMDM

#### 3.3.1 Documentation of openMDM application model

The Eclipse Project openMDM5 uses an ASAM-ODS-Application model. This Application model has to be defined as an official ASAM-ODS-Associated Standard like the NVH-model. The project will install a subgroup with ASAM ODS- and openMDM-Experts.

#### 3.3.2 Concept for standardizing the openMDM-REST-API

The same subgroup will define a concept for standardizing the openMDM-Rest-API. A core set of end points from the current API shall be chosen to describe them as OpenAPI-documentation – facilitating the access to the core functions of the openMDM data model. The core set shall be defined during the standardization process. So, we can learn how we could document the whole API in a following project.

### 3.4 Concept for an ADAS Application Model

Together with members of the ASAM OpenTestSpecification group an Application Model for ADAS use cases shall be exemplary defined. The Result is a Concept which can be further developed and standardized in subsequent projects.

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## 4 Deliverables

At the end of the project, the project group will hand over the following deliverables to ASAM:

**Table 1 Deliverables**

Item No.	Description
1	Complete ASAM-ODS-Base Standard
2	New ASAM ODS Associated Standard “openMDM-Application-Model”
3	Concept Paper openMDM-API-Documentation
4	Concept for a new ASAM ODS Associated Standard “ADAS-Application-Model”
5	Updated ASAM ODS Associated Standard Instrumentation
6	New ASAM ODS Associated Standard “Streaming-Data”
7	New additional NVH ATFX Example Files

### 4.1 Review Process

The process for deliverable review documented in the project guide is applicable to all projects (see [here](#)).

The ASAM OR will provide further details on quality criteria and tools used prior to the initiation of a review in a project.

**Table 2 Selection of Review Type**

<i>Please indicate whether the project is aiming to perform an ASAM member review or a full public review. This is not required for maintenance projects.</i>	ASAM Member Review
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