



# Bluetooth<sup>®</sup> mesh SDK 1.5.3.0 GA

## 19Q2 Gecko SDK Suite

### December 4, 2019

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Bluetooth mesh is a new topology available for Bluetooth Low Energy (LE) devices that enables many-to-many (m:m) communication. It's optimized for creating large-scale device networks, and is ideally suited for building automation, sensor networks, and asset tracking. Our software and SDK for Bluetooth development supports Bluetooth Mesh and Bluetooth 5 functionality. Developers can add mesh networking communication to LE devices such as connected lights, home automation, and asset tracking systems. The software also supports Bluetooth beaconing, beacon scanning, and GATT connections so Bluetooth mesh can connect to smart phones, tablets, and other Bluetooth LE devices.

These release notes cover SDK version:

- 1.5.3.0 released December 4<sup>th</sup>, 2019
- 1.5.2.0 released September 20, 2019
- 1.5.1.1 released August 16, 2019
- 1.5.1.0 released August 2, 2019
- 1.5.0.1 released June 25, 2019
- 1.5.0.0 released June 14, 2019



#### KEY FEATURES

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- Support for BG21 and MG21 Modules:
  - BGM210P, MGM210P, BGM210L, and MGM210L
- Support for
  - EFR32[B|M]G13 Rev D
  - EFR32BG12 QFN68 I-Grade
- Sensor model API, documentation and sample apps

## Compatibility and Use Notices

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

### Compatible Compilers:

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

- Using wine to build with the larBuild.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.

- Customers on macOS may experience linking errors due to a bug in GNU binutils used with GCC 7.2.1

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# 1 New Items

## 1.1 New Features

### Added in release 1.5.0.0

Models: support for sensor models (sensor client, sensor server, sensor setup server) has been added

## 1.2 New APIs

For additional documentation please refer to the Bluetooth Mesh Software API Reference Manual installed with the Bluetooth Mesh SDK.

### Added in release 1.5.0.0

BGAPI commands and events for sensor models have been added

Sensor client model commands and events:

```
mesh_sensor_client_init(),
mesh_sensor_client_deinit(),
mesh_sensor_client_get(),
mesh_sensor_client_get_cadence(),
mesh_sensor_client_get_column(),
mesh_sensor_client_get_descriptor(),
mesh_sensor_client_get_series(),
mesh_sensor_client_get_setting(),
mesh_sensor_client_get_settings(),
mesh_sensor_client_set_cadence(),
mesh_sensor_client_set_setting(),
mesh_sensor_client_descriptor_status(),
mesh_sensor_client_cadence_status(),
mesh_sensor_client_settings_status(),
mesh_sensor_client_setting_status(),
mesh_sensor_client_status(),
mesh_sensor_client_column_status(),
mesh_sensor_client_series_status(),
mesh_sensor_client_publish()
```

Sensor server model commands and events:

```
mesh_sensor_server_init(),
mesh_sensor_server_deinit(),
mesh_sensor_server_send_column_status(),
mesh_sensor_server_send_descriptor_status(),
mesh_sensor_server_send_series_status(),
mesh_sensor_server_send_status(),
mesh_sensor_server_get_request(),
mesh_sensor_server_get_column_request(),
mesh_sensor_server_get_series_request(),
mesh_sensor_server_publish()
```

Sensor setup server model commands and events:

```
mesh_sensor_setup_server_send_cadence_status(),
mesh_sensor_setup_server_send_settings_status(),
mesh_sensor_setup_server_send_setting_status(),
mesh_sensor_setup_server_get_cadence_request(),
mesh_sensor_setup_server_set_cadence_request(),
mesh_sensor_setup_server_get_settings_request(),
mesh_sensor_setup_server_get_setting_request(),
mesh_sensor_setup_server_set_setting_request(),
mesh_sensor_setup_server_publish()
```

## 2 Improvements

### 2.1 Changed APIs

#### **Changed in release 1.5.2.0**

One new BGAPI command has been added

Added generic server command:

```
mesh_generic_server_update_publish_property_id()
```

#### **Changed in release 1.5.0.0**

A number of new BGAPI commands and events have been added to various command classes. One LPN command has been deprecated.

Added provisioner commands and events:

```
mesh_prov_stop_scan_unprov_beacons()
```

Added node commands and events:

```
mesh_node_key_removed(),  
mesh_node_key_updated(),  
mesh_node_reset()
```

Added LPN commands and events:

```
mesh_lpn_config()
```

Deprecated LPN commands and events:

```
mesh_lpn_configure() – use mesh_lpn_config() instead
```

Added testing BGAPI commands and events:

```
mesh_test_set_element_seqnum()
```

### 2.2 Changed Documents

#### **Changed in release 1.5.1.1**

The API reference update and release notes omitted from version 1.5.1.0 are included.

#### **Changed in release 1.5.0.1**

The quick start guide [QSG148: Getting Started with Bluetooth® Mesh Software Development](#) has been updated.

### 3 Fixed Issues

#### Fixed in release 1.5.3.0

ID #	Description
334250	Fixed generic property server state update reporting when multiple updates are done in a row
341007	Fixed heartbeat subscription state statistics clearing when state is set by Provisioner
399625	Report changes to Light Lightness Last and Power Level Last states to application
404535	Fixed node identity set response in Configuration Client model API
417436, 445535	Fixed foundation error code reporting in Configuration Client and Health Client model APIs
428878	Increased the payload limit for Sensor Server status message
429432	Fixed proxy advertisement starting after node has been provisioned
439549	Write application key material and key binding to flash in one operation instead of two
439904	More stringent checks for m44odel dependencies at initialization
442245	Fixed SeqAuth comparison when concatenating a segmented message
442680	Fixed retransmission count reporting in Configuration Client model API
443175	Fix heartbeat publication count setting in Configuration Client model API
443795	Idempotent model-to-application key binding removal
448768	Fix GATT provisioning bearer crash when application has not initialized GATT proxying

#### Fixed in release 1.5.2.0

ID #	Description
403748	Added a new command for setting which generic property server property ID is published during periodic publishing
413689	Fixed CTL state updating when the bound generic level server is updated
417476	Corrected radio library linking for module projects

#### Fixed in release 1.5.1.0

ID #	Description
406578, 6460	Fixed LPN default parameters to provide more robust friendship
408107	Added a missing file to bootloader project definition
408353	Fixed an API discrepancy with LPN configuration item types
409584	Fixed an issue with LPN queue management at Friend node
411024	Refresh proxy advertisement service data when underlying network key is refreshed

#### Fixed in release 1.5.0.0

ID #	Description
3046, 6166	Node now erases all internal state when told to reset by the Provisioner, instead of only key material
4800	Initial publishing of model state is deferred by a pseudorandom amount to avoid collisions when multiple devices are powered on at the same time
5601	Fixed issue with activating GATT provisioning service advertisements even if only ADV provisioning bearer was selected
5770, 6203	Fixed issue with GATT proxy state change events missing on proxy server side
6005	Fixed issue with allowing multiple concurrent GATT proxy connections
6166	Stack now erases all mesh-related persistent storage when told to factory reset, instead of just encryption keys
6167	Provisioner replies with an immediate error if asked to provision another device with an address already in use

ID #	Description
6196	Fixed two's logarithm representation in heartbeat publication count
6222	Fixed issue with sequence number updating to persistent storage, triggered by query for element remaining sequence numbers
6267	Fixed issue with unit conversion in LPN poll timeout value
6295	Fixed DCD data passing to application when mesh configuration client BGAPI was used
6304	Fixed sequence number clearing in persistent storage when IV index update takes place
6363	Fixed issue with battery model state serialization

## 4 Known Issues in the Current Release

Issues in bold were added since the previous release.

ID #	Description	Workaround
N/A	Implementation of time, scene, scheduler and some lighting models not yet done	
3878	Mesh GATT events visible to the application	Application can ignore BGAPI events related to GATT provisioning and proxying based on service and characteristic parameters
4975	GCC linking with link-time optimization may fail on OSX due to an issue in GNU binutils	
5662	Default device UUID does not conform to RFC4122	Customer needs to explicitly set UUID to a conformant one
339993	ISC file comments cause errors when generating code	Avoid using comments in ISC files
401550	No BGAPI event for segmented message handling failure	Application needs to deduce failure from timeout / lack of application layer response
417988	No BGAPI event for received secure network beacon	
418636	Issues with mesh_test local configuration state API (node identity, relay, network retransmission)	
421689	Key index may be unset when a key is being added, if persistent storage is very close to full	Avoid filling persistent storage to the limit

## 5 Deprecated Items

### Deprecated in release 1.5.0.0

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.

## 6 Removed Items

None.

## 7 Using This Release

This release contains the following

- Silicon Labs Bluetooth mesh stack library
- Bluetooth sample applications

If you are a first time user, see [QSG148: Getting Started with Bluetooth® Mesh Software Development](#).

### 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](https://siliconlabs.force.com/apex/SL_CommunitiesSelfReg?form=short).

Stack installation instruction are covered in [QSG148: Getting Started with Bluetooth® Mesh Software Development](#).

Use the Bluetooth mesh 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 mesh 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.

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