

NuMicro® Family

VS Code

Quick Start Guide

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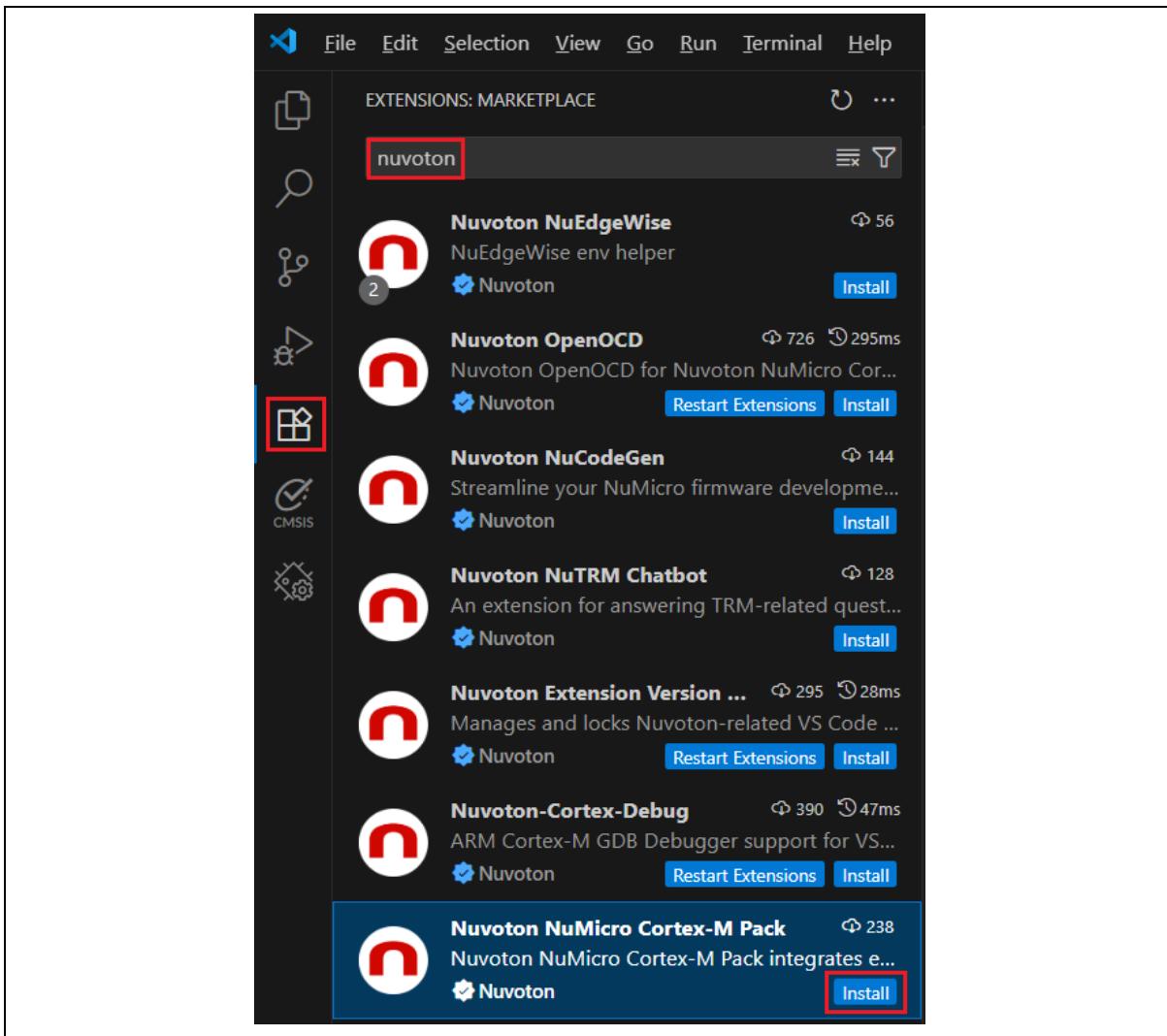
www.nuvoton.com

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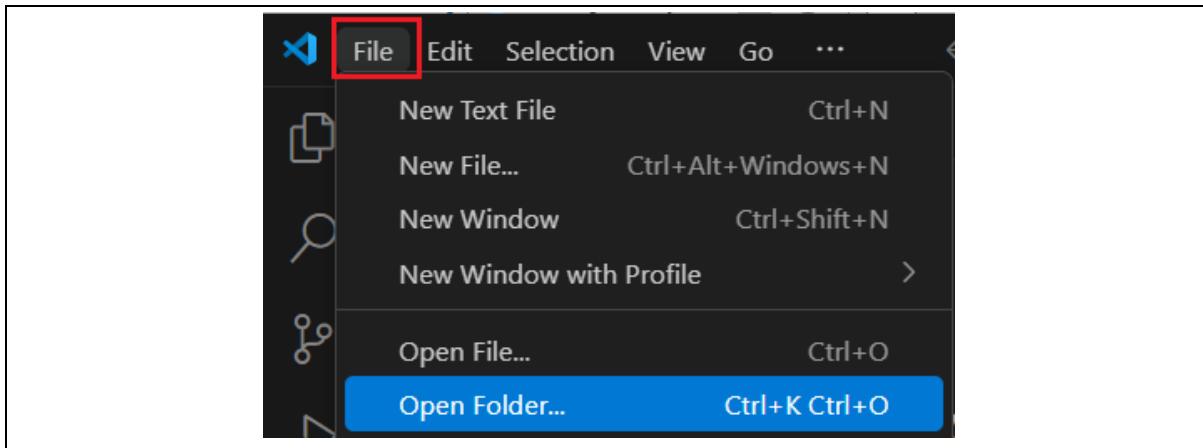
1 INSTALLATION VS CODE AND EXTENSIONS

1. Download VS Code from <https://code.visualstudio.com> and install it.
2. Launch VS Code and click Extensions in the Activity Bar.
3. Text “**Nuvoton NuMicro Cortex-M Pack Extension**” in search bar. Click the “**Install**” button to install.

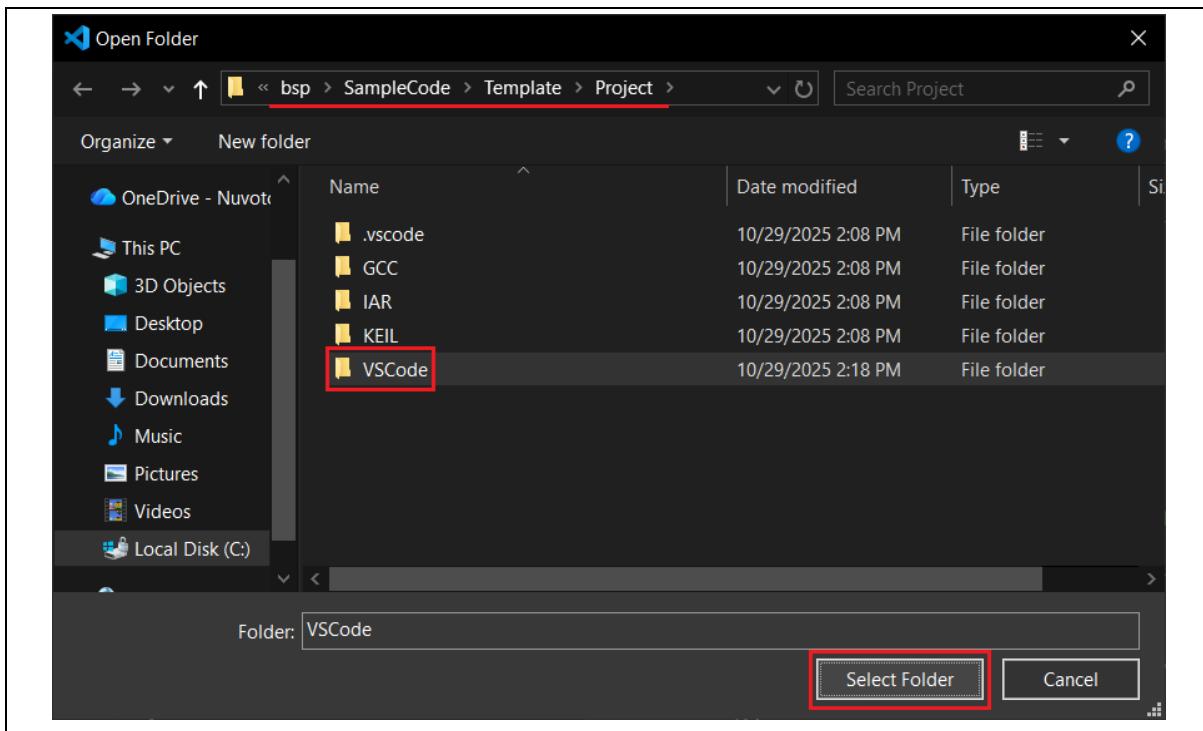


2 GET STARTED WITH A SAMPLE PROJECT

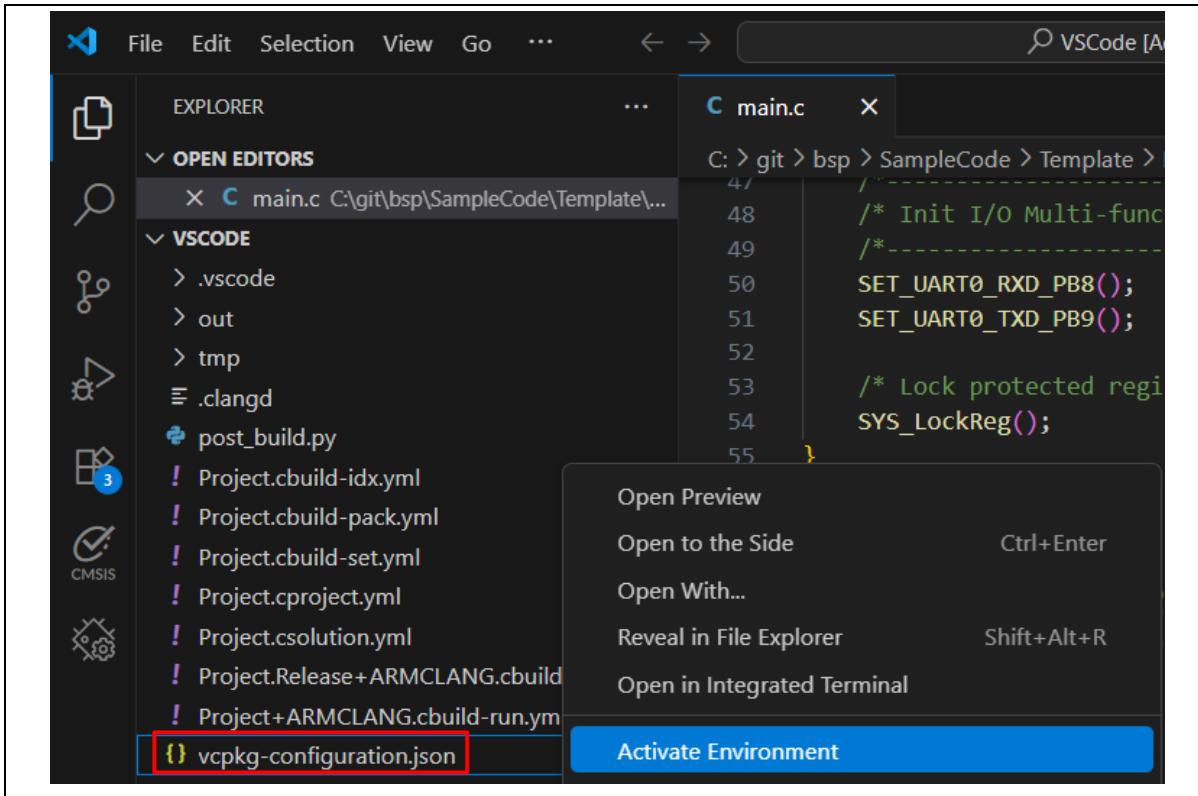
1. Click “File” menu and select “Open Folder” in the toolbar.



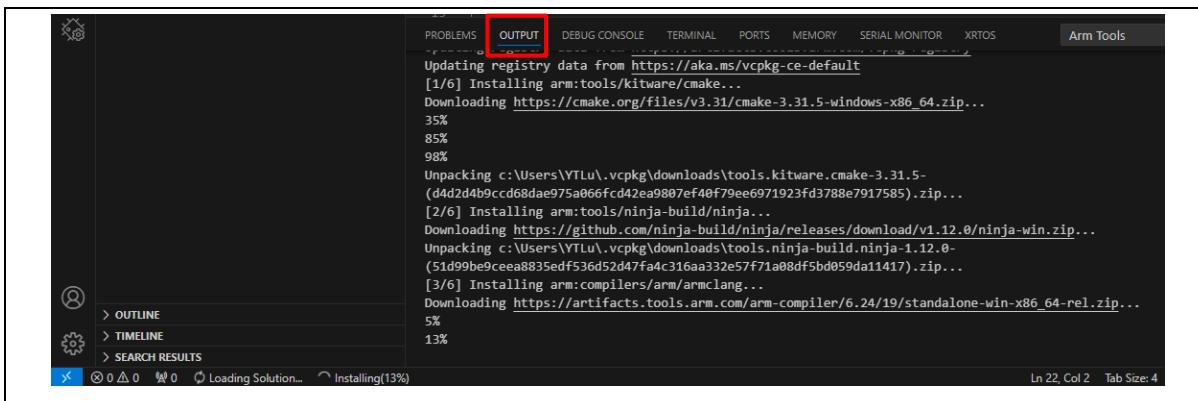
2. Select the "VSCode" folder of a sample project to open the project.



3. Right-click “**vcpkg-configuration.json**” file and select “**Activate Environment**” command. (Please use private network connection.)

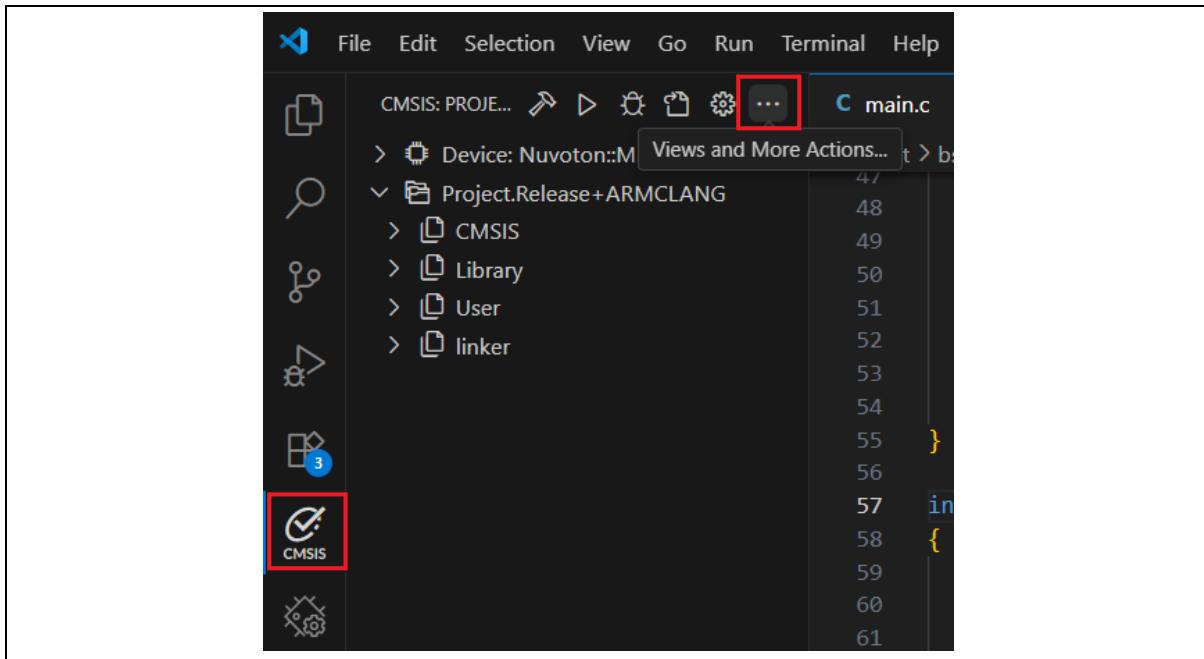


4. Check **OUTPUT** terminal at the bottom. It will download and install the requires tools.

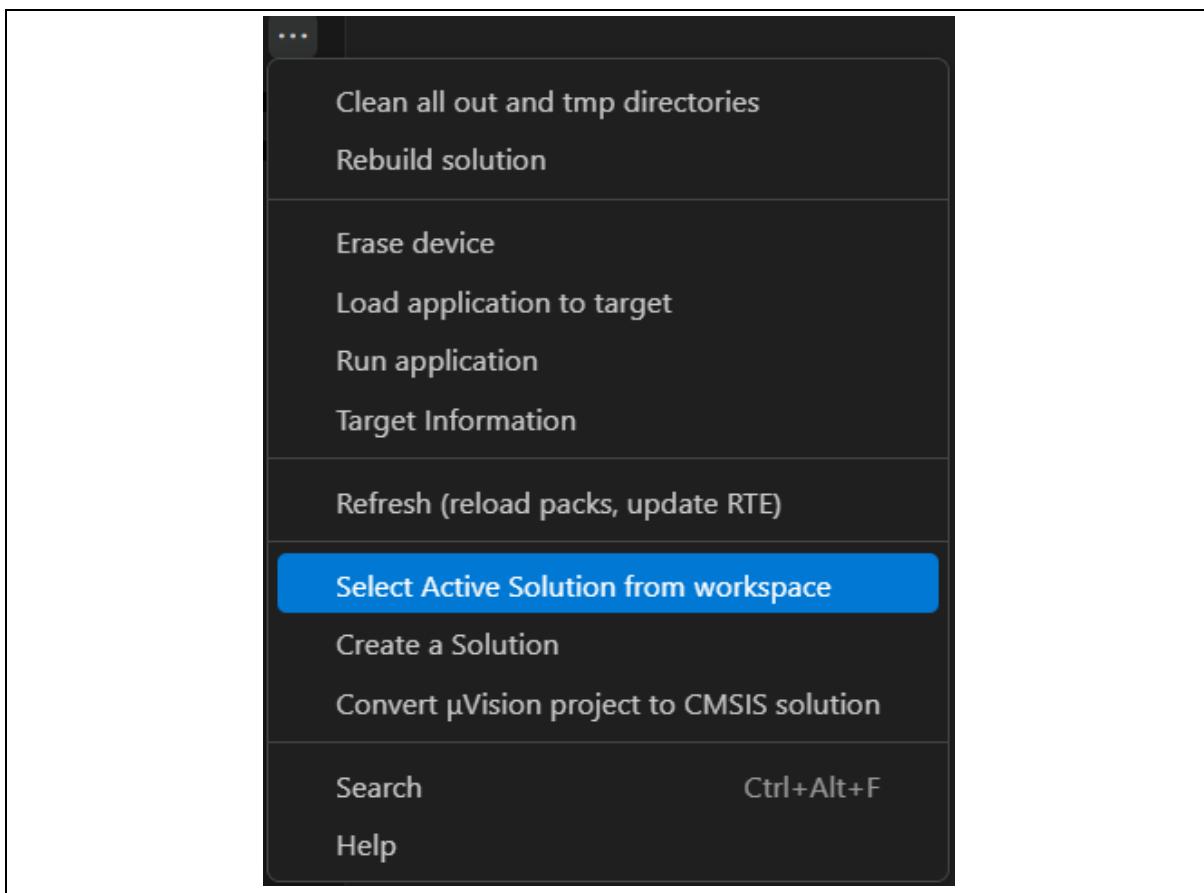


5. Click **CMSIS** icon in the Activity Bar.

Then click “**Views and More Actions...**” button.

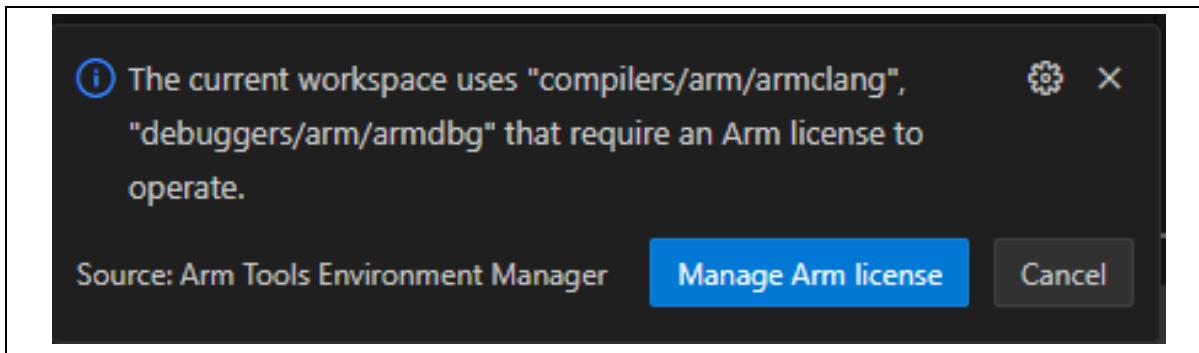


6. Select “**Select Active Solution from workspace**” command.

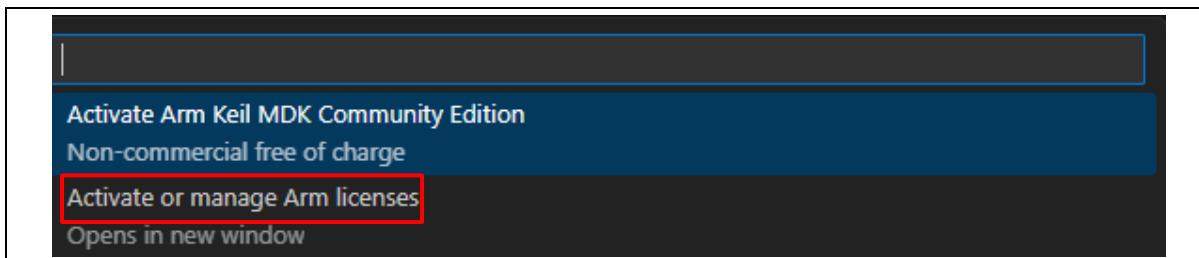


3 MANAGE ARM LICENSE

1. Click “Manage Arm License” button in the pop-up window at the bottom right.



2. In the search bar at the top, select "Activate or manage Arm licenses" command from the available options.



3. Get Keil MDK License ID code.

- 1) Navigation to [Official Website](#).

The screenshot shows the Nuvoton website with the following details:

- Header:** nuvoton, Support, Foundry Service, About Nuvoton, ESG, Nuvoton Part
- Navigation Bar:** Products, Applications, Software and Tool, Product Related Information, AI Discovery
- Breadcrumbs:** Home > Software and Tool > IDE and Nu-Link Driver > Keil MDK Nuvoton Edition – Full Cortex-M
- Left Sidebar (highlighted with red boxes):**
 - Evaluation Board
 - Debugger and Programmer
 - Software Tool
 - Board Support Package (BSP)
 - BSP and Example Code
 - IDE and Nu-Link Driver
 - Keil MDK Nuvoton Edition – Full Cortex-M**
 - Keil Download
- Main Content Area:**

Keil MDK Nuvoton Edition – Full Cortex-M

Overview (highlighted with a red box)

FAQ - Unable to successfully activate

Arm and Nuvoton provide software developers with a free-to-use professional tool suite for commercial Edition – Full Cortex-M, including support for all Nuvoton devices based on Arm® Cortex-M processor M0, M0+, M23, M33, M4, M55, M7, and M85.

This edition includes all tools and software components provided with Arm Keil MDK v6, including the A Studio Pack - the Visual Studio Code extensions, Keil µVision and debugger.

This free service is available for use with Keil MDK Version 5.37 or later and only supports the Arm Cor

Click here to [Apply for License](#) (valid till September 25, 2027)

2) Fill out the form.

Apply for Keil MDK Nuvoton Edition – Full Cortex-M

First Name*

Last Name*

Company / Organization*

Job Title*

Region / Country or region*
Select Region ... | Country or region ...

State / Province*

Email*

Phone*

Industry - Industry -

Application* - Application -

Series* - Select Line ... | Select Category ...

Part No*

NUVOTON Privacy Policy

NUVOTON Privacy Policy
Last modified July 01, 2023

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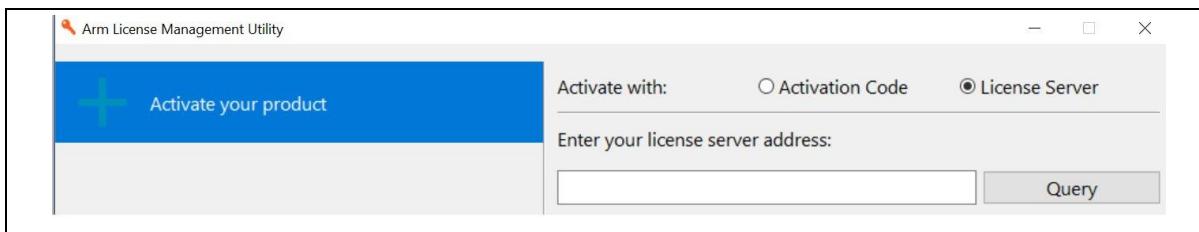
I have read and I accept Nuvoton's Privacy Policy

Add me as myNuvoton member

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Let's Chat

3) Check mailbox and fill in the License Server.

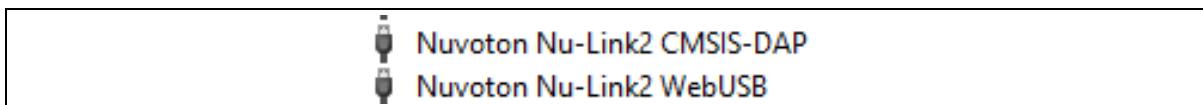


4 CONFIGURE THE DEVICE

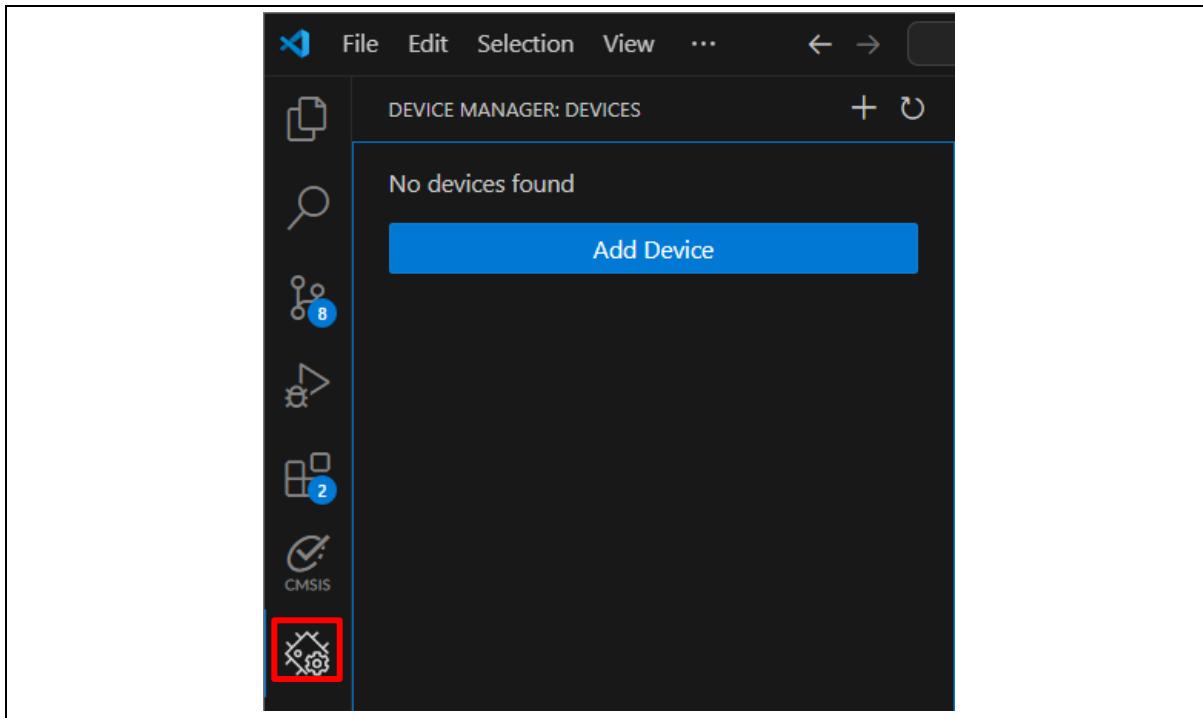
1. Install Nuvoton Nu-Link Keil Driver.
2. After installing the Keil driver, please check the box to install the Nu-Link USB Driver.



3. Installation complete in Windows Device Manager.



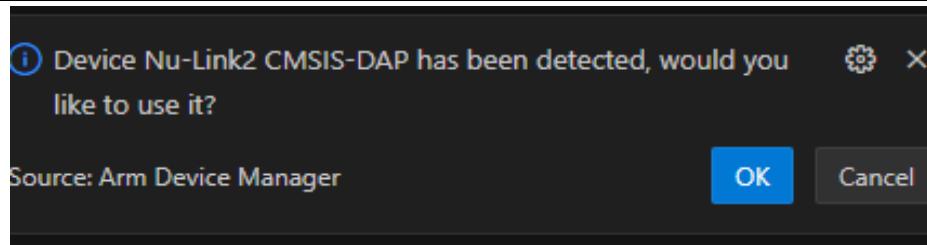
4. Click “Device Manager” icon in the Activity Bar to open the Device Manager.



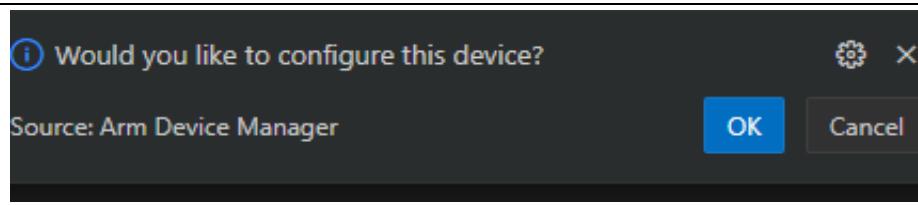
5. Connect device to your computer over USB.

The Device Manager detects the board and displays a pop-up message.

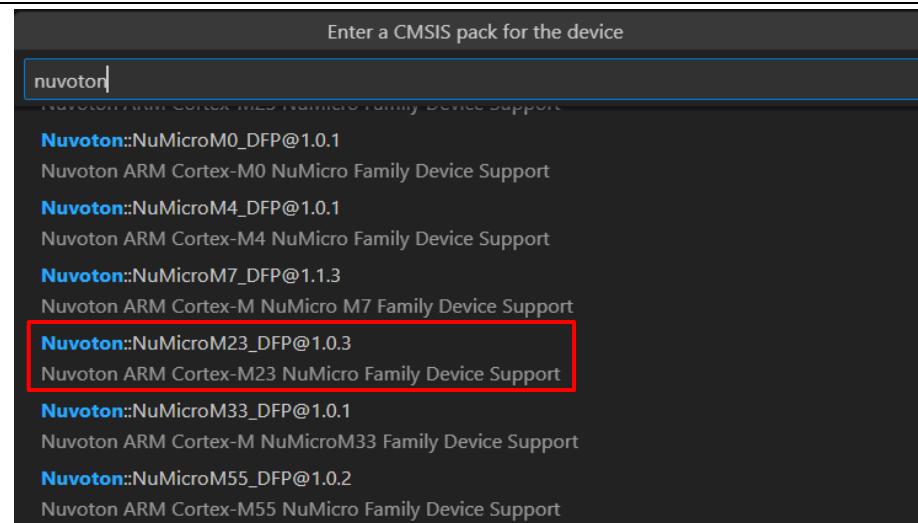
Press OK in the pop-up message and use it.



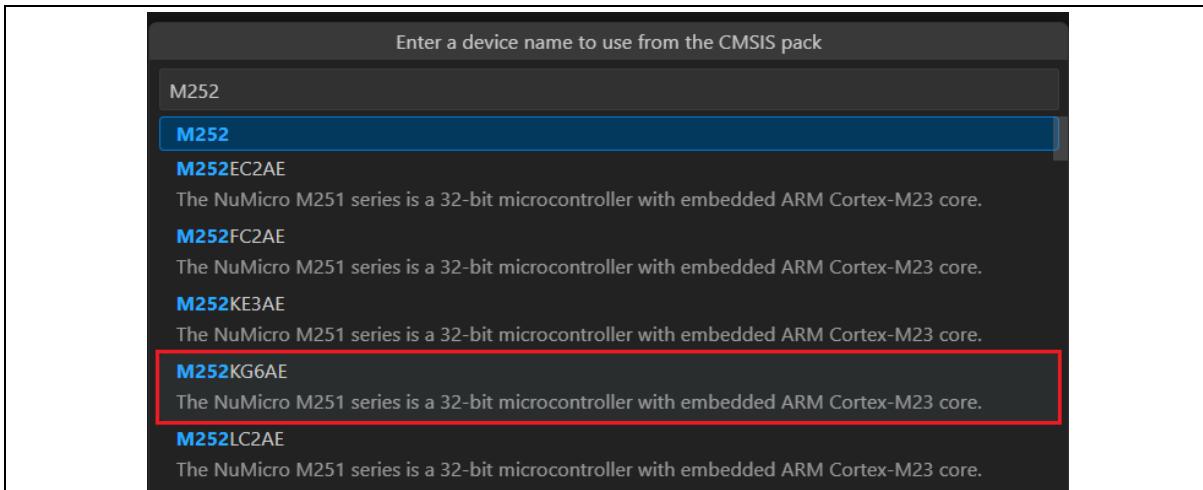
6. Press OK in the pop-up message and configure this device.



7. Text “**nuvoton**” in search bar and select corresponding CMSIS pack for the device.

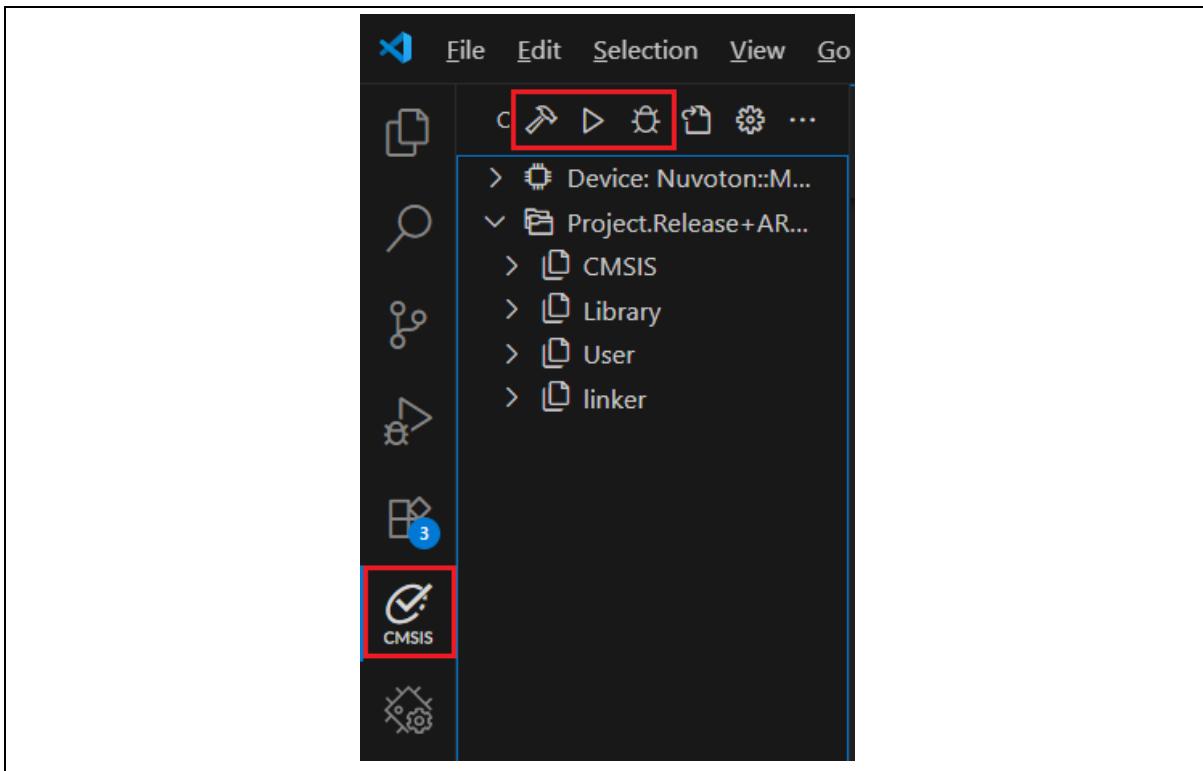


8. Text your “**device model number**” in search bar and select your target device.



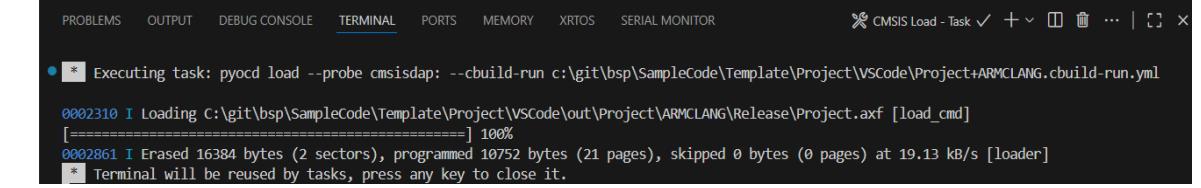
5 RUN THE SAMPLE PROJECT

1. Click “**CMSIS**” icon in the Activity Bar.



2. Click “Build” button.

3. Click “Load & Run” button. 



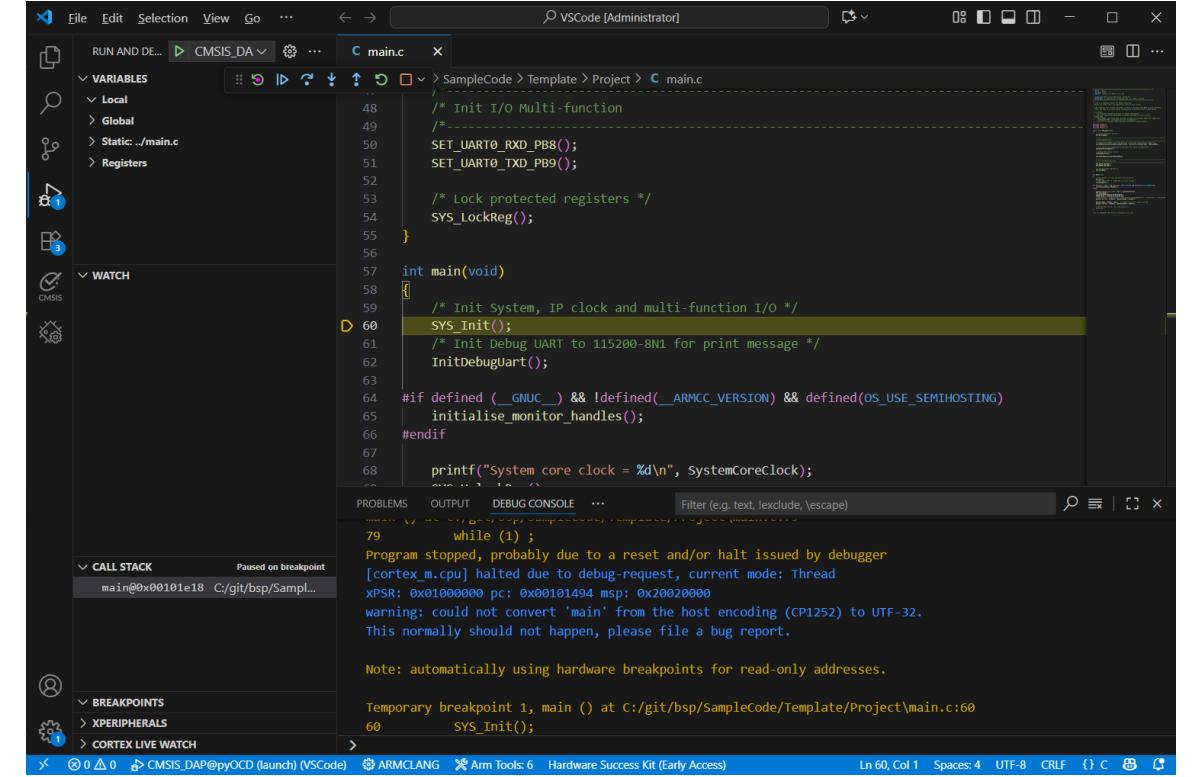
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS MEMORY XRTOS SERIAL MONITOR
CMSIS Load - Task ✓ + ⌂ ⌂ ... | ⌂ ×

* Executing task: pyocd load --probe cmsisdap: --cbuild-run c:\git\bsp\SampleCode\Template\Project\VSCode\Project+ARMCLANG.cbuild-run.yml
0002310 I Loading C:\git\bsp\SampleCode\Template\Project\VSCode\out\Project\ARMCLANG\Release\Project.axf [load_cmd]
[=====] 100%
0002861 I Erased 16384 bytes (2 sectors), programmed 10752 bytes (21 pages), skipped 0 bytes (0 pages) at 19.13 kB/s [loader]
* Terminal will be reused by tasks, press any key to close it.
    
```

4. Click “Load & Debug” button. 

The debugger stops at the main function.



File Edit Selection View Go ... RUN AND DEBUG CMSIS_DAP ... CMSIS DA ... main.c

VARIABLES

- Local
- Global
- Static: ./main.c
- Registers

WATCH

CALL STACK Pausd on breakpoint

```

48     /* Init I/O Multi-function
49     /*
50     SET_UART0_RXD_PB8();
51     SET_UART0_TXD_PB9();
52
53     /* Lock protected registers */
54     SYS_LockReg();
55 }
56
57 int main(void)
58 {
59     /* Init System, IP clock and multi-function I/O */
60     SYS_Init();
61     /* Init Debug UART to 115200-8N1 for print message */
62     InitDebuguart();
63
64 #if defined(__GNUC__) && !defined(__ARMCC_VERSION) && defined(OS_USE_SEMIHOSTING)
65     initialise_monitor_handles();
66 #endif
67
68     printf("System core clock = %d\n", systemCoreClock);
69     while (1);

```

PROBLEMS OUTPUT DEBUG CONSOLE ... Filter (e.g. text, lexclude, \escape)

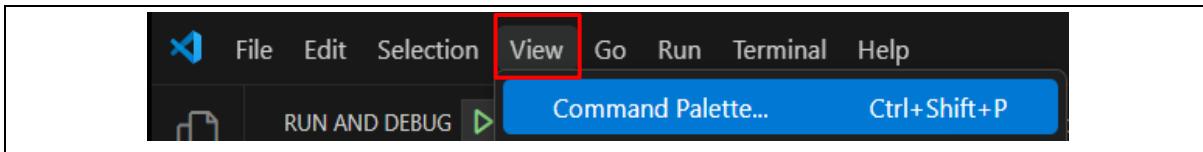
Program stopped, probably due to a reset and/or halt issued by debugger
 [cortex_m.cpu] halted due to debug-request, current mode: Thread
 xPSR: 0x00100000 pc: 0x000101494 msp: 0x00020000
 warning: could not convert 'main' from the host encoding (CP1252) to UTF-32.
 This normally should not happen, please file a bug report.

Note: automatically using hardware breakpoints for read-only addresses.

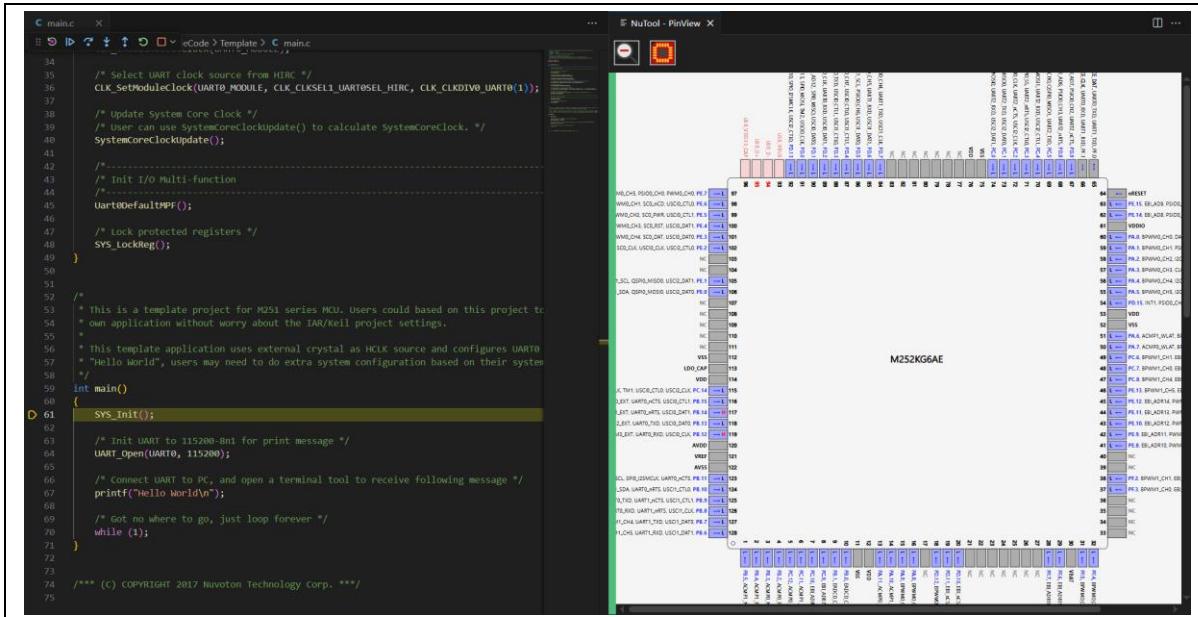
Temporary breakpoint 1, main () at C:/git/bsp/SampleCode/Template/Project/main.c:60
 60 SYS_Init();

Ln 60, Col 1 Spaces: 4 UTF-8 ⌂ C ⌂ ⌂

5. Click “View” menu and select “Command palette” item in the toolbar.



6. Text “Nuvoton:Open PinView” in search bar to open PinView tool.



REVISION HISTORY

Date	Revision	Description
2025.11.06	1.01	1. Initial version.

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