

🏠 // Software Documentation // Simplicity SDK Release Notes // Version 2026.6.1 (latest)
// Wi-Fi 6 + BLE (WiSeConnect) // **SiWx91x Bluetooth LE**

You are viewing documentation for version:

2026.6.1 (latest) >

↓ PDF

WiSeConnect - SiWx91x Bluetooth LE SDK Version 4.1.1 (Jul 29, 2026) - Release Notes

[Wi-Fi 6 + BLE \(WiSeConnect\) SDK Version 4.1.1](#)

[Simplicity SDK Version 2026.6.1](#)

The SiWx91x Bluetooth LE Software Development Kit (SDK) provides feature-rich Bluetooth 5 connectivity with multi-connection capabilities, advanced advertising extensions, and power optimization for diverse IoT applications.

See [WiSeConnect releases](#) for earlier releases.

Release Summary

[Key Features](#) | [API Changes](#) | [Bug Fixes](#) | [Chip Enablement](#)

Key Features

Added in 4.1.1

None

Added in 4.1.0

- Added support for dynamically enabling or disabling BLE.
- Added logging support for BLE.
- Added RC clock support for BLE.
- Added support for BLE stack bypass/offloading.



Ask AI

🏠 // Software Documentation // Simplicity SDK Release Notes // Version 2026.6.1 (latest)
// Wi-Fi 6 + BLE (WiSeConnect) // **SiWx91x Bluetooth LE**

Added in 4.1.1

None

Added in 4.1.0

- Created API to set minimum encryption key size for SMP pairing.
- Added API to disable BLE at runtime.
- Added API to enable BLE at runtime.
- Added API to register common GATT callbacks.
- Added API to register GATT server callbacks.
- Added API to register GATT client callbacks.

Bug Fixes

Fixed in 4.1.1

- Updated Keyboard Display IO capability documentation for BLE SMP.
- Fixed an issue where a second extended central connection could fail when another bonded extended central connection was already active.
- Fixed an issue in LE extended connections where initiating a central connection could fail while a bonded peripheral connection was already active, due to incorrect peer address resolution.
- Fixed an issue where, after bonding, the DUT sent another SMP request instead of initiating encryption when a remote central attempted to reconnect.
- Fixed AE connection issue in coded PHY when DUT is purely controller with `bt_stack_bypass` application.
- Updated default log level as "INFO" for all the BLE NCP examples.

Fixed in 4.1.0

- Fixed a BLE re-pairing attack vulnerability by adding the `rsi_ble_vendor_set_SMP_min_enc_keysize` API to set the minimum encryption key size (7 - 16).
- Fixed an issue where the DUT became unresponsive during BLE TX/RX notifications with power save mode enabled on the 121x board using the `ble_unified_ae_coex_app_soc` application.

🏠 // Software Documentation // Simplicity SDK Release Notes // Version 2026.6.1 (latest)
// Wi-Fi 6 + BLE (WiSeConnect) // **SiWx91x Bluetooth LE**

Fixed an issue where the PC responds with `ATT_ERROR_RSP` to `ATT_WRITE_REQ`

packets over the air when the mobile writes data with variable length enabled.

- Replaced hardcoded values (magic numbers) with well-defined macros in BLE files to improve code readability and maintainability.
- Fixed spelling and typographical issues across BLE components and example files.
- Fixed a security vulnerability regarding attribute permission levels for the characteristic value declaration and the CCCD.
- Fixed an issue where the `ble_data_length` application example did not work with 121x and 141x PSRAM OPNs.
- Fixed an issue in the Extended Create Connection command where the initiator address was set to zeros when `own_addr_type` was configured to a resolvable random address.

Chip Enablement

Added in 4.1.1

None

Added in 4.1.0

None

Key Features

[New Features](#) | [Enhancements](#) | [Removed Features](#) | [Deprecated Features](#)

Note: See [Feature Matrix](#) for a list of any applicable APIs, examples, software variants, modes, hardware, and host interfaces applicable for each feature.

New Features

Added in 4.1.1

None

Added in 4.1.0

🏠 // Software Documentation // Simplicity SDK Release Notes // Version 2026.6.1 (latest)
// Wi-Fi 6 + BLE (WiSeConnect) // **SiWx91x Bluetooth LE**

Added support for BLE based firmware over the air (OTA) updates from a remote central device.

- Added support for BLE operation even when the low-power bit is disabled.

Enhancements

Added in 4.1.1

- Updated default log level as "INFO" for all the BLE NCP examples.
- Updated Refresh Module details in the BLE example READMEs.

Added in 4.1.0

- Replaced BLE synchronous APIs with corresponding asynchronous APIs in all applications.

Removed Features

Removed in 4.1.1

None

Removed in 4.1.0

None

Deprecated Features

Deprecated in 4.1.1

None

Deprecated in 4.1.0

None

API Changes

[New APIs](#) | [Modified APIs](#) | [Removed APIs](#) | [Deprecated APIs](#)

Added in 4.1.0

New API Signature	Deprecated API replaced by this (if any)
<code>int32_t</code> rsi_ble_vendor_set_SMP_min_enc_keysize (<code>uint8_t</code> min_keysize)	None
<code>int32_t</code> rsi_ble_disable (<code>void</code>)	None
<code>int32_t</code> rsi_ble_enable (<code>void</code>)	None
<code>void</code> rsi_ble_gatt_common_register_callbacks (<code>rsi_ble_on_gatt_write_event_t</code> ble_on_gatt_event)	None
<code>void</code> rsi_ble_gatt_server_register_callbacks (...)	None
<code>void</code> rsi_ble_gatt_client_register_callbacks (<code>rsi_ble_on_profiles_list_resp_t</code> ble_on_profiles_list_resp, ...)	None

Modified APIs

Modified in 4.1.1

None

Modified in 4.1.0

None

Removed APIs

Removed in 4.1.1

None

Removed in 4.1.0

None

Deprecated in 4.1.0

None

Bug Fixes

Note: See the [Feature Matrix](#) section for a list of all hardware parts that work with the WiSeConnect SDK.

Fixed in 4.1.1

ID	Issue Description	GitHub / Salesforce Reference (if any)	Work around (if any)	Affected Software Variants, OPNs, Boards, Modes, Host Interfaces
1686948	Updated Keyboard Display IO capability documentation for BLE SMP.	None	None	• Software variants: Standard and Lite • OPNs: All OPNs • Boards: All applicable boards • Modes: SoC, NCP • Host interfaces: N/A
1690504	Fixed an issue where a second extended central connection could fail when another bonded extended central connection was already active.	None	None	• Software variants: Standard and Lite

🏠 // Software Documentation // Simplicity SDK Release Notes // Version 2026.6.1 (latest)
 // Wi-Fi 6 + BLE (WiSeConnect) // **SiWx91x Bluetooth LE**

				• OPNs: All OPNs • Boards: All applicable boards • Modes: SoC, NCP • Host interfaces: N/A
1690 469, 1680 025	Fixed an issue where a BLE extended central failed to establish a connection after connecting to a peripheral when the remote device used extended advertising.	None	None	• Software variants: Standard and Lite • OPNs: All OPNs • Boards: All applicable boards • Modes: SoC, NCP • Host interfaces: N/A
1715 568	Fixed an issue where, after bonding, the DUT sent another SMP request instead of initiating encryption when a remote central attempted to reconnect.	None	None	• Software variants: Standard and Lite • OPNs: All OPNs • Boards: All applicable boards • Modes: SoC, NCP • Host interfaces: N/A
1682 690	Fixed AE connection issue in coded PHY when DUT is purely controller with <code>bt_stack_bypass</code> application.	None	None	• Software variants: Standard and Lite • OPNs: All OPNs

🏠 // Software Documentation // Simplicity SDK Release Notes // Version 2026.6.1 (latest)
 // Wi-Fi 6 + BLE (WiSeConnect) // **SiWx91x Bluetooth LE**

					- Boards: All applicable boards - Modes: SoC, NCP - Host interfaces: N/A
1673596	Updated default log level as "INFO" for all the BLE NCP examples.	None	None		- Software variants: Standard and Lite - OPNs: All OPNs - Boards: All applicable boards - Modes: SoC, NCP - Host interfaces: N/A

Fixed in 4.1.0

ID	Issue Description	GitHub / Salesforce Reference (if any)	Work around (if any)	Affected Software Variants, OPNs, Boards, Modes, Host Interfaces
1599776	Fixed an issue where the DUT became unresponsive during BLE TX/RX notifications with power save mode enabled on the 121x board using the <code>ble_unified_ae_coex_app_soc</code> application.	None	None	- Software variants: Standard and Lite - OPNs: 121x and 141x PSRAM OPNs - Boards: All applicable boards - Modes: SoC

🏠 // Software Documentation // Simplicity SDK Release Notes // Version 2026.6.1 (latest)
 // Wi-Fi 6 + BLE (WiSeConnect) // **SiWx91x Bluetooth LE**

				• Host interfaces: N/A
15 87 09 1	Fixed an issue where BLE PER did not work when the NWP watchdog timer was enabled.	None	None	• Software variants: Standard and Lite • OPNs: All • Boards: All • Modes: SoC, NCP • Host interfaces: SPI, UART
14 65 17 5	Fixed an issue where the DUT device stopped responding when power-save mode was enabled during BLE transmit and receive (TX/RX) notifications using the HP chain.	None	None	• Software variants: Standard and Lite • OPNs: All • Boards: All • Modes: SoC, NCP • Host interfaces: SPI, UART
14 47 91 7	Fixed an issue where the DUT responds with <code>ATT_ERROR_RESP</code> to <code>ATT_WRITE_REQ</code> packets over the air when a mobile device wrote data with variable length enabled.	None	None	• Software variants: Standard and Lite • OPNs: All • Boards: All • Modes: SoC, NCP • Host interfaces: SPI, UART
16 13 48 9	Replaced hardcoded values (magic numbers) with well-defined macros in BLE files to improve code readability and maintainability.	None	None	• Software variants: Standard and Lite • OPNs: All • Boards: All

🏠 // Software Documentation // Simplicity SDK Release Notes // Version 2026.6.1 (latest)
 // Wi-Fi 6 + BLE (WiSeConnect) // **SiWx91x Bluetooth LE**

				• Modes: SoC, NCP • Host interfaces: SPI, UART
1608196	Fixed spelling and typographical issues across BLE components and all example files.	None	None	• Software variants: Standard and Lite • OPNs: All • Boards: All • Modes: SoC, NCP • Host interfaces: SPI, UART
1592951	Fixed a security vulnerability related to attribute permission levels for the characteristic value declaration and CCCD.	None	None	• Software variants: Standard and Lite • OPNs: All • Boards: All • Modes: SoC, NCP • Host interfaces: SPI, UART
1458618	Fixed an issue where the <code>ble_data_length</code> application example did not work with 121x and 141x PSRAM OPNs.	None	None	• Software variants: Standard and Lite • OPNs: 121x and 141x PSRAM • Boards: All applicable boards • Modes: SoC • Host interfaces: N/A

 // Software Documentation // Simplicity SDK Release Notes // Version 2026.6.1 (latest)
// Wi-Fi 6 + BLE (WiSeConnect) // **SiWx91x Bluetooth LE**

13 54 93 3	Fixed the BLE re-pairing attack vulnerability by adding the <code>rsi_ble_vendor_set_SMP_min_enc_keysize</code> API to set the minimum encryption key size (7–16).	None	None	• Software variants: Standard and Lite • OPNs: All • Boards: All • Modes: SoC, NCP • Host interfaces: SPI, UART
16 38 79 4	Fixed an issue in the Extended Create Connection command where the initiator address was set to zeros when <code>own_addr_type</code> was configured to a resolvable random address.	None	None	• Software variants: Standard and Lite • OPNs: All • Boards: All • Modes: SoC • Host interfaces: N/A

Chip Enablement

Added in 4.1.1

None

Added in 4.1.0

None

Application Example Changes

[New Examples](#) | [Modified Examples](#) | [Removed Examples](#) | [Deprecated Examples](#)

Note: See the [Feature Matrix](#) section for a list of all hardware parts that work with

Added in 4.1.1

None

Added in 4.1.0

Example Name	Description	Supported Software Variants (if applicable)	Supported Modes	Supported OPNs / Boards / OPN Combinations	Supported Host Interfaces
BLE - FW OTA Upgrade (See README)	Demonstrates how to update the SiWx91x module firmware over-the-air (OTA) by receiving a firmware image from a remote BLE central (e.g., smartphone or PC tool).	Standard and Lite	SoC , NCP	OPNs: All, Boards: All	SPI, UART

Modified Examples

Modified in 4.1.1

None

Modified in 4.1.0

 // Software Documentation // Simplicity SDK Release Notes // Version 2026.6.1 (latest)
// Wi-Fi 6 + BLE (WiSeConnect) // **SiWx91x Bluetooth LE**

		(if applicabl e)	Mod es	Combinati ons	Interfa ces
BLE - BT Stack Bypass (See README)	Demonstrates how to configure Raw HCI commands through UART, allowing the BLE stack to be bypassed or offloaded in SoC and NCP modes.	Standard and Lite	SoC, NCP	OPNs: All, Boards: All	SPI
All BLE Applications	Replaced standard printf with SL_DEBUG_LOG_V2 prints in all BLE applications.	Standard and Lite	SoC, NCP	OPNs: All, Boards: All	SPI, UART

Removed Examples

Removed in 4.1.1

None

Removed in 4.1.0

None

Deprecated Examples

Deprecated in 4.1.1

None

Deprecated in 4.1.0

None

Known Issues and Limitations

Added in 4.1.1

None

Added in 4.1.0

ID	Issue or Limitation Description	GitH ub / Sale sforc e Refer ence (if any)	Workaro und (if any)	Affected Software Variants, OPNs, Boards, Modes, Host Interfaces
156221	BLE connected power consumption is increased after the transmit power alignment fix. The increase is approximately 8% at the 200 ms connection interval and approximately 29% at the 1.28 sec connection interval.	None	None	• Softwar e variants: Standar d and Lite • OPNs: All • Boards: All • Modes: SoC, NCP • Host interfac es: SPI, UART
15604605	For ICs, customers must obtain certification for the required regions. After certification, the corresponding values are loaded through the "BLE – Update Gain Table" APIs.	None	None	• Softwar e variants: Standar d and Lite • OPNs: All

 // Software Documentation // Simplicity SDK Release Notes // Version 2026.6.1 (latest)
// Wi-Fi 6 + BLE (WiSeConnect) // **SiWx91x Bluetooth LE**

		Reference (if any)		Modes, Host Interfaces
				except SiW917 Y1GN and SiW917 Y1GA modules - Boards: All - Modes: SoC, NCP - Host interfaces: SPI, UART
1371967	BLE anchor points were missing during packet exchanges with the PTS dongle when the Connection Interval (CI) exceeded 960 ms and the Peripheral Latency (SL) was set to 5.	None	None	- Software variants: Standard and Lite - OPNs: All - Boards: All - Modes: SoC, NCP - Host interfaces: SPI, UART
15238	The minimum supported BLE GATT capability is limited to 4 services and 20 attributes for all memory configurations.	None	None	Software variants: Standard and Lite

 // Software Documentation // Simplicity SDK Release Notes // Version 2026.6.1 (latest)
// Wi-Fi 6 + BLE (WiSeConnect) // **SiWx91x Bluetooth LE**

		Reference (if any)		Modes, Host Interfaces
29				• OPNs: All • Boards: All • Modes: SoC • Host interfaces: N/A
N/A	The BLE secondary latency value is valid only up to 32.	None	None	• Software variants: Standard and Lite • OPNs: All • Boards: All • Modes: SoC, NCP • Host interfaces: SPI, UART
N/A	The maximum supported AE data length is 200 bytes.	None	None	• Software variants: Standard and Lite • OPNs: All • Boards: All • Modes: SoC, NCP

 // Software Documentation // Simplicity SDK Release Notes // Version 2026.6.1 (latest)
// Wi-Fi 6 + BLE (WiSeConnect) // **SiWx91x Bluetooth LE**

		Reference (if any)		Modes, Host Interfaces
				• Host interfaces: SPI, UART
N/A	Supports only two ADV_EXT sets.	None	None	• Software variants: Standard and Lite • OPNs: All • Boards: All • Modes: SoC, NCP • Host interfaces: SPI, UART
N/A	When advertising extensions are enabled, they support only two simultaneous BLE connections: either two peripheral, two central, or one central and one peripheral.	None	None	• Software variants: Standard and Lite • OPNs: All • Boards: All • Modes: SoC, NCP • Host interfaces: SPI, UART

🏠 // Software Documentation // Simplicity SDK Release Notes // Version 2026.6.1 (latest)
 // Wi-Fi 6 + BLE (WiSeConnect) // **SiWx91x Bluetooth LE**

		Reference (if any)		Modes, Host Interfaces
N/A	System-level changes introduced to enhance stability have resulted in some increase in power consumption (up to 15% for shorter connections interval, e.g., 200 ms) for modules only cases. However, the impact is smaller for longer connection intervals.	None	None	- Software variants: Standard and Lite - OPNs: All - Boards: All - Modes: SoC, NCP - Host interfaces: SPI, UART
1574418	Using <code>slc generate --toolchain gcc</code> or <code>slc generate --with toolchain_gcc</code> may result in component exclusivity errors due to a conflict between the <code>WiseConnect wiseconnect_toolchain_gcc_standard</code> component and the Simplicity SDK <code>toolchain_gcc</code> component. If these errors occur, generate the project without the <code>toolchain</code> option. Future <code>WiseConnect</code> releases may require reintroducing the <code>toolchain</code> option; refer to upcoming release notes for any changes.	None	If you encounter the exclusivity errors, remove the command line option.	- Software variants: Standard and Lite - OPNs: All - Boards: All - Modes: SoC, NCP - Host interfaces: SPI, UART
N/A	BLE power consumption is higher when using the RC clock compared to the XTAL clock.	None	None	Software variants: Standard

 // Software Documentation // Simplicity SDK Release Notes // Version 2026.6.1 (latest)
// Wi-Fi 6 + BLE (WiSeConnect) // **SiWx91x Bluetooth LE**

		Reference (if any)		Modes, Host Interfaces
				Standard and Lite • OPNs: All • Boards: All • Modes: SoC, NCP • Host interfaces: SPI, UART
N/A	BLE power consumption may increase by approximately 20% to 50% when the Low Power bit is disabled. The impact is higher for smaller connection intervals, such as 200 ms, and lower for longer connection intervals.	None	None	• Software variants: Standard and Lite • OPNs: All • Boards: All • Modes: SoC, NCP • Host interfaces: SPI, UART
N/A	When DEBUG or INFO logging is enabled, SMP passkey entry is supported only with the SL Log Si91x Backend Iostream Compact with RTT backend. Enabling RTT prevents the M4 from entering power save mode. In addition, using the SL Log Backend UART might prevent the SMP passkey from being displayed correctly in host logs.	None	None	• Software variants: Standard and Lite • OPNs: All

[Home](#) // [Software Documentation](#) // [Simplicity SDK Release Notes](#) // [Version 2026.6.1 \(latest\)](#)
// [Wi-Fi 6 + BLE \(WiSeConnect\)](#) // **SiWx91x Bluetooth LE**

		Reference (if any)		Modes, Host Interfaces
				- Boards: All - Modes: SoC, NCP - Host interfac es: SPI, UART

[← Prev](#)

[Next →](#)



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