Bluetooth® mesh SDK 2.0.0.0 GA

Gecko SDK Suite 3.1

December 9, 2020

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 5.2 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 versions:

2.0.0.0 released December 9, 2020

Bluetooth

KEY FEATURES

- Support added for MGM220P, xGM210LA, BGM220SC22HNA modules
- Integration with Gecko SDK Suite
- Simplicity Studio 5 support added
- New Bluetooth Mesh APIs

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 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.

Link-time optimization feature of GCC has been disabled, resulting in slight increase of image size

Contents

1 New Items

1.1 New Features

Added in release 2.0.0.0

New Hardware Support

Support for the following modules was added: MGM220P, xGM210LA lighting modules, BGM220SC22HNA SIP module.

Gecko SDK Suite

Bluetooth Mesh SDK release 2.0.0.0 is the first Bluetooth Mesh SDK release that has been integrated in the Silicon Labs Gecko SDK Suite.

Simplicity Studio v5

As of SDK version 2.0.0.0, Simplicity Studio v5 is required to run the Bluetooth Mesh SDK, instead of the Simplicity Studio v4 used by the older releases.

1.2 New APIs

The structure and overall interface of the Bluetooth Mesh API has changed in a backward-incompatible manner. For migrating from APIs on the v1.x SDK please refer to *AN1298: Transitioning from the v1.x to the v2.x Bluetooth Mesh SDK*. No major new functionality compared to the latest 1.x release was added in this release.

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

2 Improvements

2.1 Changed APIs

Changed in release 2.0.0.0

Release 2.0.0.0 contains multiple backward-incompatible changes compared to the Bluetooth Mesh 1.x releases. Because of this, existing projects will not work as such and must be migrated to the new API. For migrating from APIs on the v1.x SDK please refer to *AN1298: Transitioning from the v1.x to the v2.x Bluetooth Mesh SDK*.

Other than the overall change of API, the following modifications have been done mainly to add minor new functionality to the existing BGAPI classes:

- Configuration client class command for querying node key refresh state was added.
- Node class command for event filtering was removed as filtering is now implemented in common NCP code.
- Node class command for informing the stack of imminent power cut was added.
- Node class command for querying replay protection list status was added.
- Provisioner class command for checking node identity beacon data in the application was added.
- Test class command for getting the local DCD structure was added.

3 Fixed Issues

Fixed in release 2.0.0.0

ID #	Description
5662	Default device UUID now conforms to RFC4122 without explicitly setting it.
357307	Heartbeat publication set command parameter handling fixed.
401549	Added a node command for checking replay protection list state.
443806	Fixed an issue with GATT database service capabilities management.
466452	Fixed provisioning cleanup code in case provisioning fails after device address allocation.
639443	Test command for managing replay protection list added.
646954	Removed an artificial limitation on IV index update age.
646982	Fixed error handling in node and provisioner initialization calls if already initialized.

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
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)	
454059	A large number of key refresh state change events are generated at the end of KR process, and that may flood NCP queue	Increase NCP queue length in the project
454061	Slight performance degradation compared to 1.5 in round-trip latency tests was observed	
454332	Missing Mesh-specific API for generating and receiving scan response data for GATT provisioning service advertisements	Use the LE GAP API
490276	mesh_node_get_uuid() does not work until mesh stack is initialized	Read the value after the stack is initialized
624514	Issue with re-establishing connectable advertising if all connections have been active and GATT proxy is in use	Allocate one more connection than is needed
640696	LC Light On/Off transition does not follow the binary state transition behavior	Ignore the reported current state when a transition is ongoing
651996	**LC server model placement in sample projects is not handled properly by the stack**	**Override the LC model placement in DCD to mirror the placement in Mesh 1.7 SDK**
652878	**Issue with secure NCP when events and command responses are interleaved**	

5 Deprecated Items

None

6 Removed Items

Removed in release 2.0.0.0

Commands that have been deprecated in past SDK releases have been removed in Bluetooth Mesh SDK 2.0. Past releases have introduced replacements for the deprecated commands; these replacements have been migrated to the new API.

The events corresponding to the deprecated commands that were also deprecated are also removed. Past releases have introduced replacements for the deprecated events; these replacements have been migrated to the new API.

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 *QSG176: Silicon Labs Bluetooth Mesh SDK v2.x Quick-Start Guide*.

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 *QSG176: Silicon Labs Bluetooth Mesh SDK v2.x Quick-Start Guide*.

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. 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.

Contact Silicon Laboratories support at http://www.silabs.com/support.

8 Legal

8.1 Disclaimer

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