



# **Bluetooth<sup>®</sup> mesh SDK 1.6.0.0 GA**

## **Gecko SDK Suite 2.7**

### **December 20, 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:

1.6.0.0 released December 20, 2019



#### **KEY FEATURES**

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- Light Controller model API and documentation
- Scene model API and documentation
- NVM3 supported for Series 1 SoC projects

## **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.

The link-time optimization feature of GCC has been disabled, resulting in a slight increase in image size.

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# 1 New Items

## 1.1 New Features

### Added in release 1.6.0.0

Models: Support for Light Control models (LC client, LC server, LC setup server) has been added.

Models: Support for Scene models (Scene client, Scene server, Scene setup server) has been added. Note that due to a Mesh Model specification limitation only a single instance of a Scene server model is supported.

New model qualification effort is ongoing, but not completed at the time of release.

Persistent storage: NVM3 is supported for Series 1 hardware SoC projects.

SDK light sample application has been updated to support light controller functionality and scene functionality.

SDK switch sample application has been updated to support scene recall functionality.

Mesh node functionality has been updated to support more than 240 replay protection list entries (amount is limited by the size of persistent storage and RAM available for Mesh).

Mesh provisioner functionality has been updated to support up to 512 device database entries (amount is limited by the size of persistent storage and RAM available for Mesh).

## 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 1.6.0.0

BGAPI commands and events for LC and Scene models have been added.

LC client model commands and events:

```
mesh_lc_client_init(),
mesh_lc_client_get_light_onoff(),
mesh_lc_client_get_mode(),
mesh_lc_client_get_om(),
mesh_lc_client_get_property(),
mesh_lc_client_set_light_onoff(),
mesh_lc_client_set_mode(),
mesh_lc_client_set_om(),
mesh_lc_client_set_property(),
mesh_lc_client_light_onoff_status(),
mesh_lc_client_mode_status(),
mesh_lc_client_om_status(),
mesh_lc_client_property_status()
```

LC server model commands and events:

```
mesh_lc_server_init(),
mesh_lc_server_deinit(),
mesh_lc_server_init_all_properties(),
mesh_lc_server_update_light_onoff(),
mesh_lc_server_update_mode(),
mesh_lc_server_update_om(),
mesh_lc_server_ambient_lux_level_updated(),
mesh_lc_server_light_onoff_updated(),
mesh_lc_server_linear_output_updated(),
mesh_lc_server_mode_updated(),
mesh_lc_server_occupancy_updated(),
```

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```
mesh_lc_server_om_updated()
mesh_lc_server_set_publish_mask()
```

LC setup server model commands and events:

```
mesh_lc_setup_server_update_property(),
mesh_lc_setup_server_set_property()
```

Scene client model commands and events:

```
mesh_scene_client_init(),
mesh_scene_client_delete(),
mesh_scene_client_get(),
mesh_scene_client_get_register(),
mesh_scene_client_recall(),
mesh_scene_client_store(),
mesh_scene_client_register_status(),
mesh_scene_client_status()
```

Scene server model commands and events:

```
mesh_scene_sever_init(),
mesh_scene_server_deinit(),
mesh_scene_server_get(),
mesh_scene_server_publish(),
mesh_scene_server_recall(),
mesh_scene_server_register_get()
```

Scene setup server model commands and events:

```
mesh_scene_setup_server_init(),
mesh_scene_setup_server_delete(),
mesh_scene_setup_server_publish(),
mesh_scene_setup_server_store()
```

## 2 Improvements

### 2.1 Changed APIs

#### Changed in release 1.6.0.0

Four new BGAPI commands and five new BGAPI events have been added.

Added mesh node commands:

```
mesh_node_rssi()  
mesh_node_set_beacon_reporting()  
mesh_node_stop_unprov_beaconing()
```

Added generic server event:

```
mesh_generic_server_state_recall()
```

Added mesn node events:

```
mesh_node_beacon_received()  
mesh_node_heartbeat()  
mesh_node_heartbeat_start()  
mesh_node_heartbeat_stop()
```

One new BGAPI errorcode has been added:

```
bg_err_mesh_no_data_available
```

### 2.2 Changed Documents

None

### 3 Fixed Issues

#### Fixed in release 1.6.0.0

ID #	Description
4975, 439811	GCC linking with link-time optimization disabled
270215	Added BGAPI for heartbeat monitoring in the application
417988	Added BGAPI for received secure network beacon monitoring in the application
421689	Key index and key value storing made into an atomic operation
447682	Fixed local loopback interface
449257	Fixed project conversion to C++ in Studio
453341	Explicitly check on xG21 if EC key is on the required curve

## 4 Known Issues in the Current Release

Issues in bold were added since the previous release.

ID #	Description	Workaround
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
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
418636	Issues with mesh_test local configuration state API (node identity, relay, network retransmission)	
<b>454059</b>	<b>A large number of key refresh state change events are generated at the end of KR process, and that may flood NCP queue</b>	<b>Increase NCP queue length in the project</b>
<b>454060</b>	<b>Scene storage uses persistent storage inefficiently</b>	<b>Allocate enough space in NVM3</b>
<b>454061</b>	<b>Slight performance degradation compared to 1.5 in round-trip latency tests was observed</b>	

## 5 Deprecated Items

None



## 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

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