

NuMicro® Family

VSCode

Quick Start Guide

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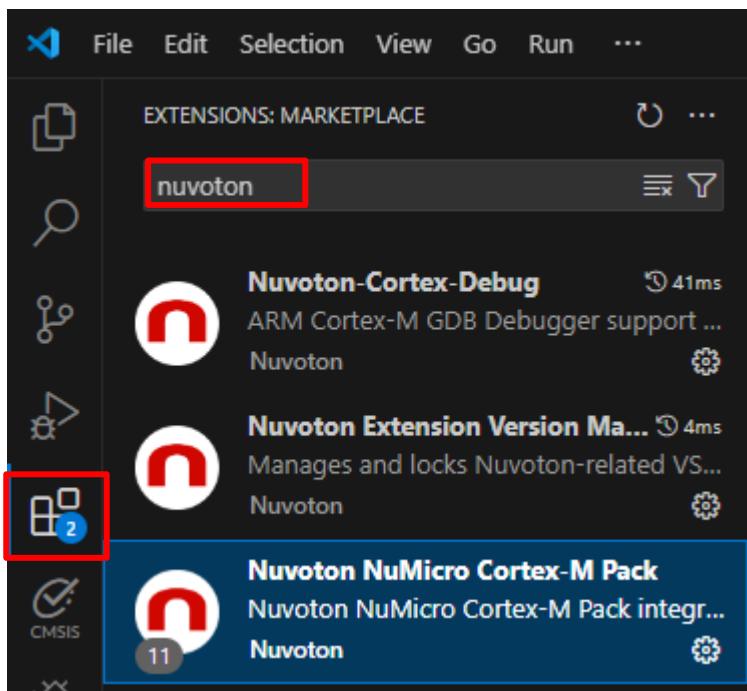
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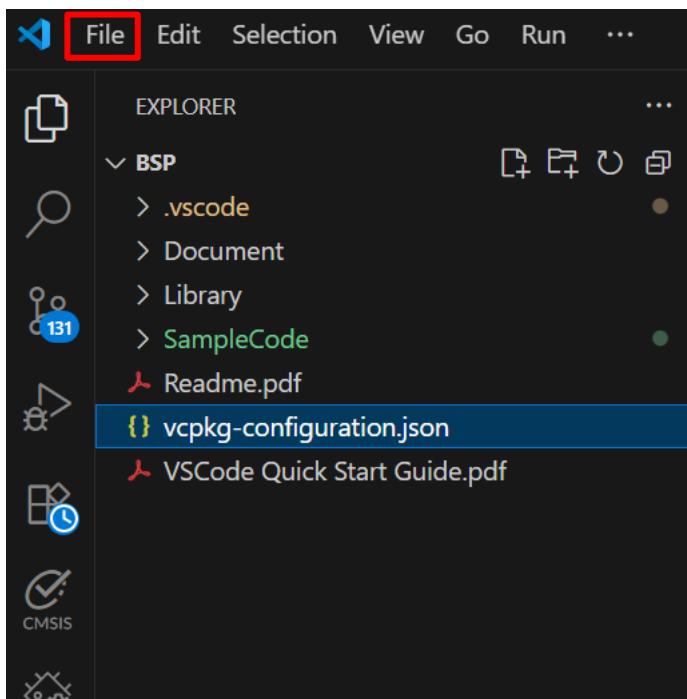
1 INSTALLATION VS CODE AND EXTENSIONS

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 install it.

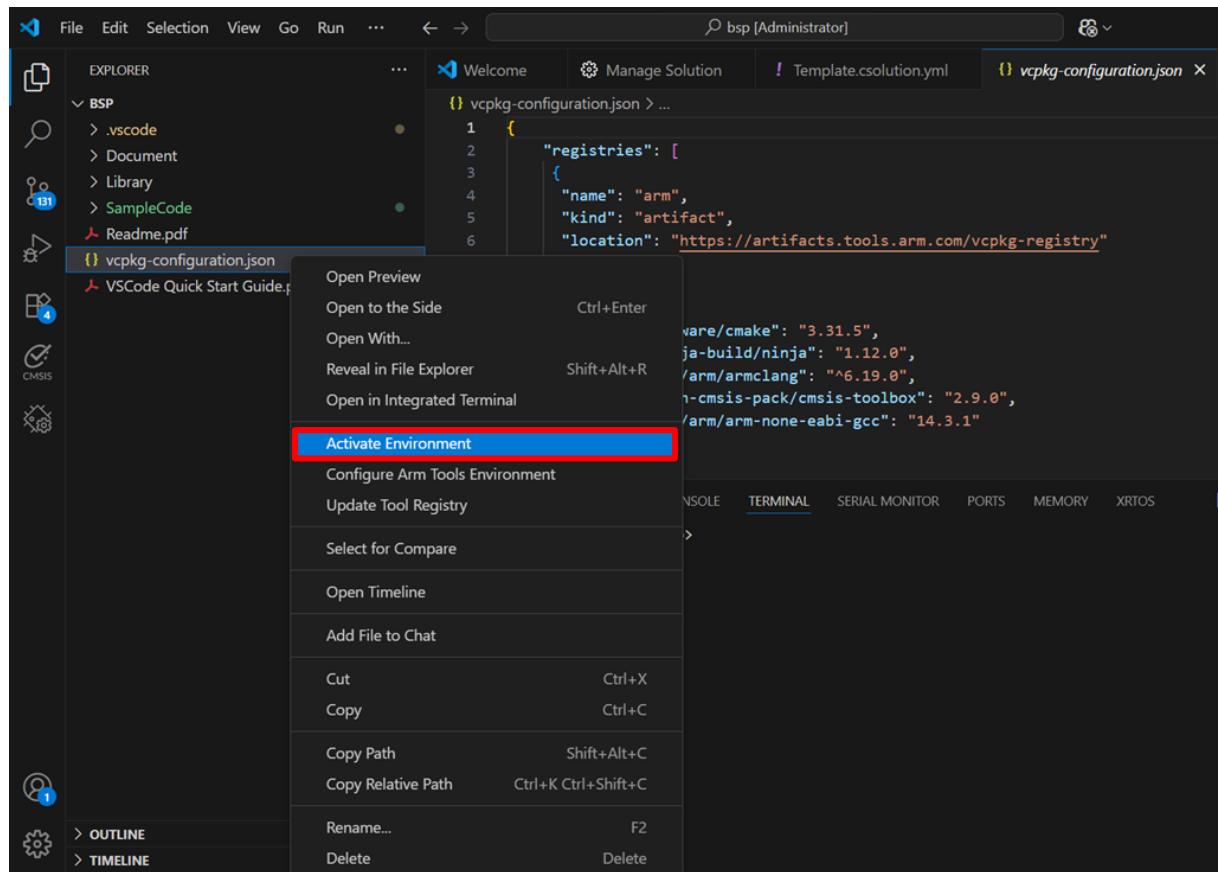


2 GET STARTED WITH AN EXAMPLE PROJECT

1. Click **File** and select "Open Folder" in the toolbar. Then select the path of the example project as below.



2. Right-click `vcpkg-configuration.json` and select **Activate Environment**. (Please use private network connection)



3. Check OUTPUT terminal at the bottom. It will download and install the required tools.

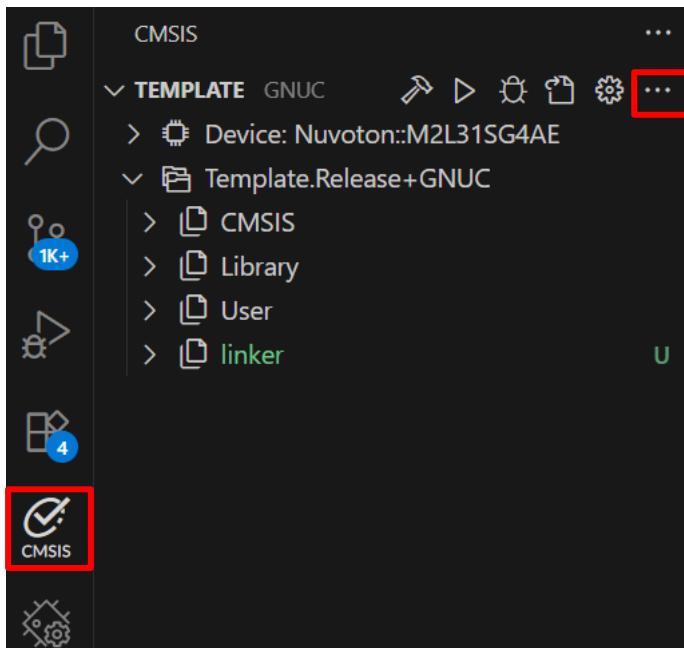
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS MEMORY SERIAL MONITOR XRTOS Arm Tools
Updating registry data from https://aka.ms/vcpkg-ce-default
[1/6] Installing arm:tools/kitware/cmake...
Downloading https://cmake.org/files/v3.31/cmake-3.31.5-windows-x86_64.zip...
35%
85%
98%
Unpacking c:/Users/VTLu/.vcpkg/downloads/tools.kitware.cmake-3.31.5-
(d4d2d4b9cc6d8da975a0e6fc42ea9807ef40f79ee6971923fd3788e7917585).zip...
[2/6] Installing arm:tools/ninja-build/ninja...
Downloading https://github.com/ninja-build/ninja/releases/download/v1.12.0/ninja-win.zip...
Unpacking c:/Users/VTLu/.vcpkg/downloads/tools.ninja-build.ninja-1.12.0-
(51d9b9e9ceea8835edf536d52d47fa4c316aa332e57f71a08df5bd059da11417).zip...
[3/6] Installing arm:compilers/arm/armclang...
Downloading https://artifacts.tools.arm.com/arm-compiler/6.24/19/standalone-win-x86_64-rel.zip...
5%
13%
Ln 22, Col 2 Tab Size: 4

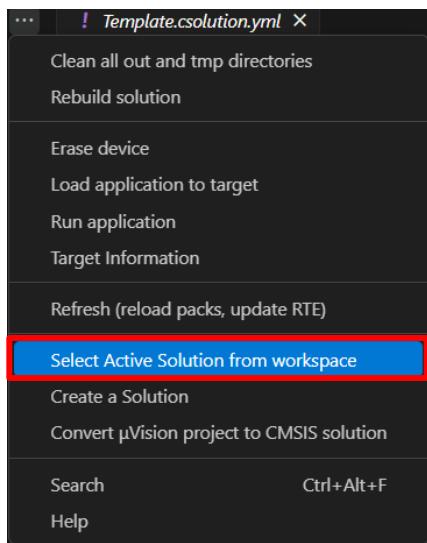
```

4. Click CMSIS in the Activity Bar.

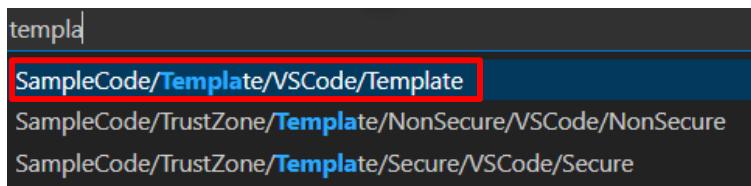
Then click “Views and More Actions” button.



5. Select Active solution from workspace.

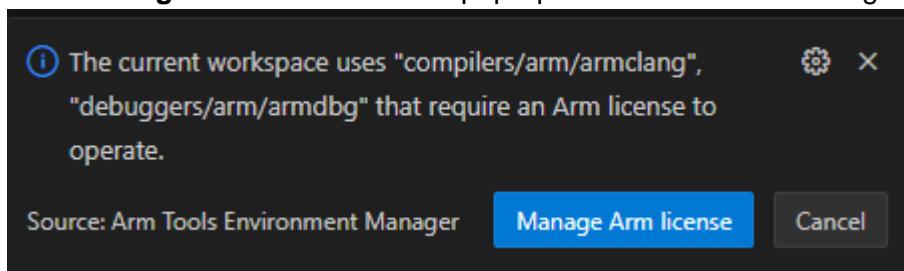


6. Select an example code to active it.

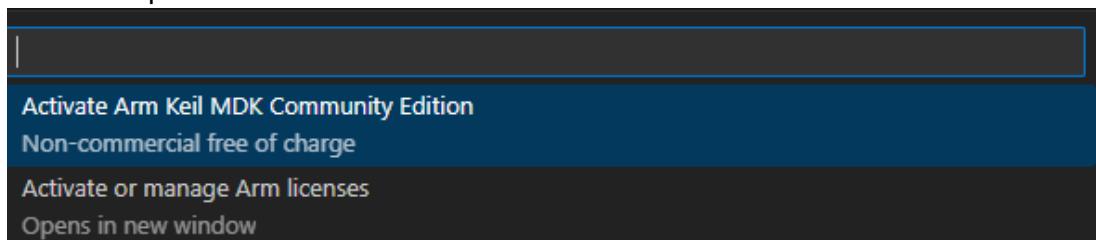


3 MANAGE ARM LICENSE

- Click Manage Arm License in the pop-up window at the bottom right.



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



- Get Keil MDK License ID code
 - Navigation to Official Website



- Fill Out the Form

Apply for Keil MDK Nuvoton Edition – Full Cortex-M

First Name*	Email *
Last Name*	Phone*
Company / Organization *	Industry
Job Title *	Application*
Region / Country or region *	Sector*
State / Province	Part No

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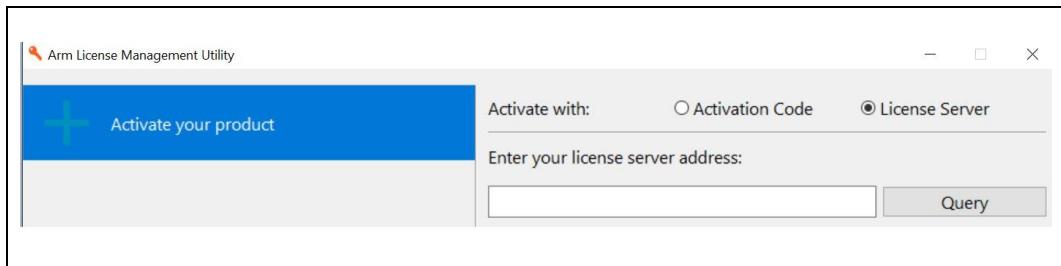
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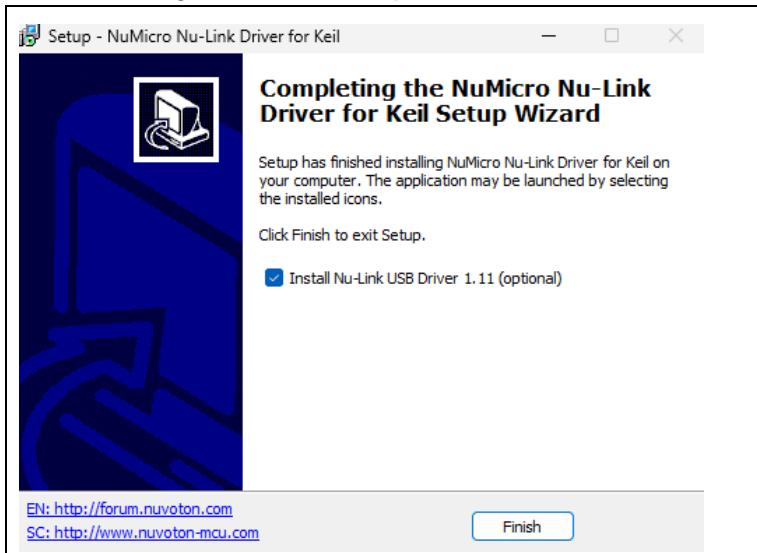
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c. Check Mailbox and Fill in the License Server

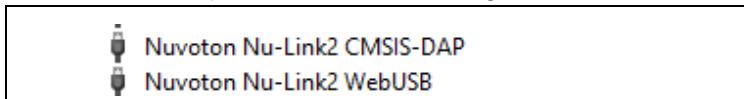


4 CONFIGURE THE DEVICE

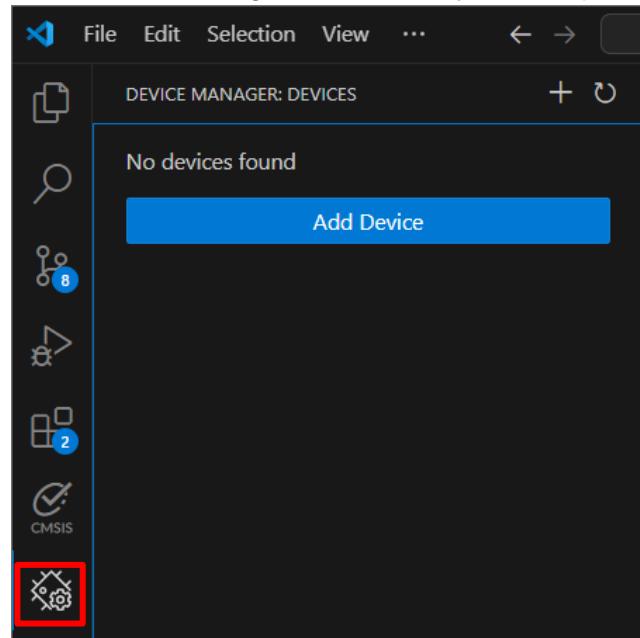
1. Install Nuvoton Nu-Link Keil Driver
2. After installing the Keil driver, please check the box to install the Nu-Link USB Driver.



3. Installation complete in Device Manager

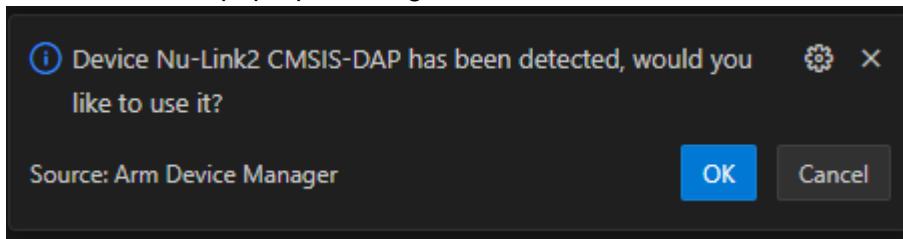


4. Click Device Manager in the Activity Bar to open the Device Manager.

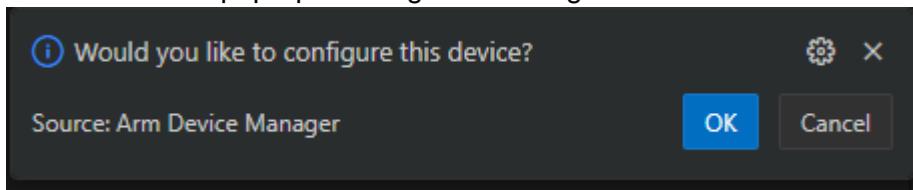


5. Connect device to your computer over USB.

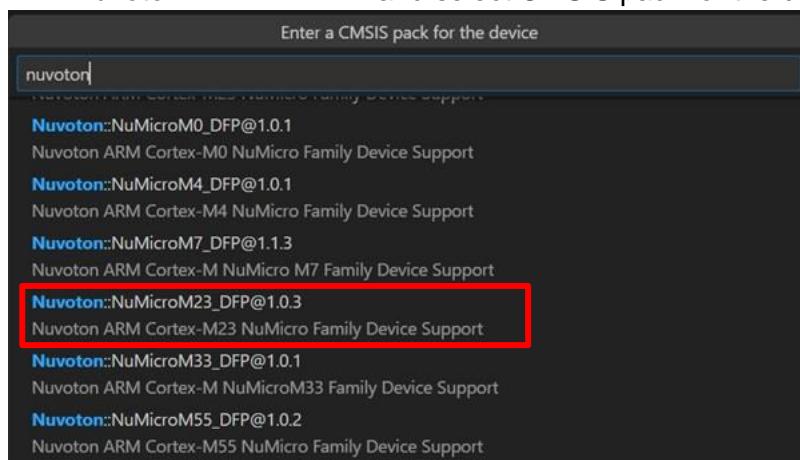
The Device Manager detects the board and displays a pop-up message. Press OK in the pop-up message and use it.



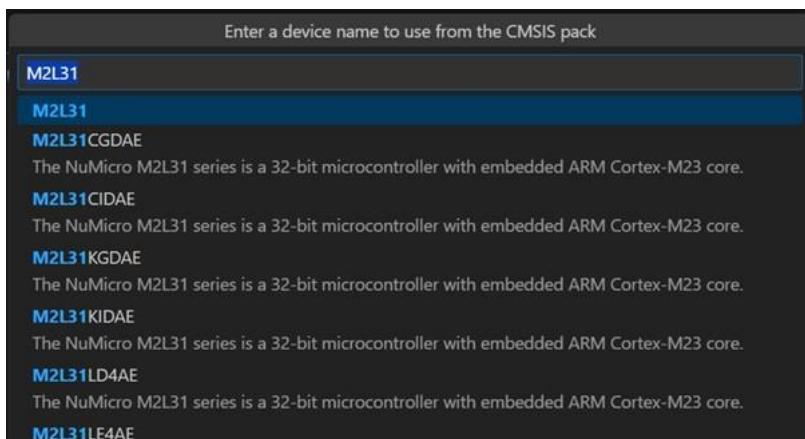
6. Press OK in the pop-up message and configure this device.



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

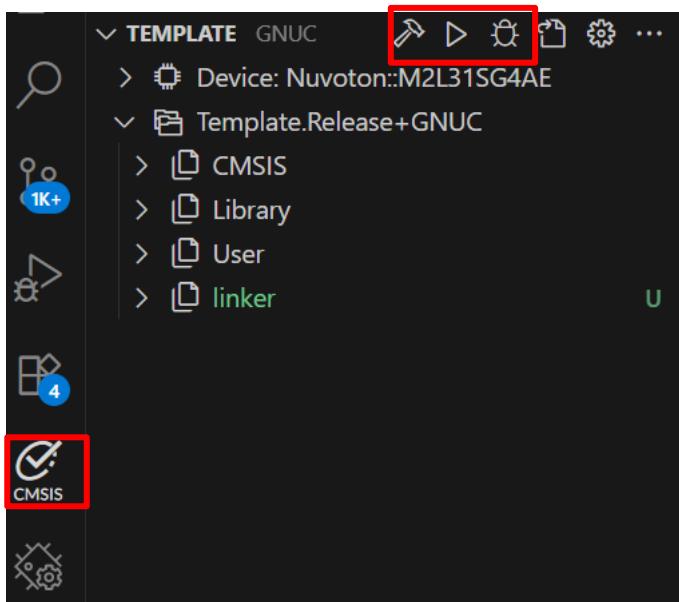


8. Text “device model number” in search bar.



5 RUN THE EXAMPLE PROJECT

1. Click CMSIS in the Activity Bar



2. Click Build

```
* Executing task: cmsis-csolution.build: Build

Execute: cbuild c:\SPCheng\Git\M2L31\bsp\SampleCode\Template\VSCode\Template.csolution.yml --context-set --packs
+-----
(1/1) Building context: "Template.Release+GNUC"
Using GCC V14.3.1 compiler, from: 'c:/Users/SPCheng0/.vcpkg/artifacts/2139c4c6/compilers.arm.arm.none.eabi.gcc/14.3.1/bin'
Building CMake target 'Template.Release+GNUC'
ninja: no work to do.
+-----
Build summary: 1 succeeded, 0 failed - Time Elapsed: 00:00:02
+=====
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

```
* Executing task: pyocd load --probe cmsisdap: --cbuild-run c:\SPCheng\Git\M2L31\bsp\SampleCode\Template\VSCode\Template+GNUC.cbuild-run.yml

0006633 I Loading C:\SPCheng\Git\M2L31\bsp\SampleCode\Template\VSCode\out\Template\GNUC\Release\Template.elf [load_cmd]
[=====] 100%
0007626 I Erased 8192 bytes (2 sectors), programmed 5504 bytes (43 pages), skipped 0 bytes (0 pages) at 5.50 kB/s [loader]
* Terminal will be reused by tasks, press any key to close it.
```

4. Click Load & Debug

The debugger stops at the main function.

The screenshot shows the VS Code interface with the following details:

- File Bar:** File, Edit, Selection, View, Go, Run, ...
- Run and Debug View:** CMSIS_DAP@... (highlighted)
- Left Sidebar:**
 - VARIABLES: Local, Global, Static: ./SampleCode/Template/main.c, Registers
 - WATCH
 - CALL STACK: Paused on breakpoint, main@0x000009d8 C:/SPCheng/Git/M2L...
 - BREAKPOINTS: XPERIPHERALS, CORTEX LIVE WATCH
- Code Editor:** SampleCode > Template > main.c > main


```

53 * This is a template project for M2L31 series MCU. Users could based on this project to create their
54 own application without worry about the IAR/Keil project settings.
55 *
56 * This template application uses external crystal as HCLK source and configures UART0 to print out
57 * "Hello World", users may need to do extra system configuration based on their system design.
58 */
59 int main()
60 {
61     SYS_Init();
62
63     /* Init UART to 115200-8n1 for print message */
64     UART_Open(uart:UART0, u32baudrate: 115200);
65
66     /* Connect UART to PC, and open a terminal tool to receive following message */
67     printf("Hello World\n");
68 }
```
- Output Panel:**

```

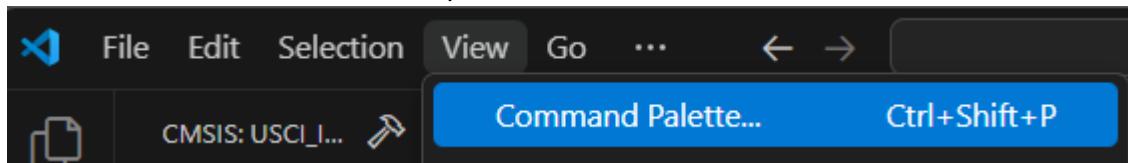
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL ...
Output radix now set to decimal 10, hex a, octal 12.
Input radix now set to decimal 10, hex a, octal 12.
main () at C:/SPCheng/Git/M2L31/bsp/SampleCode/Template/main.c:70
70         while (1);
Program stopped, probably due to a reset and/or halt issued by debugger
[cortex_m.cpu] halted due to debug-request, current mode: Thread
xPSR: 0xe1000000 pc: 0x000003a8 msp: 0x20000000
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:/SPCheng/Git/M2L31/bsp/SampleCode/Template/main.c:61
61     SYS_Init();
```

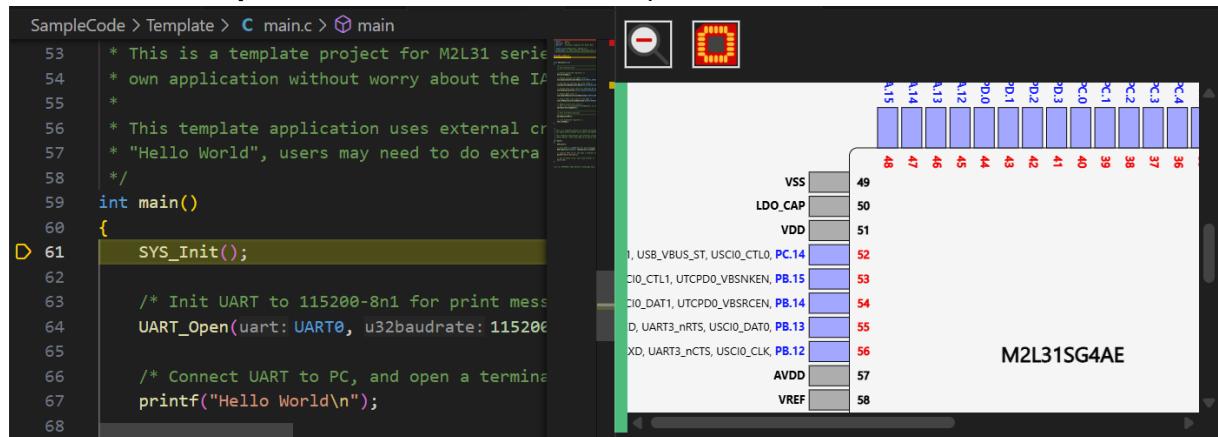
Debug session started: Launch mode
- Bottom Status Bar:** master* 01.11 CMSIS_DAP@pyOCD (launch) (bsp) clangd:idle GNUC Arm Tools 5 Hardware Success Kit (Early Access) Spaces: 4 UTF-8 CRLF Signed out

- Click View and select “Command palette” in the toolbar.



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

7. Text “Nuvoton:Open PinLCD” in search bar to open PinLCD tool.



REVISION HISTORY

Date	Revision	Description
2025.10.28	3.01	1. Initially version.

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