



OpenECU Compatibility with Third Party Tools

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Chapter 1. Third party tools

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1.1. Third party tool requirements

OpenECU developer software has been tested to work with Windows 10.

1.2. Third party tool requirements — C-API

For C based development, OpenECU-FS requires one of the following compiler tools:

- Wind River Diab compiler

To program and calibrate an OpenECU with an application, OpenECU integrates with the following calibration tools. Only one calibration tool is required:

- PiSnoop
- ATI VISION
- ETAS INCA (deprecated)
- Vector CANape

1.3. Third party tool requirements — Simulink-API

For Simulink model based development, OpenECU requires (at a minimum) the following MathWorks tools:

- MATLAB (base product)
- Simulink (to develop the models)
- Simulink Coder (to generate C code from the models)
- MATLAB Coder (Simulink Coder depends on this)

In addition, if you need to add state diagrams to the model, then you will also need:

- Stateflow (to develop state flow diagrams inside your model) Simulink Coder generates C code from the state flow diagrams inside your model.

Simulink Coder generates C code which does not lend itself to efficient repeatable testing. When creating a production version of your product, you may need better control of the structure of the C code generated from the model to reduce the cost of testing the C code against any industry standards. Under these circumstances you will also need:

- Embedded Coder (to generate C code from the models)

To compile the generated C code (from either Simulink Coder or Embedded Coder), you will need one of the following compilers:

- Wind River Diab compiler

To program and calibrate an OpenECU with an application, OpenECU integrates with the following calibration tools. Only one calibration tool is required:

- PiSnoop
- ATI VISION
- ETAS INCA (deprecated)
- Vector CANape

1.4. Third party tool requirements — installation

OpenECU works with a number of applications (both required and optional) supplied by other companies. If you intend to use OpenECU with one of the following tools, it is best to install them before OpenECU. The installer will then integrate the OpenECU developer software with these applications. See [OpenECU Compatibility with Third Party Tools](#) for a list of supported versions.

- MATLAB
- ETAS INCA calibration tool (deprecated)

OpenECU works with a number of other applications, but these need not be installed prior to the OpenECU developer software.

- Simulink Coder, formerly Real-Time Workshop, (optional)
- Embedded Coder, formerly Real-Time Workshop Embedded Coder, (optional):
- Stateflow
- Wind River (Diab) C compiler
- PiSnoop
- ATI Vision calibration tool
- Vector CANape calibration tool

1.5. Third party tool requirements — compatibility

OpenECU has been tested against the latest versions of each tool listed below. OpenECU may work with other versions of these applications, but Pi only provides technical support for the latest version.

Operating system

OpenECU works with the following operating systems.

- Microsoft Windows

Version	License	Installation and setup	Troubleshooting
Win 10 ^a	Issued by Microsoft	Installation instructions provided by Microsoft. No special setup required.	No known issues

^a 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.

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
R2015b (deprecated) 32-bit	Issued by Mathworks	Installation instructions provided by Mathworks. Setup requires MATLAB's <code>PATH</code> variable to be adjusted, which the OpenECU installer can do for you, see OpenECU Developer Software Installation and Release Note.	No known issues
R2015b (deprecated) R2018b (deprecated) R2020a R2021b R2023a 64-bit			

Note

Mathworks by default only gives the "latest" versions of its tools as downloads from their website, which may not be the qualified version.

Because of this, you will need to install MATLAB using a ISO image for [Rxxxx]. That will install the General Release for [Rxxx] without any updates.

Once installed, you will then need to manually update to [Rxxxx] [specific update] using the installation package on MathWorks.com Only a License Administrator can download the ISO and the update files.

How do I download a MATLAB ISO archive?

[mathworks.com/matlabcentral/answers/101103](https://www.mathworks.com/matlabcentral/answers/101103) [https://www.mathworks.com/matlabcentral/answers/101103]

How can I download and install a MATLAB Update manually?

[mathworks.com/matlabcentral/answers/456448](https://www.mathworks.com/matlabcentral/answers/456448) [https://www.mathworks.com/matlabcentral/answers/456448]

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.

All OpenECU targets use Freescale PowerPC microcontrollers. The M560 and M580 use an MPC5746C for the primary microcontroller and SPC560P34 for the secondary microcontroller.

See the Technical Specification for your target for more information.

- Wind River Diab compiler

Version	License	Installation and setup	Troubleshooting
v5.9.4.8 (deprecated)	Issued by Wind River	Installation instructions provided by Wind River. Setup requires the Window's <code>PATH</code> environment variable to be adjusted, or an OpenECU specific environment variable to be created, see Integration notes for Diab v5.9.4.8.	Known Defects for Diab v5.9.4.8
v5.9.6.7	Issued by Wind River	Installation instructions provided by Wind River. Setup requires the Window's <code>PATH</code> environment variable to be adjusted, or an OpenECU specific environment variable to be created, see Integration notes for Diab v5.9.6.7.	Known Issues for Diab v5.9.6.7 (and earlier)

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 to read and write information in the application.

These tools have been tested for reprogramming, data logging, and calibration capabilities. Some of them have many other features which have not been tested with OpenECU.

- 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.

- ATI Vision

Version	License	Installation and setup	Troubleshooting
v2.5 through v6.0 ^a	Issued by ATI	Installation instructions provided by ATI. The following Vision toolkits are typically used when working with OpenECU: <i>Data Acquisition Toolkit</i> , <i>Calibration Toolkit</i> , <i>Universal ECU Interface Standard Toolkit</i> , <i>APOLLO Data Analysis Toolkit</i> , <i>CAN Interface Toolkit</i> and <i>HORIZON</i>	OpenECU Developer Software Installation and Release Note, “ATI Vision, Known defects”

Version	License	Installation and setup	Troubleshooting
		<i>Scripting/Remote API Toolkit</i> . In particular, the <i>HORIZON Scripting/Remote API Toolkit</i> is required if OpenECU builds are to generate Vision strategy files (.vst).	

^a The OpenECU method of configuring ATI Vision uses standardised ASAP2 files. As a result, all future versions of Vision are expected to be backwardly compatible (e.g., version 3.7 and version 4.0 are known to be compatible).

- ETAS INCA (deprecated)

Version	License	Installation and setup	Troubleshooting
v7.2.7 (deprecated)	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.

- Vector CANape

Version	License	Installation and setup	Troubleshooting
v8 through v17.0	Issued by Vector	Installation instructions provided by Vector. No special setup required.	No known issues.

1.6. Deprecated Tools

Some third party tools have been marked deprecated and support for these tools will be removed in a future release of OpenECU.

Third party tool	Replacement
MathWorks MATLAB R2015b	MATLAB latest version (see the OpenECU website [https://openecu.com/product/openecu-third-party-tool-compatibility/] for more information about 3rd party tool compatibility).
MathWorks MATLAB R2016a	
MathWorks MATLAB R2016b	
MathWorks MATLAB R2017a	
MathWorks MATLAB R2017b	
MathWorks MATLAB R2018b	
ETAS INCA v7.2.7	Pisnoop ATI Vision Vector CANape
Wind River diab 5.9.4.8	Wind River diab 5.9.6.7