



Integrated development environment for STM32 products

The screenshot displays the STM32CubeIDE interface. The main window shows a C source file with the following code:

```

static void LED_Thread2(void const *argument)
{
    uint32_t count;
    (void) argument;
    for(;;)
    {
        count = osKernelSysTick() + 10000;
        /* Toggle LED every 500 us for 10 s */
        while (count >= osKernelSysTick())
        {
            BSP_LED_Toggle(LED4);
            osDelay(500);
        }
        /* turn off LED4 */
        BSP_LED_Off(LED4);
        /* Resume Thread 1 */
        osThreadResume(thread_id);
        /* Suspend Thread 2 */
        osThreadSuspend(thread_id);
    }
}

```

The Task Manager window shows the following table:

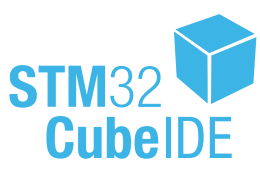
Task id	Name	Top of stack	Start of stack	Min free stack	Priority (Base/Actual)	Run-time	State	Event object
0x20000508	LED4	0x2000046c	0x20000300	>256B	3/3	N/A	DELAYED	
0x20000298	LED3	0x200001fc	0x20000090	>256B	3/3	N/A	DELAYED	
0x20000cb8	Tmr Svc	0x20000c34	0x200008b0	>256B	2/2	N/A	BLOCKED	0x20000804
0x20000778	IDLE	0x20000714	0x20000570	>256B	0/0	N/A	RUNNING	

The Eclipse logo is overlaid on the screenshot.

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Product status

STM32CubeIDE



Features

- Multi-OS support: Windows®, Linux®, and macOS®, 64-bit versions only
- Powerful C/C++ editor
- Support for GCC and Clang toolchains
- Support for ST-LINK (STMicroelectronics) and J-Link (SEGGER) debug probes
- Debug features
 - Breakpoints
 - CPU core registers
 - Memory view
 - Live data
 - SFR registers
 - RTOS debug
 - Fault analysis
- STM32CubeIDE and STM32CubeIDE for VS Code complete feature sets in ST Developer Zone

Description

STM32CubeIDE is a multi-OS, C/C++ integrated development environment for STM32 code development. It helps developers minimize the time and cost required to bring an STM32-based product to market.

STM32CubeIDE is an environment for editing, compiling, and debugging. Users often use it with other tools from the STM32Cube ecosystem such as the STM32CubeMX graphical configuration tool. It is also compatible with several vertical solution tools, including TouchGFXDesigner, STM32Cube AI Studio, and motor control workbench.

STM32CubeIDE is available in two variants, each based on a different IDE framework:

- STM32CubeIDE is based on Eclipse® and launched 2019. It appeals to developers who require a GUI-driven guided development experience focused on debugging. This IDE variant supports all STM32 MCUs and MPUs.
- STM32CubeIDE for VS Code is based on VS Code® and launched 2025. It appeals to developers who focus on best-in-class C/C++ code editing, Copilot integration, streamlined CI/CD workflows, extendibility, and flexibility. This IDE variant supports all STM32 MCUs.

Based on industry trends and end-user feedback, ST is currently focusing resources on the VS Code®-based IDE variant to make it the primary IDE platform.

For an up-to-date detailed presentation of features, developers must visit the STM32CubeIDE information pages on the [ST Developer Zone](#).

1 General information

STM32CubeIDE supports STM32 products based on the Arm® Cortex® processor.

The STM32CubeIDE variant is based on Eclipse® and the STM32CubeIDE for VS Code variant is based on Microsoft® VS Code®.



Note:

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Eclipse is a registered trademark of Eclipse Foundation, Inc.

Microsoft and VS Code are trademarks of the Microsoft group of companies.

1.1 Ordering and access information

The STM32CubeIDE variants are available for free download through the www.st.com/stm32cubeide website.

1.2 What is STM32Cube?

STM32Cube is an STMicroelectronics original initiative to improve designer productivity significantly by reducing development effort, time, and cost. STM32Cube covers the whole STM32 portfolio.

STM32Cube includes:

- A set of user-friendly software development tools to cover project development from conception to realization, among which are:
 - STM32CubeMX, a graphical software configuration tool that allows the automatic generation of C initialization code using graphical wizards
 - STM32CubeIDE, an Eclipse®-based IDE, providing code edition, compilation, programming, and debugging capabilities
 - STM32CubeCLT, an all-in-one command-line development toolset with code compilation, board programming, and debug features
 - STM32CubeIDE for Visual Studio Code (STM32VSCode), a complete IDE based on VS Code® platform
 - STM32CubeProgrammer (STM32CubeProg), a programming tool available in graphical and command-line versions
 - STM32CubeMonitor (STM32CubeMonitor, STM32CubeMonPwr, STM32CubeMonRF, STM32CubeMonUCPD), powerful monitoring tools to fine-tune the behavior and performance of STM32 applications in real time
 - STM32CubeWiSE (STM32CubeWiSEbe, STM32CubeWiSEce, STM32CubeWiSEcg, STM32CubeWiSEre, STM32CubeWiSE8e), graphical tools designed to evaluate and test the capabilities of RF radios and protocols (Bluetooth® LE, sub-GHz, IEEE 802.15.4)
- STM32Cube MCU and MPU Packages, comprehensive embedded-software platforms specific to each microcontroller and microprocessor series (such as STM32CubeF4 for the STM32F4 Series), which include:
 - STM32Cube hardware abstraction layer (HAL), ensuring maximized portability across the STM32 portfolio
 - STM32Cube low-layer APIs, ensuring the best performance and footprints with a high degree of user control over hardware
 - A consistent set of middleware components such as RTOS, USB, TCP/IP, graphics, and FAT file system
 - All embedded software utilities with full sets of peripheral and applicative examples
- STM32Cube Expansion Packages, which contain embedded software components that complement the functionalities of the STM32Cube MCU and MPU Packages with:
 - Middleware extensions and applicative layers
 - Examples running on some specific STMicroelectronics development boards

1.3 License

STM32CubeIDE is delivered under the *SOFTWARE PACKAGE LICENSE AGREEMENT* (“*AGREEMENT*”) (SLA0048).

For more details about the license agreement of each component, refer to the release notes.

Revision history

Table 1. Document revision history

Date	Revision	Changes
15-Apr-2019	1	Initial release.
11-Oct-2019	2	Updated <i>Multi-OS support</i> in <i>Features</i> . Reflected the support of STM32 microprocessors in <i>Features</i> and <i>Description</i> .
24-Jul-2020	3	Updated <i>Features</i> , <i>Description</i> and <i>What is STM32Cube?</i>
03-Nov-2020	4	Updated <i>Features</i> with FreeRTOS™-aware debug support.
01-Mar-2021	5	Updated <i>Features</i> with RTOS-aware support for Azure® RTOS ThreadX and the support for STM32MP1 Series microprocessors OpenSTLinux projects and Linux® User Space application. Updated the cover picture.
26-Nov-2021	6	Updated the cover picture.
04-Mar-2026	7	Updated to introduce both the Eclipse®-based STM32CubeIDE variant and the variant based on VS Code®, STM32CubeIDE for VS Code: <ul style="list-style-type: none"> • Updated the cover picture • Updated Features and Description • Updated Ordering and access information • Updated What is STM32Cube?

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