

NuMicro® Family

VS Code

Quick Start Guide

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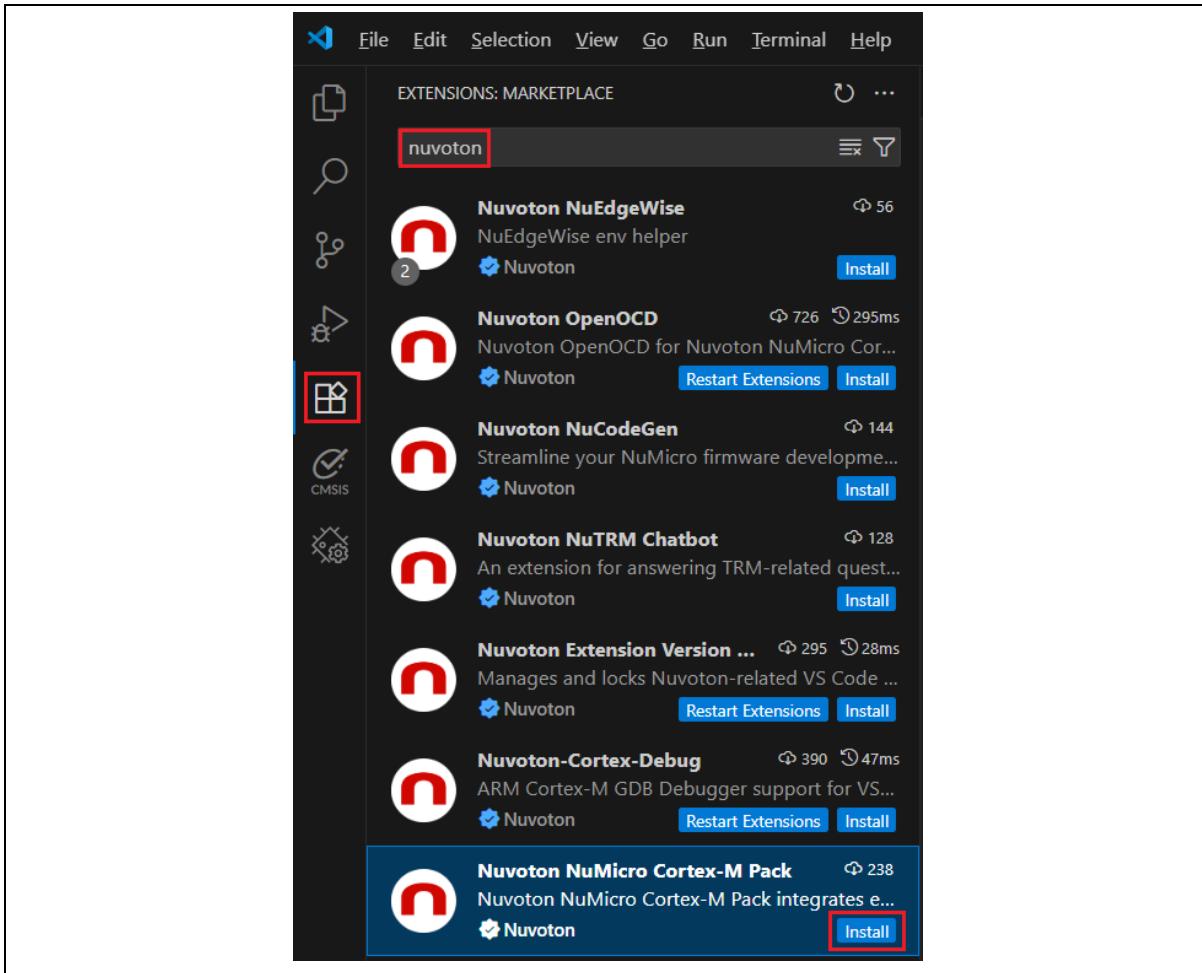
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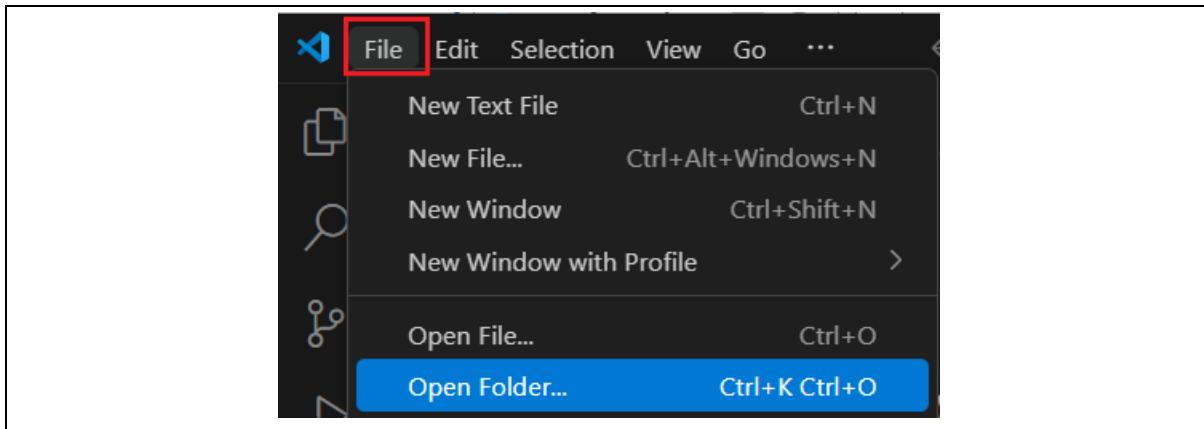
1 INSTALLATION VS CODE AND EXTENSIONS

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

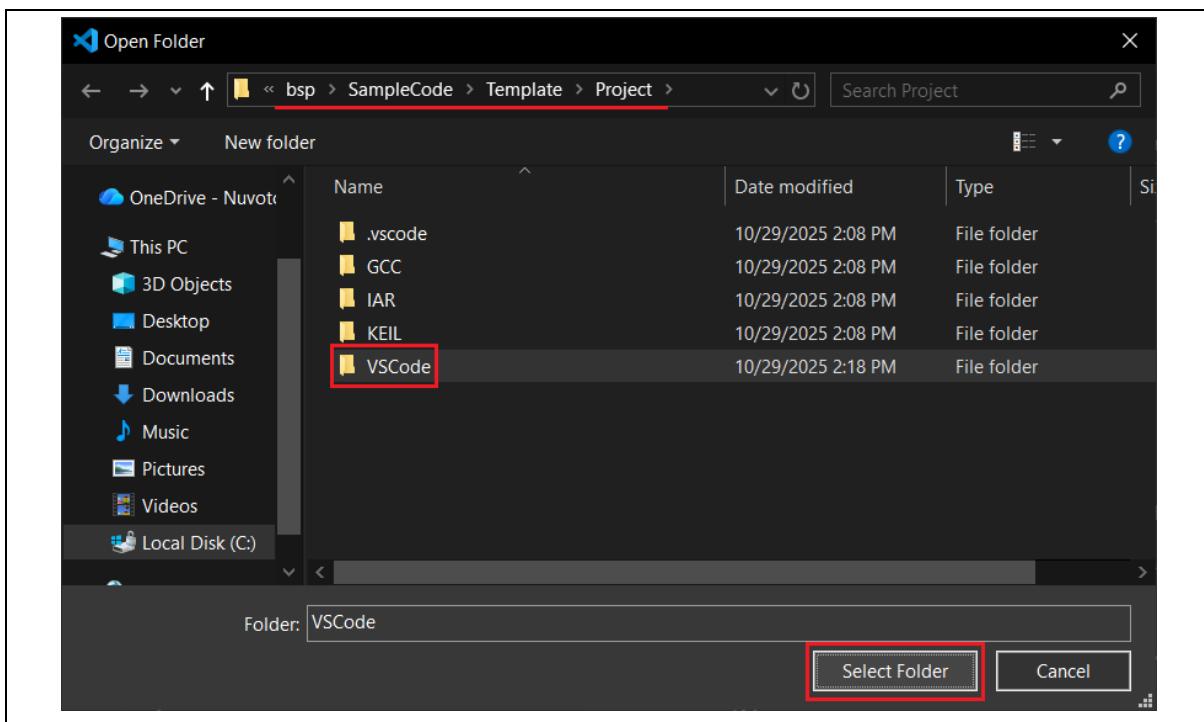


2 GET STARTED WITH A SAMPLE PROJECT

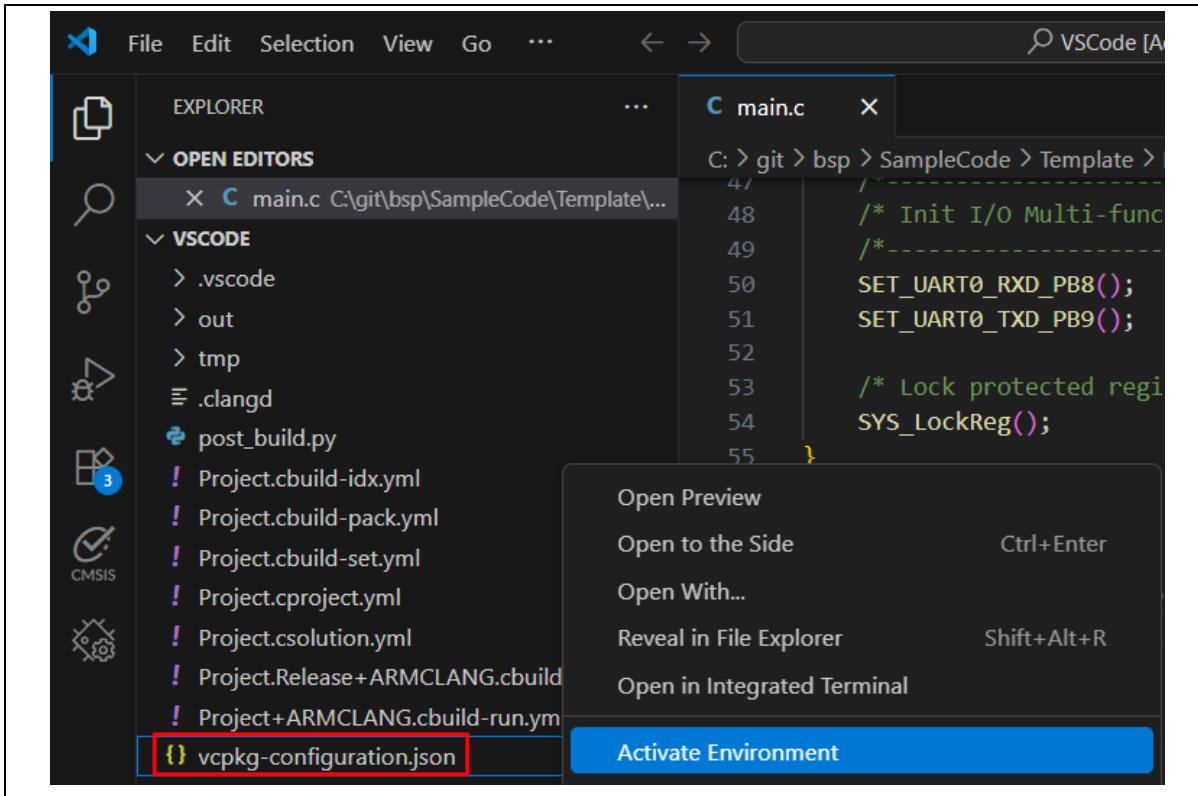
1. Click “File” menu and select “Open Folder” in the toolbar.



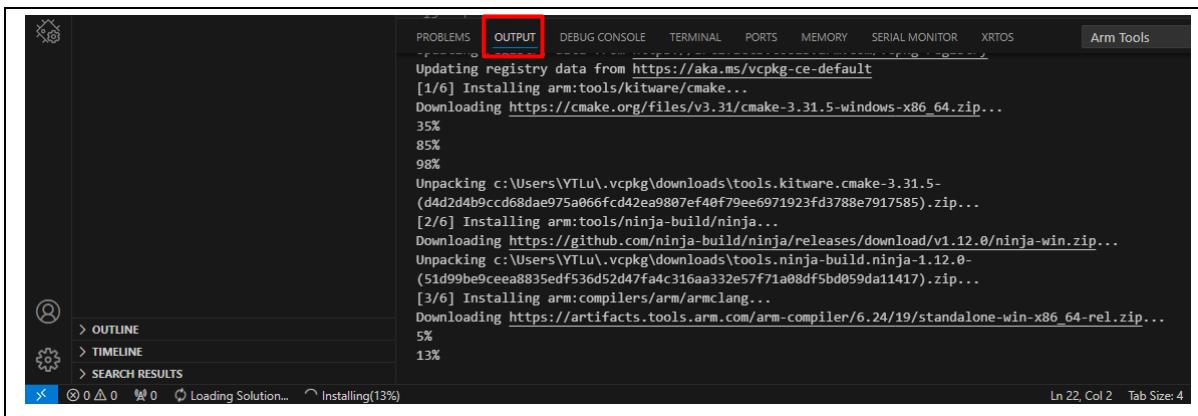
2. Select the "VSCode" folder of a sample project to open the project.



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

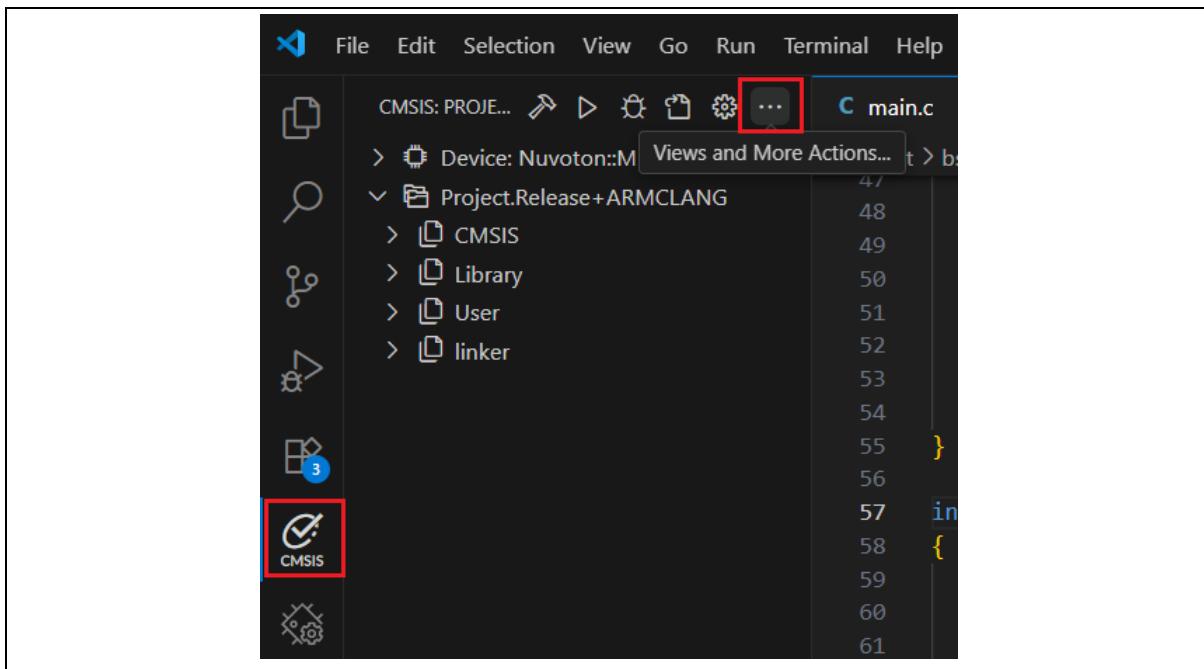


4. Check **OUTPUT** terminal at the bottom. It will download and install the requires tools.

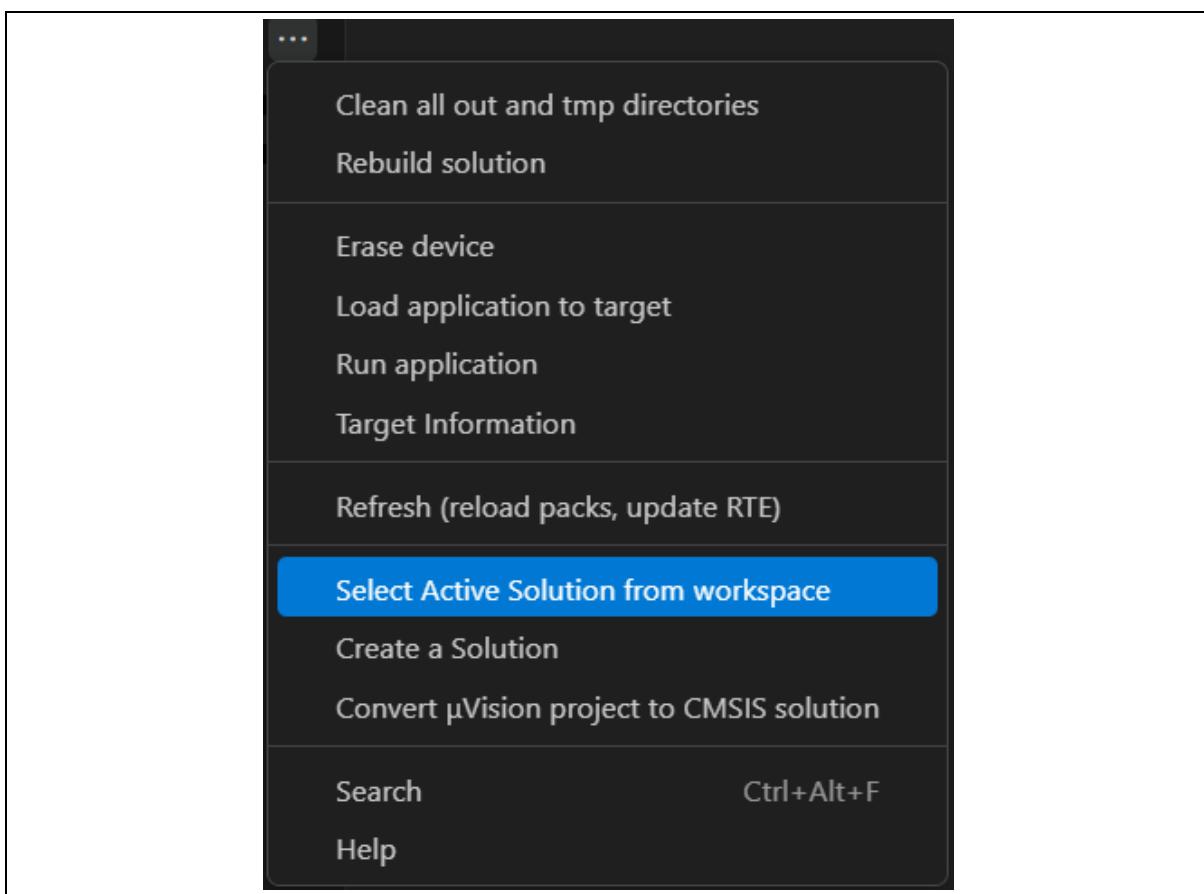


5. Click **CMSIS** icon in the Activity Bar.

Then click “Views and More Commands” button.

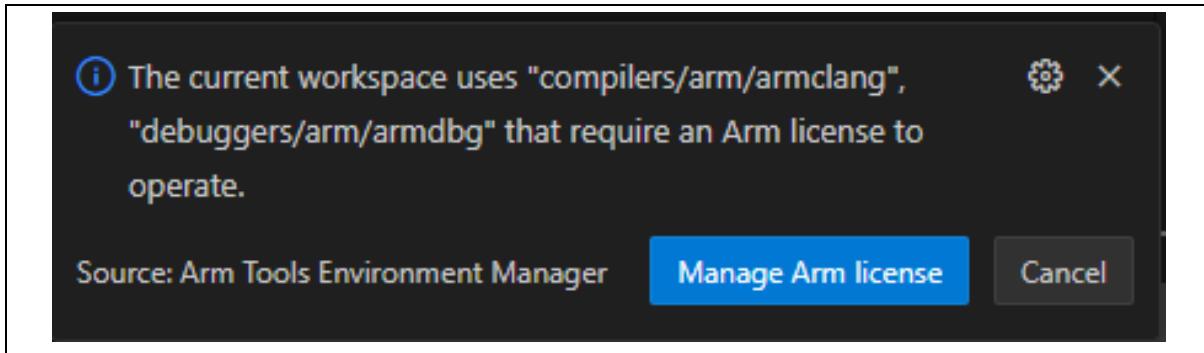


6. Select “Select Active solution from workspace” command.

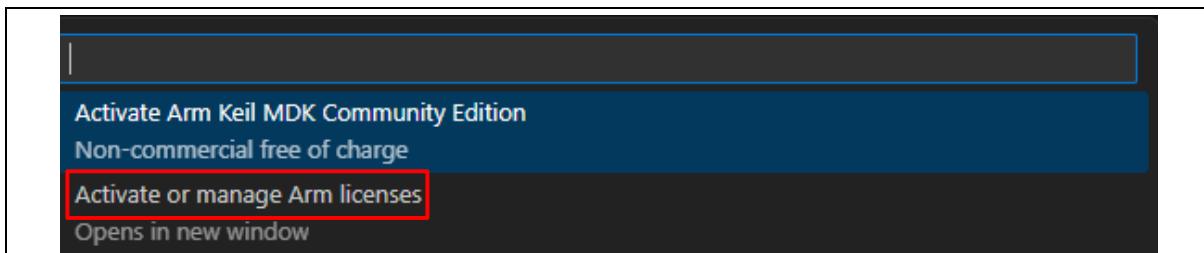


3 MANAGE ARM LICENSE

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](#).

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Products Applications Software and Tool Product Related Information AI Discovery

Home > Software and Tool > IDE and Nu-Link Driver > Keil MDK Nuvoton Edition – Full Cortex-M

Keil MDK Nuvoton Edition – Full Cortex-M

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

Overview 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.

NUVTON Privacy Policy

NUVTON Privacy Policy
Last modified July 01, 2023

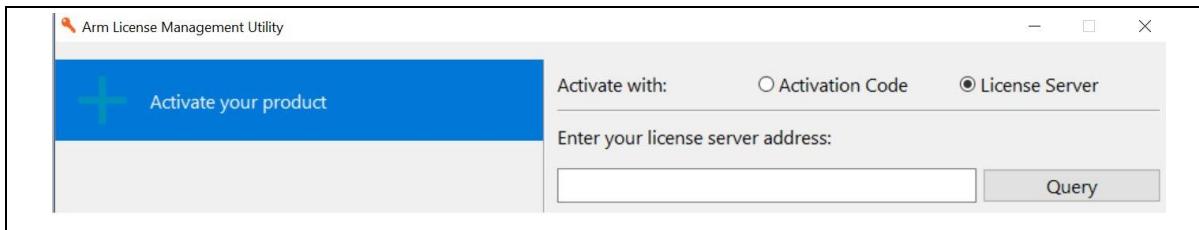
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I have read and I accept Nuvoton's Privacy Policy
 I accept and I accept Nuvoton's Privacy Policy
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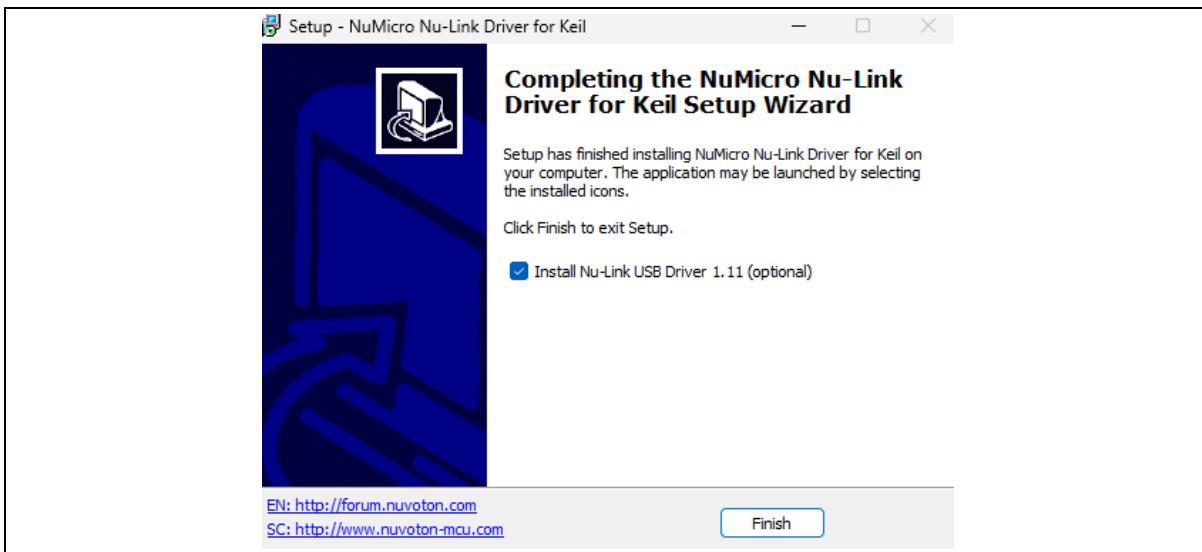
Let's Chat

3) Check mailbox and fill in the License Server.

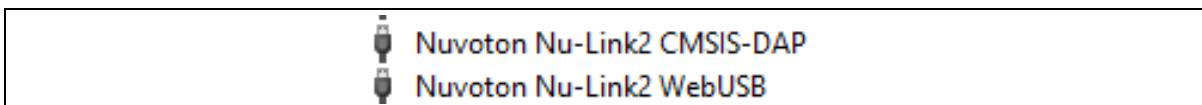


4 CONFIGURE THE DEVICE

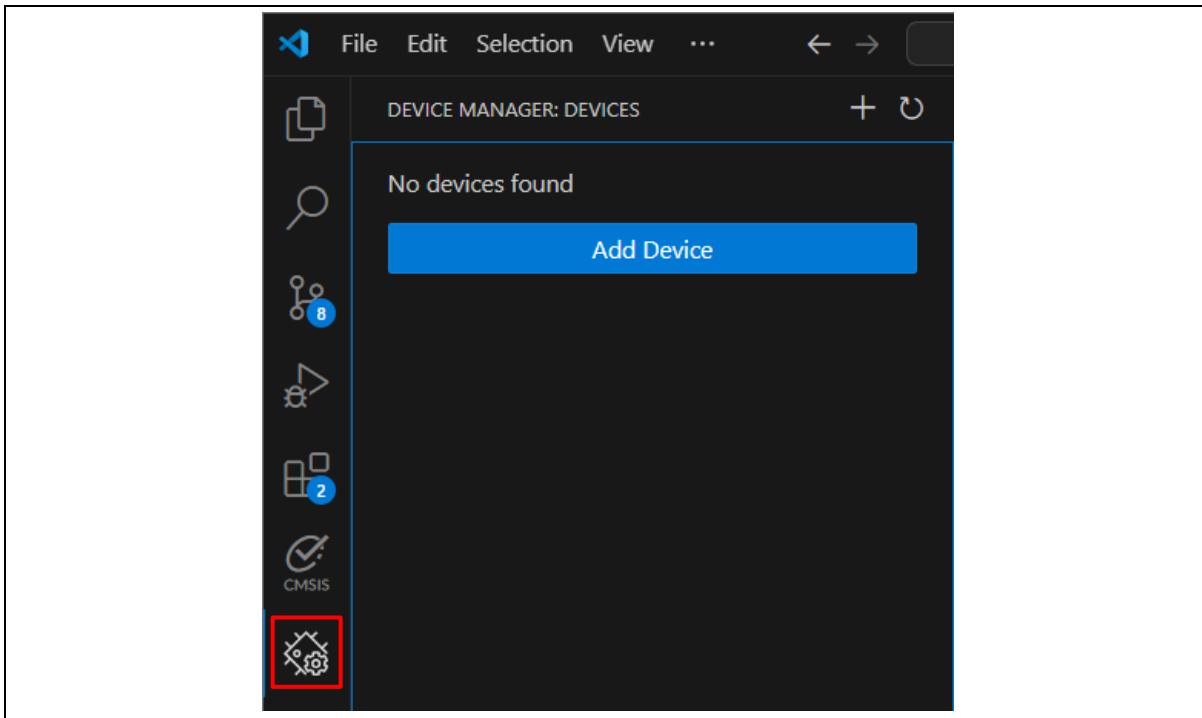
1. Install Nuvoton Nu-Link Keil Driver.
2. After installing the Keil driver, please check the box to install the Nu-Link USB Driver.



3. Installation complete in Windows Device Manager.



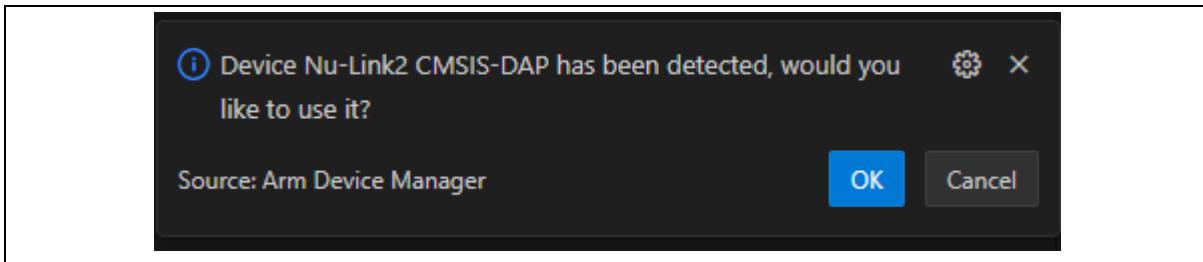
4. Click “Device Manager” icon in the Activity Bar to open the Device Manager.



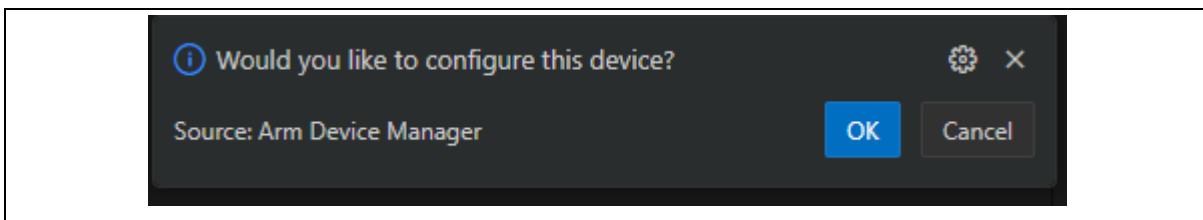
5. Connect device to your computer over USB.

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

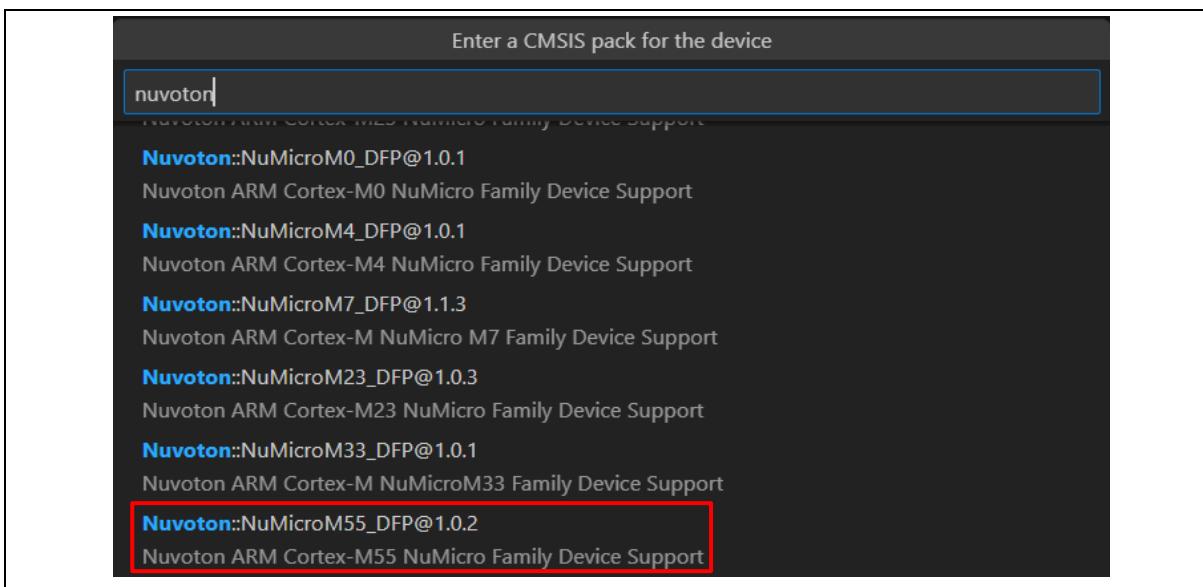
Press OK in the pop-up message and use it.



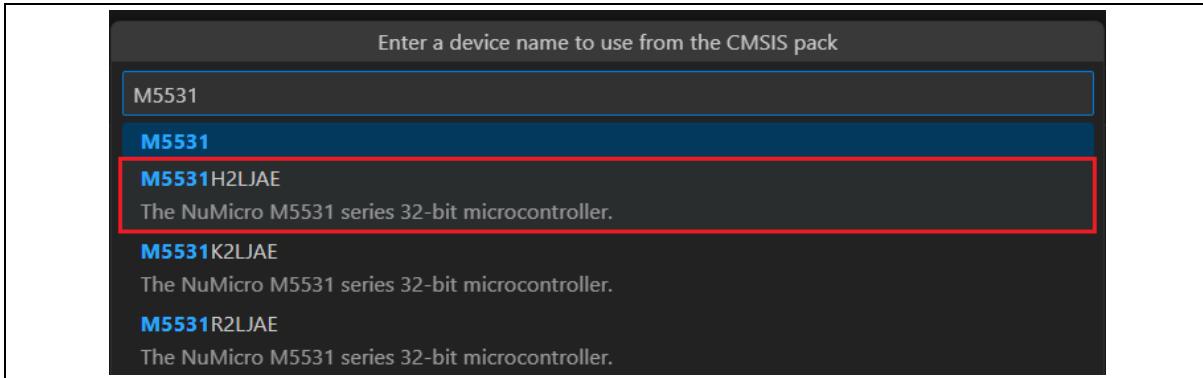
6. Press OK in the pop-up message and configure this device.



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

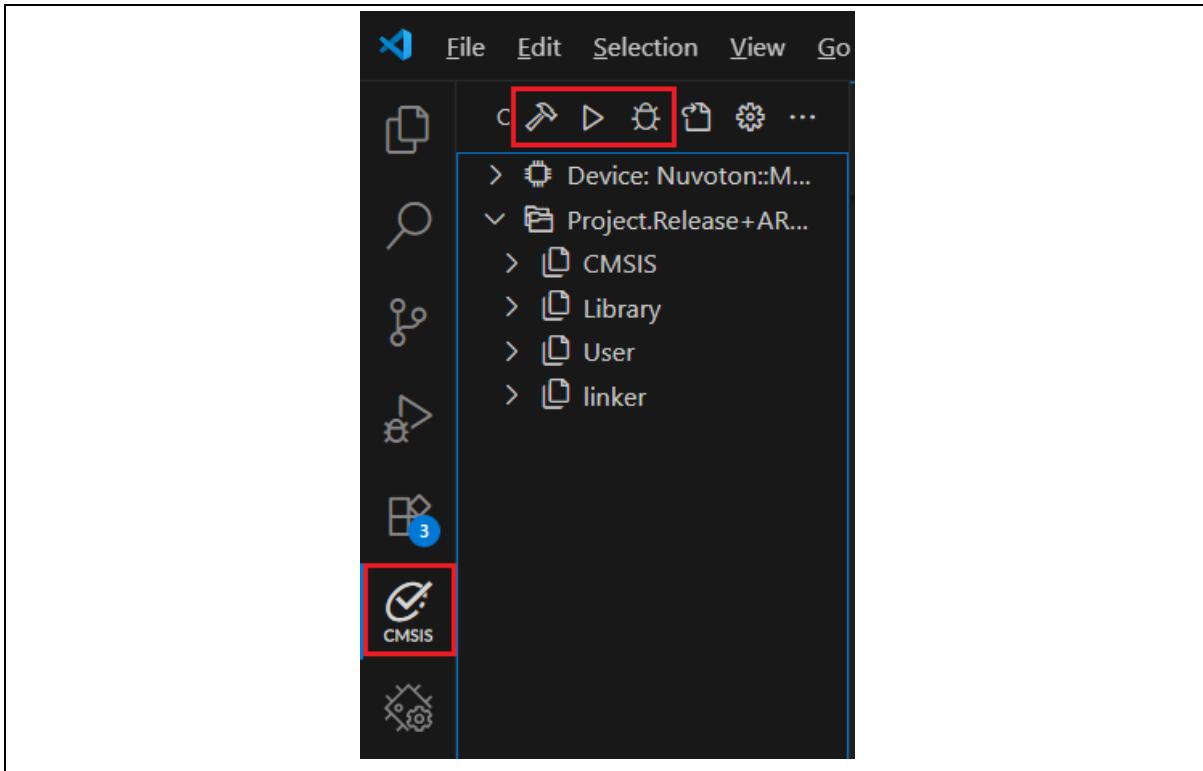


8. Text your “**device model number**” in search bar.



5 RUN THE SAMPLE PROJECT

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



2. Click “Build” button.

```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL MEMORY XRTOS SERIAL MONITOR
Build ✓ + ⌂ ⌂ ... | ⌂ ×

(1/1) Building context: "Project.Release+ARMCLANG"
Using AC6 V6.24.0 compiler, from: 'c:/users/klchiu0/.vcppkg/artifacts/2139c4c6/compilers.arm.armclang/6.24.0/bin/'
Building CMake target 'Project.Release+ARMCLANG'
[1/8] Building C object CMakeFiles/Group_Library.dir/c:/git/bsp/Library/StdDriver/src/sys.o
[2/8] Building C object CMakeFiles/Group_CMSIS.dir/c:/git/bsp/Library/Device/Nuvoton/M55M1/Source/startup_M55M1.o
[3/8] Building C object CMakeFiles/Group_User.dir/c:/git/bsp/SampleCode/Template/Project/main.o
[4/8] Building C object CMakeFiles/Group_Library.dir/c:/git/bsp/Library/StdDriver/src/retarget.o
[5/8] Building C object CMakeFiles/Group_CMSIS.dir/c:/git/bsp/Library/Device/Nuvoton/M55M1/Source/system_M55M1.o
[6/8] Building C object CMakeFiles/Group_Library.dir/c:/git/bsp/Library/StdDriver/src/uart.o
[7/8] Building C object CMakeFiles/Group_Library.dir/c:/git/bsp/Library/StdDriver/src/clk.o
[8/8] Linking C executable c:\git\bsp\SampleCode\Template\Project\VSCode\out\Project\ARMCLANG\Release\Project.axf
Program Size: Code=9220 RO-data=1064 RW-data=16 ZI-data=4104

Executing: Project.Release+ARMCLANG-HelloPython
Python 3.12.4

+-----+
Build summary: 1 succeeded, 0 failed - Time Elapsed: 00:00:09
+=====+
Completed: cbuild succeed with exit code 0
Build complete
* Terminal will be reused by tasks, press any key to close it.

```

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\ReLase\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.



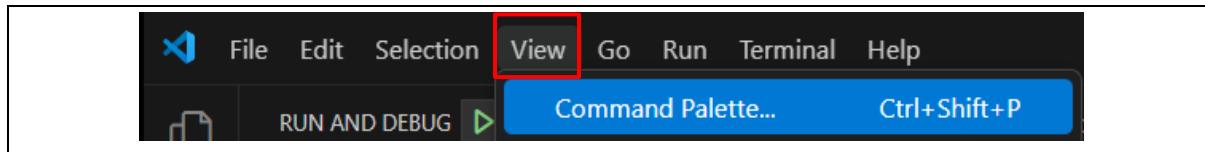
The debugger stops at the main function.

The screenshot shows the Visual Studio Code interface with the following details:

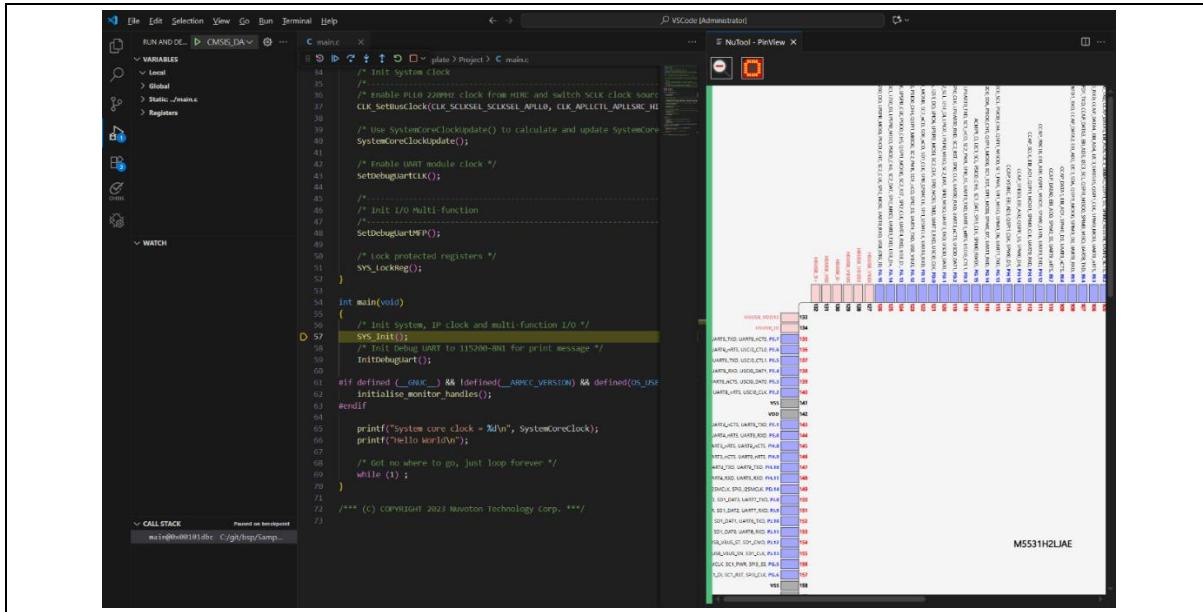
- File Explorer:** Shows a project structure under "SampleCode > Template > Project".
- Editor:** The main editor window displays the "main.c" file with code related to UART initialization and system clock printing.
- Breakpoints:** A yellow box highlights the line `SYS_Init();` at line 60, indicating it is the current breakpoint.
- Output:** The DEBUG CONSOLE tab shows the following output:

```
79     while (1) ;
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: 0x01000000 pc: 0x00101494 msp: 0x20020000
warning: could not convert 'main' from the host encoding (CP1252) to UTF-32.
This normally should not happen, please file a bug report.
```
- Call Stack:** The CALL STACK tab shows the stack pointer at `main@0x00101e18`.
- Bottom Status Bar:** Shows the file path as `C:/git/bsp/SampleCode/Template/Project/main.c:60`, along with other status information like ARMCLANG, Arm Tools: 6, and Hardware Success Kit (Early Access).

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
2025.10.29	1.00	1. Initial version.

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