



Hitex Tech Tips

Integrated Development Environments

CubeMX integration with Keil MDK

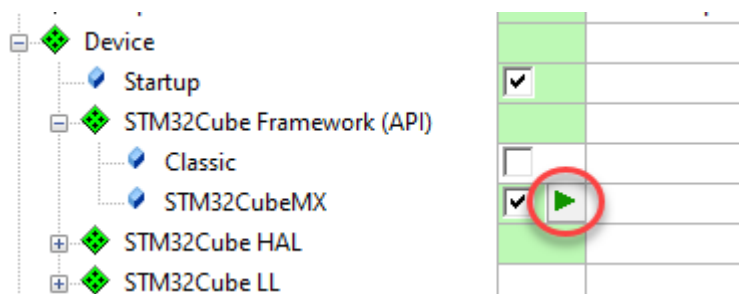
By Trevor Martin

Setting up the tools

At the start of a new project one of the first and most fundamental tasks is to configure the MCU peripherals and GPIO pins. This can be a complex and time-consuming process; however, many silicon vendors provide custom configuration tools that greatly simplify this process.

These tools are standalone solutions capable of generating projects for a range of popular Integrated Development Environments (IDEs). One of the most popular configuration utilities is the STM32 CubeMX from ST. At first glance, it would seem obvious that you start with the CubeMX to create an initial device configuration and then generate a μ Vision project. However, when used like this CubeMX does not use the Open-CMSIS-Pack and μ Vision Run Time environment (RTE) system. The device HAL files are added directly to the project as standard source files. While this works ok it leaves you with a project that is difficult to manage over the full project lifecycle. There is a better way...

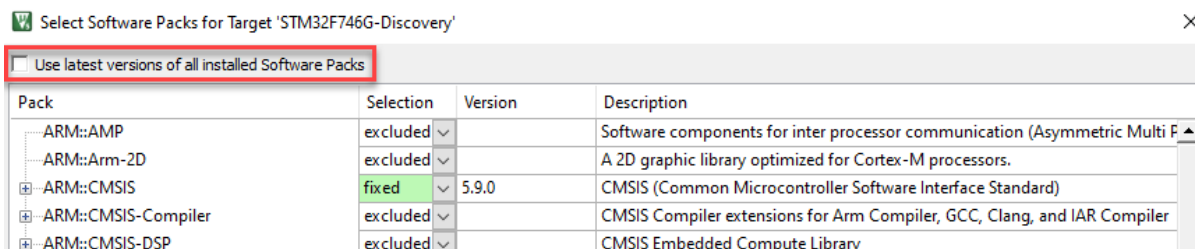
When starting a new design begin by creating a minimal project for the MCU you intend to use. Following this, you should open the RTE and, within the Device: STM32Cube framework, select the CubeMX option.



Now start the CubeMX from within μ Vision by pressing the green triangle next to the RTE tick box. This action launches CubeMX and establishes a link between the μ Vision project and the CubeMX project. Proceed to configure the MCU in CubeMX as usual.

Upon generating the Cube Keil IDE project, the ST HAL in the original μ Vision project will now be configured correctly in the RTE device tree. Additionally, the peripheral configuration code will be integrated into the project startup. This integration enables you to manage the project within the RTE and conveniently upgrade the HAL using the pack system. If you need to make any changes simply restart cubeMX from within the RTE.

If you are creating a production project an important final step is to open the 'Select Software Packs' menu and deselect the "Use latest version" option.



This action fixes the pack version for all components used in the project, ensuring stability and consistency. This step is particularly crucial when working within a team, as it helps maintain uniformity in component revisions across different development environments.

Further Information

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