Common Vehicle Interface Initiative
Today’s Agendas

- CVII Session 1 - Overview and Specification topics
- CVII Session 2 – Technology Stack (implementation)
- CVII Session 3 - Alignment and Adoption

Each 45 minute slot today carries a main theme

Each slot has multiple presentations on related topics, and some limited time for Q&A
Overview and Specification

- **State of the initiative, overview and some introduction**
  Gunnar Andersson, GENIVI

- **Latest development in VSS**
  Erik Jägervall, Bosch

- **VSSo (ontology model) intro - when to use VSS and VSSo**
  Daniel Wilms, BMW
Technology Stack (implementation)

- Overview of ongoing and planned tech-stack components
  Gunnar Andersson, GENIVI

- VSC: The potential for a common services language and the vehicle-service-catalog
  Gunnar Andersson, GENIVI
  Magnus Feuer, Feuerworks

- Why vehicles need an event-driven platform
  Thomas Spreckley, Bosch
CVII Session 3

Alignment and Adoption

- Introduction and update – alignment track

- eSync Alliance:
  Applying VSS formats to gathering OTA metrics
  Mark Singer, Excelfore

- Open Insurance (OPIN):
  VSS supports the Decentralisation of Insurance
  Neil Walker, Covea
Please put your questions into chat box *at any time* – we may get to them when there is some free time available

CVII has continuous activities within several subprojects, and not every aspect will be covered today. There will be *limited* introductions. If you are new to the initiative, feel free to ask questions, refer to references and reach out for a more in-depth introduction.
References

- **Common Vehicle Interface Initiative Home Page**
  - Easily found from the front page of the COVESA Wiki
  - Latest documents, presentations for review
  - List of related meetings and links to other organizations activities

- For more information and time to ask questions, join the weekly meetings of CVII-Tech-Stack, VSS, VSC, CCS, AASIG, W3C automotive working group, and many others according to your particular interest
CVII – Introduction and overview

October 06 2021
CVII State of activities – Highlights
(Data model specification)

- **VSS project active and healthy**
  - Minor-release (v2.2) ready to go including latest changes
  - Flexibility in datatype and units definition discussed and resolved
  - Some fundamental improvements/changes, possibly a “v3” of the VSS model?
- Higher-level discussions about reaching the CVII goal are not closed!
  - Not only is “VSS” an open project, the initiative is open for input on what “the industry-common data model” should look like or even how it ought to be named.
  - Alignment outreach still there and progressing
CVII State of activities – Highlights
(Tech Stack Development)

- Ongoing: Efficient **binary serialization**, reusing well-known technologies (Protobuf, AVRO)
- **W3C VISS v2** specification entered public working draft status
- Concept ready to connect (any) VSS-based in-vehicle data sources to the vehicle properties defined in **Android Automotive**:
  - **Template-driven code-generator** to automate this translation is under development. *(See more in this week’s AASIG-Vehicle HAL workshop)*
- **Vehicle software frameworks** that chose VSS as the default way to communicate data are being developed and expanded.
  - E.g. Bosch IoT-event-analytics and related projects.
  - E.g. Renesas-EPAM AOS
CVII State of activities – Highlights
(Outreach, Adoption and Alignment)

- Fruitful discussions with ISO TC22/SC31/WG6 (Extended Vehicle), and OEM-specific data groups
- Liaisons create input to core definitions, e.g. eSync Alliance -> new VSS signal proposals (EV / batteries, SOTA)
- ACM conference research paper suggests hierarchical Named Data Networking for in-vehicle networks – shows how to use VSS for direct signal addressing on the network \(^1\)
- We hear of various VSS-supporting company projects for demonstration, investigation/research, or production purposes that are not publicly stated

\(^1\) [https://dl.acm.org/doi/pdf/10.1145/3460417.3483374](https://dl.acm.org/doi/pdf/10.1145/3460417.3483374)
CVII – Organization of current activities

**Initiative**

**Common Vehicle Interface Initiative**

**Tracks**

**Alignment**
- Track: Industry Outreach
  - SENSORiS
  - ISO ExVe
  - Open Insurance Initiative
  - ESync
  - Catena-X, GAIA-X
  - ...

**Data**
- (meta-)model and standard catalogs
  - Model/Catalog:
    - Vehicle Signal Specification (VSS) WG (GENIVI)
  - (preparation 2019)
    - Cloud & Connected Services / Vehicle Data Model WG

**Services**
- (meta-)model and standard catalogs
  - Model/Catalog:
    - Vehicle Service Catalog (VSC) (GENIVI)
  - Communication:
    - V2V Protocol Development (W3C)

**Technology Stack**

**Scoping and Planning**
- CVII General Tech Stack WG (GENIVI/W3C)

**Vehicle applications Best Practices (W3C)**

**Activities & Projects**

**Model/Catalog**
- VSS Ontology (VSSo) WG (W3C)

**Model/Catalog**
- VSS Ontology (VSSo) WG (W3C)

**Model/Catalog**
- Model Service Catalog (VSC) (GENIVI)

**Communication**
- RPC Protocol Development (W3C)

**Scoping and Planning**
- CVII General Tech Stack WG (GENIVI/W3C)

**Communications**
- V2V (W3C)

**Architecture/Communication**
- Cloud & Connected Services (CCS) Project End-to-End Communication Framework WG (GENIVI)

**Android AASIG VHAL Project (GENIVI)**

**Full or partial stack development**

**Guiding best practices**

**Derive from**

**Influencing**
CVII = Coordination across standards bodies!

**ASAM/ODX**
- a data model for the description of diagnostics capabilities of ECUs needed throughout the lifecycle of a vehicle

**ISO 20078 20077**
- Extended Vehicle Standard & DIS.

**AUTOSAR**
- Classic AUTOSAR
- Adaptive AUTOSAR

**SENSORIS**
- towards a standardized interface specification to be used broadly across the automotive industry

**eSync**
- Software-over-the-air

**CATENA-X**
- a uniform standard for data exchange along the entire automotive value chain

**JASPAR**
- Dynamic Vehicle Information Sharing API Specifications
- Common Vehicle Information and Data Set Specifications

**ISO/IEC JTC1 SC41**
- Internet of things and digital twins

**DTC**
- Digital Twin Consortium Missing Automotive WG

**ISO/IEC JTC1 WG11**
- Smart Cities

**ISO TC 204**
- Intelligent Transport Systems

**OPIN**
- Open insurance network

**GAIA-X**
- next generation of a European data infrastructure

**ECLIPSE Foundation**

**EATA**
- European Automotive & Telecom Alliance

**ITU**
- Focus Group Vehicular Multimedia

**W3C**

**COVESIA**

**CVII**
- CVII - Common Vehicle Interface Initiative

**Alignment Outreach**

**National & Vehicle**

**International & Vehicle**

**International & Telecom**

**International & Industry**

**ALL MEMBER MEETING 2021**
CVII State of activities

“CVII is different”

- Overarching goal above all individual projects:
  - Achieve the industry-common alignment around how to transfer data (and services) through a common data (and service) model.
  - Explicit alignment outreach to all related parties and stakeholders.
VSS – Latest development

Erik Jägervall, Bosch

October 06 2021
Vehicle Signal Specification Status Update

Signal Catalog relatively mature, only minor changes
- A few signals added, e.g. EngineOilLevel and DistanceToService
- Change of datatypes for some signals from int to float
- Some signals changed from ”sensors” to ”actuators”
- V2.2 to be released

Continued development of VSS-Tooling
- New tools generate GraphQL schema & Protobuf
- Ongoing discussions on how to support user-defined datatypes and units in VSS and VSS-Tools
- Improved CI automation, unit-tests, some quality improvements and code refactoring
Finalizing the flexible usage of units opens up for more guidelines on how to use the VSS standard catalog, and potential proprietary additional catalogs.

Better documentation/clarification of VSS-layers expected:
- Already used in practice -> better documentation is needed

Some fundamental future change questions have been opened, e.g. possibly redesign and improve ability to model structured data.
- ... if it becomes a major change, a version 3 of model/rules is expected
- ... significantly impacted by discussion of VSC services description language (since it likely needs to refer to VSS signals, and is already expected to support a full data-modelling language)
NEXT: VSSo and VSS development

When to use which, etc.
Daniel Wilms, BMW
(separate powerpoint file)