Wi-SUN SDK 1.3.2.0 GA
Gecko SDK Suite 4.1
September 28, 2022

Wireless Smart Ubiquitous Network (Wi-SUN) is the leading IPv6 sub-GHz mesh technology for smart city and smart utility applications. Wi-SUN brings Smart Ubiquitous Networks to service providers, utilities, municipalities/local government, and other enterprises, by enabling interoperable, multi-service, and secure wireless mesh networks. Wi-SUN can be used for large-scale outdoor IoT wireless communication networks in a wide range of applications covering both line-powered and battery-powered nodes.

Silicon Labs' Wi-SUN hardware is certified by the Wi-SUN Alliance, a global industry association devoted to seamless LPWAN connectivity. Wi-SUN builds upon open standard internet protocols (IP) and APIs, enabling developers to extend existing infrastructure platforms to add new capabilities. Built to scale with long-range capabilities, high-data throughput and IPv6 support, Wi-SUN simplifies wireless infrastructure for industrial applications and the evolution of smart cities.

KEY FEATURES

- FAN 1.0 certified Router & Border Router
- iPerf throughput test tool
- Wi-SUN Configurator
- CLI for certification
- ARIB T108 support

These release notes cover SDK versions:

1.3.2.0 released September 28, 2022
1.3.1.0 released August 17,2022
1.3.0.0 released June 8, 2022

Compatibility and Use Notices

For information about security updates and notices, see the Security chapter of the Gecko Platform Release notes installed with this SDK or on the TECH DOCS tab on https://www.silabs.com/developers/wi-sun-protocol-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 Wi-SUN SDK, see Using This Release.

Compatible Compilers:

IAR Embedded Workbench for ARM (IAR-EWARM) version 9.20.4

- 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 10.3-2021.10, provided with Simplicity Studio.

Contents

1 Wi-SUN Stack

1.1 New Items

Added in release 1.3.0.0

- Most of the stack crypto operations are now made through ARM PSA Crypo API.
- Added a new API `sl_wisun_set_device_private_key_id()` that indicates which PSA Crypto key handler contains the device private key and has to be used by the stack. It is the application's responsibility to create the key.
- Added a new API `sl_wisun_set_regulation()` that configures the regional regulation to which the stack must comply. Refer to *UG495: Silicon Labs Wi-SUN Developer's Guide* for more information about regional regulation in the Wi-SUN Stack.
- Added a new event `SL_WISUN_MSG_REGULATION_TX_LEVEL_IND_ID` that is fired when the transmission budget crosses one of the transmission budget thresholds. The transmission budget is defined by the regional regulation. Refer to *UG495: Silicon Labs Wi-SUN Developer's Guide* for more information about regional regulation in the Wi-SUN Stack.
- Added a new API `sl_wisun_set_regulation_tx_thresholds()` that configures the threshold used to fire `SL_WISUN_MSG_REGULATION_TX_LEVEL_IND_ID` event.
- Added a new API `sl_wisun_set_advert_fragment_duration()` that configures the asynchronous transmission fragment duration. It can be used to reduce the impact on the latency of long advertisement periods.
- Added a new API `sl_wisun_set_unicast_tx_mode()` that enables a high-reliability transmission mechanism for unicast communication. It trades off unicast communication reliability for latency.

1.2 Improvements

Changed in release 1.3.1.0

- When ARIB radio regulation is selected, the stack refuses all EDFE initialization requests sending an EDFE final frame.

Changed in release 1.3.0.0

- `sl_wisun_set_channel_mask()` channel filter is now applied to asynchronous transmissions and unicast listening schedule. The function was renamed `sl_wisun_set_allowed_channel_mask()` to make it more self-explanatory.

1.3 Fixed Issues

Fixed in release 1.3.2.0

ID #	Description
1023782	Fixed an invalid Path Control field configuration in RPL DAO packet.

Fixed in release 1.3.1.0

ID #	Description
851960	Fixed PAN Advert and PAN Config Trickle timer configuration. Inconsistent transmissions were not correctly managed. It could lead to suboptimal behavior in dense areas of a network.
840698	Fixed a performance issue that was causing Linux Border Router RCP to become unreachable when running throughput tests with high-speed data rates. That issue was fixed by using DMA to collect UART data.
853035	Fixed an initialization issue that was causing PAN Advert and PAN Config asynchronous transmission requests to be dropped. That issue was most likely to happen with TEST and SMALL network size configuration and could cause connection durations to be significantly longer.

Fixed in release 1.3.0.0

ID #	Description
813440 774290	Fixed an error that was causing radio calibrations to be skipped during Wi-SUN Stack initialization.

1.4 Known Issues in the Current Release

None

1.5 Deprecated Items

None

1.6 Removed Items

None

2 Wi-SUN Applications

2.1 New Items

Added in release 1.3.0.0

iPerf2 support

- Integrated into Wi-SUN - SoC Network Measurement Application
- Option to install the Iperf2 component to other applications also

Wi-SUN Configurator – UI Tool

- Configuration options are being used by the Applications automatically
    - MAC Address
    - MAC Allow/Deny List
    - Unicast Dwell Interval

CoAP discovery feature (limited, RFC 6690):

- Register Resources
- Return list of Registered Resources in response to GET .well-known/core request

2.2 Improvements

Added in release 1.3.1.0

Wi-SUN Linux Border Router RCP

- Released version 1.1.0
- It now collects UART data using a DMA.

2.3 Fixed Issues

None

2.4 Known Issues in the Current Release

Issues in bold were added since the previous release.

ID #	Description	Workaround
	Simplicity Studio – Network Analyzer: Wi-SUN Encrypted Packets are not supported.	

2.5 Deprecated Items

None

2.6 Removed Items

Removed in release 1.3.0.0

- Wi-SUN - SoC Border Router with backhaul.

3 Using This Release

This release contains the following

- Wi-SUN stack library
- Wi-SUN sample applications
- Wi-SUN border router pre-compiled demos
- Documentation

If you are a first time user, see *QSG181: Silicon Labs Wi-SUN Quick-Start Guide*.

3.1 Installation and Use

The Wi-SUN SDK is provided as part of the Gecko SDK (GSDK), the suite of Silicon Labs SDKs. To quickly get started with the GSDK, install Simplicity Studio 5, which will set up your development environment and walk you through GSDK 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, Gecko SDK may be installed manually by downloading or cloning the latest from GitHub. See https://github.com/SiliconLabs/gecko_sdk for more information.

Simplicity Studio installs the GSDK by default in:

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

Documentation specific to the SDK version is installed with the SDK.

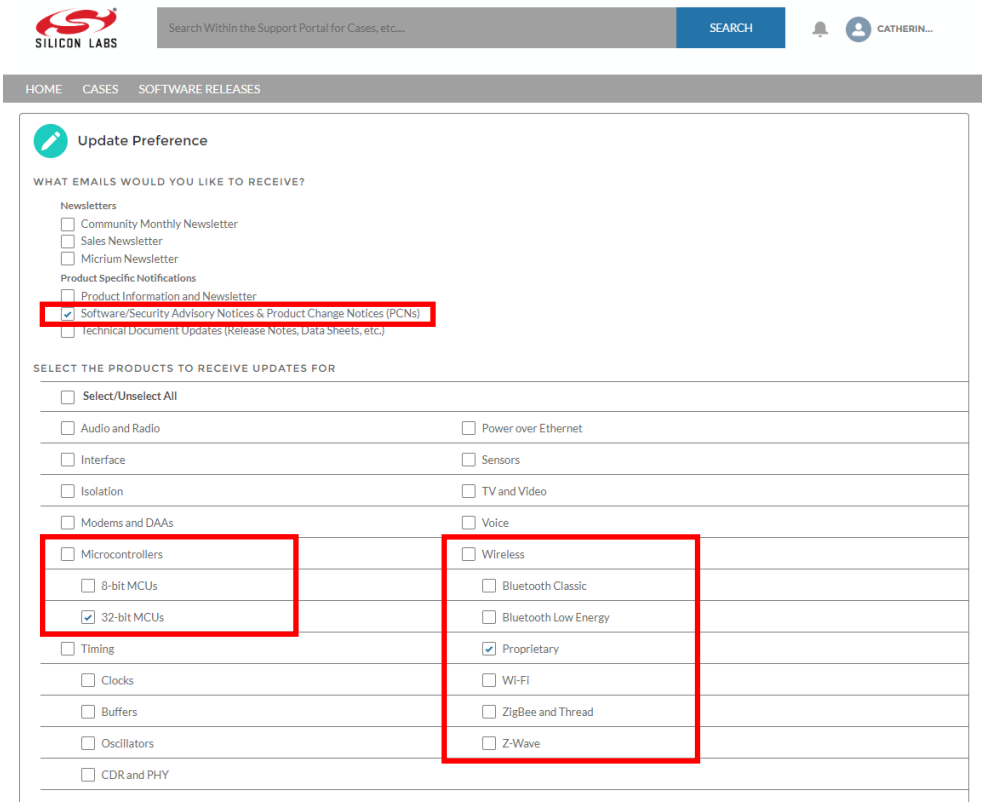
3.2 Security Information

Secure Vault Integration

This version of the stack does not integrate Secure Vault Key Management.

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.



3.3 Support

Development Kit customers are eligible for training and technical support. Contact Silicon Laboratories support at http://www.silabs.com/support.

Simplicity Studio

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