Zigbee EmberZNet SDK 6.6.3.0 GA
19Q2 Gecko SDK Suite
September 13, 2019

Silicon Labs is the vendor of choice for OEMs developing Zigbee networking into their products. The Silicon Labs Zigbee platform is the most integrated, complete, and feature-rich Zigbee solution available.

Silicon Labs EmberZNet SDK contains Silicon Labs' implementation of the Zigbee stack specification.

These release notes cover SDK version(s):

6.6.3.0 released September 13, 2019.
6.6.2.0 released August 16, 2019.
6.6.1.0 released July 19, 2019.
6.6.0.0 released June 7, 2019.

KEY FEATURES

- Green Power Device Support
- Zigbee Application Framework Updates
- WiFi Coexistence Improvements
- Support for MG21 Modules: MGM210P and MGM210L

Compatibility and Use Notices

If you are new to the EmberZNet 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.

- GCC is not supported with the EM35x, EM358x, and EM359x device families.

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1 New Items

Gecko Platform release notes are now available through Simplicity Studio's Launcher Perspective, under **SDK Documentation > EmberZNet SDK 6.6.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 Plugins

The following is a list of new plugins included with this release. A brief description is given for each. For additional information refer to the plugin description within Simplicity Studio.

Added in release 6.6.0.0

Antenna CLI

This plugin provides a command line interface (CLI) for controlling antenna configuration, setting the TX and RX antenna modes.

CCM Encryption & Strong Random

Functionality for strong random number generation and aes-ccm* encryption have been moved to two new plugins (Strong-Random, CCM-Encryption). These plugins provide options to use either native hardware/software support as in the past, or to enable mbedTLS support.

CLI Password Protection

Used for enabling/disabling password protected CLI. After the plugin is enabled, the CLI will be locked and it will demand a new password setup. Once the password is set up, the CLI will automatically request the password to be re-entered upon chip reset and/or after the configured timeout is passed. The plugin commands can be used to change the password later on. The password is stored in a token as an encrypted hash value. This plugin can also be used for setting up the parameters for password protection CLI and brute force prevention.

Network Steering

The network steering plugin has a new option called "Optimize Scans" which can be selected in the plugin UI window. When selected, network steering behaves differently with regards to scans. Steering begins by scanning on all channels, both those found on the primary and secondary channel masks (redundant channels are not scanned twice). Networks are then joined by inspecting cached beacons (see Beacon Caching section below) and using one of the three different link keys used for joining (install code derived, well known key, and distributed key). This new behavior cuts down on the many scans that the original steering implementation would issue.

ZCL Framework Core

This plugin moves the subsection of files needed by the Application Framework implementation from the standard Zigbee Template to its own plugin. The option 'Enable Command Line for Legacy CLI' corresponds to using operating the legacy CLI generation option under CLI configuration.

DMP Tuning

The DMP Tuning plugin has been added to provide better access for tuning specific configurations in multiprotocol use-cases either through plugin options or via CLI. Also, it provides configuration profiles for the major customer use-cases (BLE priority, zigbee priority and balanced priority).

1.2 New APIs

For additional documentation please refer to the Zigbee Framework API Reference Guide.

Added in release 6.6.0.0

Beacon Caching

A beacon caching system has been added to the stack. When issuing an active scan, joining, or rejoining, the stack code will store a configured number of beacons (EMBER_MAX_BEACONS_TO_STORE) when collecting the results of the scan. A join or rejoin procedure will attempt to join the most favorable network, which is marked by having better RSSI and/or LQI values, hub connectivity, or long uptime (these last two being features of the Works With All Hubs initiative). Users will be able to launch an active scan and then iterate over the

results using the new **emberGetFirstBeacon** and **emberGetNextBeacon** APIs. Users may also choose to join a specific network, captured by a EmberBeaconData object, using the new **emberJoinNetworkDirectly** API. The beacon cache is purged after BEACON_STORAGE_TIMEOUT_MS milliseconds (3000 by default) or when the user calls **emberClearStoredBeacons**.

Beacon caching is by default not compiled into applications. Users may include the beacon caching code by defining either EMBER_USE_BEACON_CACHE or EMBER_AF_PLUGIN_NETWORK_STEERING_OPTIMIZE_SCANS, this latter macro being defined when ticking 'Optimize Scans' in the Network Steering plugin. Without beacon caching, the following APIs are stubbed and non-functional:

- emberJoinNetworkDirectly
- emberClearStoredBeacons
- emberSetNumBeaconsToStore
- emberGetFirstBeacon
- emberGetNextBeacon
- emberGetNumStoredBeacons

emberForceTxAfterFailedCca - Disables CCA after a specified number of consecutive CSMA failures due to CCA. The maximum allowed value for CSMA attempts is 3, each consisting of 5 failed and backed off CCA checks.

EmberStatus - New error codes added to diversify PHY failure error classification. In addition to EMBER_PHY_TX_CCA_FAIL, there are now also EMBER_PHY_TX_BLOCKED and EMBER_PHY_TX_SCHED_FAIL.

emberGetRailHandle - This API provides access to RAIL level APIs such as RAIL_SetRssiOffset

ezspZllCancelRxOnWhenIdle - Host-side support for emberZllCancelRxOnWhenIdle. Also converted the function to a macro which resolves to a call of emberZllSetRxOnWhenIdle with a duration of 0ms.

HAL Config - Added LFXO tune manufacturing token and added support for reading and writing LFXO tune.

Radio Blocker Optimization - EFR32xG12, EFR32xG13, EFR32xG14 RX PHY select to optimize for either wide band interferers (Wi-Fi) or narrow band interferers (802.15.4, Bluetooth, etc) in adjacent channels and far channels, now improved with Wi-Fi PA enable control input feature for run time automation.

RX_ACTIVE - In multi-EFR32 designs, (multi-protocol), enables priority of one protocol over the others by providing an assert output to the other EFR32's RHO pin whenever a packet preamble for the priority protocol is detected.

1.3 New Framework

Added in release 6.6.0.0

In this release, an initial version of Green Power Device(GPD) Framework is added in the EmberZnet stack installer. This framework provides one GPD sample application for a GPD Toggle Switch (Device ID = 0x02). See UG392 (ug392-using-sl-green-power) for more information.

Note, the sample application uses a non volatile storage(psstore), that is not recommended for production.

1.4 New Sample Applications

Added in release 6.6.2.0

ZigbeeMinimal

The EmberZNet ZigbeeMinimal sample application provides a minimal functional subset to serve as a starting point for users wishing to build their own ZigBee applications. The application is configured to operate as a ZigBee Router, but can be modified to operate as a Coordinator or End Device. No ZigBee Cluster Library (ZCL) application-layer functionality is preconfigured. In the Studio New Project workflow Select Application dialog, it is recommended to select this sample application, rather than the "Start with a blank application" checkbox, to begin development of a new Zigbee application.

2 Improvements

2.1 Plugin Changes

Changed in release 6.6.2.0

The **Stack Diagnostics** plugin now has an option to record the last received LQI and RSSI values per neighbor. This option is only selectable for a SoC application. The values are seen with the command "plugin stack-diagnostics neighbor-table."

Changed in release 6.6.0.0

The **NCP Configuration** plugin's default ZLL Scan Request RSSI threshold (i.e. the threshold specified for accepting a Touchlink Commissioning Scan Request) has been changed to match the default threshold specified for the ZLL Library plugin, which is currently set to -40 dBm.

The **Mbed TLS** plugin (formerly **Mbed TLS Common**) has been enhanced with studio integrations such that plugins can delegate their own mbed TLS feature requirements. Projects including the Mbed TLS plugin will now generate a new configuration header (mbedtls-config-generated.h). This enhancement allows for the use of Mbed TLS with all platforms and removed the requirement to link with mbedtls specific versions of the **Zigbee PRO Stack LIbrary**. The **Mbed TLS Multiprotocol** plugin has been updated to utilize this feature while the **Mbed TLS TRNG** plugin has been replaced with an option in the new **Strong Random** plugin.

The **Trust Center Network Key Update Periodic** plugin's options have been revised. The Key Update Period maximum is changed from 365 to 45, and its default is changed from 2 to 30. The default for Key Update Units is changed from days to minutes. The combined effect is that the default period is changed from 2 days to 30 minutes, and the maximum configurable period is 45 days. The plugin description is revised to explain that the default values are intended to be used for development and test, and should be reconfigured for production deployment; Zigbee R22 recommends no less than 30 days.

The **NVM3 Library** plugin's default cache size for NCPs has increased from 100 entries to 200

2.2 API Changes

Changed in release 6.6.2.0

Touchlink

Added retry to ZLL Rejoin operation to improve ZLL reliability in a noisy RF environment.

Endpoint Device Version

In accordance with Zigbee Specification 13-0589-13, Section 5, we have updated the default Endpoint Device Version to start at 1 instead of 0.

Changed in release 6.6.1.0

HWCONF Changes

Added a workaround in the EFR32 Virtual UART ("Serial 0") code to prevent breakage of SWO output after closing a debug connection with some versions of the Segger JLink library.

Changed in release 6.6.0.0

Child Timeouts

Joining and insecurely rejoining children are now subject to a new, temporary timeout. This timeout is controlled by EMBER_SHORT_CHILD_TIMEOUT. The child timeout is set to the configured EMBER_END_DEVICE_POLL_TIMEOUT value once the child sends the first network encrypted message, confirming that the child has successfully recorded the network key. This change has been made to handle failed child joins more gracefully. Without this change, a child that associates would consume a child table entry for EMBER_END_DEVICE_POLL_TIMEOUT time, which would occupy a resource for a potentially long time. Children that join and insecurely rejoin are expected to send both Device Announce and End Device Timeout Request messages, both of which are network encrypted. An End Device Timeout Request message will always overwrite the temporary or default timeout to the newly requested value.

Touchlink

Changed the behavior of an end-device Touchlink initiator which receives a Scan Response from a target on the same network, but with a higher network update id, in order to conform strictly to the ZCL specification, which mandates that an end-device initiator shall always issue a rejoin request. This change corrects a regression in the previous version.

EmberJoinMethod

EMBER_USE_NWK_COMMISSIONING has been renamed to EMBER_USE_CONFIGURED_NWK_STATE (functionally equivalent).

Mbed TLS

Aligned various Stack and App APIs for AES-CCM* under one common API that is compatible with Mbed TLS framework

HAL Changes

Reduced vector table alignments of dies such that they are now as minimum as required

2.3 Sample App Changes

Changed in release 6.6.1.0

The source files in **GPD framework plugin and application** have been rearranged to move the application state machine to user callback.

Changed in release 6.6.0.0

DynamicMultiprotocolDemoLightWithNvm3 has been renamed to **DynamicMultiprotocolLight**.

DynamicMultiprotocolDemoSwitchWithNvm3 has been renamed to **DynamicMultiprotocolSwitch**.

Z3LightCombo has been renamed to **Z3LightGPCombo**.

The **Form and Join Library** plugin has been removed from all Z3 sample apps.

2.4 Framework Changes

Changed in release 6.6.0.0

EmberZNet version 6.6 Silicon Labs includes changes to the underlying framework such that it uses the same user interface and metadata used by all of Silicon Labs' other stacks including the xNCP, Silicon Labs Thread, and Flex. This change results in a slightly different user interface for the EmberZNet 6.6 stack in Simplicity Studio. The most noticeable change is that projects are no longer generated into the <stack>/app/builder directory. Instead projects are generated by default into the user's workspace directory.

The .isc sample application files have been updated and the key value pairs located in the earlier zigbee stacks have now been moved into structured "setup" configurations within the .isc file. While using EmberZNet version 6.6, the Pre-EmberZNet 6.6 .isc files will automatically be upgraded to Zigbee Application Framework format.

For more information on the migration of projects from Pre-EmberZNet 6.6 to EmberZNet 6.6 refer to:
https://www.silabs.com/community/wireless/zigbee-and-thread/knowledge-base.entry.html/2019/05/30/migrating_projectsf-AsOr

2.5 Documentation Changes

Changed in release 6.6.1.0

AN1017 Revision

Major revision of AN1017, "Zigbee and Thread Coexistence with Wi-Fi", material and organization. Document is now at Rev. 1.7.

3 Fixed Issues

Fixed in release 6.6.3.0

ID #	Description
398549	Updated EFR32XG21 devices to have the full set of SERIAL Hardware Configurator options. This will fix sluggishness on EFR32XG21 serial operations.
429042	DynamicMultiprotocolLightSed sample application now sets Micrium RTOS plugin "Enable EM1/EM2" option to true to properly support sleepy behavior.

Fixed in release 6.6.2.0

ID #	Description
405333	Some register bit fields for EM3xx devices in the Device headers implied that a field was a simple 1 or 0. Those bit field defines were removed. An alternative is using a field's _MASK define instead.
414465	Ensures any attribute newly configured for reporting sends reports as expected without requiring a device reset.
417985	Issue where SPI NCP would not bootload on EFR32MG21, now fixed.
418523	Fixed issue in not checking for a null return value causing the Z3Gateway SPI Host to hit a Segmentation Fault.
422959	Several issues with SPI NCP handling of the nWAKE signal which would have led to problems with sleeping and bootloading have been resolved.

Fixed in release 6.6.1.0

ID #	Description
188203	Clear serial RX errors in emberSerialFlushRx().
335364	Fixed reporting of stack usage in the crash diagnostic information.
362918	emberGpepIncomingMessageHandler will pass encrypted (security level 3) packets as a notification with appropriate status in case of an decryption (security failure) failure.
370334	Touchlink Commissioning client will now use the configured touchlink TX power (EMBER_AF_PLUGIN_ZLL_COMMISSIONING_COMMON_RADIO_TX_POWER) instead of the maximum TX power after touchlinking to the network.
375921	Trampoline function for PendSV_Handler fixed to branch to halPendSvIsr instead of itself.
392293	Add fix so that wake up from sleep on UART RX will work without the button driver enabled.
401762	FEM control plugin settings now show up for MG21 devices.
406302	Resolved multiple compilation issues related to building with HAL_COEX_RUNTIME_PHY_SELECT and HAL_ANTDIV_RX_RUNTIME_PHY_SELECT macros enabled.
407047	Fixed an EFR32xG21 issue where CSMA/LBT CCA durations were significantly shorter than specified.
408096	Fixed the 802.15.4 ACK turnaround time on the EFR32xG21 platform. Due to a calculation error this was actually 18us too short which could cause interoperability problems.
408103	An issue with debug output timing on EFR32xG21 has been fixed. This results in improved speed and/or reliability in a number of areas, including sleep and NCP communications, when the Debug plugin is enabled.
412346	Fixed an issue where network depth remains zero which was causing to fail Zigbee Pro compliant test case 11.5.
414607	Added a workaround in the EFR32 Virtual UART ("Serial 0") code to prevent breakage of SWO output after closing a debug connection with some versions of the Segger JLink library.

Fixed in release 6.6.0.0

ID #	Description
300746	CLI commands now support the use of exclamation marks (!) as a delimiter between different sets of valid CLI argument inputs.
303943	ezspGetStandaloneBootloaderVersionPlatMicroPhy now reports the major version, minor version, and sub minor version number when used with the Gecko Bootloader
315498	An issue has been fixed where an OTA client would report failure after sending an Image Page Request and receiving an Image Block Response whose status reports WAIT_FOR_DATA. The client would time out after the wait and incorrectly assume that a page request timeout occurred. The OTA client now correctly resets its page request state when receiving a WAIT_FOR_DATA message such that subsequent Image Page Requests are sent correctly.

ID #	Description
315661	On the EM35x platform the random number seeding is now done in parts instead of waiting for complete seed. This does not require any changes from the application. If needed complete seeding can be done with a single call to emPrngReseed(). Weak random numbers can be obtained by calling emRadioGetWeakRandomNumbers(). emRadioGetRandomNumbers() will continue providing strong random numbers.
352812	Use the power value the device used during joining/associating the network whenever there is a change in network channel or device performs rejoin.
355239	An issue where CREATOR code defines were always required for all tokens has been fixed. Now, only applications that include either the Simulated EEPROM version 1 or 2 plugins or the Simulated EEPROM version 2 to NVM3 upgrade plugin need to define CREATOR codes for the all tokens.
355931	Network PAN ID is correctly set to 0xFFFF after a network leave by the host app.
356322	The ZCL Scenes cluster Recall command now supports the TransitionTime field in the construction and parsing of the ZCL command message; as an argument of the emberAfScenesClusterRecallSceneCallback() function in the EmberZNet scenes plugin; and as a CLI command argument for the "zcl scenes recall" CLI command. Note, this fix does not include implementation of the behavior implied by the TransitionTime value.
357785	Frequent on/off toggle commands are handled gracefully, without causing a buffer assert.
362270	Support for converting all ZCL data types to corresponding CBOR representation has been added.
362621	Fixed device-table plugin to add the correct network address when a parent responds to a network address request on behalf of its child.
363162	emberAfAddAddressTableEntry now properly breaks when coming across an UNUSED_NODE_ID index.
363786	In the ota-storage-posix-filesystem plugin's implementation of emberAfOtaStorageGetFullHeaderCallback(), the returned error status value is fixed for the case where no OTA image is found for the referenced OTA image ID.
363982	An issue has been fixed where the function halInternalDisableWatchDog would take around 10 milliseconds and more to complete. A repercussion of this issue would involve an awakening sleepy device that would delay for longer periods before servicing other tasks.
364538	The XML definition of the ZCL Color Control cluster StartUpColorTemperatureMireds attribute has been corrected to reflect that it is writable.
364763	Fixed an error in file parsing logic that prevented iasClientLoadCommand from reading in iaszone.txt
366809	Fixed bug that caused inclusion of module header file for MGM12P22F1024GE to fail.
377281	Fixed leave command handling logic so table entries now properly get removed when handling a leave announce.
380527	An instance of a call to emberAfWriteServerAttribute(), for the Level cluster RemainingTime optional attribute, used an incorrect value for the ZCL Type argument. The argument has been changed to the ZCL INT16U type.
381117	Fixed a compiler error that prevented disabling secondary channel scanning in the ZLL Commissioning Common plugin options.
384616	Modified stack behavior to disable the USART TX GPIO line prior to sleep on Series2 devices. This reduces sleep current by ~15uA.
384864	SubGhz end devices will now properly send out the link power delta message after reset.
386073	A Coverity-detected dead code condition in the processing of a ZCL global Discover Attributes request has been corrected, eliminating the possibility of an incomplete attribute record being returned at the end of the response message payload.
387231	OTA Client plugin now correctly assigns values to the ImageTypeId cluster attribute. While in the middle of an OTA process, this attribute will be set to the image type id value defined in the OTA image. While, not in the middle of an OTA process, this attribute will be set to 0xFFFF.
387234	OTA Client plugin now correctly updates DownloadedZigbeeStackVersion cluster attribute.
390791	This fixes the issue where GPIO interrupts in certain configurations might not fire after waking up from the sleep on em3xx parts. It also fixes sleepy NCP not waking up from sleep (em3xx)
391464	Stack protection is now included for em356.
394208	An issue where End Devices joined via a parent that uses end device timeout request keepalive would only send keepalives once per timeout period rather than the recommended three has been corrected.
400056	A filepath issue with the bluetooth library when targeting a module part has been fixed.

4 Known Issues in the Current Release

Issues in bold were added since the previous release.

ID #	Description	Workaround
60858	Sleepy broadcast payload is sometimes corrupted when relaying to child	No known workaround
60975	EZSP_VALUE_TOKEN_STACK_NODE_DATA, EZSP_VALUE_UART_SYNCH_CALLBACKS, EZSP_VALUE_MAXIMUM_INCOMING_TRANSFER_SIZE, and EZSP_VALUE_MAXIMUM_OUTGOING_TRANSFER_SIZE ValueIDs are writable but not readable.	No known workaround
70851	System-timer implementation precludes runtime adjustment to GPIO wake handling	No known workaround
82569	RAM corruption (in Packet Buffers) could occur if MAC Filter Match List Size is non-zero and a list of the maximum size is provided to ezspSetValue for EZSP_VALUE_MAC_FILTER_LIST.	No known workaround
106307	Nodetest calChannel command does not wake the radio to work properly.	No known workaround
119939	ZDO IEEE Request's APS ACK proxied by parent incorrectly includes long source address.	No known workaround
121984	Turning off NCP concentrator support does not disable all stack concentrator logic.	No known workaround
135649	Multi-networking can cause APS frame counter confusion between networks.	Use emberAfSecurityInitCallback to add EMBER_NO_FRAME_COUNTER_RESET to EmberInitialSecurityBitmask.
229938	ZLL devices are sending ZLL device information frames with the 0x0104 HA/Z3 common profile ID instead of 0xC05E ZLL profile ID.	No known workaround
235222	Virtual UART (VUART) works on Ethernet but does not work over USB on WSTK.	No known workaround
251287	To achieve the lowest current during sleep on EFR32xG12, EFR32xG13, and EFR32xG14 parts, you must turn on voltage scaling. However, the radio will not operate with voltage scaling turned on, so to turn it on you must also make sure to disable it after each wake-up. Furthermore, some resets will not turn off voltage scaling, so please ensure that it is disabled before attempting to turn on the radio. Note that there is a ramp when turning voltage scaling on or off, so enabling this feature may increase the time it takes to go to sleep or wake up.	No known workaround
261670	Harden the ZLL touchlink process to mitigate malicious attacks	No known workaround
266341	Z3 Light sample app has two endpoints that support similar cluster commands, so duplicate responses may be generated for certain commands.	No known workaround
271644	A device that performs a classic join to a legacy ZLL gateway may eventually leave the network on its own initiative.	No known workaround
278063	Smart Energy Tunneling plugins have conflicting treatment/usage of address table index	No known workaround
281231	Enabling Serial 3 or USB functionality on EM358x and EM359x may cause memory management faults and other errors. As EM358x and EM359x USB support has been deprecated, please ensure that Serial 3 and USB functionality are disabled.	No known workaround
281832	Green Power Common plugin incorrectly formats groupList and groupListCount parameters of GP Pairing Configuration frame.	No known workaround
289569	Network-creator plugin power level picklist doesn't offer full range of supported values for EFR32	No known workaround
295498	UART reception sometimes drops bytes under heavy load in Zigbee+BLE DMP use case	Use hardware flow control or lower the baud rate.
301024	Currently the Dynamic Multi-Protocol Sample applications do not build with GCC, they require the IAR compiler due to dependencies on both the BLE and Micrium stacks.	No known workaround

ID #	Description	Workaround
312291	The halCommonGetIntxxMillisecondTick functions on linux hosts currently use the gettimeofday function, which is not guaranteed to be monotonic. If the system time changes, it can cause issues with stack timing. The workaround is to modify these functions to use clock_gettime with the CLOCK_MONOTONIC source instead.	No known workaround
331438	Service discovery may time out too quickly in busy networks.	Define EMBER_AF_DISCOVERY_TIMEOUT_QS to customize the timeout period.
333146	The coexistence plugin behavior has changed to be required for all applications. By default coexistence functionality should be stubbed out when not configured via board header (EM35x) or not enabled via HWCONF (EFR32). Appbuilder may automatically enable the HWCONF coexistence module without warning which can trigger an error for dynamic multiprotocol applications, which do not yet support coexistence.	No known workaround
338151	Initializing NCP with a low packet buffer count value may cause corrupt packets.	No known workaround
345167	Sleepy end devices occasionally not sending APS ACK for received APS unicasts polled from parent.	No known workaround
362133	The default chip RSSI offset on the EFR32 chips is incorrect. For accuracy, we recommend measuring this on your hardware and then applying it with the \ref RAIL_SetRssiOffset() API. In the future, more reasonable defaults will be provided, however, the board dependent component may still need to be measured for custom hardware.	Use RAIL_SetRssiOffset()
371180	A bug where including the Battery Monitor plugin can disable other features of the chip inadvertently.	No known workaround
398694	Disabling endpoint 2 (Touchlink) in the Z3Light sample app causes high emberRunTask execution time.	Under Investigation
401119	The Image Builder utility may flag a harmless warning when creating an OTA image from a .gbl file. The warning is "Bad length for tag. Size X < Min size Y," where X and Y are variable. The warning is inaccurate and will be removed in a future release.	Under Investigation

5 Deprecated Items

Deprecated in release 6.6.3.0

- Z3 Gateway support for MQTT and CoAP: The Z3GatewayHost sample application's functional extensions for MQTT and CoAP are deprecated. Support for them is expected to be removed in a future release. These extensions pertain to an obsolete reference design and require complex configuration instructions that are not readily included in the sample application's description. Customers who do not have prior experience with that reference design are advised not to attempt to use these extensions.
  - Z3Gateway with MQTT: This extension allows a Z3Gateway to communicate with an MQTT broker.
  - Z3Gateway with CoAP: This extension allows a Z3Gateway to communicate with a CoAP client.

Deprecated in release 6.6.0.0

- As of June 2019 Simplicity Studio 3.0 is being deprecated. All support for Simplicity Studio 3 is scheduled to end December 1st 2019.
- Deprecated EZSP_CONFIG_TRANSIENT_KEY_TIMEOUT_S. Now use new EZSP_VALUE_TRANSIENT_KEY_TIMEOUT_S.
- The following plugins are scheduled to be removed in the next major release:
  - accelerometer LED
  - battery-monitor
  - battery-monitor-stub
  - bulb-pwm-driver
  - bulb-pwm-driver-stub
  - button-interface
  - button-interface-stub
  - generic-interrupt-control
  - generic-interrupt-control-stub
  - gpio-sensor
  - gpio-sensor-stub
  - humidity-si7021-stub
  - Humidity-temperature-si7021
  - i2c-driver
  - i2c-driver-stub
  - illuminance-si1141
  - illuminance-si1141-stub
  - key-matrix
  - led-blink
  - led-blink-stub
  - linked-list
  - microphone-codec-msadpcm
  - microphone-imaadpcm
  - occupancy-pyd1698
  - occupancy-pyd1698-stub
  - power-meter-cs5463
  - power-meter-cs5463-stub
  - sb1-gesture-sensor
  - sb1-gesture-sensor-stub
  - tamper-switch
  - tamper-switch-stub
  - temperature
  - temperature-si7021-stub
  - temperature-si7053
  - temperature-si7053-stub

If you wish to continue using one or more of these plugins in your application, you are advised to keep a local copy in your source code repository and maintain and test the code yourself going forward.

Alternatively, you may wish to explore some of the peripheral usage examples found in the Silicon Labs GitHub repository here: https://github.com/SiliconLabs/peripheral_examples.

6 Removed Items

Removed in release 6.6.1.0

- Removed unused getMfgToken* functions.

Removed in release 6.6.0.0

- The inoperable **Green Power Test Device** plugin has been removed.
- The "Enhanced Sleep Support" plugin option of the **End Device Support** plugin has been removed.
- Use of **SimEE** and **PsStore** persistent token storage utilities with the Dynamic Multiprotocol framework has been disabled and the **PS Store Library** plugin has been removed from the Zigbee Application Framework in this release. All DMP applications should use the **NVM3** token storage solution, which has been made available in production ready quality since EmberZNet 6.4.0. Note, there is currently no way to preserve PS Store tokens when upgrading to NVM3. SimEEv2 tokens can be preserved using the SimEEv2->NVM3 upgrade plugin. SimEEv1 tokens can be preserved by first using the SimEEv1->SimEEv2 upgrade plugin, then using the SimEEv2->NVM3 upgrade plugin.
- The **SeSampleCommsHub** and **xNCP CommsHub Dual** sample apps are now packaged separately and available upon request. Please contact Silicon Labs support if you would like to be a part of this distribution.
- Removed Sample Applications:
    - DynamicMultiprotocolDemoLight
    - DynamicMultiprotocolDemoLightSed
    - DynamicMultiprotocolDemoLightSedWithNvm3
    - DynamicMultiprotocolDemoSwitch
    - SwitchedMultiprotocolJoiningDevice
    - Z3CapSenseDimmerSwitch
    - Z3ColorControlLight
    - Z3ColorTempLight
    - Z3ContactSensor
    - Z3DimmableLight
    - Z3OccupancySensor
    - Z3SmartOutlet
    - Z3SwitchWithMicrium
    - ZllSampleController
    - ZllSampleLight
    - SwitchedMultiprotocolTrustCenter (Host)
    - SecureEzsp (Host)
    - SecureEzspNcp (NCP)

7 Using This Release

This release contains the following:

- Zigbee stack EmberZNet PRO v6.6.3.0
- Zigbee Application Framework v6.6.3.0
- Zigbee Sample Applications

For more information about Zigbee and the EmberZNet SDK see UG103.02: Zigbee Fundamentals.

If you are a first-time user, see QSG106: Getting Started with EmberZNet PRO, for instructions on installing and configuring your development environment, building and flashing a sample application, and documentation references pointing to next steps.

7.1 Installation and Use

Stack installation instruction are covered in QSG106: Getting Started with EmberZNet PRO.

Use the EmberZNet 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 Laboratories Zigbee web page to obtain information about all Silicon Labs Zigbee 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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