Z-Wave 700 SDK 7.14.3.0 GA
Gecko SDK Suite 3.0
October 14, 2020

Z-Wave 700 is designed to meet the demands of the future smart home, where increasing needs for more sensors and battery-operated devices require both long range and low power. Context-aware environments are the next evolution in the smart home market, and they require technologies that have been optimized specifically for these applications.

100% Interoperable: Every product in the Z-Wave ecosystem works with every other product, regardless of type, brand, manufacturer or version. No other smart home/IoT protocol can make this claim.

Best-In-Class Security: Z-Wave's Security 2 (S2) framework provides end-to-end encryption and the most advanced security for smart home devices and controllers. Homes with S2 Z-Wave devices are virtually un-hackable.

SmartStart Easy Installation: SmartStart radically simplifies the installation of smart devices by using QR code scans for uniform, trouble-free setup. Devices and systems can be pre-configured dramatically easing deployments.

Backwards-Compatible: Z-Wave certification mandates backward-compatibility. The very first Z-Wave devices on the market, more than ten years old still perform as intended in networks with the latest Z-Wave technologies.

Z-Wave

KEY FEATURES

- New Z-Wave LED Bulb application
- Z-Wave pre-certified applications: Door Lock Key Pad, LED Bulb, Power Strip, Sensor PIR, Switch On/Off & Wall Controller
- New Z-Wave PC-based Controller v5.42
- New Z-Wave PC-based Zniffer v4.64

The Z-Wave 700 SDK v7.14.3 GA release is intended for development of Z-Wave-certifiable, 700-based products entering volume production. Notice: The Z-Wave 700 SDK v7.14.0 was a beta release and therefore could not be used for Z-Wave certification, see section 6 Product Life Cycle and Certification.

These release notes cover SDK version(s):

7.14.3.0 GA released October 14, 2020
7.14.2.0 GA released September 9, 2020
7.14.1.0 GA released July 29, 2020

Compatibility and Use Notices

If you are new to the Z-Wave 700 SDK, see Using This Release.

Contents

1 Z-Wave Protocol

1.1 New Items

None

1.2 Improvements

None

1.3 Fixed Issues

Fixed in release 7.14.2.0 GA

ID #	Description
501141	An application can lock up in very rare circumstances when the device is handling multiple receive and transmit sessions. E.g. when the device is transmitting local application events (such as button presses) to a remote gateway/controller, while at the same time routing traffic from a third device in the Z-Wave network.

Fixed in release 7.14.1.0 GA

ID #	Description
472564	The application can lock up in rare circumstances when a number of button de-bounce timers are started due to multiple user button presses in a short period of time.

Fixed in release 7.14.0.0 Beta

ID #	Description
436188	Priority Route is set from Controller to one of the slave nodes, but after SoftReset or manual power reset is performed on Controller it no longer uses Priority Route.
462766	Network-Wide Inclusion observed to fail in systems with one or more repeater hops.
486057	After being included the DoorLockKeyPad enters FLiRS mode but it sometimes wake up for 2 seconds without any apparent reason.
486370	FLiRS wakeup beams transmitted on one Z-Wave network can interfere and cause FLiRS nodes on neighboring networks to become unresponsive.

1.4 Known Issues in the Current Release

Issues in bold were added since the previous release. If you have missed a release, recent release notes are available on https://www.silabs.com/products/software.

ID #	Description	Workaround
355095	In small networks Assign Return Routes will only generate direct range or one hop routes even though multi-hop routes are possible.	None
361273	Transport Service is used when it is necessary to split a frame in two parts due to size. However, Transport Service does not forward RSSI information from the lower layers but only routing information. The RSSI value is the difference between LWR RSSI and background RSSI. As a consequence it is not possible to use RSSI for large frames handled by Transport Service in a network health calculation.	None
433582	The supply voltage of the EFR32ZG14 SoC for gateways must be 2.5V or higher. This will ensure stable operation since low noise DCDC conversion is enabled on the SoC instead of DCDC bypass.	None
436188	Priority routes are written to a cache in RAM and not flushed to file system NVM3 when a soft reset is issued.	Host application must always restore priority routes in controller at startup.
436380	Serial API-based controller can seldom reset during SmartStart inclusion in large networks. Seen rarely in networks larger than 40+ nodes.	Important to enable watch dog to recover from SmartStart failure. Host application must set controller in SmartStart mode again to proceed.
448729	Virtual nodes on a bridge controller will ack frames from a foreign homeID when the bridge controller is in the process of adding a node to the network	None

1.5 Deprecated Items

None

1.6 Removed Items

None

2 Z-Wave Plus V2 Application Framework

2.1 New Items

None

2.2 Improvements

None

For a detailed description of application development using the Z-Wave Plus V2 Framework, refer to *INS14259: Z-Wave Plus V2 Application Framework SDK7.*

2.3 Fixed Issues

Fixed in release 10.14.3.0 GA

ID #	Description
620579	Reassigning an association results in incorrect supervision response. If the association list is full and the user tries to add a node that already exists, the function erroneously returns fail instead of success.

Fixed in release 10.14.2.0 GA

ID #	Description
495621	OTA of devices containing associations failed when trying to upgrade to the new format introduced in v7.13.4. Added code that automatically translates legacy files containing associations to v7.13.4 or later. The translation code can be found in AssociationInit().

Fixed in release 10.14.1.0 GA

ID #	Description
493004	Multichannel Association Remove Supervision encupsulated with GroupID=0 erroneously removes all associations from GroupID=1.

Fixed in release 10.14.0.0 Beta

ID #	Description
453577	Failure to invoke an application's supervision report handler when a Supervision Report with matching Session ID was received. Caused by incorrect check for Session ID number in the Supervision Command Class.
476176	If the number of nodes in an application's Lifeline Assocoation Group reaches the maximum number supported (as defined by MAX_ASSOCIATION_IN_GROUP in *config_app.h*), then the associated application events will not be transmitted to the Lifeline members. Caused by an error in the Assiciation Command Class implementation.

2.4 Known Issues in the Current Release

Issues in bold were added since the previous release. If you have missed a release, recent release notes are available on https://www.silabs.com/products/software.

ID #	Description	Workaround
369430	All S2 multicast frames are sent using verified delivery S2_TXOPTION_VERIFY_DELIVERY whether or not a response is expected.	Change source code depending on frame sent.
412848	Multichannel association groups work incorrectly with multiple associations to the same device.	Change source code according to specification.

429745	In CC_Supervision.c the session_id gets increased before Supervision GET is sent. So condition
	if ((supervision_session_id - 1) == pCmd->ZW_SupervisionReportFrame.properties1)
	is never true.
		Replace
		if ((supervision_session_id - 1) == pCmd->ZW_SupervisionReportFrame.properties1)
		with
		if (supervision_session_id == pCmd->ZW_SupervisionReportFrame.properties1)

2.5 Deprecated Items

None

2.6 Removed Items

None

3 Certified Applications

3.1 Door Lock Key Pad

3.1.1 New Items

None

3.1.2 Improvements

None

3.1.3 Fixed Issues

None

3.1.4 Known Issues in the Current Release

None

3.1.5 Deprecated Items

None

3.1.6 Removed Items

None

3.2 LED Bulb

3.2.1 New Items

Added in release 10.14.0.0 Beta

New Z-Wave LED Bulb application shows an implementation of a remotely controlled color switch.

3.2.2 Improvements

None

3.2.3 Fixed Issues

None

3.2.4 Known Issues in the Current Release

None

3.2.5 Deprecated Items

None

3.2.6 Removed Items

None

3.3 Power Strip

3.3.1 New Items

None

3.3.2 Improvements

None

3.3.3 Fixed Issues

Fixed in release 10.14.2.0 GA

ID #	Description
521911	When building Power Strip in Simplicity Studio a warning is returned as follows “Unused declaration of function ‘CC_MultilevelSwitch_getEndpointIndex’".

3.3.4 Known Issues in the Current Release

None

3.3.5 Deprecated Items

None

3.3.6 Removed Items

None

3.4 Sensor PIR

3.4.1 New Items

None

3.4.2 Improvements

None

3.4.3 Fixed Issues

Fixed in release 10.14.0.0 Beta

ID #	Description
454952	Secure inclusion would fail if commands from the including device were delayed by more than 45 seconds during the S2 boot strapping process.
461996	Following a successful OTA firmware transfer, the Firmware Update Activation Set command would have no effect if issued **after** the SensorPIR device had entered into sleep state.

3.4.4 Known Issues in the Current Release

Issues in bold were added since the previous release. If you have missed a release, recent release notes are available on https://www.silabs.com/products/software.

ID #	Description	Workaround
386208	Sensor PIR does not always generate SHORT_PRESS events for short button presses in EM4. If the device has been awakened by a button press, the button handling logic starts by looking at the current state of the button. If the button is UP, a SHORT_PRESS event is immediately sent to the application. If the button is DOWN, then the de-bouncing logic is triggered to properly generate HOLD or LONG_PRESS events as needed. However, this leaves a tiny timing window where the button could be DOWN when initially tested, but is released before the DOWN time required for the de-bouncing logic to generate even a SHORT_PRESS event.	Prolong button press to allow detection of SHORT_PRESS by the de-bouncing logic.

3.4.5 Deprecated Items

None

3.4.6 Removed Items

None

3.5 Switch On/Off

3.5.1 New Items

None

3.5.2 Improvements

None

3.5.3 Fixed Issues

Fixed in release 10.14.0.0 Beta

ID #	Description
445576	If sending Supervision encapsulated Association Set with node ID 0, the application replies "success" even though it is an invalid destination.
483091	Performing a "Device Reset Locally" action (by pressing button BTN1 for more that 5 seconds) could cause the device to lock up and become unresponsive.

3.5.4 Known Issues in the Current Release

None

3.5.5 Deprecated Items

None

3.5.6 Removed Items

None

3.6 Wall Controller

3.6.1 New Items

None

3.6.2 Improvements

None

3.6.3 Fixed Issues

Fixed in release 10.14.3.0 GA

ID #	Description
627207	Multichannel association groups work incorrectly when they have multiple associations for a given endpoint. When a device wants to activate a given endpoint, it sends a broadcast instead of a single cast. This results in activation of all the adjencent endpoints defined in the device.

3.6.4 Known Issues in the Current Release

None

3.6.5 Deprecated Items

None

3.6.6 Removed Items

None

4 Serial API Bridge Controller

Unchanged serial interface version 8.

4.1 New Items

None

4.2 Improvements

None

4.3 Fixed Issues

Fixed in release 10.14.3.0 GA

ID #	Description
486316	Serial API cannot shutdown gracefully when sending data.

Fixed in release 10.14.2.0 GA

ID #	Description
501045	When including 700 controllers the SerialAPI GetInitData (0x02) doesn't return node list after Smart Start Learn Mode completed.

4.4 Known Issues in the Current Release

Issues in bold were added since the previous release.

ID #	Description	Workaround
387655	Pre-built SerialAPI delivered in Simplicity Studio will not work if the ZG14 bootloader is also flashed to the radio board.	Use serialAPI without bootloader or, if OTW support is needed, contact the Z-Wave Apps team for workaround.
491624	Disabled support of USB suspend mode because this feature can brick the UZB7 stick.	None

4.5 Deprecated Items

None.

4.6 Removed Items

None

5 Using This Release

This release contains the following

- Z Wave Plus V2 Application Framework
- Z-Wave Certified Applications for a broad range of smart home applications
- Z-Wave Protocol and Serial API Applications

If you are a first-time user, Z-Wave documentation is installed with the SDK. See INS14280: Z-Wave 700 Getting Started for End Devices, INS14278: How to Use Certified Apps in Z-Wave 700, and INS14281: Z-Wave 700 Getting Started for Controller Devices for instructions.

This SDK depends on a Gecko Platform. 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. Gecko Platform release notes are available through Simplicity Studio's Launcher Perspective, under this SDK's **Release Notes** doc header.

5.1 Installation and Use

Order a Z-Wave 700 Wireless Starter kit. The kit offers the easiest and fastest way to start evaluation and development of your own Z-Wave 700 mesh application. It provides a single world-wide development kit for both end devices and gateways with multiple radio boards, in which to enable developers to create a mesh network and evaluate the Z-Wave 700 module.

Download and install Simplicity Studio from https://www.silabs.com/support/getting-started/mesh-networking/z-wave/z-wave-700. Installation instructions are available in the Simplicity Studio 5 User's Guide. Simplicity Studio ensures that most software and tool compatibilities are managed correctly. Install software and board firmware updates promptly when you are notified.

After Simplicity Studio installs, select **Install By Product Group**, check **Z-Wave**, and follow the steps to install the SDK.

Documentation specific to the SDK version is installed with the SDK. API references and other information about this and earlier releases are available on https://docs.silabs.com/.

To implement a specific application, Silicon Labs recommends starting with one of the existing pre-certified apps with the desired Role Type.

5.2 Support

Development Kit customers are eligible for training and technical support.

See support resources and contact Silicon Laboratories support at http://www.silabs.com/support.

6 Product Life Cycle and Certification

Silicon Labs will add new features based on market requirements and continuously improve the Z-Wave Protocol to position the Z-Wave Ecosystem. The Z-Wave Protocol Life Cycle is a process to provide rapid innovation, new features, and robust matured protocol release to Z-Wave Partners. The Z-Wave Protocol Life Cycle defines the maturation process of Z-Wave Protocol generations and consist of three phases divided in five Life Cycle stages.

Ascent Phase (BETA)

Silicon Labs releases new Z-Wave protocol generations (branches), i.e., initial BETA release of a Z-Wave Protocol generation that will introduce major new features/functions or support for a new Z-Wave Single Chip generation. This release is not certified and not eligible for certification.

Maturity Phase (ACTIVE/MAINTAINED)

Each new generation will generate follow-on matured releases to resolve protocol issues prioritized by Silicon Labs and based on input from Z-Wave Alliance Partners.

Decline Phase (MONITORED/OBSOLETE)

After a period of 17-24 months in the maturity phase a branch/release is discontinued and for an additional period (up to 24 months) a discontinued branch/release will be monitored since products based on this branch may still be shipping or under warranty in the field.

Table 6-1. Z-Wave SDK Life Cycle Status

Series	Branch	SDK Version	Release Date [DD/MM/YYYY]	Life Cycle Status
700	7.1x.x	7.14.3 GA	14/10/2020	Active
		7.14.2 GA	09/09/2020	Maintained
		7.14.1 GA	29/07/2020	Maintained
		7.14.0 Beta	24/06/2020	Obsolete
		7.13.6 GA	27/05/2020	Maintained
		7.13.5 GA	29/04/2020	Maintained
		7.13.4 GA	15/04/2020	Maintained
		7.13.3 GA	20/03/2020	Maintained
		7.13.2 GA	21/02/2020	Maintained
		7.13.1 GA	24/01/2020	Maintained
		7.13.0 Beta	13/12/2019	Obsolete
		7.12.2 GA	26/11/2019	Maintained
		7.12.1 GA	20/09/2019	Obsolete
		7.11.1 GA	12/07/2019	Monitored
		7.11.0 GA	29/03/2019	Monitored

A change in the Z-Wave SDK utilized for a specific device does require recertification; however, the type of certification required, the amount of testing needed, and the associated fees depend on the scope of the change.

Table 6-2. Z-Wave Certification in case of a SDK upgrade.

SDK Version	Upgrade to SDK Version	Type of Certification
7.14.3 GA	NA	-
7.14.2 GA	7.14.3 GA	Re-certification
7.14.1 GA	7.14.2 GA	Re-certification
7.14.0 Beta	7.14.1 GA	Full certification
7.13.6 GA	7.14.1 GA	Re-certification
7.13.5 GA	7.13.6 GA	Re-certification
7.13.4 GA	7.13.5 GA	Re-certification
7.13.3 GA	7.13.4 GA	Re-certification
7.13.2 GA	7.13.3 GA	Re-certification
7.13.1 GA	7.13.2 GA	Re-certification
7.13.0 Beta	7.13.1 GA	Full certification
7.12.2 GA	7.13.1 GA	Re-certification
7.12.1 GA	7.13.1 GA 7.13.0 Beta 7.12.2 GA	Re-certification NA Re-certification
7.11.1 GA	7.13.1 GA 7.13.0 Beta 7.12.2 GA 7.12.1 GA	Re-certification NA Re-certification NA
7.11.0 GA	7.13.1 GA 7.13.0 Beta 7.12.2 GA 7.12.1 GA 7.11.1 GA	Re-certification NA Re-certification NA Re-certification

7 Legal

7.1 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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