# **Using Renesas RA Smart Configurator with Keil MDK**

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#### Abstract

The Renesas RA Smart Configurator (RASC) is a desktop application that allows you to configure the software system (BSP, drivers, RTOS and middleware) for an Armv8-M based Renesas RA microcontroller when using a third-party IDE and toolchain.

This application note shows how to use RA Smart Configurator tool together with Arm Keil MDK. It explains the basic project set up and how to change the configuration during project development time.

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#### Prerequisites

For successful operation, you need the following:

- MDK v5.30 or later.
- The latest RA device family pack installed.
- For flashing and debugging, Segger J-Link DLL (v6.54 or higher) installed into Keil MDK.
- Renesas RA Smart Configurator (on GitHub)

### Step 1: Copy a project template

- 1. Open Pack Installer.
- 2. In the Devices tab, select the target Renesas RA device.
- 3. In the Examples tab, select **Copy** for the project template for the target device:

🏟 Pack Installer - C:\Keil_v5\Pack_folder				_		×
File Packs Window Help						
2 Device: Renesas - R7FA4M1AB2CLJ						
4 Devices Boards		₽	4 Packs Examples			₽
Search: - X 🗖			Show examples from installed Packs only			
Device /	Summary		Example Action	Description		
🗄 🗝 🖗 RelChip	1 Device		R7FA4M1AB2CLJ project template (R7FA4M1AB2CLJ custom) 🚸 Copy	7FA4M1AB2	CLJ proj	ect tem
🚊 🗝 🖉 Renesas	30 Devices			1		
🕀 🔧 R-IN32M3 Series	2 Devices					
🕀 🔧 R-IN32M4 Series	1 Device					
RA4M1 Series	7 Devices					
R7FA4M1AB2CLJ	1 Device					
R7FA4M1AB3CFL	1 Device					
R7FA4M1AB3CFM	1 Device					
R7FA4M1AB3CFP	1 Device	-				►

4. Select a destination folder and click **OK**.

## Step 2: Start configuring the project

After the project has been created, µVision will ask to open RASC:



- 1. Click on Start Renesas RA Smart Configurator to launch the tool.
- 2. Use RA Smart Configurator to set up and configure your device. Once finished, select **Generate Project Content**:

Generate Project Content

- 3. Close the RA Smart Configurator.
- 4. In μVision, a dialog indicates that new generated code is available. Select **Yes** to import changes.
- 5. In the **Project** window, expand the **Flex Software** item. It contains all generated files, including a main.c file.
- 6. Continue working with the  $\mu$ Vision project as usual.

#### **Optional Step 3: Modifying an existing RA configuration**

If you want to revisit the project settings or change device configuration parameters, you can restart RA Smart Configurator easily from  $\mu$ Vision:

- 1. Open the 🏶 Manage Run-Time Environment window
- 2. Expand the Flex Software item.
- 3. Use the **b** play button next to **RA Configuration** to restart RA Smart Configurator.
- 4. Modify the configuration, rerun the generation process, and reimport into µVision.