

RZ/A2M Group

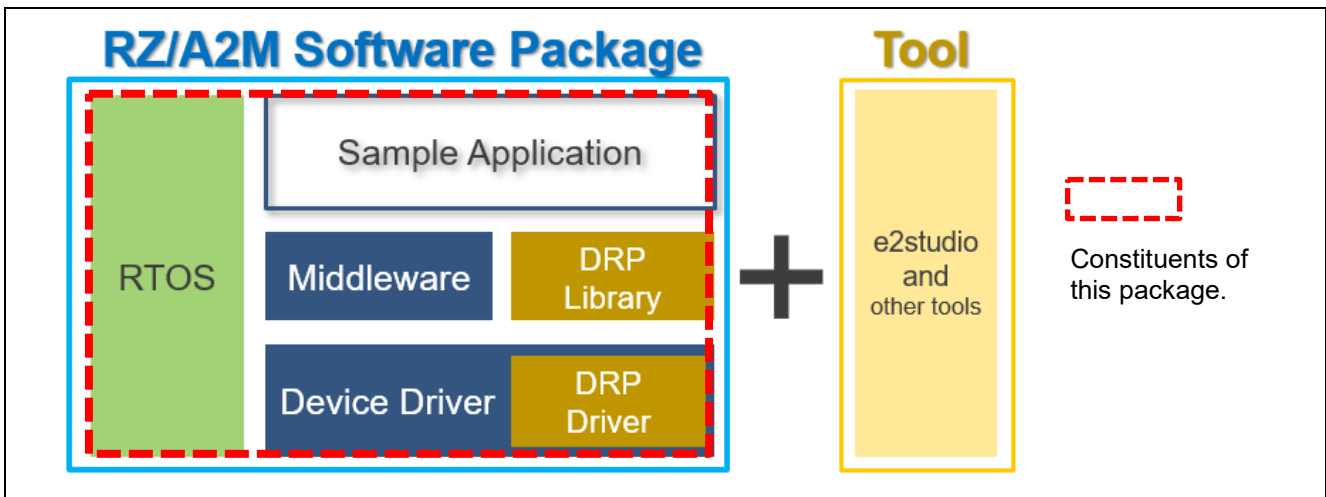
RZ/A2M SDIO Wi-Fi Package for GR-MANGO V1.01 Release Note

Introduction

This package contains Wireless image streaming sample program for RZ/A2M group microcomputers and [SILEX Technology SX-SDMAC](#) module. SX-SDMAC module ([SX-SDCAC-2830-SP](#)) is needed to use this package.

The Software Package shows how easy it is to create a professional, user-friendly and platform-independent user interface for your product. The entire application source code is included in the workspace enabling the Software Package to be ported to the platform of your choice.

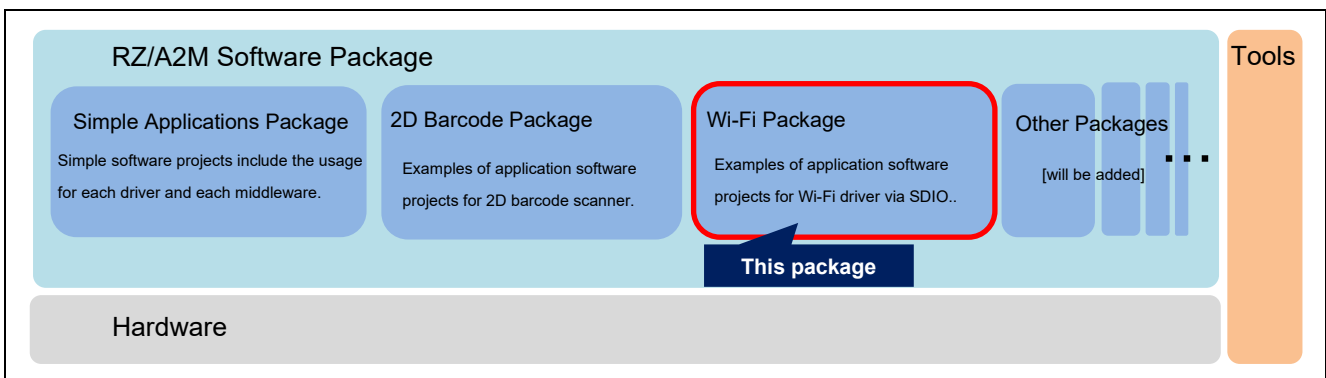
This package is one of RZ/A2M Software Package. RZ/A2M Software Package is a software development kit for the RZ/A2M that supports various RZ/A2M functions such as DRP (Dynamically Reconfigurable Processor), camera input, LCD output, and image adjustment. This package has the structure of the red frame in the following figure. However, device driver and middleware are only included what is necessary for the sample application.



RZ/A2M Software Package Configuration

Figure below shows the relation of RZ/A2M Software Package and this package. For details, refer following URL:

<https://www.renesas.com/software-tool/rza2m-freertos-software-package>



The relation of RZ/A2M Software Packages and this package

Note that each software project includes only driver software and middleware used by each application. If you want to add software that is not included in the project, please use Smart Configurator. For more detail, please refer "RZ/A2M Software Package for GR-MANGO Quick Start Guide"(R01QS0042) bundled in this package.

Following sample applications are bundled in this package.

SX-SDMAC Wi-Fi sample program

This sample program transmits captured images to PC using the SDIO driver and SILEX Technology SX-SDMAC driver. This sample uses FreeRTOS.

SX-SDMAC Wi-Fi Evaluation sample program

This sample program enables evaluation of Wi-Fi module using command interface. This sample uses FreeRTOS.

SDIO driver used in this sample does not support Ultra-High-Speed mode. RZ/A2M group RZ/A2M SDIO Wi-Fi Package(NDA) contains driver and sample project that supports the mode. To get this package, please contact [Renesas sales](#).

Target Device / Target Board

Target Device:	RZ/A2M
Target Board Kit:	GR-MANGO
Target Module:	SILEX Technology SX-SDCAC-2830-SP

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1. Package Contents

1.1 Software

This package contains the following software.

Table 1-1 Software of this package

No	Name	File name
1	RZ/A2M Group SX-SDMAC Wi-Fi sample Application	rza2m_wifi_sx_sdmac_sample_freertos_grmango_gcc.zip
2	RZ/A2M Group SX-SDMAC Wi-Fi Evaluation Sample Application	rza2m_wifi_sx_sdmac_eval_sample_nda_freertos_grmango_gcc.zip
3	RZ/A2M Group SILEX SX-SDMAC Driver Component	silex_sx_sdmac_ebk_rza2_v1.01.xml silex_sx_sdmac_ebk_rza2_v1.01.zip silex_sx_sdmac_ebk_rza2_v1.01_extend.mdf
4	RZ/A2M Group Octabus Driver Component	r_octabus_mango_rza2_v1.00.xml r_octabus_mango_rza2_v1.00.zip r_octabus_mango_rza2_v1.00_extend.mdf
5	RZ/A2M Group Octabus Configuration Component	r_octabus_middleware_mango_rza2_v1.00.xml r_octabus_middleware_mango_rza2_v1.00.zip r_octabus_middleware_mango_rza2_v1.00_extend.mdf

1.2 Documents

This package contains the following documents.

Table 1-2 Documents of this package

No	Title	Document Number
1	RZ/A2M Group SDIO Wi-Fi Package for GR-MANGO V1.01 Release Note	R01AN5661 (This document)
2	RZ/A2M Group RZ/A2M Software Package for GR-MANGO Quick Start Guide	R01QS0042

Also, the project indicated in Table 1-1 includes the sample program's application note.

2. Folder Structure

Folder structure of this package and outline of contents are shown as follow.

TOP	: top folder
+---component	
+---r_octabus_mango_rza2_v1.00.xml	: RZ/A2M Group Octabus Deriver Component
+---r_octabus_mango_rza2_v1.00.zip	: RZ/A2M Group Octabus Deriver Component
+---r_octabus_mango_rza2_v1.00_extend.mdf	: RZ/A2M Group Octabus Deriver Component
+---r_octabus_middleware_mango_rza2_v1.00.xml	: RZ/A2M Group Octabus Configuration Component
+---r_octabus_middleware_mango_rza2_v1.00.zip	: RZ/A2M Group Octabus Configuration Component
+---r_octabus_middleware_mango_rza2_v1.00_extend.mdf	: RZ/A2M Group Octabus Configuration Component
+---silex_sx_sdmac_ebk_rza2_v1.01.xml	: RZ/A2M Group SILEX SX-SDMAC Driver Component
+---silex_sx_sdmac_ebk_rza2_v1.01.zip	: RZ/A2M Group SILEX SX-SDMAC Driver Component
+---silex_sx_sdmac_ebk_rza2_v1.01_extend.mdf	: RZ/A2M Group SILEX SX-SDMAC Driver Component
+---rza2m_wifi_sx_sdmac_sample_freertos_grmango_gcc.zip	: RZ/A2M Group SX-SDMAC Wi-Fi sample Application
+---rza2m_wifi_sx_sdmac_eval_sample_freertos_grmango_gcc.zip	: RZ/A2M Group SX-SDMAC Wi-Fi Evaluation sample Application
+---r01an5661ej0101-rza2m-wifi-swpkg-gcc.pdf	: RZ/A2M SDIO Wi-Fi Package for GR-MANGO V1.01 Release Note (this document)
+---r01an5661jj0101-rza2m-wifi-swpkg-gcc.pdf	: RZ/A2M SDIO Wi-Fi Package for GR-MANGO V1.01 Release Note (Japanese)
+---r01qs0042ej0100-rza2m-quick-guide-gcc.pdf	: RZ/A2M Group RZ/A2M Software Package for GR-MANGO Quick Start Guide (English)
+---r01qs0042jj0100-rza2m-quick-guide-gcc.pdf	: RZ/A2M Group RZ/A2M Software Package for GR-MANGO Quick Start Guide (Japanese)

Figure 2.1 Folder Structure

3. How to use the projects bundled in this package

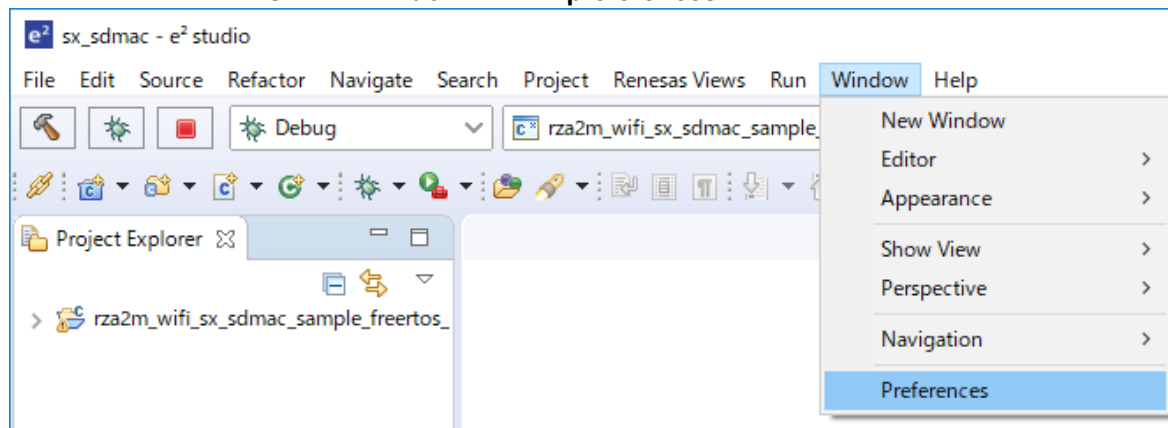
Regarding how to use, refer to the documents in each folder in this package.

4. How to use the component bundled in this package

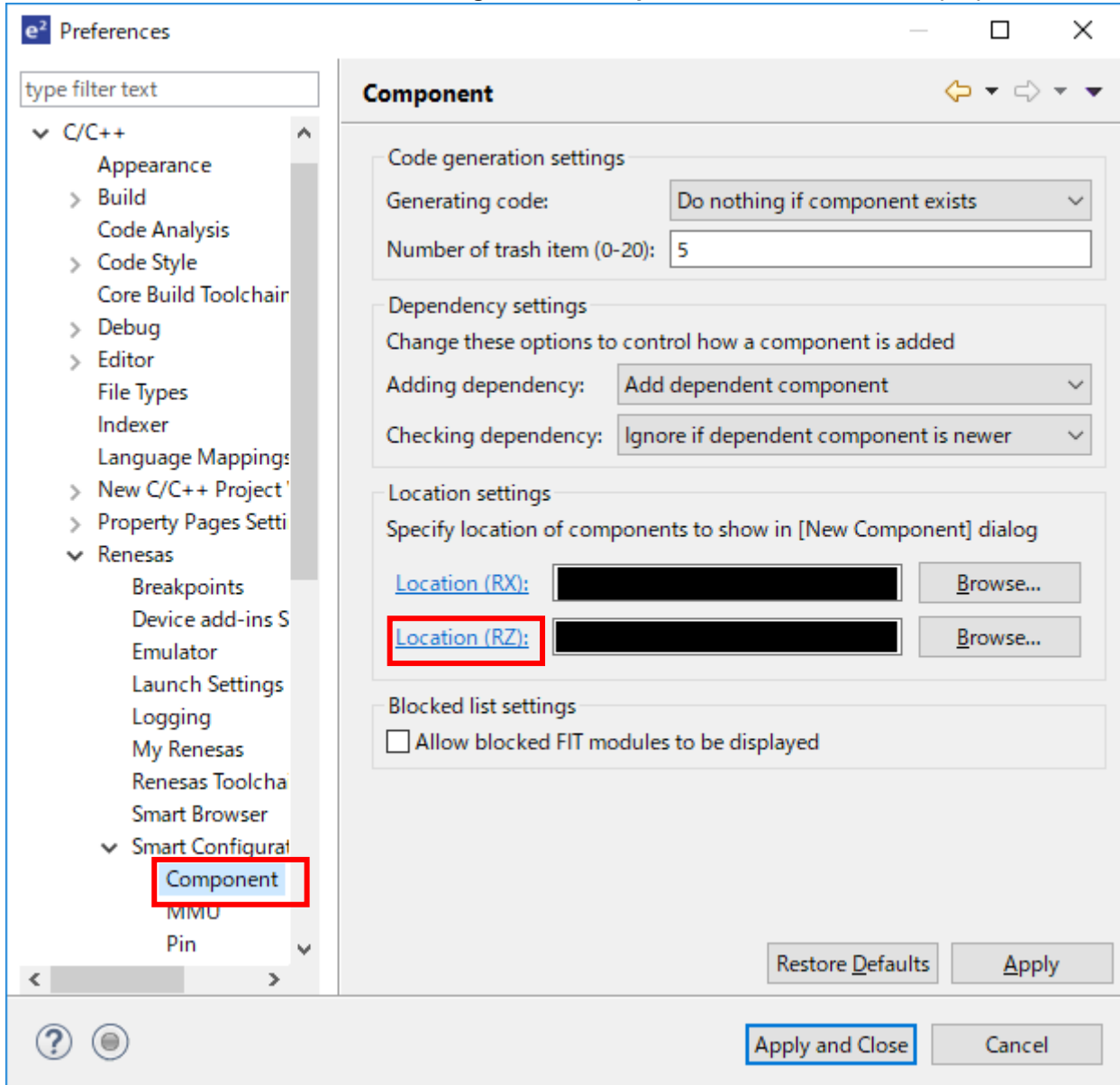
Follow the steps below to import components to a project:

Step 1 to 3 are required only once.

1. Launch e2 studio. Choose **window** menu – **preferences**.




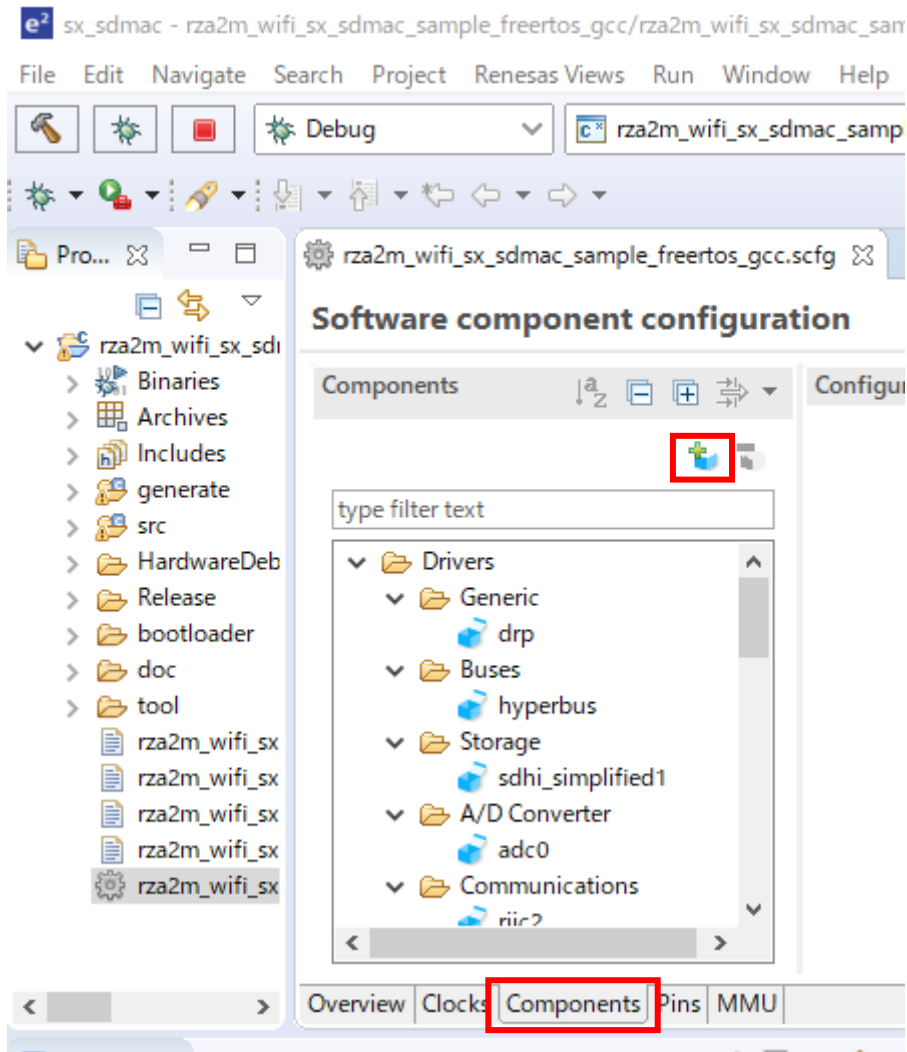
2. Select **C/C++ – Renesas – Smart Configurator – Component**, and click **Location (RZ)**.



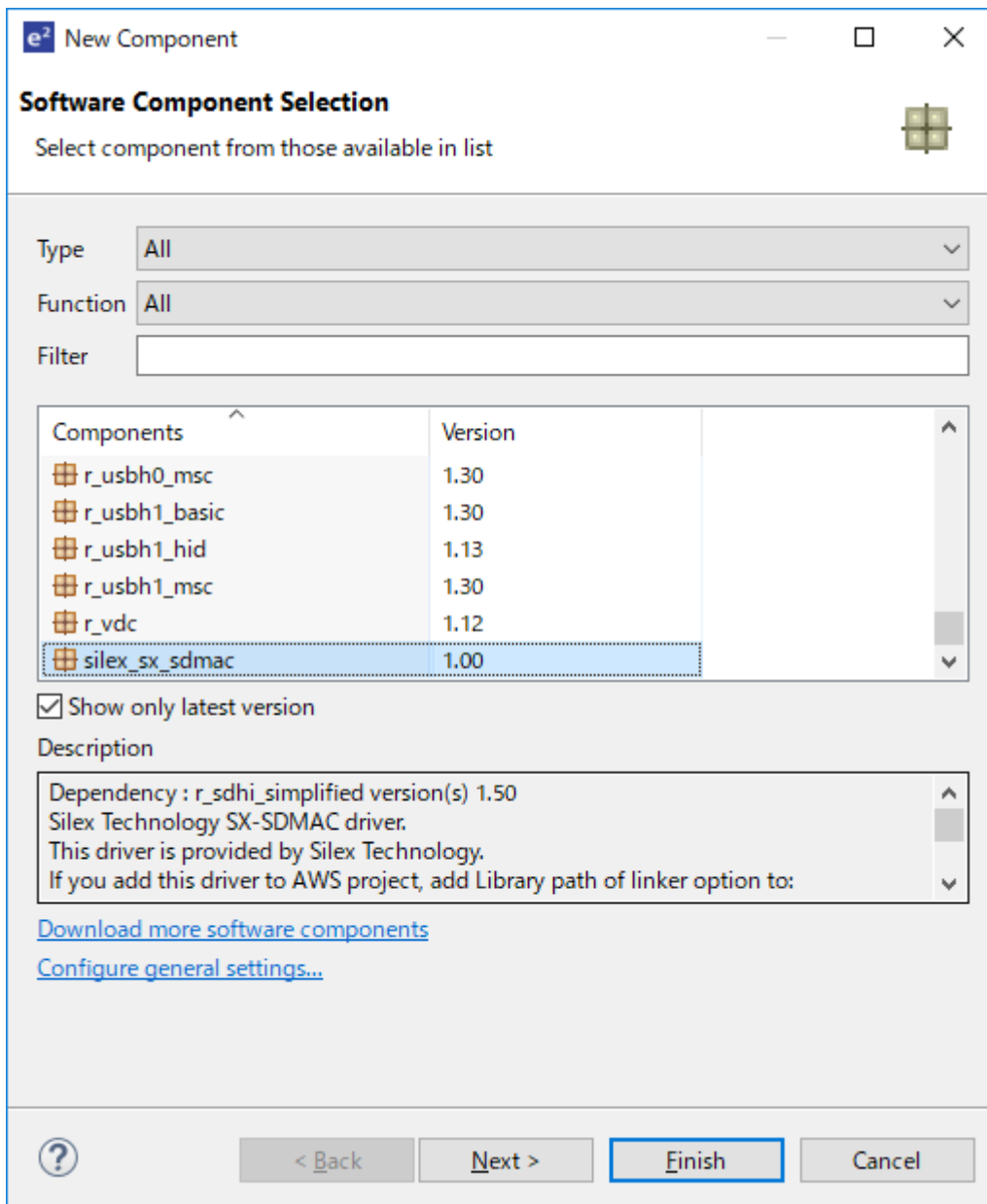
3. Copy xml, mdf, and zip file bundled in component folder of this package, to the opened folder.

Step 1 to 3 are required only once.

4. Open the project to import SILEX SX-SDMAC component by e2 studio.
5. Open *.scfg file in the project by e2 studio.
6. Select **Components** tag, and click  icon.

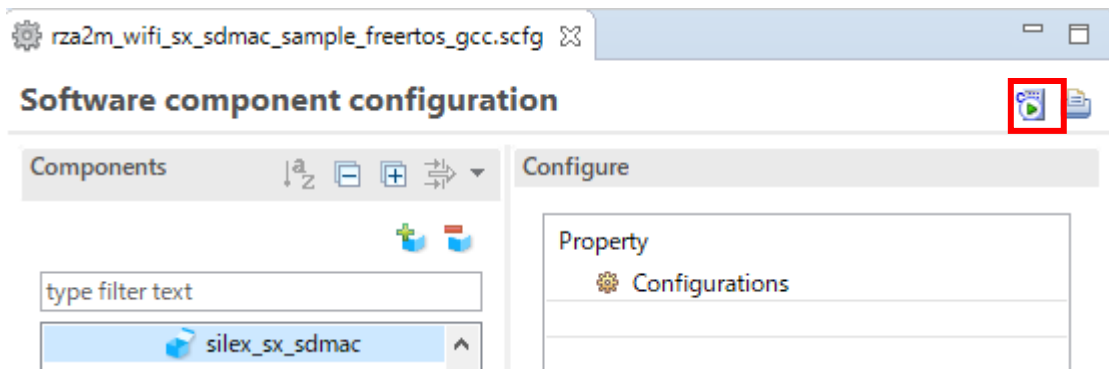


6. In the case of SILEX SX-SDMAC Driver Component, select **silex_sx_sdmac**, and click **Next**.



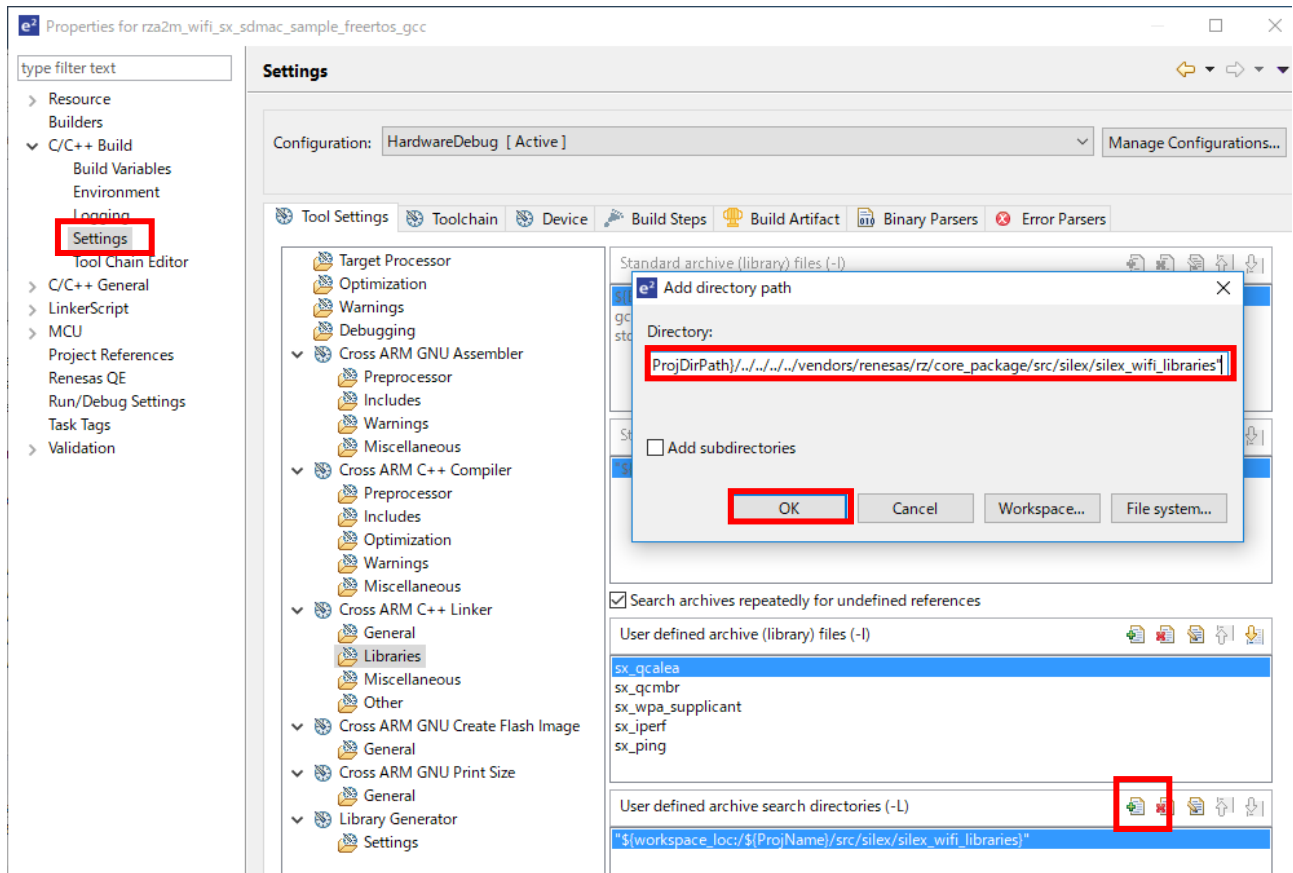
6. Enter **Configuration Name**, and click **Finish**.

7. click  icon.



- 8. In the case the project uses virtual folder, add the library path to silex_wifi_libraries folder. Following path the example for AWS FreeRTOS project:

```
"${ProjDirPath}/../../../../../../vendors/renesas/rz/core_package/src/silex/silex_wifi_libraries"
```



5. Reference Application Notes

Following is the list of application notes related to this software package.

RZ/A2M Group RZ/A2M Software Core Package (R01AN5528).

Drivers and middleware for RZ/A2M that can be added to the project bundled in this package.

6. Restrictions

The Restrictions of this package are shown as follow.

Table 6-1 Restrictions

No.	Type	Description
1	DRP Driver *	The following API Functions are not supported. - R_DK2_Uninitialize - R_DK2_Inactivate If these functions are called, these functions occur an error and return "R_DK2_ERR_INTERNAL".
2	DRP Driver *	The function that load the configuration data in background is not supported. This function validates when argument "pload" of R_DK2_Load Function is set to anything other than NULL. In the version in this package this function occurs an error and return "R_DK2_ERR_INTERNAL".
3	DRP Driver *	R_DK2_Load Function notifies the return value "R_DK2_ERR_DEVICE", when detects a transfer error of the configuration data. In the version in this package this function is not supported.
4	DRP Driver *	Processing Completion Callback Function notifies the argument "result" is "R_DK2_ERR_DEVICE", when detects a transfer error in DRP. In the version in this package this function is not supported.
5	DRP Driver *	Processing Completion Callback Function notifies the argument "result" is "R_DK2_ERR_STOPPED", when detects a transfer stopped by calling R_DK2_Unload Function of R_DK2_Inactivate Function. In the version in this package this function is not supported.
6	SDIO Driver	It is required that remove and insert Wi-Fi module after downloading before running.
7	SX-SDMAC driver	DHCP setting is fixed to use . ipconfigUSE_DHCP and configIP_ADDR settings are ignored.

* Please refer to "RZ/A2M Group DRP Driver User's Manual(R01US0355)" for details of DRP Driver's function.

7. Precautions

The Precautions of this package are shown as follow.

Table 7-1 Precautions

No.	Type	Description
1	Environment	If it is happened a build error while building the project of this package as it is, the setting of environment may be incorrect. Check following items: <ul style="list-style-type: none"> Follow section 3 of "RZ/A2M Software Package for GR-MANGO Quick Start Guide"(R01QS0042) Install e2 studio v7.3 or later again.
2	Environment	To avoid build error, expand the project to the folder with short full-path.
3	Environment	To avoid build error, expand the project to the folder without multi-byte character.
4	Environment	This package includes elf-formatted boot loader. Therefore, the project to generate the boot loader is not bundled. Following application note includes the boot loader project. To get it, please download from Renesas site: RZ/A1LU Group Example of Booting from Serial Flash Memory (R01AN4333)
5	File System	src\fatfs\documents.zip includes *.c files. If you unzipped the zip file, exclude the documents\res from your build.
6	All	Since V1.01, the folder structure of the project using FreeRTOS has been changed to follow Amazon FreeRTOS. Therefore, they are incompatible with the project between V1.01 later and V1.00.
7	TES Guiliani	It is not possible to add TES Guiliani to an existing project. When using TES Guiliani, please use Guiliani 2.2 SDK for RZ/A2M Software Package as a base project.
8	TES Guiliani	Contact following URL if you use both TES Guiliani and TCP/IP protocol stack. https://www.renesas.com/contact-us

8. Used open source software and licenses

Open source software used in this package and license of them are shown as following:

- SX-SDMAC driver is used under the license of SILEX technology described before downloading this package.
- newlib is used under the license described in following site:
<https://www.sourceware.org/newlib/COPYING.NEWLIB>
- FreeRTOS™ is a trade mark of Amazon Web Services, Inc.
- FreeRTOS is used under MIT license described in following site:
<https://www.freertos.org/a00114.html>
<https://github.com/aws/amazon-freertos/blob/master/LICENSE>
<https://aws.amazon.com/jp/freertos/faqs/>
- FatFs is used under the license described in following site:
<http://elm-chan.org/fsw/ff/doc/appnote.html#license>

SD Host/Ancillary Product License Agreement (SD HALA) is required to develop SD host-related products. Refer <https://www.sdcard.org/developers/licensing/> for detail:

Revision History

Rev.	Date	Description	
		Page	Summary
1.00	Dec.25.20	-	First Edition issued
1.01	May.31.21		Update e2studio 2021-04 version

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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