Automotive Grade Linux Developer BoF Session

*Embedded Linux Conference*
*September 27, 2021*

Walt Miner – AGL Community Manager
Twitter: [@VStarWalt](https://twitter.com/VStarWalt)
wminer@linuxfoundation.org
What is AGL?

Collaborating to build the car of the future through rapid innovation

- Open source Linux-based collaborative project
- Hosted at Linux Foundation
- Focused on rapid innovation of vehicle software using the AGL Unified Code Base
AGL Unified Code Base

• Develop a single open source software platform for the entire industry, reducing fragmentation
• Provide at least 70% of the base platform for production projects
• Cultivate an ecosystem of developers, suppliers, and automotive expertise all using a single platform
• Reference hardware and applications available for adaptation
# 2021 AGL Schedule

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See [https://wiki.automotivelinux.org/schedule#latest_schedule](https://wiki.automotivelinux.org/schedule#latest_schedule) for latest schedule information.
Magic Marlin

New Features Developed

Stabilize

App Development

Start of Development 7.20.21

M1 12.07

M2 01.21

M3 02.04

Final Release 02.18.22

As of 26 August 2021
Magic Marlin Patch Releases

As of 26 August 2021
AGL Expert Groups

- Instrument Cluster
- Application Framework and Security
- Connectivity
- Containers and Service Mesh
- Vehicle to Cloud (V2C)
- CI and Testing
- IVI
- Reference Hardware System Architecture
- Virtualization
AGL Will Evolve To

• Embrace more of the best of open source
• Take advantage of upstream
• Collaborate with existing communities to extend automotive use cases
  • Yocto and OpenEmbedded
  • Replace App FW with systemd and other mature technologies wherever possible.
  • PipeWire and WirePlumber
  • Weston and Wayland
  • Flutter
  • Flatpak
Topology

• SOCs continue to grow ever cheaper and more powerful
• High speed connectivity becomes ubiquitous
• Can re-arrange functionality within the vehicle
• More functionality to the cloud
• Virtualization, Container and Service Mesh, V2C expert groups tackling this!
Learn More

• Key Expert Groups in these efforts
  • Containers and Service Mesh
  • Virtualization
  • Instrument Cluster
  • Vehicle to Cloud
  • Application Framework evolution
  • CI and testing to pull it all together
Product Ready IVI EG
Product Ready IVI EG

• EG is being led by Toyota
• Bring more production-ready components into the AGL UCB
• Focus on enabling key features needed by future IVI systems in development today
• Feature gap analysis with current UCB
  • Code re-use from existing production system donated by members
  • Evolution of AGL App FW

https://wiki.automotivelinux.org/eg-ic
https://confluence.automotivelinux.org/x/sQDBAQ
Product Ready IVI EG

- **Flutter**
  - Open Source UI toolkit created by Google, originally for Android
  - Cross-platform development
  - “Beautiful native apps in record time”
- Toyota working to open source their implementation of a Flutter Embedder that works with Wayland
- Igalia running Flutter Apps on the existing AGL UCB using Web App Manager
  - Watch this evolution on [Confluence](https://confluence.example.com)
App FW Evolution

• Replace AGL maintained App FW with systemd components
• IPC via gRPC or similar
• Enhanced developer experience using Flatpak
• Replace SMACK with SELinux with option to have no LSM enabled
• Debut with Magic Marlin release
AGL Workshop

• Virtual Workshop to be held Oct 19-20. See the wiki for details.

https://wiki.automotivelinux.org/agl-distro/oct2021-f2f
DEVELOPER RESOURCES
AGL Documentation

• Getting Started
  https://wiki.automotivelinux.org/start/getting-started

• AGL documentation site
  http://docs.automotivelinux.org/

• AGL Wiki
  https://wiki.automotivelinux.org/

• AGL Jira
  https://jira.automotivelinux.org/
Get The Code

• Pre-built binaries and source tar balls available
  • https://www.automotivelinux.org/software/download

• Latest Source Code and Build Instructions
  • https://wiki.automotivelinux.org/agl-distro/source-code

• Release Notes
  https://wiki.automotivelinux.org/agl-distro/release-notes
AGL Code

• AGL gerrit
  http://gerrit.automotivelinux.org/

• AGL git
  https://git.automotivelinux.org/
Ask Questions

• Weekly Developer Call on Tuesdays
  https://wiki.automotivelinux.org/dev-call-info

• IRC channel #automotive on libera.chat
  Discussion about open source software for vehicles. No help for mechanical issues should be accepted from anyone on this channel.

• Dev Community Mail List
  https://lists.automotivelinux.org/g/agl-dev-community
Q & A / Discussion
THANK YOU