



ANDROID™ AUTOMOTIVE SIG

All-Hands – 25 February 2020



Android Automotive SIG – Topics for today



- AASIG F2F Meeting
- New participants recently joined the calls
 - General Motors (infotainment connectivity architect), Mobis, EPAM
- Proof-of-Concepts (contribution)
- Spring AMM Content Planning
- Android Automotive & Location-Based Services (LBS)

- Reminder
 - AASIG “All-hands” calls : monthly report delivered on last Tuesday of each month at 5pm CET
 - Minutes: <https://at.projects.genivi.org/wiki/x/SIFoAg>
 - Vehicle HAL project calls: every week on Tuesday at 5pm CET
 - Minutes: <https://at.projects.genivi.org/wiki/x/HYVoAg>
 - Audio HAL project calls: every other week on Thursday at 11:30am CET
 - Minutes: <https://at.projects.genivi.org/wiki/x/ugDYAg>

Outcome of AASIG F2F meeting



- Location: BMW, Munich
- Agenda
 - Day 1: Vehicle HAL / Vehicle Data
 - Day 2: Vehicle HAL / Vehicle Data continuation and Audio HAL in parallel on Day 2 morning
- Participants: Mercedes-Benz, BMW (x2), High-Mobility, Bosch, Mobis(x2), Tieto(x3), Melco, Analog Devices, Gunnar, Philippe
- Minutes: <https://at.projects.genivi.org/wiki/x/lgTYAg>

Vehicle HAL

- Security design (completion of brainstorming)
- Proof-Of-Concepts identified (next slide)
- Work Breakdown Structures for the External & Internal Data Server Proof-Of-Concepts
- Preliminary List of Tech Briefs (in addition to PoC code)

Audio HAL

- Review of the list of prioritized topics
- Two Proof-of-Concept projects identified
 - Global Audio Effects service interface
 - Rerouting audio streams
- Need to work out the architectural design concepts for those 2 PoCs

Android Automotive SIG – Reference Platform & Proof-Of-Concept



Reference Platform – Technical Report

- **Hardware**
 - As before: **Renesas R-Car H3 starter-kit** with (HiKey 960 possible)
- **BSP / Support**
 - **NXP:** i.MX8 for Android Pie/9.0
 - **Renesas:** Files for 9.0 have been provided
 - **Android 10.0** is the target to support next.
 - **Lava-based test farm** up & running at Renesas → set up of Android tests on Lava-based test farm
- **New Code coming**
 - The example service implementing VSS will be ready soon
 - When it becomes more complete, it might be used for other platforms
- **Project Repository (reminder)** → <https://github.com/GENIVI/android-automotive>
 - Scripts help to set up, download AOSP source, build, and flash
 - Alternative container setup using Docker, to be ready soon
 - Now is the time for community (AASIG) input → test the scripts, check if the built versions are what you expect, and suggest updates and modifications
- **Community input? Have you tried it? Sent feedback?**

Vehicle Data API - External Data Server Proof-Of-Concept – BOM (technology selection)

Platform: Renesas R-Car H3 or NXP boards with AOSP 10.0

- 1- Android App in Application Layer
Android Apollo Plugin
- 2- Authentication Service in Framework layer
Java Implementation


Platform: Notebook with Linux / Docker / SomeIP (vsomeip)

- 1- NodeJS
- 2- Apollo GraphQL Server (Data Server)
 - Schema generated out of VSS
 - Permissions generated out of VSS
 - JWT authentication.
 - implement Resolvers
 - implement Mutations
 - implement Subscriptions
- 3- Feeder


AASIG Vehicle Data Access / Vehicle HAL - Proof-Of-Concept(s) & Roadmap



Proof-Of-Concepts

- **External Data Server concept** (priority one).  **CONTRIBUTION**
link to the contribution page: <https://at.projects.genivi.org/wiki/x/RgXYAg>
- Data Server inside the Framework (so-called Internal Data Server) concept (priority two)
- SomeIP stack inside the Framework concept (priority three)
- Google VHAL + OEM Extensions inside concept (priority four)

Roadmap for the PoC(s)

- stage 1 - Spring AMM (12-14 May)  **DEMO**
- stage 2 - Go to Google readiness check (early Q3 - July ?)
- stage 3 - Fall tech summit (Q4 – October-November ?)
- stage 4 - CES 2021 (January 2021)

Android Automotive SIG – Spring AMM Content Planning



- 12-14 May, Leipzig, Germany
- AASIG track
 - Vehicle HAL Proof-of-concept
 - status report & demos
 - Audio HAL Proof-of-Concepts
 - architectural design
 - Additional directions for the SIG
 - AA & Location Based Services for instance
- Cloud & Connected Services
 - Communication Framework
 - Proof-of-concept status report & demos
- In-Vehicle Payment
- Virtualization
- Automotive Development Process
 - Including Interoperability with AUTOSAR
 - Connecting to the Cloud
- Cybersecurity
- Forward-looking
 - Vehicle Representation in IoT
 - Edge Computing

Thank you!

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Internal Data Server PoC – Architectural Design & Work Breakdown Structure

