

QE for BLE[RX] V1.1.0

Release Note

Thank you very much for your using the QE for BLE[RX] V1.0.0.

This release documentation, we have indicated this product installation, restrictions and so on.

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1. About QE for BLE[RX]

1.1 Summary

QE for BLE[RX] is a dedicated tool for developing Bluetooth® low energy-based embedded systems. This solution tool kit runs in the e² studio integrated development environment. The combination of e² studio and QE for BLE[RX] makes it easy to test the communications features of RX23W group of RX family that supports BLE5, thus reducing the time required in developing a product prior to its release on the market.

1.2 Functions

Adding Bluetooth functions to a product requires the addition and customization of complex Bluetooth profiles. The QE for BLE[RX] supports Bluetooth development for RX family devices with the following functions.

1. Designation of a profile provided by Bluetooth SIG

In the GUI of Smart Configurator, you can generate code by designating a Bluetooth profile provided by Bluetooth SIG Inc. (<https://www.bluetooth.com/>).

2. Definition of a proprietary profile

If you want to perform unique data communication (not through profiles provided by Bluetooth SIG), you must define a profile. In the GUI of Smart Configurator, you can modify a profile easily and generate code.

3. Support of advertising scan settings

This tool supports settings for advertising, which is one of the features of BLE. You can specify details such as the timing and frequency of advertisement scan communications. Advertisement mode and scan mode can be configured in the Peripheral tab and Central tab, respectively.

4. Communication check by using a profile

Renesas provides an API for the Bluetooth protocol stack called "R_BLE" (<https://www.renesas.com/ble-protocol-stack>) to implement Bluetooth communication easily from an application program. The QE for BLE[RX] allows you to check profile-based communication by creating and executing an R_BLE5 script that uses R_BLE.

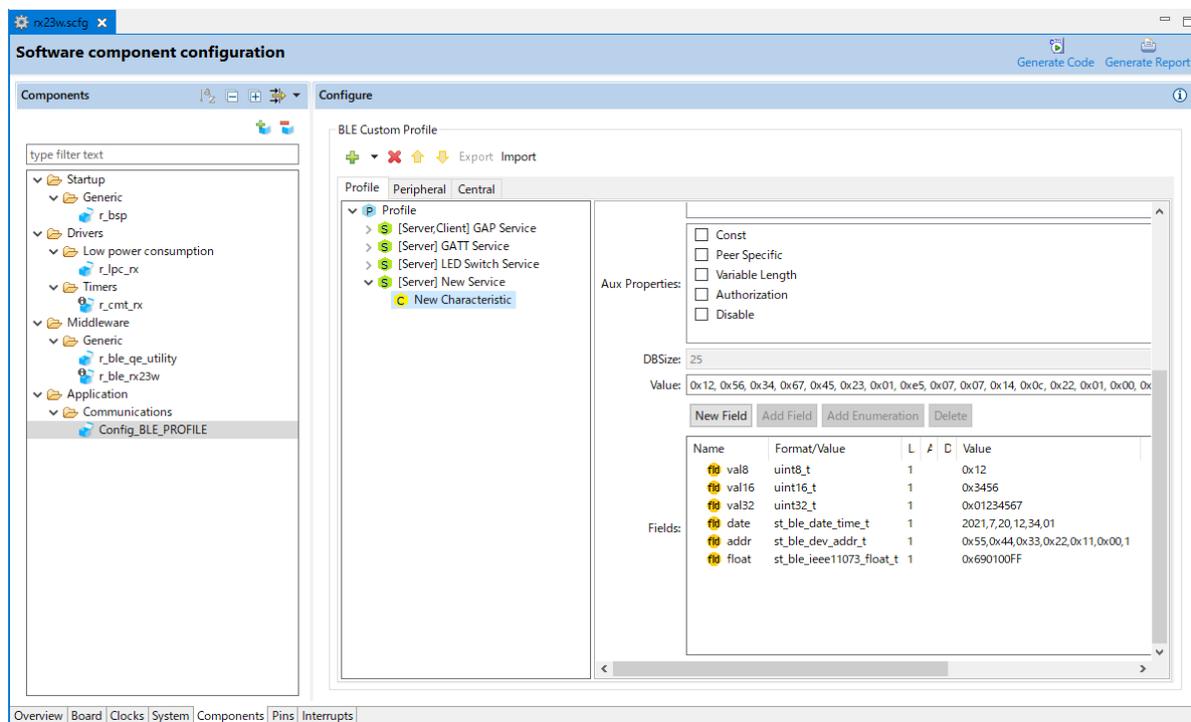
1.3 New Functions

1.3.1 Integrated development environment e2 studio 64-bit edition is now supported.

From this version, the product can be used in the e2 studio 64-bit version (e2 studio 2021-07 or later) environment. Note that e2 studio 32-bit edition is no longer supported. Install QE for BLE[RX] V1.1.0 or later in an environment in which e2 studio 2021-07 or later is installed.

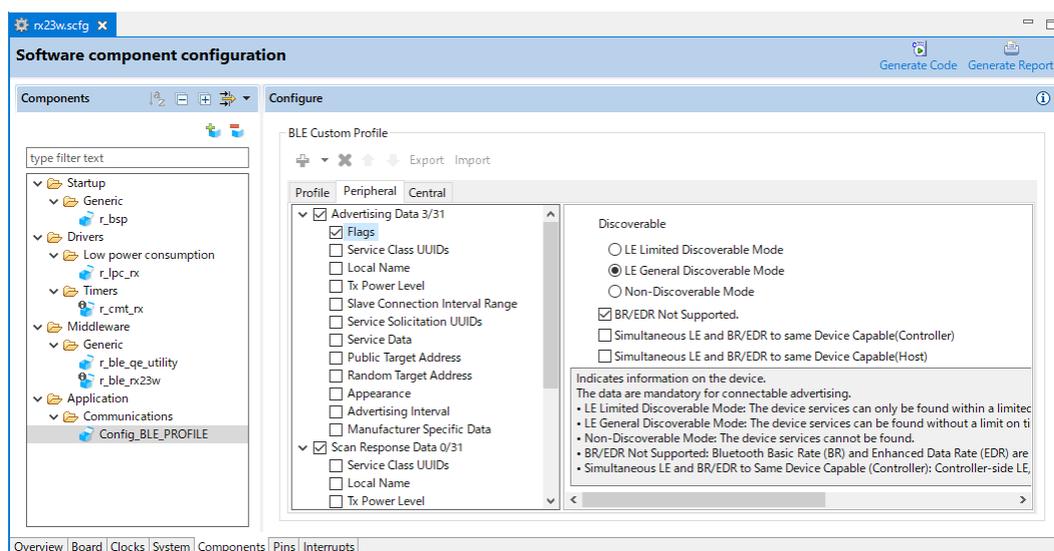
1.3.2 Improvement in the GUI for profile definitions

Characteristic Value and Descriptor can be edited in Fields table.



1.3.3 Support of advertising scan settings

Advertising and Scan parameters can be edited in the GUI. Advertising parameter can be edited in Peripheral tab. Scan parameter can be edited in Central tab.



1.4 Supported Environment

Microsoft Windows 8.1, Windows 10

Renesas e² studio 2021-07 (or later)

* If you are using a version earlier than e² studio 2021-07, please update to 2021-07 or later.

1.5 Supported Microcontroller

RX23W

1.6 Supporting FIT Modules

FIT Modules for BLE[RX]

BLE driver: r_ble_rx23w V2.11 (or later)

BLE profile: r_ble_qe_utility V1.10 (or later)

2. Installation and Uninstallation

2.1 Installing This Product

Use either of the following procedure to install this product.

2.1.1 Install from the "Renesas Software Installer" menu of e² studio

1. Start e² studio.
2. Select the "Renesas Views" – "Renesas Software Installer" menu of e² studio to open the "Renesas Software Installer" dialog box.
3. Select the "Renesas QE" and click the "Next>" button
4. Select the "QE for Capacitive BLE[RX] (v1.1.0)" check box, and click the "Finish" button.
5. Check that the "Renesas QE for Capacitive BLE[RX]" check box is selected in the "Install" dialog box, and click the "Next>" button.
6. Check that the "Renesas QE for BLE[RX]" check box is selected as the target of installation, and click the "Next>" button.
7. After confirming the license agreements, if you agree to the license, select the "I accept the terms of the license agreements" radio button, and click the "Finish" button.
8. If the dialog of the trust certificate is displayed, check that certificate, and click the "OK" button to continue installation.
9. When prompted to restart e² studio, restart it.
10. Start this product from the "Renesas Views" - "Renesas QE" menu of e² studio. For details about how to use this product, see the "Help" menu of e² studio.

2.1.2 Install using QE (zip file) downloaded from the Renesas website

1. Activate the e² studio.
2. Click on "Help", and then click on the "Install New Software..." menu item to open the "Install" dialog box.
3. Click on the "Add..." button to open the "Add Repository" dialog box.
4. Click on the "Archive..." button, select the installation file (zip file) in the opened file selection dialog box, and then click on the "Open" button.
5. Click on the "OK" button in the "Add Repository" dialog box.
6. Expand the "Renesas QE" item shown in the "Install" dialog box, select the "Renesas QE for BLE[RX]" check box, and then click on the "Next>" button.
* If you check off the "Contact all update sites during install to find required software" checkbox, you can shorten the installation time.
7. Confirm that the installation target is "Renesas QE for BLE[RX]", and then click on the "Next>" button.
8. After checking the license, select the "I accept the terms of the license agreements" radio button if you agree it, and then click on the "Finish" button.
9. When the dialog box for selecting a trusted certificate appears, check the displayed certificate, and then click on the "OK" button to continue installation.
10. Restart the e² studio by following the instructions on the screen.
11. Start this product from the "Renesas Views" - "Renesas QE" menu of the e² studio.
For details about how to use this product, see the "Help" menu of the e² studio.

2.2 Updating This Product

If you have already installed this product, you can update it in the same way as the procedure for installation.

2.3 Uninstalling This Product

Follow the procedure below to uninstall this product.

1. Start the e² studio.
2. Select "Help -> About e² studio" to open the "About e² studio" dialog box.
3. Click the "Installation Details" button to open the "e² studio Installation Details" dialog box.
4. Select "Renesas QE for BLE[RX]" displayed on the "Installed Software" tabbed page and click on the "Uninstall..." button to open the "Uninstall" dialog box.
5. Check the displayed information and click on the "Finish" button.
6. When you are prompted to restart the e² studio, restart it.

3. Notes / Restrictions

3.1 Usage Considerations

Please pay attention to the following items.

3.1.1 Notes of [Working with views]

1. Floating an R_BLE main (QE) view may not display the contents of the floating view.

Workaround:

Do not float the R_BLE main (QE) view.

3.2 Functional Restrictions

QE for BLE[RX] V1.1.0 has the following restrictions.

3.2.1 Restrictions of [R_BLE script]

1. The following R_BLE API are not supported:
 - R_BLE_GAP_DeleteBondInfo

Revision History

Rev.	Date	Description	
		Page	Summary
1.00	Jul.20.21	-	First edition issued.

General Precautions in the Handling of Microprocessing Unit and Microcontroller Unit Products

The following usage notes are applicable to all Microprocessing unit and Microcontroller unit products from Renesas. For detailed usage notes on the products covered by this document, refer to the relevant sections of the document as well as any technical updates that have been issued for the products.

1. Precaution against Electrostatic Discharge (ESD)

A strong electrical field, when exposed to a CMOS device, can cause destruction of the gate oxide and ultimately degrade the device operation. Steps must be taken to stop the generation of static electricity as much as possible, and quickly dissipate it when it occurs. Environmental control must be adequate. When it is dry, a humidifier should be used. This is recommended to avoid using insulators that can easily build up static electricity.

Semiconductor devices must be stored and transported in an anti-static container, static shielding bag or conductive material. All test and measurement tools including work benches and floors must be grounded. The operator must also be grounded using a wrist strap. Semiconductor devices must not be touched with bare hands. Similar precautions must be taken for printed circuit boards with mounted semiconductor devices.

2. Processing at power-on

The state of the product is undefined at the time when power is supplied. The states of internal circuits in the LSI are indeterminate and the states of register settings and pins are undefined at the time when power is supplied. In a finished product where the reset signal is applied to the external reset pin, the states of pins are not guaranteed from the time when power is supplied until the reset process is completed. In a similar way, the states of pins in a product that is reset by an on-chip power-on reset function are not guaranteed from the time when power is supplied until the power reaches the level at which resetting is specified.

3. Input of signal during power-off state

Do not input signals or an I/O pull-up power supply while the device is powered off. The current injection that results from input of such a signal or I/O pull-up power supply may cause malfunction and the abnormal current that passes in the device at this time may cause degradation of internal elements. Follow the guideline for input signal during power-off state as described in your product documentation.

4. Handling of unused pins

Handle unused pins in accordance with the directions given under handling of unused pins in the manual. The input pins of CMOS products are generally in the high-impedance state. In operation with an unused pin in the open-circuit state, extra electromagnetic noise is induced in the vicinity of the LSI, an associated shoot-through current flows internally, and malfunctions occur due to the false recognition of the pin state as an input signal become possible.

5. Clock signals

After applying a reset, only release the reset line after the operating clock signal becomes stable. When switching the clock signal during program execution, wait until the target clock signal is stabilized. When the clock signal is generated with an external resonator or from an external oscillator during a reset, ensure that the reset line is only released after full stabilization of the clock signal. Additionally, when switching to a clock signal produced with an external resonator or by an external oscillator while program execution is in progress, wait until the target clock signal is stable.

6. Voltage application waveform at input pin

Waveform distortion due to input noise or a reflected wave may cause malfunction. If the input of the CMOS device stays in the area between V_{IL} (Max.) and V_{IH} (Min.) due to noise, for example, the device may malfunction. Take care to prevent chattering noise from entering the device when the input level is fixed, and also in the transition period when the input level passes through the area between V_{IL} (Max.) and V_{IH} (Min.).

7. Prohibition of access to reserved addresses

Access to reserved addresses is prohibited. The reserved addresses are provided for possible future expansion of functions. Do not access these addresses as the correct operation of the LSI is not guaranteed.

8. Differences between products

Before changing from one product to another, for example to a product with a different part number, confirm that the change will not lead to problems. The characteristics of a microprocessing unit or microcontroller unit products in the same group but having a different part number might differ in terms of internal memory capacity, layout pattern, and other factors, which can affect the ranges of electrical characteristics, such as characteristic values, operating margins, immunity to noise, and amount of radiated noise. When changing to a product with a different part number, implement a system-evaluation test for the given product.

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