

RT58x SDK Release Notes

Contents

RT58x SDK Release Notes	1
Contents.....	2
1 Revision History	3
2 RT58x_SDK_v1.9.1	9
3 RT58x_SDK_v1.9.0	10
4 RT58x_SDK_v1.8.0	11
5 RT58x_SDK_v1.8.0	12
6 RT58x_SDK_v1.7.0	13
7 RT58x_SDK_v1.6.0	14
8 RT58x_SDK_v1.5.0	15
9 RT58x_SDK_v1.4.0	16
10 RT58x_SDK_v1.3.0.....	17
11 RT58x_SDK_v1.2.3_BLE_Mesh.....	19
12 RT58x_SDK_v1.2.2_Zigbee	20
13 RT58x_SDK_v1.2.1	21
14 RT58x_SDK_v1.2.0.....	22
15 RT58x_SDK_v1.1.1	24
16 RT58x_SDK_v1.1.0.....	25
17 RT58x_SDK_v1.0.1	27
18 RT58x_SDK_v1.0.0_Mesh	28
19 RT58x_SDK_v1.0.0.....	29
20 RT58x_SDK_v0.3.1	32
21 RT58x_SDK_v0.2.0.....	34
22 RT58x_SDK_v0.1.0.....	35

1 Revision History

Date	Version	Description
2021/11/05	0.1.0 (alpha)	- Initial version
2022/01/11	0.2.0 (alpha)	- For SubG only
2022/02/16	0.3.1 (alpha)	<ul style="list-style-type: none"> - Added GCC project for all examples - Added Zigbee/BLE multi-protocol demo - Added more Zigbee examples - Added more tools and related documents - Unified application architecture of different protocols - Modified power saving example
2022/03/31	1.0.0	<ul style="list-style-type: none"> - Added more peripheral drivers and examples - Added BLE demos with low power mode mechanism - Added more tools and related documents - Integrated DTM function - Fixed bug in BLE multi-link demo
2022/04/08	1.0.0 (Mesh)	<ul style="list-style-type: none"> - Added BLE Mesh demo example - Added BLE Mesh App - Added BLE Mesh documents
2022/05/18	1.0.1	<ul style="list-style-type: none"> - Added software PMU calibration - Extend Zigbee maximum network nodes - Fixed low speed timer reload issue
2022/06/10	1.1.0	<ul style="list-style-type: none"> -Added examples: I2S digital microphone -Added Address protect in flash driver. -Modify PWM example -Added BLE UART_cmd demo -Added BLE Beacon demo -Added Zigbee Gateway command example -Added Zigbee User_specific cluster -Added Thermostat cluster -Fixed Zigbee two end-point bug -Fixed Zigbee OTA buffer issue -RF_Lab_Test_Tool support SubG RF test
2022/07/08	1.1.1	- Modify PMU DCDC initial setting to enhance the stability under stress environment
2022/07/19	1.2.0	<ul style="list-style-type: none"> -BLE: add Privacy and connect CTE API -Zigbee: now can pre-configure network parameter.

		<ul style="list-style-type: none"> -Zigbee: add OTA function in new gateway demo -Zigbee: AES by HW accelerator. -Add multi-protocol demo: Zigbee Easy Gateway -Add multi-protocol demo: utilize BLE to reset Zigbee device -Add Android app for multi-protocol demos.
2022/09/05	1.2.1	<ul style="list-style-type: none"> -Tools: MP_Tool add Tx power 0/4 dBm target -Zigbee: optimize RX current consumption -Zigbee: device send leave command to gateway after factory reset
2022/09/30	1.2.2	<p>Zigbee Gateway module:</p> <ul style="list-style-type: none"> - Revise binding command - Add read attribute, write attribute, configure report command <p>Zigbee Light:</p> <ul style="list-style-type: none"> - Add OTA client cluster - Add finding & binding process <p>Zigbee Switch:</p> <ul style="list-style-type: none"> - Remove endpoint 1&3 - Add OTA client cluster - Add finding & binding process <p>Zigbee OTA Server:</p> <ul style="list-style-type: none"> - Removed (gateway module replace) <p>Zigbee OTA Client:</p> <ul style="list-style-type: none"> - Removed (light/switch replace)
2022/10/13	1.2.3	<p>BLE Mesh:</p> <ul style="list-style-type: none"> -Implement Model and Lighting Demo. -BLE Mesh Performance Tuning -BLE Mesh Document
2023/01/17	1.3.0	<p>Platform & Peripheral:</p> <ul style="list-style-type: none"> - Update ADC setting to improve accuracy of chip variation - Bootloader support FOTA image decompression. <p>Zigbee:</p> <ul style="list-style-type: none"> - Power on/off 5 times to reset light device - Add sensor related clusters - New flash update algorithm - Add library version

		<ul style="list-style-type: none"> - Modify private cluster ID - Improve interoperability with other Zigbee device - Fix under multi-PAN environment, device may accept packet from different PAN_ID. <p>BLE:</p> <ul style="list-style-type: none"> - Use 2 bytes to indicate LL TX data sequence - FOTA flow update. Support image compression <p>BLE Mesh:</p> <ul style="list-style-type: none"> - Fixed transparent transmission bug: now different packet size are all right <p>Sub-G:</p> <ul style="list-style-type: none"> - Add OQPSK 6.25k data rate - Add field test demo code <p>Tool:</p> <ul style="list-style-type: none"> - Android app: support BLE Mesh demo - Android app: support Zigbee smart home - MP_tool: separate BLE/Zigbee Tx power target - FOTA tool: support OTA image compression - RF_lab_test_tool: modify SubG test option
2023/03/07	1.4.0	<p>Platform:</p> <ul style="list-style-type: none"> - Add 2MB Flash FLM - Update flash driving setting to improve RX sensitivity - Fix Deep Sleep issue - Turn off LDO Enable when not loading 80251 FW. <p>Tool:</p> <ul style="list-style-type: none"> - MP_tool support 2MB flash <p>Multi-Protocol:</p> <ul style="list-style-type: none"> - Modify Zigbee/BLE application document <p>Other:</p> <ul style="list-style-type: none"> - 2MB flash OTA add secure upgrade <p>FW:</p> <ul style="list-style-type: none"> - Fixed getting wrong RSSI value when TX power is very low on Sub-G - Enable MAC features for multi-protocol - Support up to 32 sets of source match address - Security key setup failed when BLE is enabled on multi-protocol FW

2023/06/29	1.5.0	<p>[Platform]:</p> <ul style="list-style-type: none"> - Modify VS Code and SDK Getting Start document. - Add SDK Quick Start document <p>[Tool]:</p> <ul style="list-style-type: none"> - MP Tool v1.4.0 support Sub-G power trim, matter production with certificates, and 1 to 16 parallel test - BLE Mesh Android app support Scenes, Rafael TRSP Server, and Rafael TRSP Client modes <p>[BLE Mesh]:</p> <ul style="list-style-type: none"> - Add gateway project and document - Restructure the file and folder for client model - Fixed provisioning fail issue
2023/08/23	1.6.0	<p>[Platform]:</p> <ul style="list-style-type: none"> - Add SRAM power enable at initial function. - Modify WDT setting to let WDT can reset all blocks - Modify WDT example - Fix Bootloader OTA decoder error at some image length <p>[SubG]:</p> <ul style="list-style-type: none"> - Support 433MHz <p>[BLE]:</p> <ul style="list-style-type: none"> - Add Privacy for Direct ADV, Scan <p>[BLE Mesh]:</p> <ul style="list-style-type: none"> - Gateway support BLE Transparent Transmission <p>[Tool]:</p> <ul style="list-style-type: none"> - MP Tool apply RF Trim calibration value - RF Lab Test Tool add SubG Tx power selection for band0 915Mhz to band2 433Mhz.
2024/01/08	1.7.0	<p>[BLE]:</p> <ul style="list-style-type: none"> - Add privacy demo example - Support LE Secure Connection <p>[BLE Mesh]:</p> <ul style="list-style-type: none"> - Server library support BLE TRSP service <p>[Thread]:</p> <ul style="list-style-type: none"> - Add Thread example and document <p>[Zigbee]:</p> <ul style="list-style-type: none"> - Modify gateway command document <p>[Tool]:</p>

		- Mobile App add LE commission for SubG device to join SubG network
2024/03/21	1.8.0	<p>[Platform]:</p> <ul style="list-style-type: none"> - Add examples projects: Flash_RW, GPIO_Interrupt, Gpio_Input, GPIO_Output, SADC_Polling, Timer_Periodic, Timer_Freerun, WDT_Interrupt <p>[SubG]:</p> <ul style="list-style-type: none"> - Support 470~510MHz - Keep Tx constant power (15dBm) regardless Vbat voltage <p>[Thread]:</p> <ul style="list-style-type: none"> -Add SubG frequency band setting (915M, 868M, 433M) <p>[Tool]:</p> <ul style="list-style-type: none"> -RF lab test tool: add SubG 470~510MHz
2024/05/06	1.9.0	<p>[Platform]:</p> <ul style="list-style-type: none"> - Update flash DS (Data Set) examples - Fix flash DS API read fail issue. <p>[Thread]:</p> <ul style="list-style-type: none"> -Add 2.4G MTD Project -Fix MTD task idle can't enter sleep issue. <p>[SubG]:</p> <ul style="list-style-type: none"> -Add support tx_continuous_wave_set API. <p>[Tool]:</p> <ul style="list-style-type: none"> -ISP tool : Auto reset and write/clear signature public key -FOTA tool : Output signature bin option for ISP tool.
2024/06/21	1.9.1	<p>[Zigbee]:</p> <ul style="list-style-type: none"> - Add DoorLock examples - Update Lighting and Move commands with OptionMask, OptionOverride byte <p>[Thread]:</p> <ul style="list-style-type: none"> - Add configuration to set selection of eid64(mac) address. - Fixed OTA bitmap memory-free issue. <p>[SubG]:</p> <ul style="list-style-type: none"> - Update RFB tx_continuous_wave_set API - Update demo project to support TX power function <p>[Tool]:</p> <ul style="list-style-type: none"> - Upgrade VS2012 to VS2022 version. Include ISP tool/ RF lab test tool/ FOTA tool/ MP tool

2 RT58x_SDK_v1.9.1

● New Features

-Thread

- Add configuration to set selection of eid64(mac) address.

-Zigbee

- Add DoorLock example.

● Feature Changes

-Tool (Upgrade VS2012 to VS2022 version)

- ISP tool, RF lab test tool, FOTA tool, MP tool.

-SubG

- Update RFB tx_continuous_wave_set API.
- Update demo project to support Tx power function.

-Zigbee

- Update Lighting and Move commands with OptionMask, OptionOverride byte.

● Bug Fixes

-Thread

- Fixed OTA bitmap memory-free issues.

-SubG

- Fixed tx_power_set API band definition.

3 RT58x_SDK_v1.9.0

● New Features

-Thread

- Add 2.4G MTD Project

- SubG

- Add support tx_continuous_wave_set API.

● Feature Changes

-Platform

- Update flash DS (Data Set) examples

-Tool

- ISP tool : Auto reset and write/clear signature public key
- FOTA tool : Output signature bin option for ISP tool.

● Bug Fixes

- Thread

- Fix MTD task idle can't enter sleep issue.

- Platform

- Fix flash DS API read fail issue.

4 RT58x_SDK_v1.8.0

● New Features

-Platform

- Add examples project:
Flash_RW/GPIO_Interrupt/GPIO_Input/GPIO_Output
SADC_Polling/Timer_Periodic/Timer_Freerun/WDT_Interrupt

-SubG

- Add 470~510MHz band
- Keep Tx constant power (15dBm) regardless Vbat voltage (Frequency: 433~510MHz)

-Thread

- Add SubG frequency band setting (915M, 868M, 433M)

● Feature Changes

-Tool

- RF lab test tool: add SubG 470~510MHz

● Bug Fixes

- None

5 RT58x_SDK_v1.8.0

● New Features

-Platform

- Add examples project:
Flash_RW/GPIO_Interrupt/GPIO_Input/GPIO_Output
SADC_Polling/Timer_Periodic/Timer_Freerun/WDT_Interrupt

-SubG

- Add 470~510MHz band
- Keep Tx constant power (15dBm) regardless Vbat voltage (Frequency: 433~510MHz)

-Thread

- Add SubG frequency band setting (915M, 868M, 433M)

● Feature Changes

-Tool

- RF lab test tool: add SubG 470~510MHz

● Bug Fixes

- None

6 RT58x_SDK_v1.7.0

● New Features

-BLE

- Add privacy demo example
- Support LE secure connection

-BLE Mesh

- Server library support BLE TRSP service

-Thread

- Add Thread example and document

● Feature Changes

-Zigbee

- Modify gateway command document

-Tool

- Mobile App add BLE commission for Sub_G device to join Sub_G network

● Bug Fixes

- None

7 RT58x_SDK_v1.6.0

● New Features

-SubG

- Support 433MHz

-BLE

- Add Privacy for Direct ADV, Scan

-BLE Mesh

- Gateway supports BLE Transparent Transmission

● Feature Changes

-Platform

- SRAM power enable at the start of system initial function. To avoid operation abnormal after wakeup from Deep Sleep

-Tool

- ISP tool add SubG Tx power selection - band0 [915Mhz] and band2 [433Mhz].
- RF Lab Test Tool add SubG Tx power selection - band0[915Mhz] to band2 [433Mhz].

● Bug Fixes

-Tool

- MP Tool apply RF Trim calibration value to solve random RX fail issue

- Platform

- Modify WDT setting to let WDT can reset all blocks
- Fix Bootloader OTA decoder error at some image length

8 RT58x_SDK_v1.5.0

- **New Features**

- **Feature Changes**

- Platform

- Modify VS Code and SDK Getting Start document.
 - Add SDK Quick Start document

- Tool

- BLE Mesh app: Android app support Scenes, Rafael TRSP Server, and Rafael TRSP Client modes
 - MP Tool v1.4.0: support Sub-G power trim, matter production with certificates, and 1 to 16 parallel test

- BLE Mesh

- Implement gateway project and document
 - Restructure the file and folder for client model

- **Bug Fixes**

- BLE Mesh

- Fixed provisioning fail issue

- **Known Issues**

- None

9 RT58x_SDK_v1.4.0

● New Features

-Platform

- Add 2MB Flash FLM
- Update flash driving setting to improve RX sensitivity

● Feature Changes

-Tool

- MP_tool support 2MB flash

-Multi Protocol

- Modify Zigbee/BLE application document for first time join Zigbee network

-Other

- 2MB flash OTA support secure upgrade

-FW

- Enable MAC features for multi-mode
- Support Up to 32 Sets of Source Match Address
- Security key setup failed when BLE is enabled on multi-mode FW

● Bug Fixes

-Platform

- Fix Deep Sleep issue
- Turn off LDO Enable when not loading 80251 FW.

● Known Issues

-None

10 RT58x_SDK_v1.3.0

● New Features

-Zigbee:

- New flash update algorithm
- Add library version

-Tool:

- Android app: add Zigbee smart home

● Feature Changes

-Zigbee:

- Power on/off 5 times to reset light device
- Gateway for Home Automation
 - Add sensor related clusters
- Modify private cluster ID

-BLE:

- Use 2 bytes to indicate LL TX data sequence
- FOTA flow update to support image compression

-BLE Mesh:

- Change ADV_enable complete event response timing from "TX_complete" to "constant_delay"

-SubG:

- Add SubG_Field_Test demo

-Platform:

- Bootloader Support LZMA decompression for FOTA
- Add "volatile" to avoid optimization in Sleep mode

-Tool:

- Android app: modify BLE Mesh demo
- MP_tool
 - Separate BLE/Zigbee Tx power target
 - Manual set X'tal cap
- ISP_tool
 - Support SubG
 - FOTA with image compression

● Bug Fixes

-Peripheral:

- Update ADC setting to overcome chip variation issue.

-Zigbee:

- Solve one interoperability issue with Legacy Zigbee gateway
- Fix under multi-PAN environment, device may accept packet from different PAN_ID.

-BLE Mesh:

- Fixed bug: in transparent transmission, different packet size stress test assert
- Fixed bug: sometimes Provision fail

-Sub G:

- Fixed GCC project
- Fixed received data sequence in SubG TRX demo example

● Known Issues

-Platform:

- Cortex M3 can't enter deep sleep mode if communication subsystem still working. Will fix it in SDK_v1.3.1

11 RT58x_SDK_v1.2.3_BLE_Mesh

- **New Features**

- None.

- **Feature Changes**

-BLE Mesh:

- Implement Model and Lighting Demo.
- BLE Mesh Performance Tuning.
- BLE Mesh Document.

- **Bug Fixes**

- None.

- **Known Issues**

- None.

12 RT58x_SDK_v1.2.2_Zigbee

● New Features

- None.

● Feature Changes

-Zigbee:

- Gateway module:
 - Revise binding command
 - Add read attribute, write attribute, configure report command
- Light:
 - Add OTA client cluster
 - Add finding & binding process
- Switch:
 - Remove endpoint 1&3
 - Add OTA client cluster
 - Add finding & binding process
- OTA Server:
 - Removed (gateway module replace)
- OTA Client:
 - Removed (light/switch replace)

● Bug Fixes

- None.

● Known Issues

- None.

13 RT58x_SDK_v1.2.1

● New Features

- Tools:

- MP_Tool add Tx power 0/4 dBm target

● Feature Changes

-Zigbee:

- Optimize RX current consumption
- Device send leave command to gateway after factory reset

● Bug Fixes

- None.

● Known Issues

- None.

14 RT58x_SDK_v1.2.0

New Features

-BLE:

- Add Privacy and connect CTE API.

-Zigbee:

- Now can pre-configure the network parameters.
- Add OTA function in new gateway demo.

-Multi-protocol:

- Zigbee Easy Gateway: implement Zigbee gateway by one RT582 chip. Running BLE/Zigbee multi-protocol on RT582 to replace traditional Zigbee gateway.
- Utilize BLE to reset Zigbee Device when Gateway is broken or offline.

-Tools:

- Android app: Easy Gateway app
- Android app: utilize BLE to reset Zigbee Device

Feature Changes

- Zigbee AES by HW accelerator.

Bug Fixes

- Zigbee address generation from MAC address in flash OTP

Known Issues

- None.

15 RT58x_SDK_v1.1.1

New Features

- None.

Feature Changes

- Modify PMU DCDC initial setting to enhance the stability under stress environment.

Bug Fixes

- None.

Known Issues

- None.

16 RT58x_SDK_v1.1.0

New Features

-Added examples: I2S digital microphone

-Modify PWM example

-BLE:

- Added UART_cmd demo

- Added Beacon demo

-Zigbee:

- Gateway example support more commands

- Added User_specific_cluster

- Added Scene in light demo

- Added Thermostat cluster

-Multi-protocol:

- Added Zigbee ZED with BLE OTA demo

-Tools:

- RF_Lab_Test_Tool: supports SubG RF test. On the GUI,
remove WiSun mode and change to SubG mode

- ISP_Tool: (1) remove MP_sector Download and Erase button

(2) Judge If IC had been MP_calibrated or not? If not, UI show warning message.

- Android App: add BLE Mesh On/Off demo

Feature Changes

- Projects include TX_power compensation. Default is disable

Bug Fixes

- Fixed Zigbee two end-point bug.
- Fixed Zigbee OTA buffer issue.

Known Issues

- None.

17 RT58x_SDK_v1.0.1

New Features

- Added software PMU calibration.

Feature Changes

- Extend Zigbee maximum network nodes to 200.

Bug Fixes

- Fixed low speed timer reload abnormal issue under low temperature.

Known Issues

- None.

18 RT58x_SDK_v1.0.0_Mesh

New Features

- Added BLE Mesh demo example.
 - \Project\Application\BLE_Mesh\GenericOnOff\.
- Added BLE Mesh App.
 - \Tools\Android App\.
- Added BLE Mesh documents.
 - \Tools\Android App\User guide\
Android_APP_BLE_Mesh_user_guide_V1.2.pdf.
 - \Docs\RT58x_BLE_Mesh_User_Guide_V1.0.pdf.
 - \Docs\RT58x_SDK_for_BLE_Mesh_Demo_Guide_V1.0.pdf.

Feature Changes

- None.

Bug Fixes

- None.

Known Issues

- None.

19 RT58x_SDK_v1.0.0

New Features

- Added peripheral drivers and examples for I2S, Timer, Watchdog, and SADC.
- Added BLE demo example with low power mode mechanism.
- Added BLE UART_TRSP demo with low power mode mechanism and wakeup by URAT break in “Rafael UART_Break tool”.
- Added more tools.
 - Upgraded xcode from v5.5 to v5.6 in iOS App.
 - Added Zigbee/BLE multi-standard demo in iOS App.
 - Added UART_Break_Tool to send break signal to wakeup BLE before sending characters for BLE UART_TRSP demo.
 - Added Tx Power trim, ADC trim, and Comparator trim to MP_Tool.
- Added related documents.
 - [SW_15]RT58x_Zigbee_Gateway_Light_Switch_Operation_Guide_V1.0.
 - RT58x SDK Reference Guide in Doxygen format.

Feature Changes

- Removed Direct_Test_Mode demo and integrated DTM function into “RF_Lab_Test_Tool_FW”.

Bug Fixes

- Fixed bug in BLE multi-link demo.

Known Issues

- None.

Notes

- SDK includes MCU peripheral examples, BLE examples, and Zigbee examples. All examples support Keil and GCC projects.
 - Peripheral: \Project\Examples\.
 - BLE: \Project\Application\BLE_Demo\.
 - Zigbee: \Project\Application\Zigbee_Demo\.
 - Zigbee & BLE: \Project\Application\Multi_Protocol_Demo\.
- For all examples to work properly, the bootloader needs to be downloaded first. Please refer to the documentation for details.
 - \Docs\[SW_02]RT58x_SDK_IOT_Application_Overview_V1
.0.
- Measure sleep power consumption project.

- \Project\Examples\Sleep.
- Tool and test image to measure RF performance.
 - \Tools\IOT_Evaluation_Tool.
 - \Tools\IOT_Evaluation_Tool\RF_Lab_Test_Tool_FW.

20 RT58x_SDK_v0.3.1

New Features

- Added GCC project for all examples.
- Added Zigbee/BLE multi-protocol demo.
- Added more Zigbee examples, eg: Gateway, OTA, etc.
- Added more tools.
 - ISP_Tool
 - RF_Lab_Test_Tool
 - Security_Boot_Tool
 - Mass_Production_Tool
 - Android_App
 - iOS_App
- Added related documents.
 - [SW_01]RT58x_SOC_Platform_Getting_Started_V1.1
 - [SW_02]RT58x_SDK_IOT_Application_Overview_V1.0
 - [SW_03]RT58x_Zigbee_SDK_User_Guide_V1.0
 - [SW_04]RT58x_Zigbee_Application_Guide_V1.0
 - [SW_06]RT58x_BLE_SDK_User_Guide_V1.0
 - [SW_07]RT58x_BLE_SDK_Application_Guide_v1.0

- [SW_08]RT58x_BLE_SDK_OTA_Guide_V1.0
- [SW_09]RT58x_BLE_SDK_Service_Profile_Guide_V1.0
- [SW_13]RT58x_Multi_Protocol_Application_Guide_V1.0

Feature Changes

- Unified application architecture of different protocols.
- Modified power saving example.

Bug Fixes

- None.

Known Issues

- None.

21 RT58x_SDK_v0.2.0

New Features

- For SubG only.

Feature Changes

- None.

Bug Fixes

- None.

Known Issues

- None.

22 RT58x_SDK_v0.1.0

New Features

- Initial version.
- Added peripheral drivers and examples.
- Added BLE stack and BLE applications.

Feature Changes

- None.

Bug Fixes

- None.

Known Issues

- None.