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RT58x SDK Release Notes

Contents

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)	- 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	- 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)	- Added BLE Mesh demo example - Added BLE Mesh App - Added BLE Mesh documents
2022/05/18	1.0.1	- Added software PMU calibration - Extend Zigbee maximum network nodes - Fixed low speed timer reload issue
2022/06/10	1.1.0	-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	-BLE: add Privacy and connect CTE API -Zigbee: now can pre-configure network parameter.

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

2022/10/13	1.2.3		BLE Mesh:
			    -Implement Model and Lighting Demo.
			    -BLE Mesh Performance Tuning
			    -BLE Mesh Document

2023/01/17	1.3.0		Platform & Peripheral: - Update ADC setting to improve accuracy of chip variation - Bootloader support FOTA image decompression. Zigbee: - Power on/off 5 times to reset light device - Add sensor related clusters - New flash update algorithm - Add library version

		- Modify private cluster ID - Improve interoperability with other Zigbee device - Fix under multi-PAN environment, device may accept packet from different PAN_ID. BLE: - Use 2 bytes to indicate LL TX data sequence - FOTA flow update. Support image compression BLE Mesh: - Fixed transparent transmission bug: now different packet size are all right Sub-G: - Add OQPSK 6.25k data rate - Add field test demo code Tool: - 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	Platform: - 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. Tool: - MP_tool support 2MB flash Multi-Protocol: - Modify Zigbee/BLE application document Other: - 2MB flash OTA add secure upgrade FW: - 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	[Platform]: - Modify VS Code and SDK Getting Start document. - Add SDK Quick Start document [Tool]: - 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 [BLE Mesh]: - Add gateway project and document - Restructure the file and folder for client model - Fixed provisioning fail issue
2023/08/23	1.6.0	[Platform]: - 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 [SubG]: - Support 433MHz [BLE]: - Add Privacy for Direct ADV, Scan [BLE Mesh]: - Gateway support BLE Transparent Transmission [Tool]: - 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	[BLE]: - Add privacy demo example - Support LE Secure Connection [BLE Mesh]: - Server library support BLE TRSP service [Thread]: - Add Thread example and document [Zigbee]: - Modify gateway command document [Tool]:

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		- Mobile App add LE commission for SubG device to join SubG network
2024/03/21	1.8.0	[Platform]: - Add examples projects: Flash_RW, GPIO_Interrupt, Gpio_Input, GPIO_Output, SADC_Polling, Timer_Periodic, Timer_Freerun, WDT_Interrupt [SubG]: - Support 470~510MHz - Keep Tx constant power (15dBm) regardless Vbat voltage [Thread]: -Add SubG frequency band setting (915M, 868M, 433M) [Tool]: -RF lab test tool: add SubG 470~510MHz
2024/05/06	1.9.0	[Platform]: - Update flash DS (Data Set) examples - Fix flash DS API read fail issue. [Thread]: -Add 2.4G MTD Project -Fix MTD task idle can't enter sleep issue. [SubG]: -Add support tx_continuous_wave_set API. [Tool]: -ISP tool：Auto reset and write/clear signature public key -FOTA tool：Output signature bin option for ISP tool.

2 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.

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3 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

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_v1.7.0

- **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

6 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

7 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

8 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

9 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

10 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.

11 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.

12 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.

13   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 form MAC address in flash OTP

Known Issues

- None.

14   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.

15   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.

16   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.

17 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.

18   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.

19   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.

20 RT58x_SDK_v0.2.0

New Features

- For SubG only.

Feature Changes

- None.

Bug Fixes

- None.

Known Issues

- None.

21 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.