



Bluetooth® SDK 2.12.1.0 GA

19Q2 Gecko SDK Suite

July 19, 2019

Silicon Labs is a leading vendor in Bluetooth hardware and software technologies, used in products such as sports and fitness, consumer electronics, beacons, and smart home applications. The core SDK is an advanced Bluetooth 5-compliant stack that provides all of the core functionality along with multiple API to simplify development. The core functionality offers both standalone mode allowing a developer to create and run their application directly on the SoC, or in NCP mode allowing for the use of an external host MCU.

Extensions to the SDK include Bluetooth Mesh and Apple® HomeKit® for customers seeking the additional capabilities.

These release notes cover SDK version(s):

2.12.1.0 released on July 19, 2019

2.12.0.0 released on June 7, 2019



KEY FEATURES

- Added support for new parts
 - [B|M]GM210P
 - [B|M]GM210L
 - EFR32[B|M]G13 Rev D
 - EFR32BG12 QFN68 I-Grade
- Bluetooth 5.0: Advertising packet chaining

Compatibility and Use Notices

If you are new to the Silicon Labs Bluetooth SDK, see [Using This Release](#).

Compatible Compilers:

IAR Embedded Workbench for ARM (IAR-EWARM) version 8.30.1

- 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 7.2.1, provided with Simplicity Studio.

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1 New Items

Gecko Platform release notes are now available through Simplicity Studio's Launcher Perspective, under **SDK Documentation > Bluetooth SDK 2.12.n.n > Release Notes**. The Gecko 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. Gecko Platform components include EMLIB, EMDRV, RAIL Library, NVM3, and mbedTLS.

1.1 New Features

Added in release 2.12.0.0

Advertising packet chaining

With this feature, the total amount of advertising data in an advertising packet can be up to 1650 bytes in extended advertising.

1.2 New APIs

For additional documentation and command descriptions please refer to the [Bluetooth Software API Reference Manual](#).

Added in release 2.12.0.0

cmd_gatt_server_set_max_mtu

cmd_le_connection_set_timing_parameters

cmd_le_gap_set_conn_timing_parameters

cmd_le_gap_set_long_advertising_data

cmd_sm_set_minimum_key_size

cmd_system_data_buffer_write

cmd_system_data_buffer_clear

2 Improvements

2.1 Changed APIs

Changed in release 2.12.0.0

cmd_le_gap_bt5_set_adv_data

Removed the 191 bytes advertising data limitation for extended advertising.

cmd_le_gap_set_adv_data

Removed the 191 bytes advertising data limitation for extended advertising.

evt_le_gap_extended_scan_response

Added new value in packet_type parameter for data incomplete status.

evt_le_gap_scan_response

Added new value in packet_type parameter for data incomplete status.

evt_sync_data

Added new value in data_status parameter for data incomplete status.

3 Fixed Issues

Fixed in release 2.12.1.0

| ID # | Description |
|------|---|
| 5942 | Fix unstable connection issue while the master device has multiple simultaneous connections and is performing scanning. |
| 5943 | Fix an issue that the stack may return the link layer procedure response timeout error when closing a Bluetooth connection. |
| 6136 | After advertising is started the stack will send the first advertisement straight away. Previously it might send it after the first advertisement interval has elapsed. |
| 6349 | Fix disconnection issue when performing connection update with slave latency and specific interval parameters. |
| 6375 | Apploder can now write images right up to the NVM start address. |
| 6458 | Fix missing ADI field in chained advertisement packets. |
| 6465 | The stack can now handle 255 bytes data in cmd_system_data_buffer_write command. |
| 6475 | Periodic advertising data can now be set in stack when the periodic advertising has not been started. Previously this command returns an error. |
| 6501 | The stack now blocks the example LTK in Bluetooth specification if sent by the other device. This security improvement addresses vulnerability CVE-2019-2102. |
| 6502 | Fix default RF antenna pin selection for EFR32xG21 parts, radio boards and xGM210 modules. |
| 6520 | If advertising single event at a time, the stack does not check anymore if packet length would exceed advertising interval. Previously packet_too_long error would have been returned. |
| 6532 | The stack ensures that the GATT database hash value is calculated when it is first read by command gecko_cmd_gatt_server_read_attribute_value. Previously an incorrect value might be returned in this case. Additionally the fix also prevents from overwriting the hash value with gecko_cmd_gatt_server_write_attribute_value. |
| 6542 | A change was introduced in version 2.12.0 which caused compatibility issues with TB Sense mobile app. This change was reversed to fix those issues and it will be reintroduced when board detection gets improved on the TB Sense mobile app side. |

Fixed in release 2.12.0.0

| ID # | Description |
|------|--|
| 3414 | In Bluetooth SDK 2.11.4 and 2.11.5, occasionally the stack is unable to receive all GATT write without response or characteristic value notification PDUs. |
| 4559 | Deleting the bonding of a device while the device is still connected causes the stack using outdated bonding data on the connection. This has been fixed so that the connection is also closed after the bonding has been deleted. |
| 5940 | The application cannot configure the maximum ATT MTU if GATT client is excluded. This has been fixed by adding a new equivalent API in GATT server class. |
| 6051 | When Bluetooth runs in RTOS, the stack initialization may cause assertions. |
| 6135 | Advertising could not be restarted if a timeout has been set previously. |
| 6189 | Increasing security on a connection with previously bonded devices may fail. |
| 6279 | The stack does not correctly inform the application about ATT MTU size change if the remote device first denies the stack's ATT MTU exchange request and then initiates another ATT MTU exchange request. |

4 Known Issues in the Current Release

Issues in bold were added since the previous release.

| ID # | Description | Workaround |
|------|---|---|
| 1835 | With certain events, GCC breakpoints cannot be set. | Change optimization level to none in project settings |
| 4521 | Command <code>gecko_cmd_gatt_discover_primary_services_by_uuid</code> returns success in case of incomplete parameters. | None |
| 5390 | The <code>sync_data</code> event does not report TX power. | None |

5 Deprecated Items

Deprecated in release 2.12.1.0

Deprecated item: EFR32BG14 Part Support

Reason: The EFR32BG14 is EOL.

End-of-Service (EoS) Date: June 30, 2020. As of this EoS date, EFR32BG14 part support will no longer be available in the then current and future GSDK releases, and EFR32BG14 parts will no longer be supported in any GSDK releases.

Maintenance Period: From now until the EoS date, only critical bug fixes and security patches may be made available on currently supported GSDK releases.

Replacement: EFR32BG13.

Deprecated in release 2.12.0.0

As of June 2019 Simplicity Studio 3.0 is being deprecated. All access will be removed from Silicon Labs' website at the end of 2019.

Deprecated APIs

cmd_le_gap_set_conn_parameters

The replacement is cmd_le_gap_set_conn_timing_parameters.

cmd_le_connection_set_parameters

The replacement is cmd_le_connection_set_timing_parameters.

6 Removed Items

None

7 Using This Release

This release contains the following

- Silicon Labs Bluetooth stack library
- Bluetooth sample applications

For more information about the Bluetooth SDK see [QSG139: Getting Started with Bluetooth® Software Development](#). If you are new to Bluetooth see [UG103.14: Bluetooth LE Fundamentals](#).

7.1 Installation and Use

A registered account at Silicon Labs is required in order to download the Silicon Labs Bluetooth SDK. You can register at https://siliconlabs.force.com/apex/SL_CommunitiesSelfReg?form=short.

Stack installation instruction are covered in [QSG139: Getting Started with Bluetooth® Software Development](#).

Use the Bluetooth SDK with the Silicon Labs Simplicity Studio V4 development platform. Simplicity Studio ensures that most software and tool compatibilities are managed correctly. Install software and board firmware updates promptly when you are notified.

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/>.

7.2 Support

Development Kit customers are eligible for training and technical support. You can use the [Silicon Labs Bluetooth LE web page](#) to obtain information about all Silicon Labs Bluetooth products and services, and to sign up for product support.

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

8 Legal

8.1 Disclaimer

Silicon Labs intends to provide customers with the latest, accurate, and in-depth documentation of all peripherals and modules available for system and software implementers using or intending to use the Silicon Labs products. Characterization data, available modules and peripherals, memory sizes and memory addresses refer to each specific device, and "Typical" parameters provided can and do vary in different applications.

Application examples described herein are for illustrative purposes only.

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