AGL 2019 Roadmap

AGL All-Member Meeting Tokyo

March 5, 2019

Walt Miner (@VStarWalt)
Community Manager, AGL, The Linux Foundation
Before we start...

• We are an open source project which means:
  • Code, code, code
  • Commit Early, Commit Often
  • Everything we do is in the open and transparent
## Top 25 Git Committers in 2018

<table>
<thead>
<tr>
<th>Commits</th>
<th>Name</th>
<th>Company</th>
</tr>
</thead>
<tbody>
<tr>
<td>942</td>
<td>Romain Forlot</td>
<td>IoT.bzh</td>
</tr>
<tr>
<td>400</td>
<td>Jose Bollo</td>
<td>IoT.bzh</td>
</tr>
<tr>
<td>306</td>
<td>Jonathan Aillet</td>
<td>IoT.bzh</td>
</tr>
<tr>
<td>231</td>
<td>Matt Ranostay</td>
<td>Konsulko</td>
</tr>
<tr>
<td>188</td>
<td>Kazumasa Mitsunari</td>
<td>Witz</td>
</tr>
<tr>
<td>170</td>
<td>Jan-Simon Moeller</td>
<td>Linux Foundation</td>
</tr>
<tr>
<td>115</td>
<td>Ronan Le Martret</td>
<td>IoT.bzh</td>
</tr>
<tr>
<td>108</td>
<td>Thierry Bultel</td>
<td>IoT.bzh</td>
</tr>
<tr>
<td>98</td>
<td>Mark Farrugia</td>
<td>FiberDyne</td>
</tr>
<tr>
<td>87</td>
<td>Khang Nguyen</td>
<td>Renesas</td>
</tr>
<tr>
<td>82</td>
<td>Stephane Desneux</td>
<td>IoT.bzh</td>
</tr>
<tr>
<td>78</td>
<td>Sebastien Douheret</td>
<td>IoT.bzh</td>
</tr>
<tr>
<td>77</td>
<td>Loic Collignon</td>
<td>IoT.bzh</td>
</tr>
<tr>
<td>73</td>
<td>Changhyeok Bae</td>
<td>LG</td>
</tr>
<tr>
<td>72</td>
<td>Fulup Ar Foll</td>
<td>IoT.bzh</td>
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<tr>
<td>59</td>
<td>Frederic Marec</td>
<td>IoT.bzh</td>
</tr>
<tr>
<td>58</td>
<td>Zheng Wenlong</td>
<td>Nexty</td>
</tr>
<tr>
<td>57</td>
<td>Tadao Tanikawa</td>
<td>Panasonic</td>
</tr>
<tr>
<td>52</td>
<td>Matt Porter</td>
<td>Konsulko</td>
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<tr>
<td>41</td>
<td>Kevin Hilman</td>
<td>BayLibre</td>
</tr>
<tr>
<td>41</td>
<td>Tobias Jahnke</td>
<td>Microchip</td>
</tr>
<tr>
<td>41</td>
<td>Wang Zhiqiang</td>
<td>Nexty</td>
</tr>
<tr>
<td>39</td>
<td>Clement Benier</td>
<td>IoT.bzh</td>
</tr>
<tr>
<td>39</td>
<td>Thuy Tran</td>
<td>Renesas</td>
</tr>
<tr>
<td>31</td>
<td>Yuta Doi</td>
<td>Witz</td>
</tr>
</tbody>
</table>

- 3764 Total Commits
- 73 Committers
- 28 Companies

- 01 Jan 2018 – 31 Dec 2018
- Commits to master
## Top 20 Companies in 2018

<table>
<thead>
<tr>
<th>Company</th>
<th>Commits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IoT.bzh</td>
<td>2301</td>
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<tr>
<td>Konsulko</td>
<td>351</td>
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<tr>
<td>Witz</td>
<td>219</td>
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<tr>
<td>Linux Foundation</td>
<td>170</td>
</tr>
<tr>
<td>Renesas</td>
<td>167</td>
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<tr>
<td>FiberDyne</td>
<td>120</td>
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<tr>
<td>Nexty</td>
<td>99</td>
</tr>
<tr>
<td>LG</td>
<td>73</td>
</tr>
<tr>
<td>BayLibre</td>
<td>61</td>
</tr>
<tr>
<td>Panasonic</td>
<td>57</td>
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<table>
<thead>
<tr>
<th>Company</th>
<th>Commits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microchip</td>
<td>50</td>
</tr>
<tr>
<td>Collabora</td>
<td>21</td>
</tr>
<tr>
<td>Mitsubishi Electric</td>
<td>12</td>
</tr>
<tr>
<td>Xevo</td>
<td>11</td>
</tr>
<tr>
<td>ADIT</td>
<td>10</td>
</tr>
<tr>
<td>Intel</td>
<td>8</td>
</tr>
<tr>
<td>Qt Company</td>
<td>7</td>
</tr>
<tr>
<td>Individual</td>
<td>6</td>
</tr>
<tr>
<td>AisinAW</td>
<td>5</td>
</tr>
<tr>
<td>Amazon</td>
<td>5</td>
</tr>
</tbody>
</table>

- 3764 Total Commits
- 73 Committers
- 28 Companies
- 01 Jan 2018 – 31 Dec 2018
- Commits to master
Other Numbers

- 342 commits to flounder release branch in 2018
- 170 commits to eel release branch in 2018
- 9 commits to dab release branch in 2018
- Grand Total = 4285 commits
- 124 unique individuals and 41 unique companies have contributed to AGL since the start of the project
  - 33 new committers in 2018
  - 5 new companies contributed in 2018
- 11 individuals not affiliated with a member company have contributed
- 701 Jira issues closed during 2018
  - 1675 issues closed since start of project (through 20 Feb 2019)
Thanks for all the fish...

Agile Albacore – Jan 2016
Brilliant Blowfish – July 2016
Charming Chinook – Dec 2016
Daring Dab – July 2017
Electric Eel – Jan 2018
Funky Flounder – Ocr 2018
Grumpy Guppy – Jan 2019
Happy Halibut – July 2019
Itchy Icefish – Jan 2020
Call To Action

• YOU can move these projects forward
  • There are Projects that will get done this year because someone or some group is passionate about it.

• Join the automotive-discussions mail list
• Download the code
• Submit changes
• Have Fun!
2019 ROADMAP
<table>
<thead>
<tr>
<th>Infotainment</th>
<th>Instrument Cluster</th>
<th>Heads-up Display (HUD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telematics/Connectivity</td>
<td>Functional Safety</td>
<td>Advanced Driver Assistance Systems (ADAS)</td>
</tr>
</tbody>
</table>

| Autonomous Driving |

the only organization addressing all software in the car
Vision Results from 2018

- Major Content Providers Develop AGL Apps – Amazon Alexa
- OEMs Port Legacy Apps to AGL - Unknown
- Releases: Funky Flounder July 2018 and Grumpy Guppy for CES 2019 - Completed
- AGL App Framework Evolution
  - User Management – User management updated and some testing. Need more feedback
  - Power Management – Not started
  - Memory and CPU management – Not started
Vision Results from 2018

- Sustainable Audio Solution – Major progress
- Video Player Reference App – not complete
- Home Screen and Window Manager Services Complete – Started. Progress slow.
- Chromium based HTML5 Apps – Web App Manager and Chromiom 68 in GG
- Vehicle to Cloud Services – Minimal progress.
- Speech and Text to Speech Services – APIs available. Alexa demo shown at CES
- Portable AGL Test Rig - “Lab in a Box” - Available
More Results from 2018

- Device Profiles fully available
- Instrument Cluster reference device available and shown at CES
- Telematics Reference device started
Vision for 2019 & Beyond

- Window Manager and Home Screen Services
  - Window Manager and Compositor consolidation
  - Activity Manager
  - Input manager
- Video architecture for IVI, ADAS and Autonomous
- Sensor fusion architecture
- Smartphone connectivity – Plug in solution for Apple CarPlay and Android Auto
Vision for 2019 & Beyond

- AGL production readiness
  - Speech Architecture
  - Web App Manager
  - Audio – pipewire vs. 4a
  - CAN and Vehicle signaling – CAN output + J1939
- Instrument Cluster evolution
- Telematics, ADAS, and HUD reference devices
- Next generation SOCs (RCAR gen 4, i.MX8)
CES 2020 PROPOSAL
CES 2019 : Three demo sets

**Stable**
- New Instrument Cluster Reference + FF reference Apps and latest audio management

**Alexa**
- Amazon Alexa demo
- GG Reference Apps + Speech Rec API + latest Audio management

**Challenging**
- Japan Platinum/Gold POC
- New H/S design, Mapbox, etc
• Build new demo unit (IVI side)
• Multi-modal input manager including speech, steering wheel, center stack buttons, and gear shift controller/wheel
• Landscape or portrait mode support
• Telematics and CAN
• New Reference Board
CES 2020

Video Solution for Multi-cam integration
CES 2020: Three demo sets

**Stable**
- HH (2019/8 release) stable demo.
- IVI, IC, Telematics, CAN, and HH reference Apps

**Cool**
- Multi – Modal demo
- IVI with new center stack, IC, Production Steering Wheel

**Challenging**
- Japan Platinum/Gold POC
- TBD
HAPPY HALIBUT
Happy Halibut

- Upgrade to Yocto 2.6 – Thud branch
- Telematics Reference Device
- Web App Manager maturity
- Speech re-factorization and Alexa Voice Agent
- Audio Policy Manager
- CAN message sending and J1939
<table>
<thead>
<tr>
<th>Month</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>July</th>
</tr>
</thead>
<tbody>
<tr>
<td>Happy Halibut</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>New Features Developed</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Start of Development</td>
<td>02.07</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Uprev to thud complete</td>
<td>03.22</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>RC1</td>
<td>05.10</td>
<td>RC2</td>
<td>05.24</td>
<td>RC3</td>
<td>06.08</td>
<td>RC4</td>
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<tr>
<td>Final Release</td>
<td>7.06</td>
<td></td>
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</tbody>
</table>

- **Happy Halibut**
- **New Features Developed**
- **Stabilize**
- **App Development**

*Note: The timeline includes important dates and phases of development.*
Happy Halibut Patch Releases

<table>
<thead>
<tr>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
<th>Jan</th>
</tr>
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<tbody>
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</tr>
</tbody>
</table>

Happy Halibut

Patch Updates

App Development

8.0.0 Release 07.13
8.0.1 09.07
8.0.2 10.12
8.0.3 11.15
8.0.4 12.14
8.0.5 01.25
ITCHY ICEFISH
Itchy Icefish

• Continue with Yocto 2.6 – Thud branch
  • Semis aligned on thud
  • Less churn at start of dev cycle
  • Focus on new features for CES rather than BSPs
Itchy Icefish

New Features Developed

Stabilize

App Development

Start of Development
07.01

RC1 11.22
RC2 12.6
RC3 12.20
RC4 01.25
Final 02.07.20
EXPERT GROUPS
Active Expert Groups

- Application Framework and Security
- Connectivity
- Continuous Integration and Automated Test
- Graphics and UI
- Navigation
- Virtualization
- Reference Hardware System Architecture
- Speech
- Vehicle to Cloud
- Instrument Cluster
- Requirements Specification

New
Speech EG Tasks

• Integrate Alexa with AGL system services such as HVAC
• Refactor Speech API binders based on lessons learned from CES integration
• Integrate with new open source Alex Voiceagent
• Multiple speech engine support
App Framework Tasks

- Enable multi-user across the reference platform.
  - Widget installation per user
- Replace obsolete Tizen Security Manager
- Replace SMACK with Token logic required for HTML5 apps
- Security workflow for Device and App developers
Graphics and UI Tasks

- Finish Waltham integration
- Investigate pipewire vs. 4a as audio solution
- 4a Policy engine
- Simpler 4a configuration and maintainability
Connectivity Task List

• Signal composer stabilization and improvements
  • CAN HD
  • J1939
  • Improved messaging sending and filtering capabilities
  • Factory programming of CAN message set based on final vehicle configuration
Connectivity Task List

- Telephony binder
  - Extend to hardwired telephone use case
- Telematics reference device and applications
CIAT Task List

• More Tests!
Instrument Cluster (New EG)

- Create profile for Cluster (HUD)
- Shrink and optimize AGL base as much as possible for low cost system.
- Possible use cases include motorcycles
- Functional Safety for Instrument Cluster

https://wiki.automotivelinux.org/eg-ic
Requirements Spec EG

- Creating Requirements Specification 2.0
- Think Marketing Requirements Document (MRD) Not a compliance spec!
- Guidelines for deciding design policies for developers
- Priorities and criteria for developing AGL UCB

https://wiki.automotivelinux.org/eg-requirements-specification
Navigation Task List

• AisinAW can no longer lead so EG will be mostly dormant in 2019 unless new leadership and interest is found
V2C EG- Application Candidates

• Save Vehicle preferences from car to cloud
• User shares data with third party in exchange for discount or promotional offer
• Cloud-initiated Feature Activation
• CAN Data is encrypted, signed and stored in OEM Cloud
• Authenticate to third-party subscription service
Q & A
Q & A

- This is the segment where
  - You ask intelligent, well thought out questions
  - I ramble pointlessly and unintelligently
- And/Or
  - You ask “dumb” questions
  - I respond with concise, insightful, and well-reasoned answers
THANK YOU