Getting Started with OpenECU

Release 2.6.0 (r2016-1)

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Getting started with OpenECU

Thank you for choosing Pi Innovo's OpenECU platform. OpenECU is a range of adaptable electronic control units and software for the automotive market, allowing rapid creation of applications, from CAN gateways, to suspension, after-treatment, and engine control.

To get started with OpenECU, please follow this guide in selecting which third-party tools to use with OpenECU and how to configure those tools with OpenECU (installation, licensing, environment variables).

1. [Choose which third-party tools to use with OpenECU](#)

   OpenECU developer software and ECUs are compatible with a third-party tools such as MATLAB, C compilers and calibration tools. Carefully consider which tools are appropriate for you.

2. [Install third-party tools](#)

   These can be installed after OpenECU but will then require some additional manual setup to work correctly with OpenECU. If installed first, the OpenECU installer will update those tools as necessary.

3. [Install OpenECU](#)

   OpenECU is packaged as an executable installer that includes OpenECU software, documentation and will integrate OpenECU with some third-party tools.

4. [License OpenECU](#)

   OpenECU software employs the same license manager as some third-party tools, and the setup may be familiar to you. OpenECU licenses are issued by Pi.

5. [Check environment variables](#)

   Environment variables help OpenECU locate third party tools. If these are not correctly set, then application builds may fail.

6. [Try out quick start example to become familiar with OpenECU](#)

   Each package comes with a simple example of construct an application and program the ECU. Following the example will quickly determine whether tools have been correctly installed, licensed and configured.

7. [Read through the release notes](#)

If you have used OpenECU before then some features in a newer version of OpenECU may have changed, become deprecated or have been removed completely. Reading the release notes will tell you what features of you application may be affected.

8. Refer to the user guide

The searchable [OpenECU User Guide (C-API)](#) or [OpenECU User Guide (Sim-API)](#) provides comprehensive reference information for hardware and software, examples and guidance. Please consult the user guide for detailed help on all aspects of OpenECU.

1. Choose third-party tools

OpenECU developer software and ECUs are compatible with a variety of third-party tools. The document [OpenECU Compatibility with Third Party Tools, "Compatibility"](#) details each of these tools and supported versions. Carefully consider which tools are appropriate for you.

[Contact OpenECU support](#) if you are unsure which tools to purchase or use.

2. Install third-party tools

OpenECU requires various tools provided by third parties to generate applications to run on an ECU or to communicate, program and calibration an ECU whilst the application is running. The complete list of third-party tools supported by OpenECU can be found in [OpenECU Compatibility with Third Party Tools](#).

OpenECU has been tested against the tool versions listed in the [OpenECU Compatibility with Third Party Tools](#) document. If you are purchasing a new tool then you may find the vendor offers you the latest version of their tool, rather than the version OpenECU has been tested against. It is important to request a version of the tool that matches those tested against OpenECU, otherwise incompatibilities may arise.

Use of unsupported versions of third party tools

Pi cannot offer support for OpenECU when used with unsupported versions of third-party tools.

Operating system

OpenECU works with the following operating systems.

- Microsoft Windows

Version	License	Installation and setup	Troubleshooting
Win XP SP3 32-bit	Issued by Microsoft	Installation instructions provided by Microsoft. No special setup required.	No known issues
Win 7 SP1 32-bit, 64-bit			

Note

Windows XP support is now deprecated and support will be removed in a future OpenECU release.

```
D:\Progra~1\diab\5_8_0_0\win32\bin\
```

Modeling tools

A modeling tool allows the user to diagrammatically describe their application logic and control. That tool generates source code which OpenECU automatically builds into an application using a compiler (next section). OpenECU supports the following modeling tools.

- Mathworks MATLAB/Simulink

Version	License	Installation and setup	Troubleshooting
R2008b R2011a R2011b R2012a R2012b R2013a R2013b R2014a R2014b R2015a R2015b 32-bit	Issued by Mathworks	Installation instructions provided by Mathworks. Setup requires MATLAB's PATH variable to be adjusted, which the OpenECU installer can do for you, see OpenECU Developer Software Installation and Release Note.	No known issues
R2013b R2014a R2014b R2015a R2015b 64-bit			

Compilers

A compiler translates C source code (either written by hand or generated by a modeling tool) into machine code that runs directly on the ECU. OpenECU supports a number of compilers.

Some targets are supported by only one compiler, see OpenECU Compatibility with Third Party Tools, "Compatibility" for a complete list.

- Wind River Diab compiler

Version	License	Installation and setup	Troubleshooting
v5.5.1.0 v5.8.0.0 v5.9.0.0	Issued by Wind River	Installation instructions provided by Wind River. Setup requires the Window's PATH environment variable to be adjusted, or an OpenECU specific environment variable to be created, see OpenECU Developer Software Installation and Release Note, v5.5.1.0, v5.8.0.0, v5.9.0.0.	OpenECU Developer Software Installation and Release Note, v5.5.1.0, v5.8.0.0 v5.9.0.0

- GNU GCC

Version	License	Installation and setup	Troubleshooting
v4.7.3	GPL v3	Installation included with OpenECU installer. No special setup required.	OpenECU Developer Software Installation and Release Note, "v4.7.3, Known defects"

Programming, data logging and calibration tools

OpenECU requires a tool to program (or "Flash") the ECU with the application code from compilation. Once programmed, the ECU will execute the application. Interaction with the executing application requires a data logging or calibration tool, which read and write information in the application.

All of the following tools support both programming and data logging activities, and most support comprehensive calibration.

- ATI Vision

Version	License	Installation and setup	Troubleshooting
v2.5 or better	Issued by ATI	Installation instructions provided by ATI. No special setup required.	OpenECU Developer Software Installation and Release Note, "ATI Vision, Known defects"

- ETAS INCA

Version	License	Installation and setup	Troubleshooting
v7.1.9	Issued by ETAS	Installation instructions provided by ETAS. Setup requires INCA to read the ProF files for OpenECU for reprogramming purposes, which the OpenECU installer can do for you, see OpenECU Developer Software Installation and Release Note.	No known issues.

- Pi Snoop

Version	License	Installation and setup	Troubleshooting
Any	Issued by Pi	Installation instructions provided by Pi with the tool. No special setup required.	No known issues.

- Vector CANape

Version	License	Installation and setup	Troubleshooting
v8 through v13.0	Issued by Vector	Installation instructions provided by Vector. No special setup required.	No known issues.

3. Install OpenECU developer software

The OpenECU developer software provides user guides and application programming interfaces to access the ECU functionality. Covering communications, input and output drivers, timer access and more, the developer software provides simple access to a variety of different ECU features.

- OpenECU developer software

Version	License	Installation and setup	Troubleshooting
v2.6.0 (r2016-1)	Issued by Pi	See OpenECU Developer Software Installation and Release Note.	See OpenECU Developer Software Installation and Release Note.

> **Note**
>
> OpenECU developer software may not function correctly on encrypted drives. OpenECU developer software must be able to create files on the host file system. If using an encrypted drive, be sure that permission settings will allow OpenECU to create files. Pi Innovo cannot provide support for issues with encrypted drives.

4. Configure licenses

Most of the third party tools include a license manager of some sort. Pi do not manage licenses for these tools, they are issued by the third party vendor. Pi cannot provide support for licensing issues with third party tools.

OpenECU developer software includes a license manager. Licenses are managed and issued by Pi. Once OpenECU has been installed, please contact OpenECU support for a license by following the instructions given in the HOSTID document or OpenECU Developer Software Installation and Release Note, "License setup" for more detailed instructions.

5. Check environment variable settings

Some third party tools that OpenECU interacts with do not publish their install location. To allow OpenECU to invoke these tools, OpenECU relies on certain environment variables. These environment variables must be set manually before using the OpenECU developer software.

Third-party tool	Environment variable
Diab v5.5.1.0	`OPENECU_DIAB_5_5_1_0` Set to the `bin` directory of the compiler, see OpenECU Developer Software Installation and Release Note, v5.5.1.0. Or the same `bin` directory can be added to Window's `PATH` environment variable.
Diab v5.8.0.0	`OPENECU_DIAB_5_8` Set to the `bin` directory of the compiler, see OpenECU Developer Software Installation and Release Note, v5.8. Or the same `bin` directory can be added to Window's `PATH` environment variable.
Diab v5.9.0.0	`OPENECU_DIAB_5_9` Set to the `bin` directory of the compiler, see OpenECU Developer Software Installation and Release Note, v5.9. Or the same `bin` directory can be added to Window's `PATH` environment variable.

> **Note**
>
> The environment variables must end with a trailing "\" character and not contain spaces. If the install location for the compiler includes spaces then use the short DOS 8.3 format for the directory name, e.g.:
>
> ```
> D:\Progra~1\diab\5_8_0_0\win32\bin\
> ```

6. Try out the quick start example

Once the tools have been installed, licensed and setup, please follow the introductory example provided in the user guide. If you have installed the C-API then follow this section OpenECU User Guide (C-API), "Quick start" If you have installed the Sim-API then follow this section: OpenECU User Guide (Sim-API), "Quick start".

As well as introducing basic concepts about OpenECU, such as applications, programming ECUs and calibration, following the quick start example will show up any issues.

7. Read through the release notes

Some changes in newer versions of OpenECU may not be backwards compatible with older versions; please review the Release Notes to determine if there are enhancements, bugs, or compatibility considerations in this release that impact you.

The release notes detail what new features have been added and what fixes and improvements have been made. The changes that are not backwards compatible are clearly marked, as are changes which require a firmware upgrade to an ECU to become operational. The release notes also highlight which features have been marked deprecated (will be removed in a future version of OpenECU) and which features have been marked end-of-life (have been completely removed).

Appendix A. Contact information

If you have questions, or are experiencing issues with OpenECU please see the FAQ website:

website

Support.OpenECU.com

If you still have questions after searching through the FAQ, or want to discuss sales or proposals, you can contact main office:

Tel
    +1 734 656 0140
Fax
    +1 734 656 0141

during normal working hours (Mon to Fri, 0930 to 1700 EST).