

Software defined Vehicle

Eclipse Leda

SDV Contribution Day 2022

June 30th

ZF Forum Friedrichshafen

Who am I?



Christian Heissenberger
ETAS GmbH

- › Senior Software Architect for Software defined Vehicle
- › Project Lead Eclipse Leda

- › ~10 years at Robert Bosch GmbH Germany
- › ~10 years experience in embedded software development

- › “SDV like a Bosch”
- › Interest in creating business with and pushing Open Source



Leda

Eclipse Leda

What is Eclipse **Leda**?

Some background

- › The initial idea behind
 - › Have a **quick start image** on a virtual and physical device
 - › Creating a base integration for all SDV In-Vehicle SW parts
 - › Have a prototyping environment **available for all developers**
 - › Bring the SDV use cases **together in one place**
- › Background on the name and context
 - › Leda was a spartan queen, admired by Zeus and mother of
 - › 2 half gods (Pollux and Castor)
 - › and 2 other famous women (Helen of Troy and Clytemnestra)
 - › has a star constellation Cygnus or Swan created by Zeus
- › **Main goal**
 - › **Be the birthplace for great cooperation and integration within SDV for In-Vehicle Software**



Eclipse Leda

Project proposal / content

<https://projects.eclipse.org/projects/automotive.leda>

- › The Eclipse Leda project will **provide system image “recipes” to deliver a functional Linux-based image/distribution in the context of SDV** (Software Defined Vehicle), by pulling together individual contributions from the SDV and the larger OSS community.
- › These images will be available for **anyone** interested in working with the SDV tech stack
- › Deliverables are container images, installable/flashable image files and documentation

Eclipse Leda

Basics

This proposal is in the Project Proposal Phase (as defined in the [Eclipse Development Process](#)) and is written to declare its intent and scope. We solicit additional participation and input from the community. Please login and add your feedback in the comments section.

Parent Project:
[Eclipse Automotive](#)

Background:
The newly instantiated Eclipse SDV working group is currently gearing up to receive a first batch of project proposals for technology building blocks that will begin to populate the landscape of what will become an SDV ecosystem. The mid-term goal is to form a technology ecosystem, where a myriad of projects and companies contribute diverse functional additions around a set of core APIs, extension points and integration patterns. To enable developers and users of the SDV ecosystem, an SDV distribution is expected to help integrating several individual components and various other open-source projects to a ready-to-use development environment for new and existing components, as well as creating a basis for automotive-grade, production-ready SDV solutions.

Scope:
The Eclipse Leda project will provide system image “recipes” to deliver a functional Linux-based image/distribution in the context of SDV (Software Defined Vehicle), by pulling together individual contributions from the SDV and the larger OSS community.

Eclipse Leda Overview



Eclipse Projects

Velocitas
Vehicle apps & SDK

OPEN CONTAINER INITIATIVE

kanto

KUKSA VAL



Other open source

yocto PROJECT

Linux

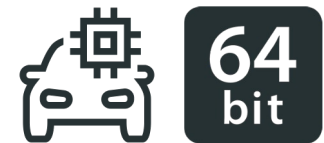
RAUC

CLOUD NATIVE COMPUTING FOUNDATION

K3S **containerd** **OpenTelemetry**



Runs on Virtual + Physical Devices:



Eclipse Leda

Goal

- › **Provide an OS distribution** and configuration for constrained in-vehicle devices to **showcase Software Defined Vehicle** use cases
- › **Integrate** Eclipse SDV + IoT software components to showcase features and their state of maturity
- › **Demonstrate** the use and interaction of integrated implementations, open protocols and specifications, such as
 - › Covesa Vehicle Signal Specification
 - › Kubernetes APIs
 - › OpenTelemetry specs and components
 - › Eclipse IoT related specifications for software rollouts and digital twin representations
 - › ...

Eclipse Leda- Team (Project Committers & Mentor)

People

Project Leads:

Christian Heissenberger
Mike Haller

Committers:

mhaller
chheis
mariaivanova
bym2hi
elpaso

Mentors:

Jens Reimann

Interested Parties:

- Robert Bosch GmbH
- ETAS
- Microsoft



Mike Haller mikehaller



Christian Fraas el-paso



Maria Ivanova mariaivanova-git



Christian Heissenberger chheis



Stoyan Lachev stlachev



michaelbyrne323

Mentor



Jens Reimann

Eclipse Leda

Initial Contribution

- › Build recipes for QEMU x86_64, ARM-64 and Raspberry Pi 4 as an OpenEmbedded Meta-Layer
- › Initial user documentation, quickstart tutorial

Can be found here soon: <https://github.com/eclipse-leda/>

Eclipse Leda

In Action



Summary

- › **Eclipse Leda** Is an OS distribution for
 - › **Being your quick start platform with SDV development**
 - › **Prototyping your Ideas**
 - › **And provides the integration of SDV components**
- › **Status**
 - › Initial code contribution in preparation

The future of mobility will be software defined!

Let's put all projects together and build the future vehicle.

I invite you!

Useful Links

- › Software defined Vehicle (SDV)
 - › Website: <https://sdv.eclipse.org/>
 - › SDV related Projects: <https://sdv.eclipse.org/projects/>

- › Eclipse Leda: <https://projects.eclipse.org/projects/automotive.leda>
- › Eclipse Velocitas: <https://projects.eclipse.org/projects/automotive.velocitas>

- › Vehicle Signal Specification: https://github.com/COVESA/vehicle_signal_specification

Thank you!

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Find out more and join us
<https://sdv.eclipse.org/>