RAIL SDK 2.18.0.0 GA
Simplicity SDK Suite 2024.12.0
December 16, 2024

The RAIL SDK is a complete software development suite for proprietary wireless applications. It was previously part of the Proprietary SDK. Starting with the RAIL SDK 2.18.0.0 release, Proprietary SDK is split into RAIL SDK and Connect SDK.

Silicon Labs RAIL (Radio Abstraction Interface Layer) is an intuitive and easily-customizable radio interface layer designed to support both proprietary and standards-based wireless protocols.

The RAIL SDK is supplied with extensive documentation and sample applications.

These release notes cover SDK version(s):

2.18.0.0 GA released December 16, 2024.

Proprietary

RAIL APPS AND LIBRARY KEY FEATURES

- RAIL Tutorial moved to docs.silabs.com: https://docs.silabs.com/rail/latest/rail-start/rail-training
- RAIL SDK supported on BRD4276A radio board with EFR32FG25 and SKY66122-11 frontend module for high TX power applications
- Improved RangeTest Sample Application to fully support multi-PHY configurations and added new feature to control measurements on RX side – in alpha quality
- Sigfox TX PHYs and RX PHYs supported on EFR32FG23 and EFR32FG28 parts for EU and NA region

Compatibility and Use Notices

For information about security updates and notices, see the Security chapter of the Platform Release Notes installed with this SDK or on the TECH DOCS tab on https://www.silabs.com/developers/flex-sdk-connect-networking-stack. Silicon Labs also strongly recommends that you subscribe to Security Advisories for up-to-date information. For instructions, or if you are new to the Silicon Labs Flex SDK, see Using This Release.

Compatible Compilers:

IAR Embedded Workbench for ARM (IAR-EWARM) version 9.40.1

- Using wine to build with the IarBuild.exe command line utility or IAR Embedded Workbench GUI on macOS or Linux could result in incorrect files being used due to collisions in wine's hashing algorithm for generating short file names.
- Customers on macOS or Linux are advised not to build with IAR outside of Simplicity Studio. Customers who do should carefully verify that the correct files are being used.

GCC (The GNU Compiler Collection) version 12.2.1, provided with Simplicity Studio.

Contents

1 RAIL Applications

1.1 New Items

Added in release 2.18.0.0

- simplicity_sdk/app/flex is splitt into two:
  - simplicity_sdk/app/rail (RAIL SDK)
  - simplicity_sdk/app/connect (CONNECT SDK)
- RAIL SDK Services are documented at https://docs.silabs.com/rail/latest/rail-start/

1.2 Improvements

Changed in release 2.18.0.0

- The Range Test Applications are extended with 2x new features:
  - Remote Control: The receiver node can configure the transmitter node. Also, the measurement can be started by the receiver node (only).
  - Runtime PHY change: During measurement, the user can switch between more Profiles/PHYs. To ensure this, more PHYs must be added to the particular Range Test application with the Radio Configurator UI.
- Improve sleep by using Power Manager Integration component for all sleeping capable applications

1.3 Fixed Issues

Fixed in release 2.18.0.0

ID #	Description
1322797	Absolute time overflow has been fixed for Wireless M-Bus – Meter.

1.4 Known Issues in the Current Release

ID #	Description	Workaround
1268208 1268301	The power consumption of *DK2600* can't be optimized if configuration time for EM2 if UART is being used, as the value of *SL_IOSTREAM_USART_{instance}_BAUDRATE* doesn't take effect. The default value used instead is 115200 bps. Typical use case is RAIL - SoC Wireless M-bus Meter with DK2600 board.	Update UART baud rate to 9600 bps at Simplicity Studio Admin Console. This is necessary for EM2.
1274248	Range Test DMP instabilities in case of LTO.	Do not use LTO.

1.5 Deprecated Items

Deprecated in release 2.18.0.0

None.

1.6 Removed Items

Removed in release 2.18.0.0

None.

2 Using This Release

This release contains the following:

- RAIL and Connect Sample Applications
- RAIL and Connect Components and Application Framework

This SDK depends on the Simplicity Platform. The Simplicity Platform code provides functionality that supports protocol plugins and APIs in the form of drivers and other lower layer features that interact directly with Silicon Labs chips and modules. Simplicity Platform components include EMLIB, EMDRV, RAIL Library, NVM3, and mbedTLS. Simplicity Platform release notes are available through Simplicity Studio's Documentation tab.

For more information about the Flex SDK v3.x see UG103.13: RAIL Fundamentals and UG103.12: Silicon Labs Connect Fundamentals. If you are a first time user, see QSG168: Proprietary Flex SDK v3.x Quick Start Guide.

2.1 Installation and Use

The Proprietary Flex SDK is provided as part of the Simplicity SDK, the suite of Silicon Labs SDKs. To quickly get started with the Simplicity SDK, install Simplicity Studio 5, which will set up your development environment and walk you through Simplicity SDK installation. Simplicity Studio 5 includes everything needed for IoT product development with Silicon Labs devices, including a resource and project launcher, software configuration tools, full IDE with GNU toolchain, and analysis tools. Installation instructions are provided in the online Simplicity Studio 5 User's Guide.

Alternatively, Simplicity SDK may be installed manually by downloading or cloning the latest from GitHub. See https://github.com/SiliconLabs/simplicity_sdk for more information.

Simplicity Studio installs the GSDK by default in:

- (Windows): C:\Users\<NAME>\SimplicityStudio\SDKs\simplicity_sdk
- (MacOS): /Users/<NAME>/SimplicityStudio/SDKs/simplicity_sdk

Documentation specific to the SDK version is installed with the SDK. Additional information can often be found in the knowledge base articles (KBAs). API references and other information about this and earlier releases is available on https://docs.silabs.com/.

2.2 Security Information

Secure Vault Integration

When deployed to Secure Vault High devices, sensitive keys are protected using the Secure Vault Key Management functionality. The following table shows the protected keys and their storage protection characteristics.

Wrapped Key	Exportable / Non-Exportable	Notes
Thread Master Key	Exportable	Must be exportable to form the TLVs
PSKc	Exportable	Must be exportable to form the TLVs
Key Encryption Key	Exportable	Must be exportable to form the TLVs
MLE Key	Non-Exportable	
Temporary MLE Key	Non-Exportable	
MAC Previous Key	Non-Exportable	
MAC Current Key	Non-Exportable	
MAC Next Key	Non-Exportable	

Wrapped keys that are marked as "Non-Exportable" can be used but cannot be viewed or shared at runtime.

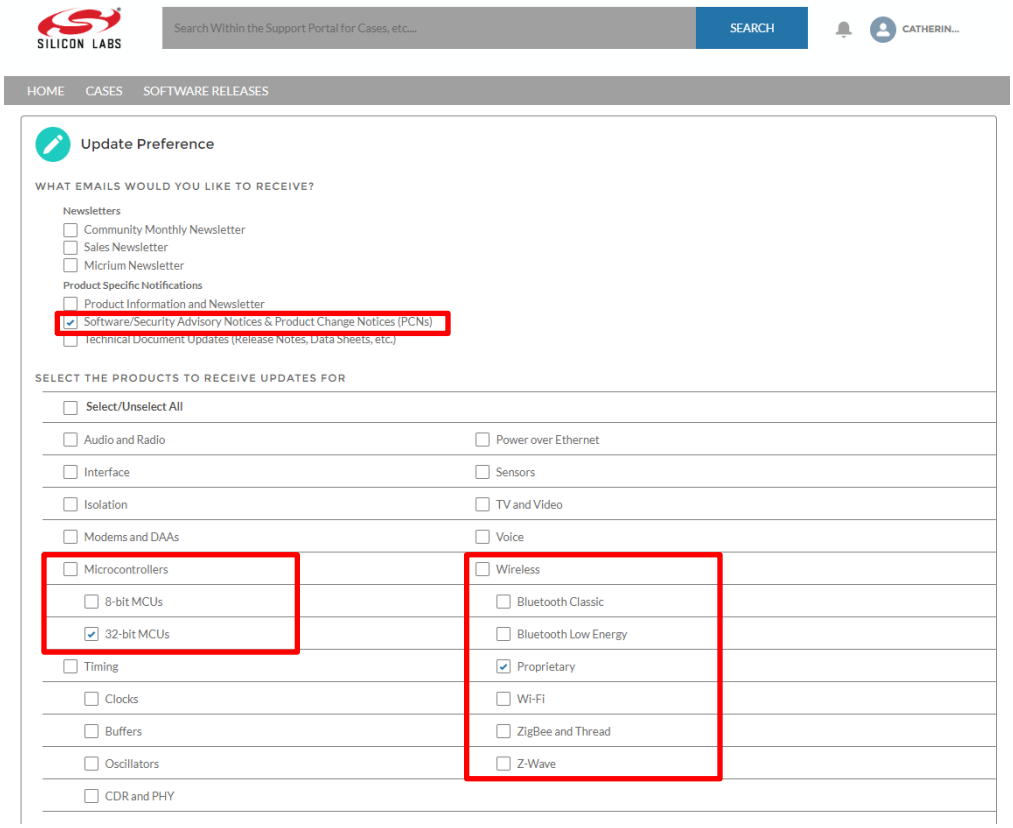
Wrapped keys that are marked as "Exportable" can be used or shared at runtime but remain encrypted while stored in flash.

For more information on Secure Vault Key Management functionality, see AN1271: Secure Key Storage.

Security Advisories

To subscribe to Security Advisories, log in to the Silicon Labs customer portal, then select **Account Home**. Click **HOME** to go to the portal home page and then click the **Manage Notifications** tile. Make sure that 'Software/Security Advisory Notices & Product Change Notices (PCNs)' is checked, and that you are subscribed at minimum for your platform and protocol. Click **Save** to save any changes.

The following figure is an example:



2.3 Support

Development Kit customers are eligible for training and technical support. Use the Silicon Labs Flex web page to obtain information about all Silicon Labs Thread products and services, and to sign up for product support.

You can contact Silicon Laboratories support at http://www.silabs.com/support.

2.4 SDK Release and Maintenance Policy

For details, see SDK Release and Maintenance Poilcy.

Simplicity Studio

One-click access to MCU and wireless tools, documentation, software, source code libraries & more. Available for Windows, Mac and Linux!

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