

# **ASAM News:**

## **Recent Releases, Roadmap for 2017 and Organizational Changes**

Regional Member Meeting Japan, 2017, Tokyo

Presenter

**Thomas Thomsen**

ASAM e.V.

# Content

1	Releases in 2016
2	Roadmap for 2017
3	ASAM ODS 6.0: Major Release with New API
4	Issue Resolution Process

# 2016 Roadmap: Standards for Expert Systems

**2016**

**Release**

- ASAM MCD-2 CERP 1.0 **New Standard**
- ASAM CPX 1.0 **New Standard**

**Cross Test**

- ASAM XIL 2.0.1 MA-Port

**Release**

- ASAM OTX Extensions 1.1

**ASAM Concept Projects**

- Big-Data Technologies for ODS

**ASAM Ideation Projects**

- Use Cases in Telematics

**Study Projects in Japan**


- Investigating applicability of ASAM MCD-1 XCP 1.3 and POD Access
- Interoperability Analysis of ASAM MCD-2 MC Tools
- ASAM ODS Use-Case Analysis and Problem Resolution Determination

# ASAM MCD-2 CERP

Title: Calibration Expert System Rule and Product Model Format  
Release: February 2016

Goal: Define a data model and language to express complex calibration parameter dependencies.

## Use-Cases:

Standard is the basis for a new class of tools: Calibration Expert Systems.

- Define system parameters (e.g. hardware, legal values)
- Check parameter consistency
- Check parameter plausibility
- Future: Calculate calibration parameters from defined parameters and system model data

## Benefits:

- Capture business-critical expert knowledge
- Improve calibration quality and detect errors early
- Improve communication between controls engineering, software development, calibration, test and quality assurance
- Future: Speed-up calibration process via parameter calculation

# ASAM CPX

Title: Calibration Process Exchange Format  
Release: February 2016

Goal: Define an exchange format for sequences of ECU calibration, based upon ISO OTX.

## Use-Cases:

- Define and document the steps of specific calibration processes
- Create comprehensive libraries for ECU calibration
- Automated calibration

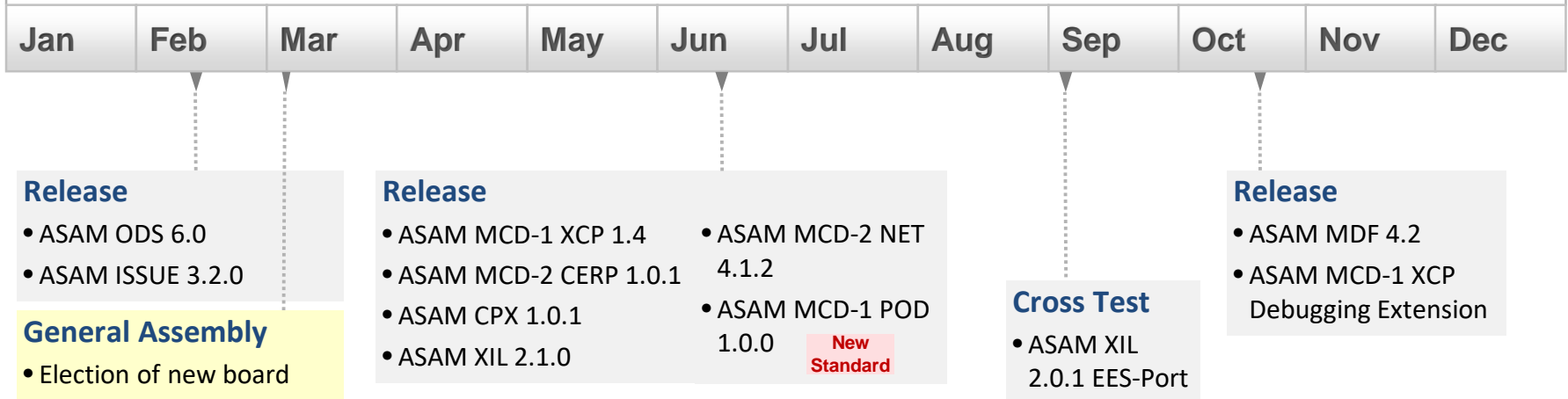
## Benefits:

- Capture business-critical expert knowledge
- Improve calibration process efficiency and repeatability

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# Roadmap 2017: Japan Become Active in ASAM

**2017**


## ASAM Concept Projects

- Big-Data Technologies for ODS
- Conceptual Study on Real-Time ECU Access API

## First Projects from Japan



- ASAM MCD-2 MC 1.7.1
- HEX File Management **New Standard**

# Board of Directors 2017-2019

**Marc Blatter**

Daimler AG  
 (Chairman of ASAM e.V.)



- Project leader diagnostics at Daimler
- Member of the Board of Directors since 2015
- Member of Technical Steering Committee from 2012 to 2014
- Workgroup member in: ASAM MCD-3D 3.0.0

**Dr. Ralf Nörenberg**

HighQSoft GmbH



- CEO of HighQSoft
- Workgroup member in: Big Data Technologies for ODS
- Member of the openMDM steering committee

**Prof. Marcus Rieker**

HORIBA Europe GmbH



- Director Academic Affairs at Horiba
- Professor for Information Analysis / Image Processing at the University of Applied Science Dresden
- Member of the Board of Directors since 2009

**Armin Rupalla**

RA Consulting GmbH



- CEO of RA Consulting
- Initiator of the new ASAM MCD-1 POD standard

**Richard W. Vreeland**

Cummins Inc.



- Director Core Engineering Technologies at Cummins Emissions Solutions



# Joint DE/JP Project Group on ASAM MCD-2 MC

- Goals:
- Minor bug fixing and feature additions
  - Try out new collaboration methods for international project teams

Title: ASAM MCD-2 MC v1.7.1

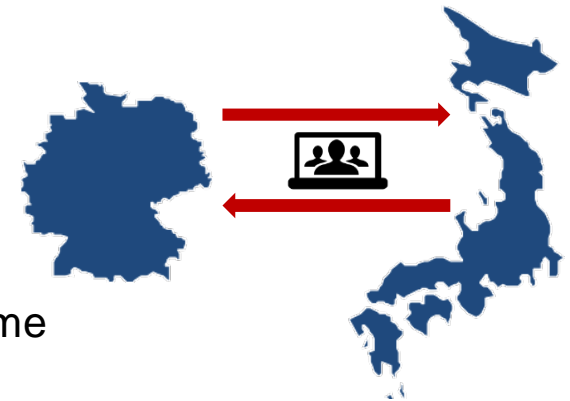
Release: March 2018

## Features

- Work on three CRs that originate from Japanese members
  - dependent characteristics can be used with multi-dimensional data such as curves, maps, etc.
  - two clarifications
- Work on 12 further CRs

## Pilot Project for International Project Collaboration

- Meetings take place with professional video conferencing equipment
- Members prepare meetings with written proposals, ahead of time
- Internal document review at the end of project



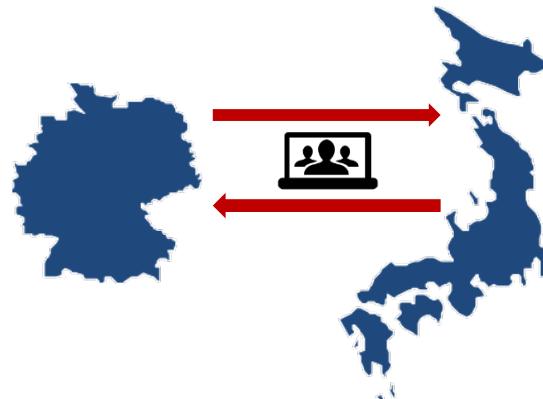
# Joint DE/JP Project Group on ASAM MCD-2 MC

## German Members

- ▶ Thilo Wenzel, ETAS  
(project leader)
- ▶ Hendirk Amsbeck, dSPACE
- ▶ Bernd Wenzel, M&K
- ▶ Franz Lohberger, Visu-IT!
- ▶ Elke Schnorr, Vector Informatik
- ▶ Wolfgang Paul, Vector Informatik
- ▶ Thomas Thomsen, ASAM e.V.  
(support)

## Japanese Members

- ▶ Katsuhiro Miyoshi, Toyota  
(initiator)
- ▶ Tadamasato Sato, Toyota
- ▶ Hiroshi Samezawa, Honda
- ▶ Akira Watanabe, Nissan
- ▶ Kiyoto Sukekawa, Nissan
- ▶ Yoshiaki Shoi, ASAM G.K.  
(support)



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# ASAM ODS 6.0

Title: Open Data Services  
Release: Q1 2017

Goal: Replace CORBA with state-of-the-art technology for client-server communication, and modernize the ODS API.

## Phase 1 - Client-Server Technology Research Project

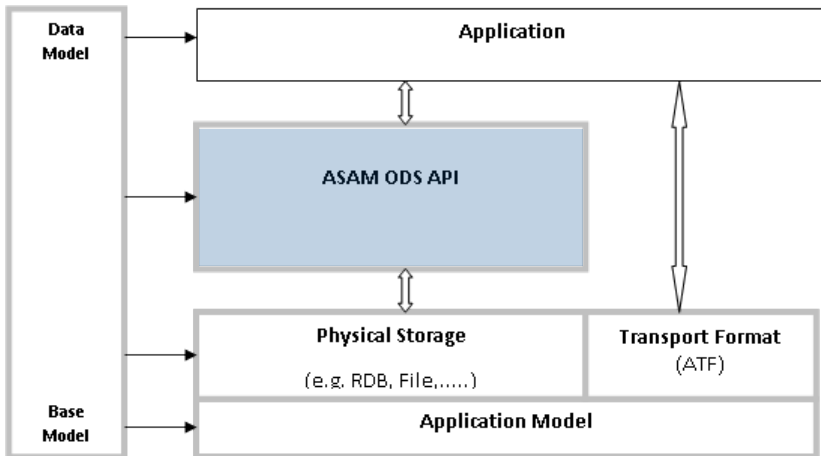
- Requirements, benchmarking and feasibility study
- Investigated multiple open-source technologies
- Result: New ODS API shall be based upon
  - W3W REST (standard for API specification)
  - HTTP (protocol)
  - Google Protocol Buffers (data serialization)

## Phase 2 - API Specification

- Specification of new ODS API
- API is consolidated to less functions and shall become easier to use
- Special focus on performance and IT security

# API Positioning and History

## Positioning

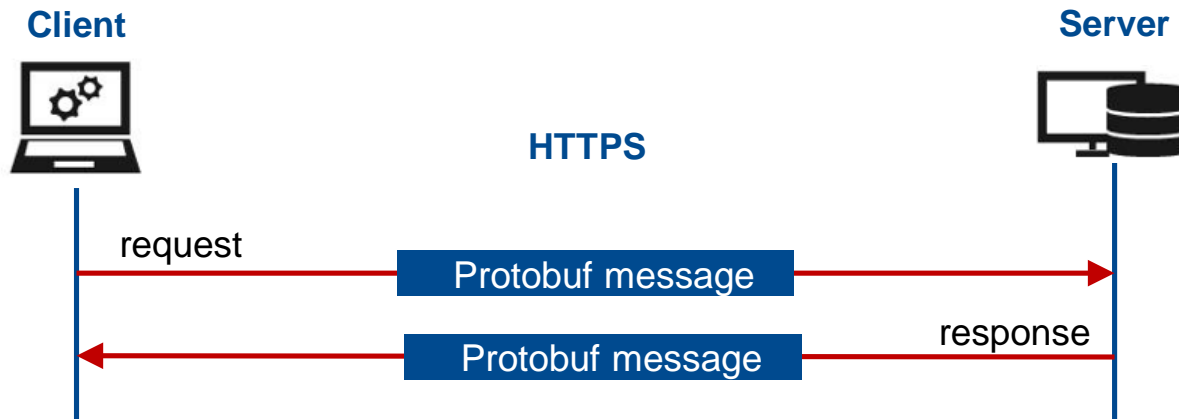


## History

- ASAM ODS 1.x to 3.x (1990<sup>th</sup>) : Remote Procedure Call Interface (RPC), 27 functions
- ASAM ODS 4.x to 5.x (2000) : Object-Oriented Interface (OO-API), up to 354 methods, subset-implementations only
- ASAM ODS 6.0 (2017) : Hyper-Text Transport Protocol (HTTP-API), 30 functions

# Characteristics of the HTTP-API

- API based upon the REST\*) architectural style.
- Serialization based upon Google Protocol Buffers 3.0 (short: Protobuf).
- Uses the W3C HTTPS transport protocol.
- Includes authentication.
- New data notification via W3C Server-Sent Event (SSE).



\*) Representational State Transfer

# Characteristics of the HTTP-API

- HTTP version 1.0 compliant.
- Using mostly POST and DELETE, one time GET.
- Minimum authentication: BasicAuth with username & password in Base64 encoding.
- Parameters are always transported through Protobuf messages.
- Supported content types:
  - Protobuf \*)
  - JSON
  - Standard includes Protobuf definition files:
    - ods\_notification.proto: message structure definition for the server-sent event notification
    - ods.proto: definition for all other message structures

\*) Preferred

# Characteristics of the HTTP-API

## 24 Common Functions

- Opening and closing the connection to a server.
- Read, write and modify instance data (i.e. meta-data and measurement-data).
- Modification of the application model.
- Functions for a client to handle transactions.
- Miscellaneous functions.

## 6 Special Functions

- Register and receive event notifications from the server.
- Security administration.



# API Examples

## Opening and closing the connection to a server.

HTTP	PATH	ACTION	
POST	{baseURI}/	<b>ods</b>	Request a connection ID to establish a communication session between client and server.
DELETE	{baseURI}/	<b>ods/{conId}</b>	Close the session.
POST	{baseURI}/ods/{conId}/	<b>context-read</b>	Retrieve all or a subset of context variables (name-value pairs that specify settings for the server).
POST	{baseURI}/ods/{conId}/	<b>context-update</b>	Set the value of one or more context variables.

# API Examples

## Read, write and modify meta-data and measurement-data.

HTTP	PATH	ACTION	
POST	{baseURI}/ods/{conl}/	<b>data-read</b>	Read instance data, e.g. attribute values, relations, and measurement data through 'values', 'flags', and 'generation_parameters' of the local column.
POST	{baseURI}/ods/{conl}/	<b>valuematrix-read</b>	Read the mass data of a complete measurement or of a subset of it.
POST	{baseURI}/ods/{conl}/	<b>data-create</b>	Create new instance, set attribute values and relations.
POST	{baseURI}/ods/{conl}/	<b>data-update</b>	Modify new instance, set attribute values and relations, write mass data.
POST	{baseURI}/ods/{conl}/	<b>data-delete</b>	Delete one or multiple instance.
POST	{baseURI}/ods/{conl}/	<b>data-copy</b>	Copy an instance.
POST	{baseURI}/ods/{conl}/	<b>n-m-relation-read</b>	Get a list of all instances that are related to a given instance through an n:m relation.
POST	{baseURI}/ods/{conl}/	<b>n-m-relation-write</b>	Set, add, or delete the n:m relations of an instance to other instances.

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# Goals

▶ **Goal 1:**

Provide a process to fix issues in ASAM standards in a timely manner.

▶ **Goal 2:**

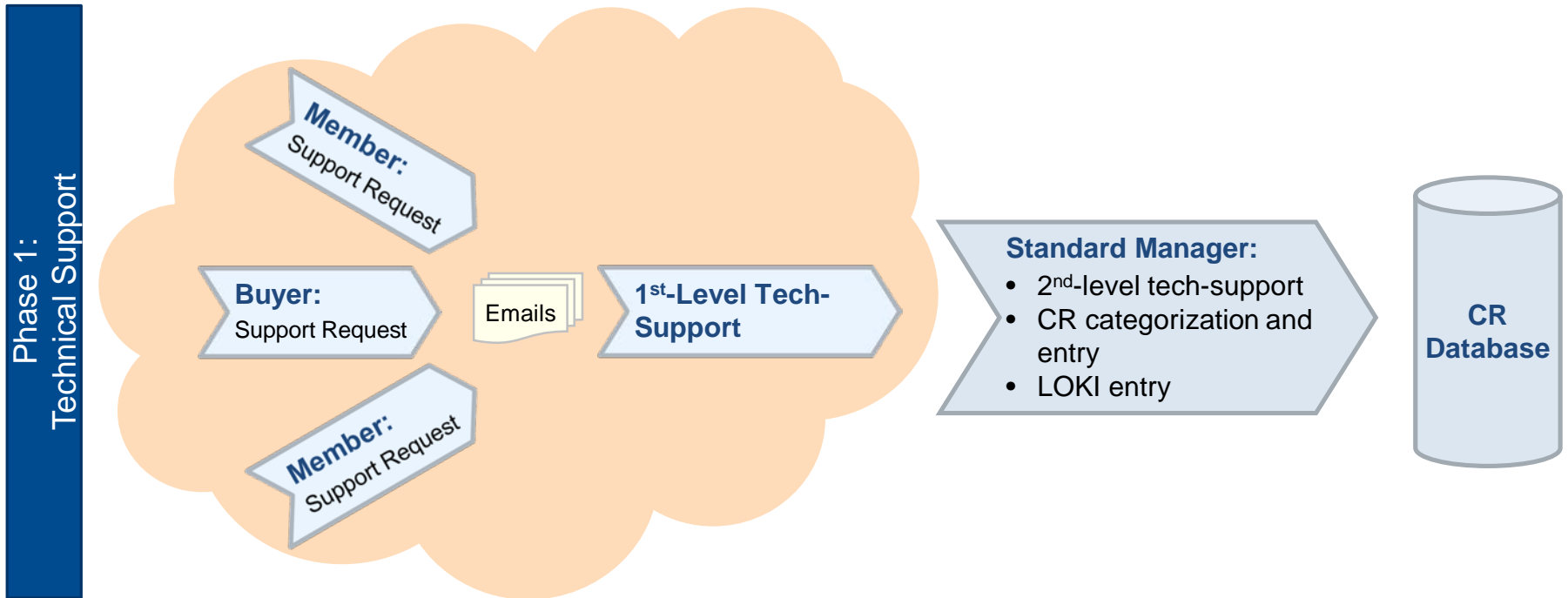
Meet legal obligations according to German law, e.g. issue documentation and resolution.

▶ **Problem:** Only work groups, consisting of member volunteers, can change standards.

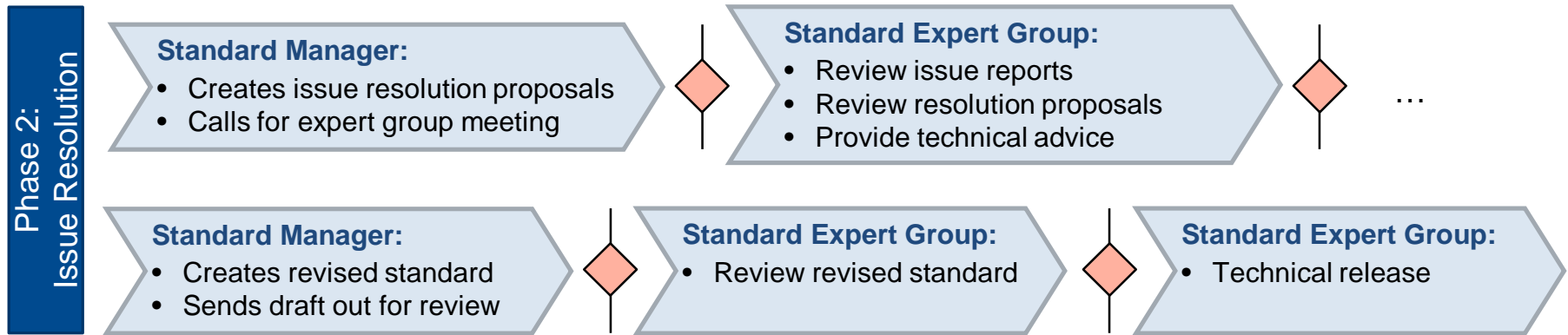
## Solution

- Establish an "Issue Resolution Process", which is:
  - continuous
  - supervised or directly carried-out by the ASAM Office
  - has minimum dependencies on members

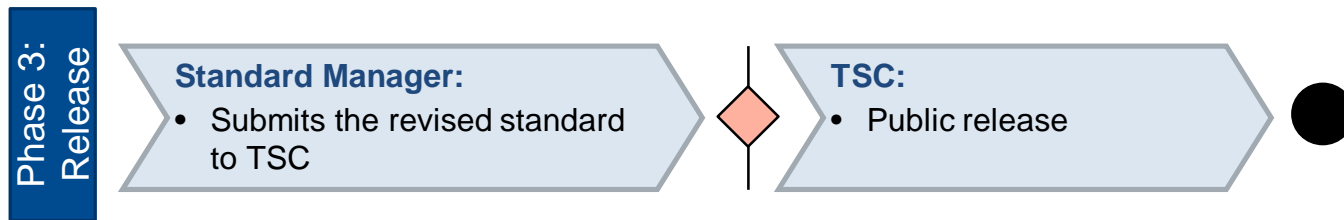
# Phase 1: Technical Support



# Process 2: Issue Resolution



# Process 3: Release



# Roles

## Standard Manager

### Tasks:

- Handling of support requests on 2<sup>nd</sup>-level.
- Handling of CRs.
- Maintain the LOKI <sup>\*)</sup>.
- Create proposals to resolve issue.
- Organize and carry out Standard Expert Group meetings.
- Create revisions of the standard and obtain release approval.

## Standard Expert Group

### Tasks:

- Review and confirm reported issues.
- Advise the Standard Manager on how to fix reported issues.
- Review implemented fixes in the revised standard.
- Vote on the technical release of the revised standard.

<sup>\*)</sup> List of Known Issues

# Thank you for your attention

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