

RX Family

Manually Importing Firmware Integration Technology Modules

Introduction

This application note explains how to import Firmware Integration Technology (FIT) modules downloaded from the Renesas Electronics Corporation website into Smart Configurator.

Target Products

RX Family MCUs (excluding products not compatible with Smart Configurator)

Related Documents

- Firmware Integration Technology User's Manual (R01AN1833)
- RX Smart Configurator User's Guide: e² studio (R20AN0451)
- RX Smart Configurator User's Guide: CS+ (R20AN0470)
- RX Smart Configurator User's Guide: IAREW (R20AN0535)

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1. Overview

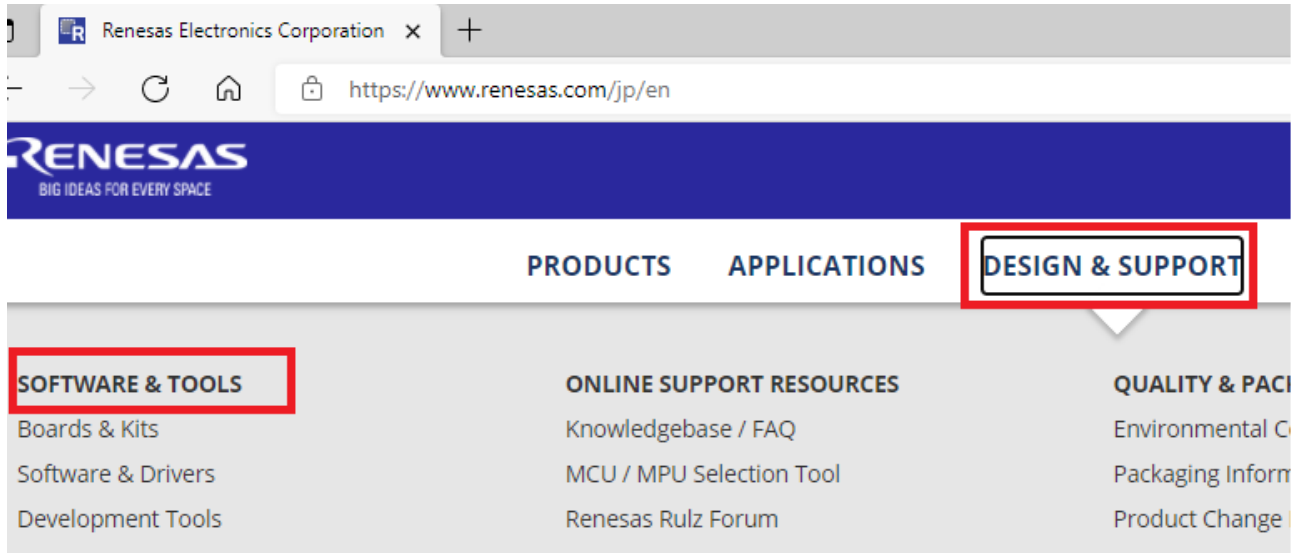
This document explains how to import FIT modules downloaded from the Renesas Electronics Corporation website into Smart Configurator.

2. Manually Importing FIT Modules

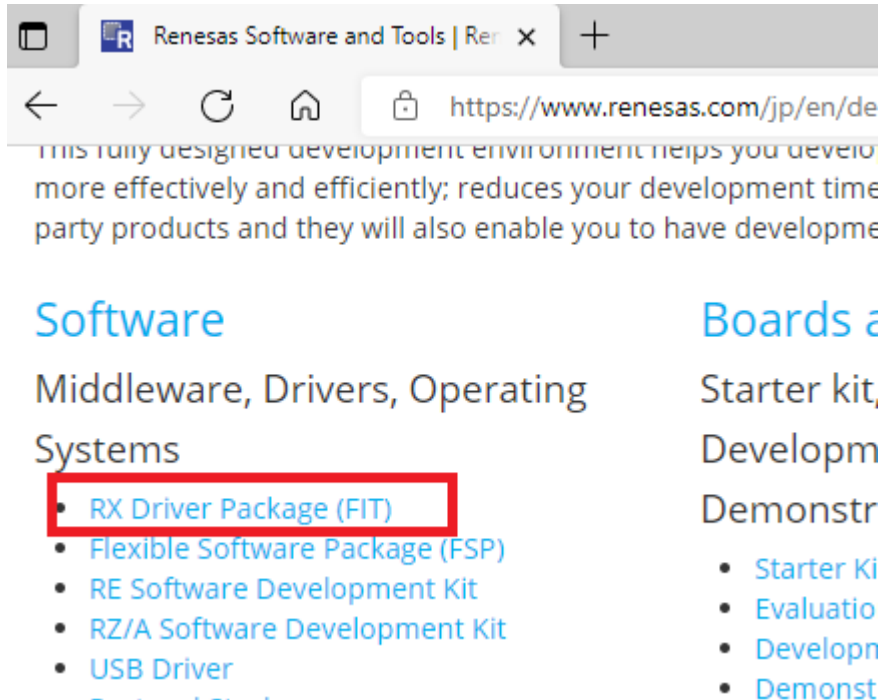
The example used in the description that follows is based on the Renesas website as of July 12, 2021, e² studio, version 2021-07, and Renesas Smart Configurator, version 2.10.1.

2.1 Downloading FIT Modules

1. On the Renesas Electronics Corporation website (<https://www.renesas.com/>), click the [DESIGN & SUPPORT] tab at the top of the page, then click [SOFTWARE & TOOLS].



2. On the **Software and Tools** page under **Software**, click **RX Driver Package (FIT)**.



- On the [RX Driver Package page under Release Information, Other downloads], click [LIST OF FIT MODULES].

Release Information
 Latest Ver.: V1.30
 Released: Jun. 30, 2021
 Details of upgrade (See Application Note: [RX Family RX Driver Package Ver.1.30 \(PDF | English, 日本語\)](#))
[Operating Environment](#)

DOWNLOAD THE LATEST VERSION ▶

Other downloads

LIST OF FIT MODULES ▶ : Download individual samples with instructions on how to use the driver software for supported devices

PREVIOUS VERSIONS ▶ : Download the previous versions of RX Driver Package

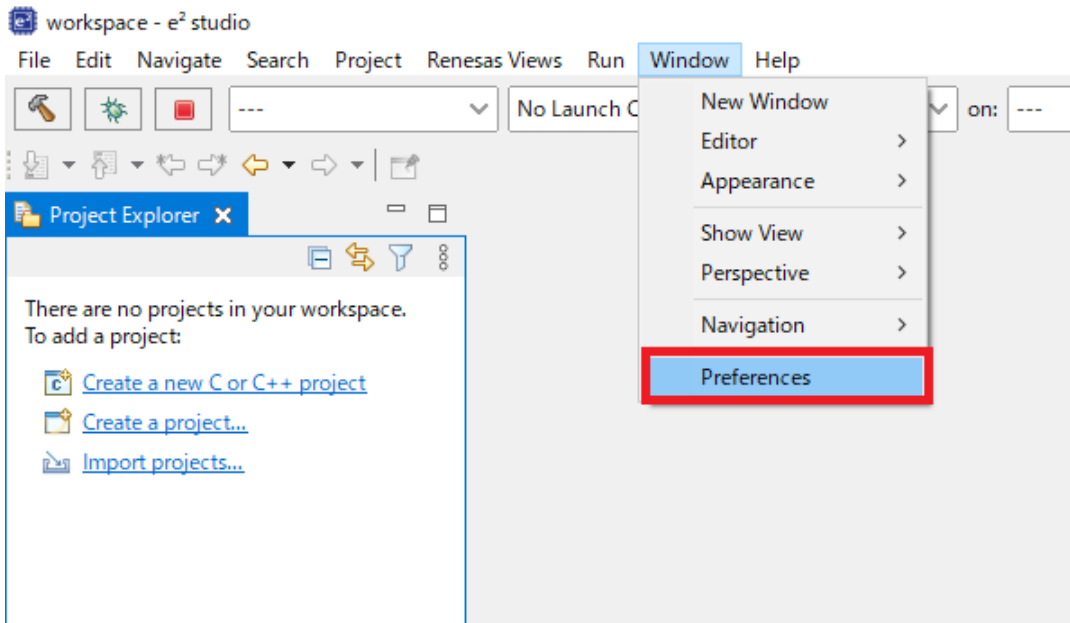
- On the [List of FIT Modules] page, click on any FIT modules you need to download.

FIT Module	R	R	R	R	R	R	R
	X	X	X	X	X	X	X
	1	1	1	1	1	2	2
	1	1	1	3	3	3	3
	0	1	3	0	T	0	1
Board Support Package Module (BSP)	✓	✓	✓	✓	✓	✓	✓
Voltage Detection Circuit (LVD)	✓	✓	✓	✓	✓	✓	✓
Low Power Consumption (LPC)	✓	✓	✓	✓	*	✓	✓
Battery Backup(VBATT)	—	—	—	—	—	✓	✓
Interrupt Controller (IRQ)	✓	✓	✓	✓	✓	✓	✓
Data Transfer Controller (DTC)	✓	✓	✓	✓	✓	✓	✓
DMA Controller (DMACA)	—	—	—	—	—	✓	✓
I/O Ports (GPIO)	✓	✓	✓	✓	✓	✓	✓
Multi-Function Pin Controller (MPC)	✓	✓	✓	✓	✓	✓	✓
Compare Match Timer (CMT)	✓	✓	✓	✓	✓	✓	✓
Compare Match Timer W (CMTW)	—	—	—	—	—	—	—
Realtime Clock (RTC)	✓	✓	✓	✓	—	✓	✓

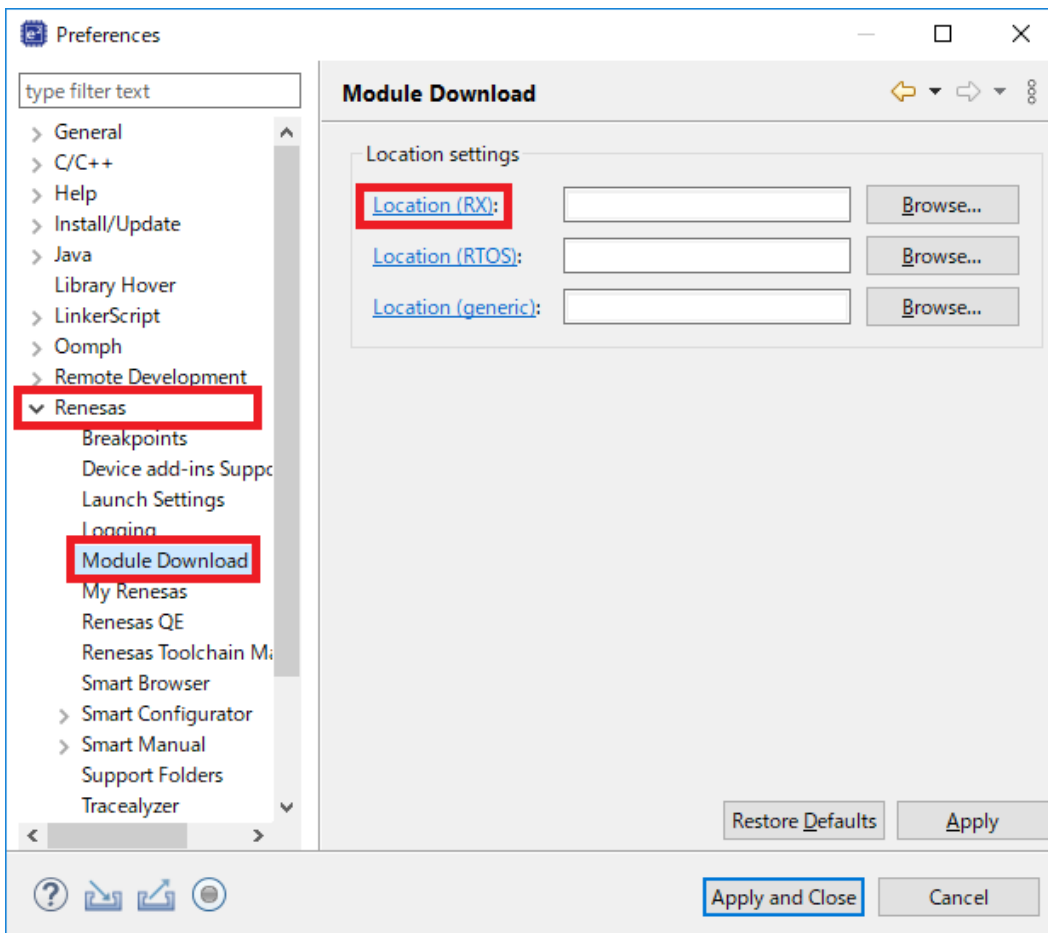
2.2 Importing Downloaded FIT Modules

2.2.1 Using e² studio

1. Launch e² studio.
2. After e² studio starts, select [Window] → [Preferences].

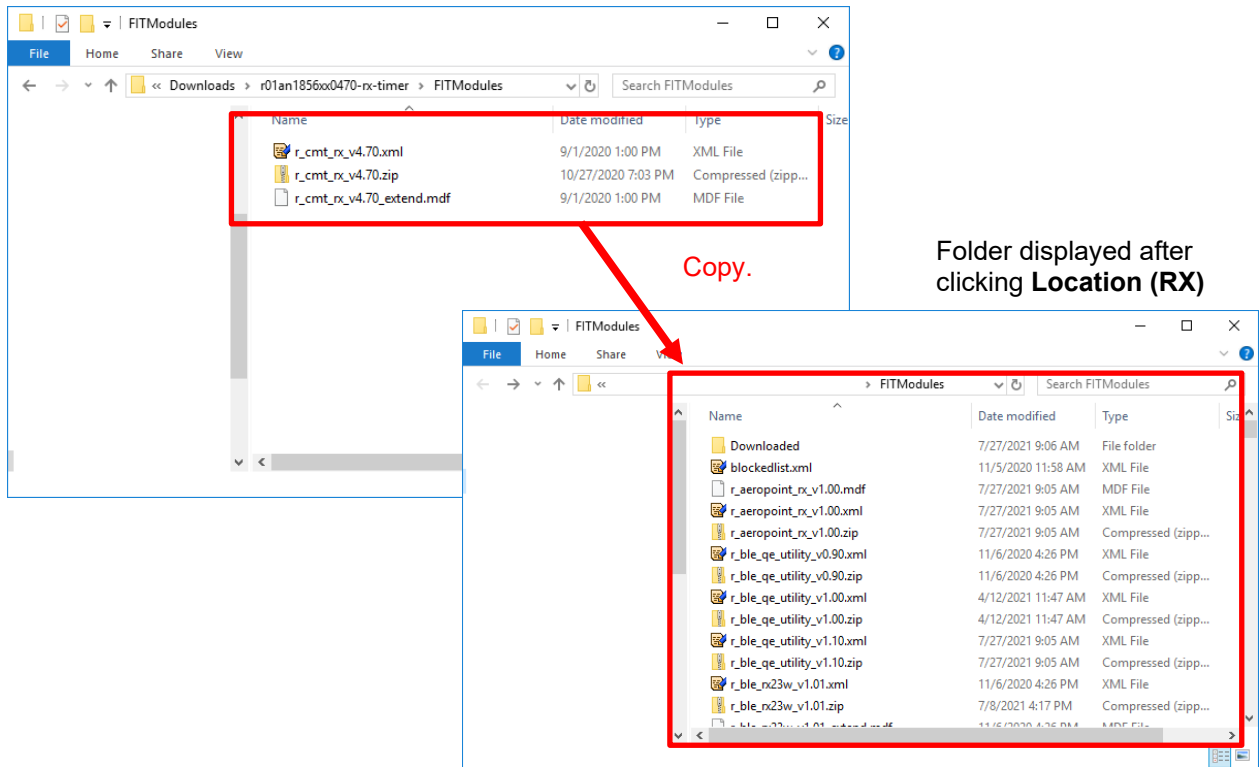


3. In the **Preferences** window, select [Renesas] → [Module Download], then click [Location (RX)].

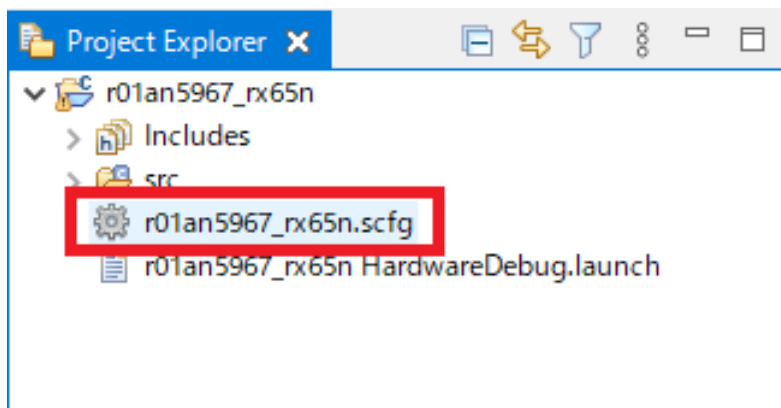


4. Into the folder that is displayed, copy all of the files contained in the [FITModules] folder, which is among the items downloaded in the procedure described in [2.1, Downloading FIT Modules].

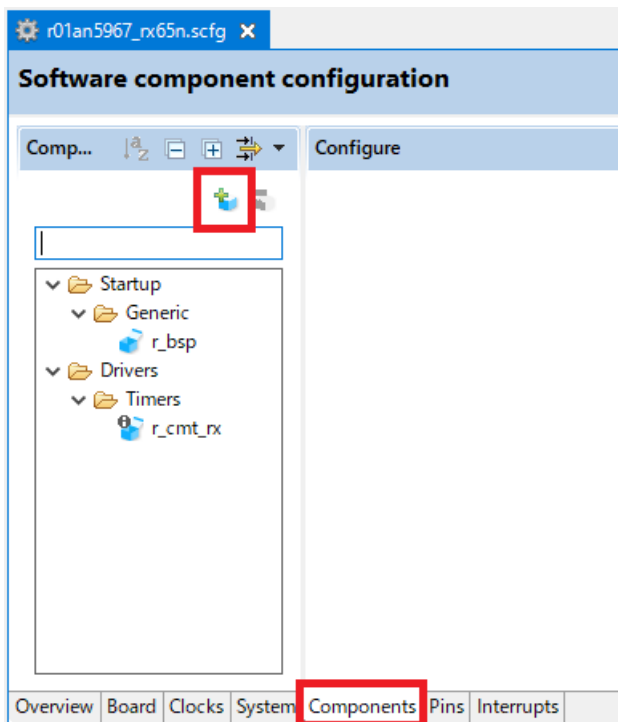
Downloaded files



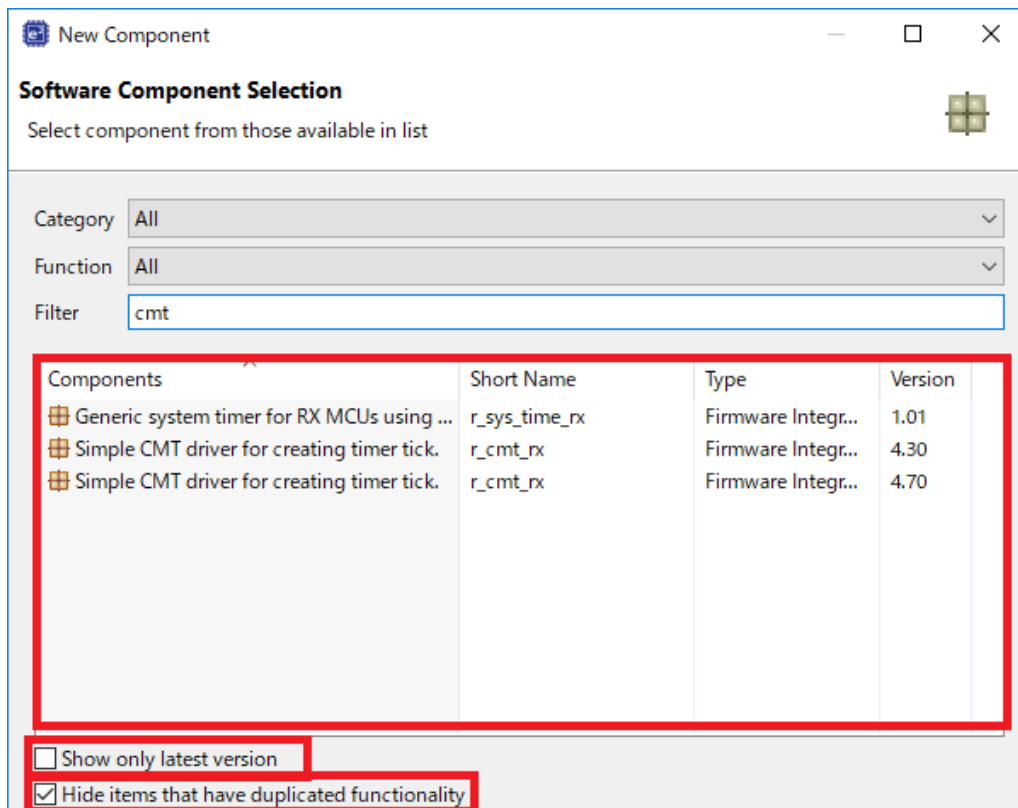
5. Restart e² studio.
6. Open the file [<project name>.scfg] contained in a project of your choice.



- Open the [Components] tab of the newly opened [<project name>.scfg] file, then click the [Add Components] button.



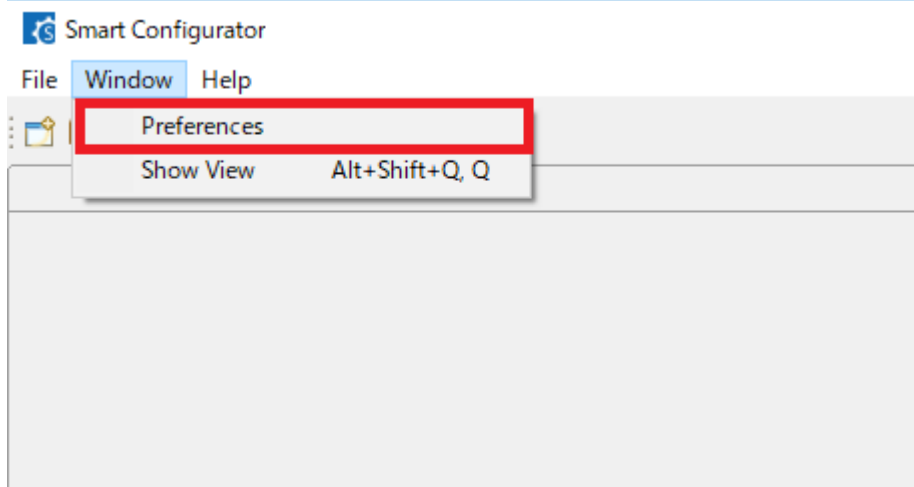
- Clear the box next to [Show only latest version] and confirm that the newly added FIT module is displayed. If it is not shown, clear the box next to [Hide items that have duplicated functionality] and confirm once more.



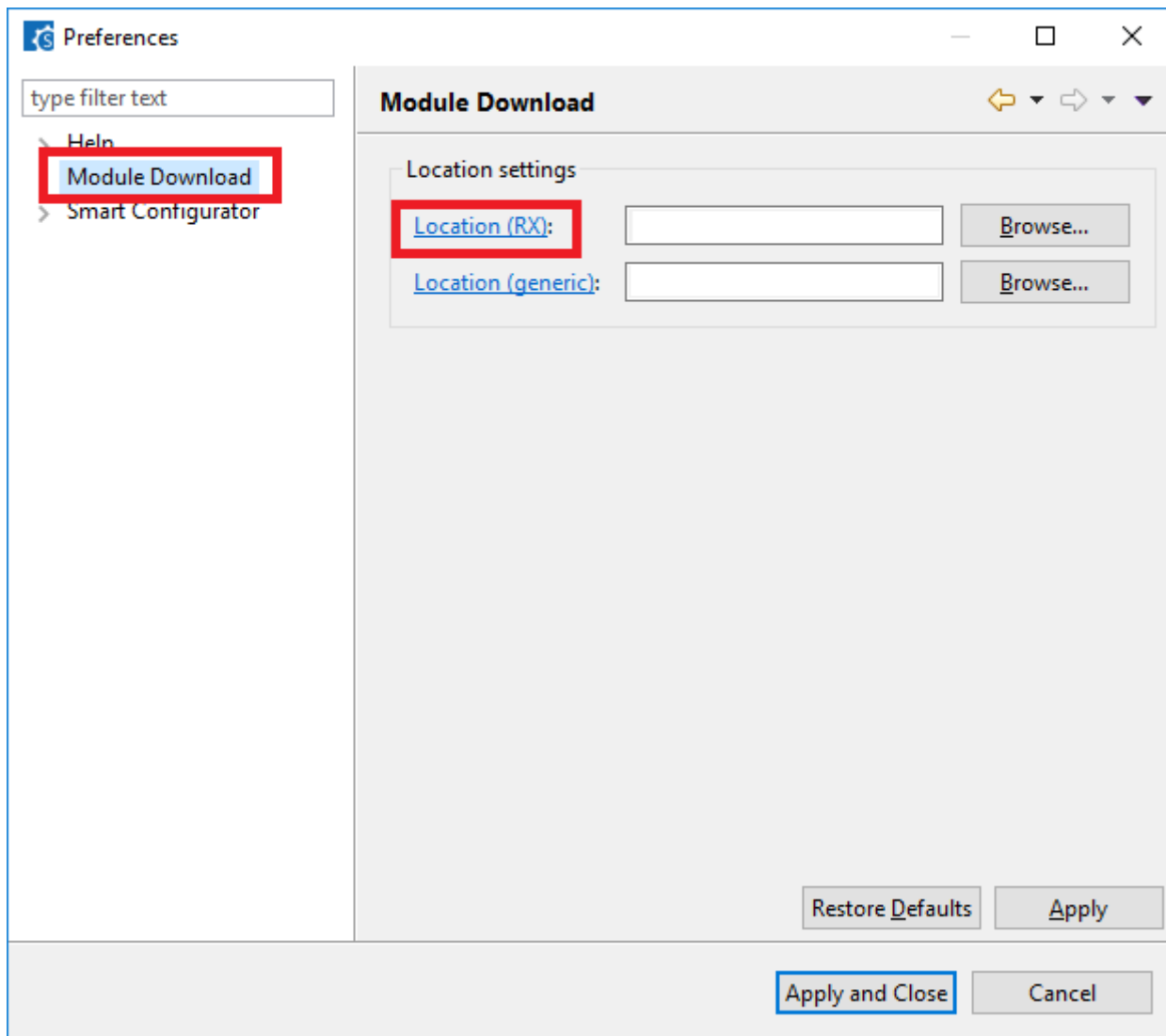
For subsequent operations, refer to the user’s manual listed in Related Documents.

2.2.2 Using CS+ or IAR

1. Launch Renesas Smart Configurator.
2. After Renesas Smart Configurator starts, select [Window] → [Preferences].

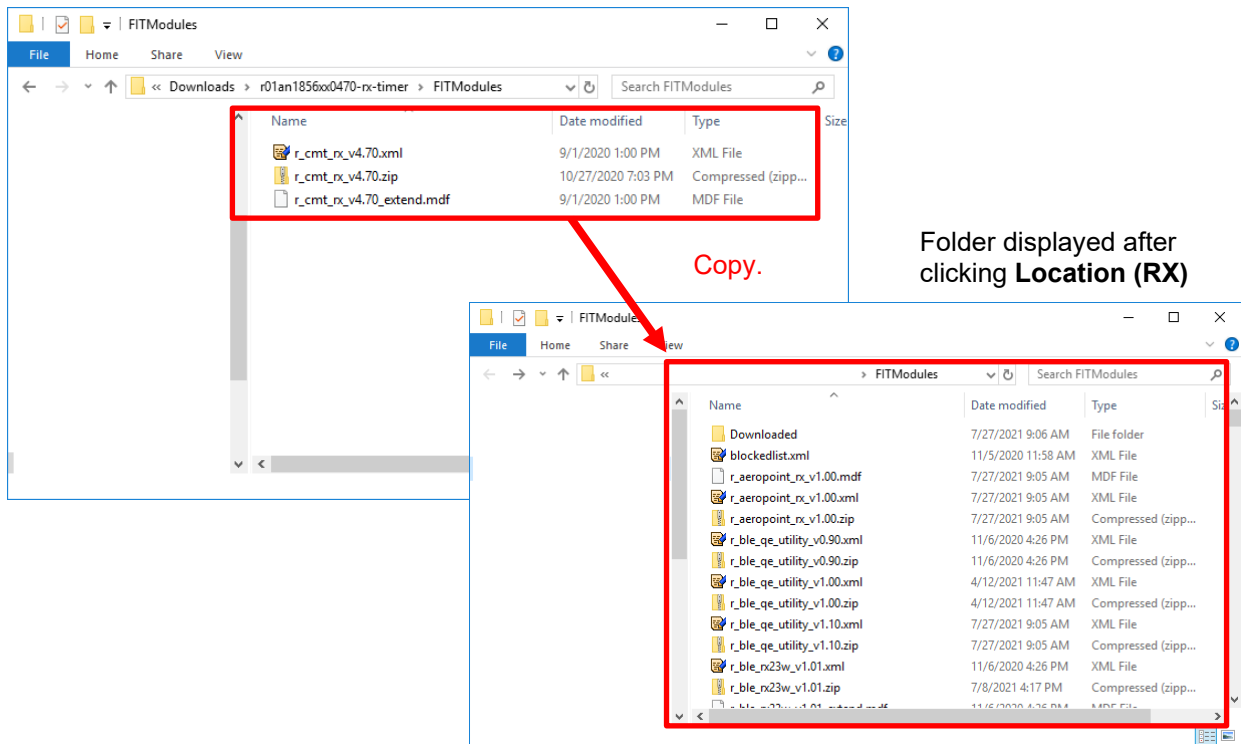


3. In the **Preferences** window, select [Module Download], then click [Location (RX)].

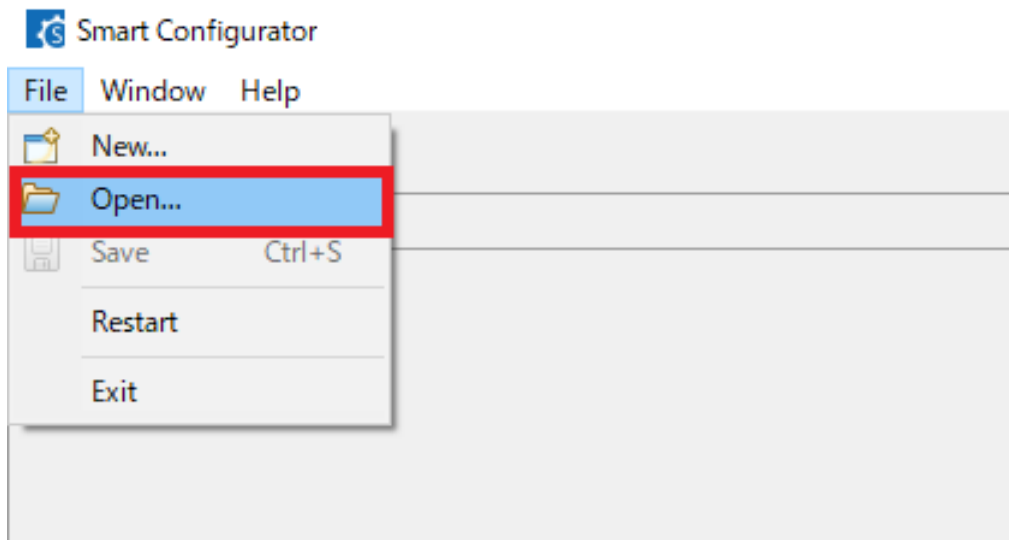


4. Into the folder that is displayed, copy all of the files contained in the [FITModules] folder, which is among the items downloaded in the procedure described in [2.1, Downloading FIT Modules].

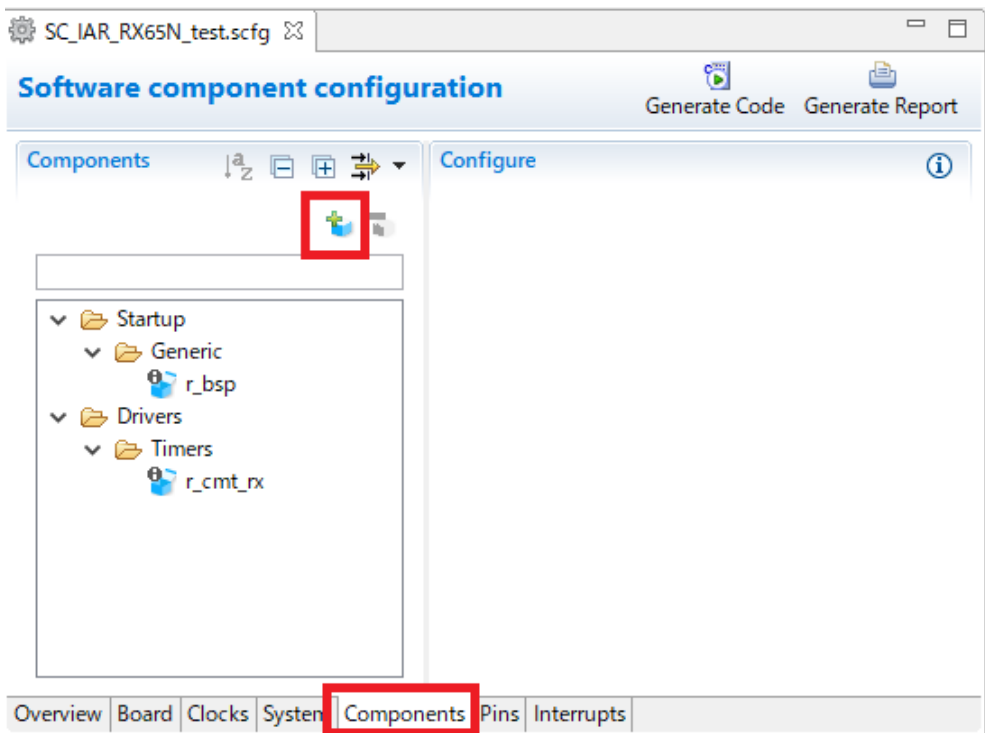
Downloaded files



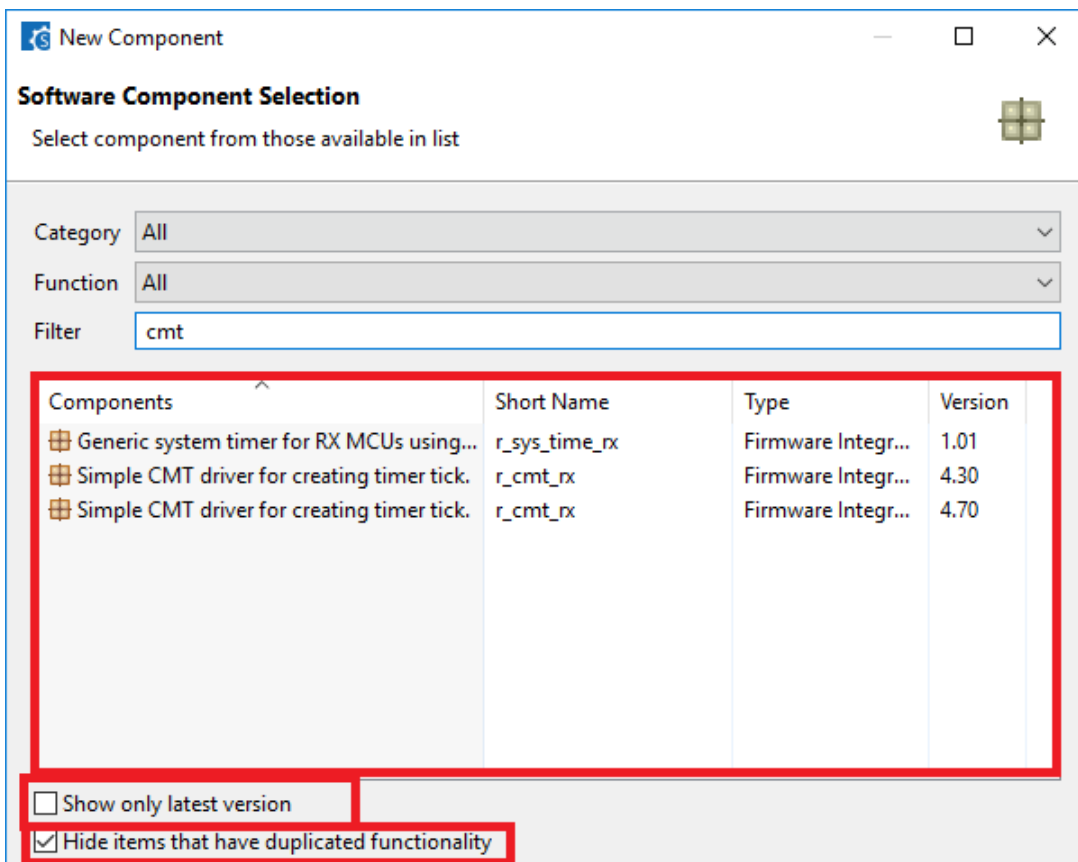
5. Restart Renesas Smart Configurator.
6. Select [File] → [Open...], and open the file [<project name>.scfg] for a project of your choice.



- Open the [Components] tab of the newly opened [<project name>.scfg] file, then click the [Add Components] button.



- Clear the box next to [Show only latest version] and confirm that the newly added FIT module is displayed. If it is not shown, clear the box next to [Hide items that have duplicated functionality] and confirm once more.



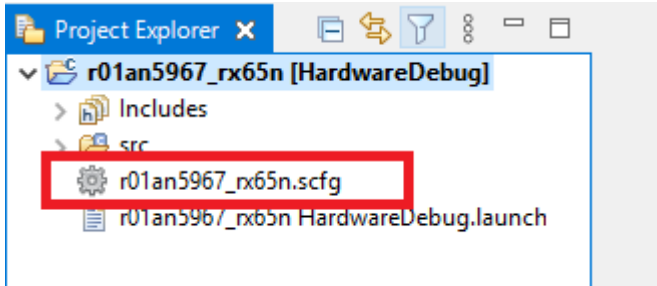
For subsequent operations, refer to the user’s manual listed in Related Documents.

3. Reference Information

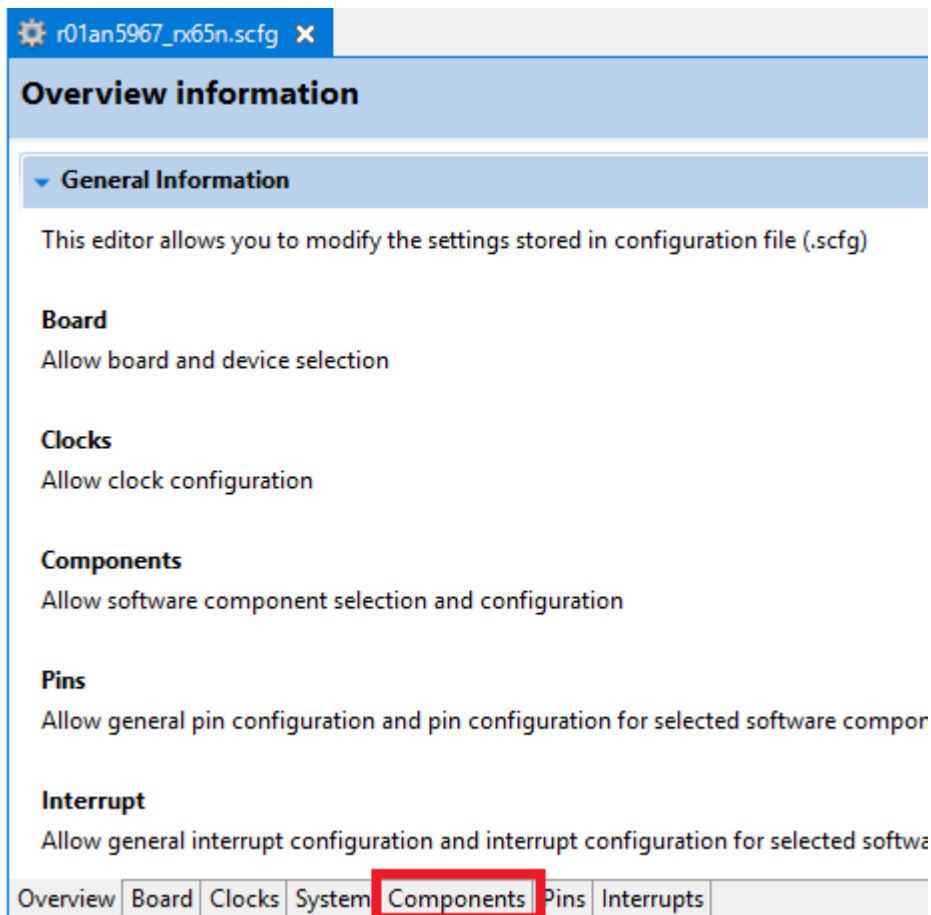
3.1 Changing the Version of Previously Added Components

The example used in the description that follows is based on e² studio, version 2021-07.

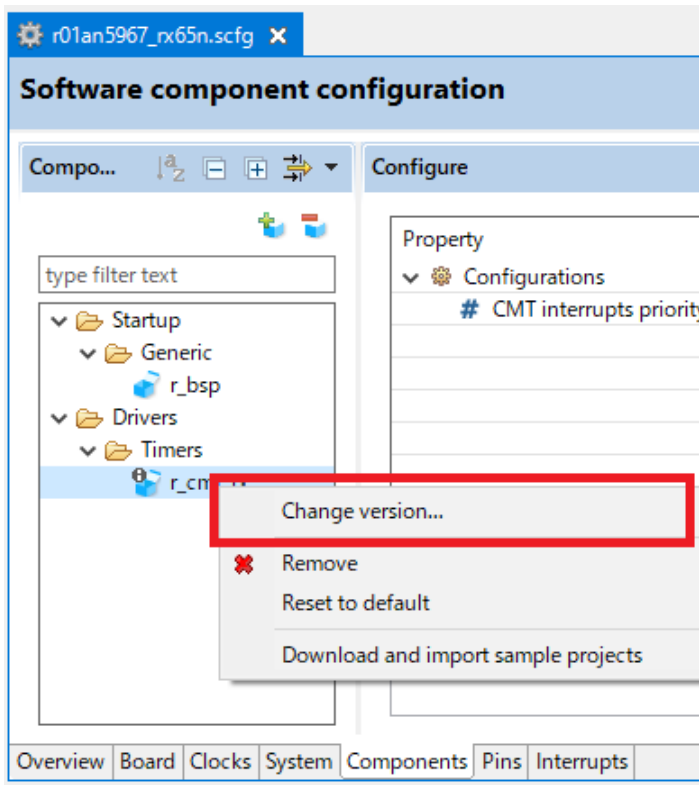
1. Open the [<project name>.scfg] file containing the component whose version you wish to change. If you are using CS+ or IAR, open the [<project name>.scfg] file in Renesas Smart Configurator.



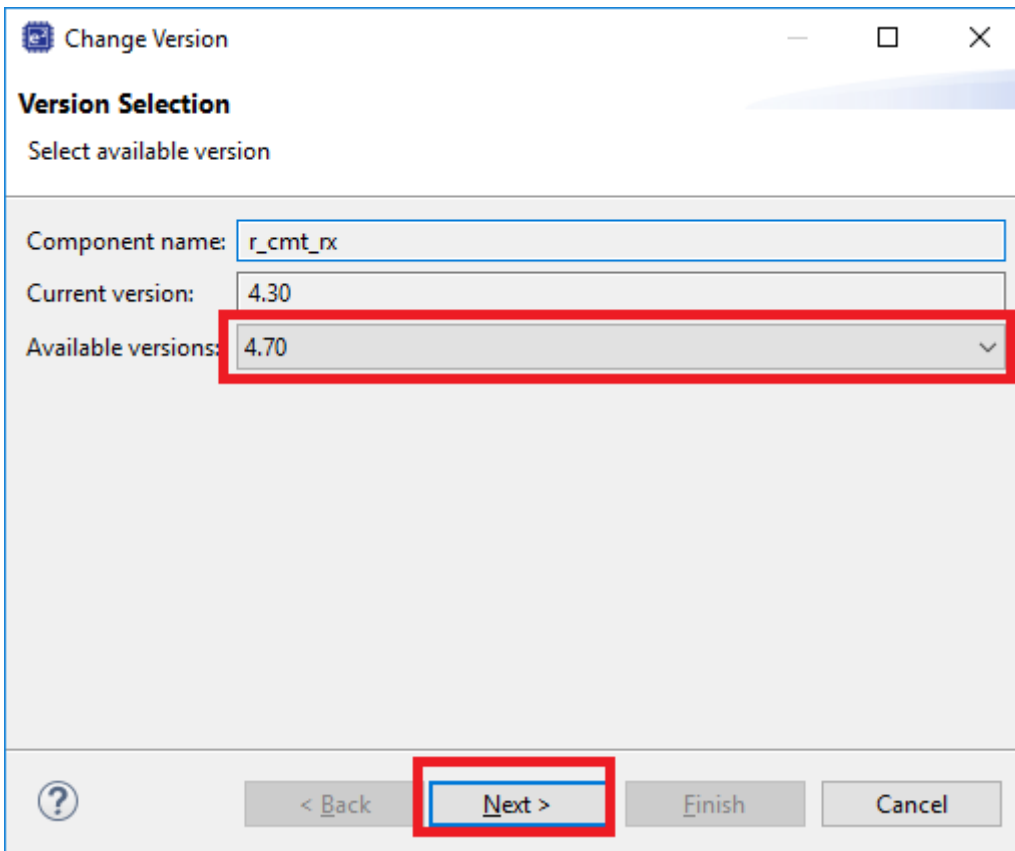
2. Open the [Components] tab of the newly opened [<project name>.scfg] file.



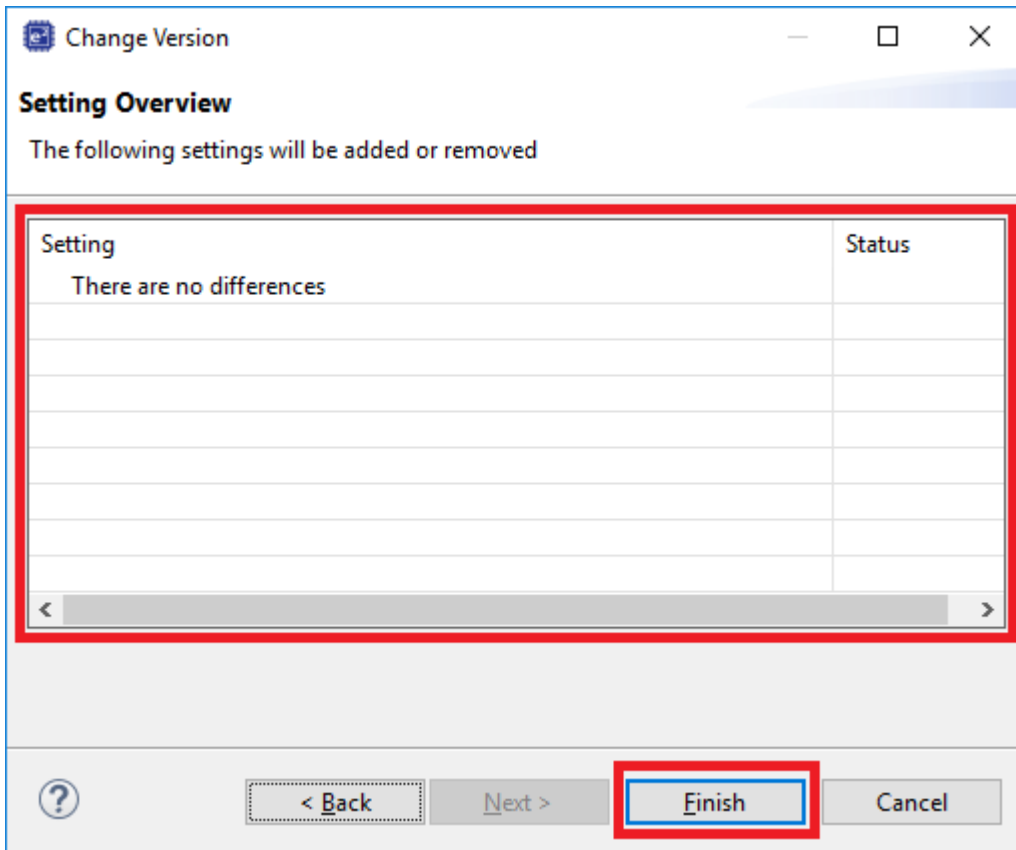
- In the [Components] window, right-click the component whose version you wish to change and select [Change version...].



- For [Available versions:], select the version you wish to use, then click the [Next >] button.

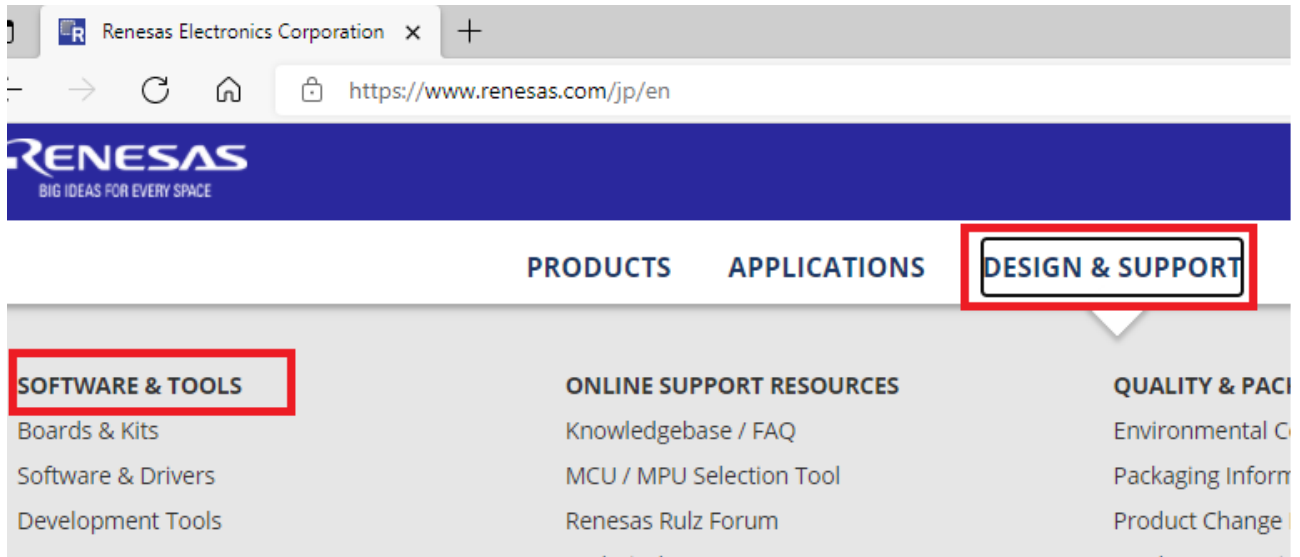


- 5. Check the information shown under [Setting Overview], then click the [Finish] button.

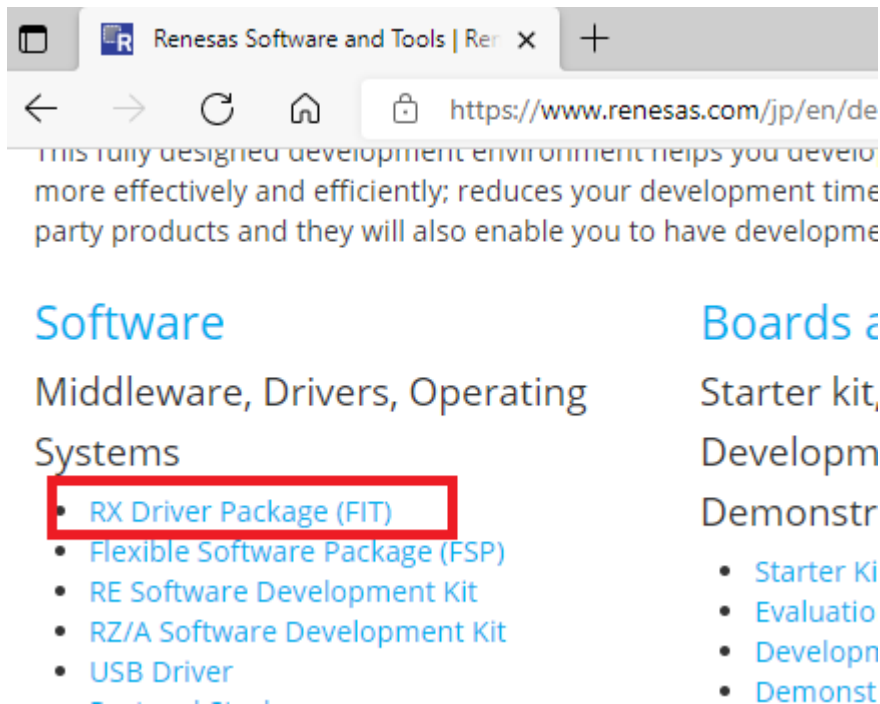


3.2 Downloading Old Versions of RX Driver Package

1. On the Renesas Electronics Corporation website (<https://www.renesas.com/>), click the [DESIGN & SUPPORT] tab at the top of the page, then click [SOFTWARE & TOOLS].



2. On the Software and Tools page under [Software], click [RX Driver Package (FIT)].



3. On the [RX Driver Package] page, scroll down to [Previous Versions] and click [Read More].

The screenshot shows the 'RX Driver Package | Renesas' page. Under 'IDE', there are options for e² studio, CS+, and IAR Embedded Workbench for Renesas RX. Under 'Cross tool', there are options for C/C++ Compiler Package for RX Family, IAR C/C++ Compiler for Renesas RX, and GCC for Renesas RX.

The 'Obtaining the Product' table is as follows:

Product Name	Doc Number (Program Name)	Download	Released	Target Device
RX Family RX Driver Package Ver.1.30	R01AN5882	RX Family RX Driver Package Ver.1.30 Rev.1.30 - Sample Code (ZIP)	Jun. 30, 21	RX110, RX111, RX113, RX130, RX13T, RX230, RX231, RX23E-A, RX23T, RX23W, RX24T, RX24U, RX64M, RX65N, RX66N, RX66T, RX71M, RX72M, RX72N, RX72T

Below the table, there is a 'Previous Versions' section with a 'Read More' button highlighted in a red box.

4. Click the link in the [Download] column corresponding to the old version of RX Driver Package you wish to download.

The screenshot shows the 'Previous Versions' table with the 'Download' column highlighted in red. The table lists several previous versions of the RX Family RX Driver Package.

Product Name	Doc Number (Program Name)	Download	Released	Target Device
RX Family RX Driver Package Ver.1.29	R01AN5826	RX Family RX Driver Package Ver.1.29 Rev.1.29 - Sample Code (ZIP)	Apr. 16, 21	RX110, RX111, RX113, RX130, RX13T, RX230, RX231, RX23E-A, RX23T, RX23W, RX24T, RX24U, RX64M, RX65N, RX66N, RX66T, RX71M, RX72M, RX72N, RX72T
RX Family RX Driver Package Ver.1.27	R01AN5600	RX Family RX Driver Package Ver.1.27 Rev.1.27 - Sample Code (ZIP)	Nov. 28, 20	RX110, RX111, RX113, RX130, RX13T, RX23W, RX230, RX231, RX23E-A, RX23T, RX24T, RX24U, RX64M, RX65N, RX66N, RX66T, RX71M, RX72M, RX72N, RX72T
RX Family RX Driver Package Ver.1.26	R01AN5401	RX Family RX Driver Package Ver.1.26 Rev.1.26 - Sample Code (ZIP English, 日本語)	May 29, 20	RX110, RX111, RX113, RX130, RX13T, RX23W, RX230, RX231, RX23E-A, RX23T, RX24T, RX24U, RX64M, RX65N, RX66N, RX66T, RX71M, RX72M, RX72N, RX72T
RX Family RX Driver Package Ver.1.25	R01AN5371	RX Family RX Driver Package Ver.1.25 Rev.1.25 - Sample Code (ZIP English, 日本語)	Apr. 7, 20	RX110, RX111, RX113, RX130, RX13T, RX23W, RX230, RX231, RX23E-A, RX23T, RX24T, RX24U, RX64M, RX65N, RX66N, RX66T, RX71M, RX72M, RX72N, RX72T
RX Family RX Driver Package Ver.1.24	R01AN5267	RX Family RX Driver Package Ver.1.24 Rev.1.24 - Sample Code (ZIP English, 日本語)	Mar. 31, 20	RX110, RX111, RX113, RX130, RX13T, RX23W, RX230, RX231, RX23E-A, RX23T, RX24T, RX24U, RX64M, RX65N, RX66T, RX71M, RX72M, RX72T

Revision History

Rev.	Date	Description	
		Page	Summary
1.00	Sep. 2, 2021	—	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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(Note2) "Renesas Electronics product(s)" means any product developed or manufactured by or for Renesas Electronics.

(Rev.5.0-1 October 2020)

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