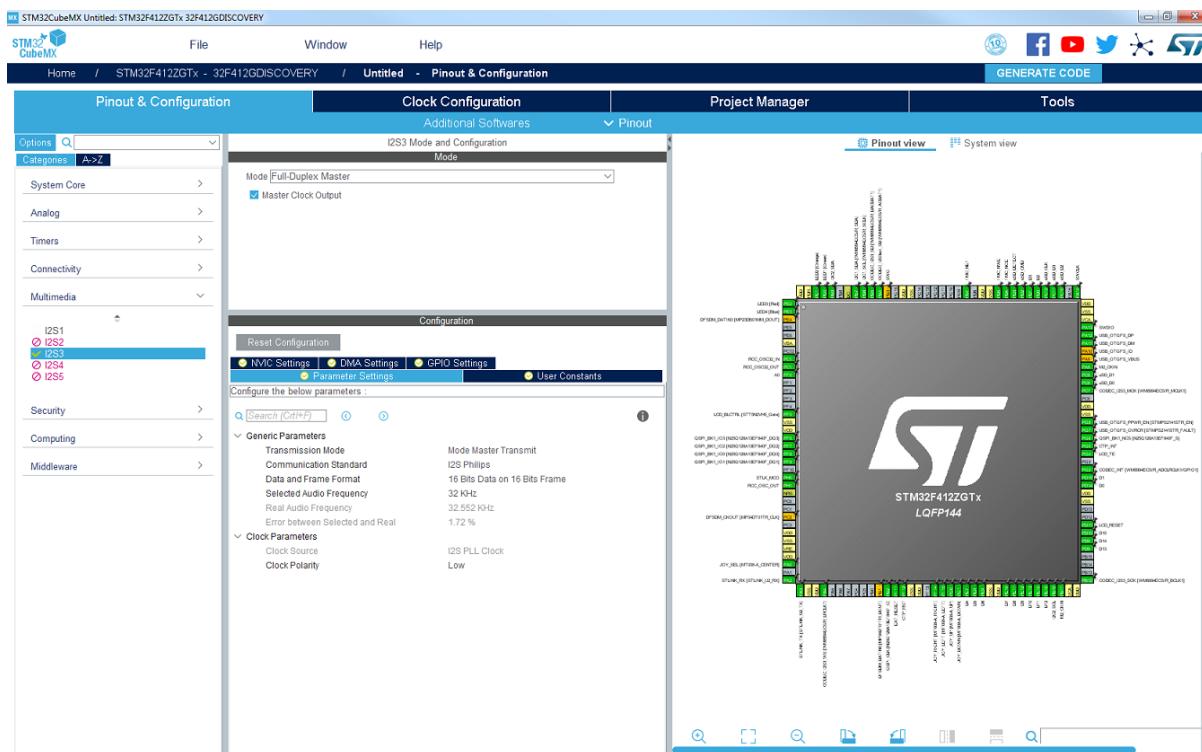


## STM32 configuration and initialization C code generation



### Product status link

[STM32CubeMX](#)


### Features

- Intuitive STM32 microcontroller selection
- Rich easy-to-use graphical user interface allowing to configure:
  - Pinout with automatic conflict resolution
  - Peripherals and middleware functional modes and initialization with dynamic validation of parameter constraints
  - Clock tree with dynamic validation of the configuration
  - Power sequence with estimate of consumption results
- C code project generation covering STM32 microcontroller initialization compliant with IAR™, Keil®, SW4STM32 and GCC compilers
- Available as a standalone software running on Windows®, Linux® and macOS® (macOS® is a trademark of Apple Inc. registered in the U.S. and other countries.) operating systems, or through Eclipse plug-in

## Description

STM32CubeMX is part of STMicroelectronics STM32Cube™ original initiative to make developers' lives easier by reducing development effort, time and cost. STM32Cube™ covers the whole STM32 portfolio.

STM32Cube™ includes [STM32CubeMX](#), a graphical software configuration tool that allows the generation of C initialization code using graphical wizards.

STM32Cube™ also embeds comprehensive STM32Cube™ MCU Packages, delivered per STM32 microcontroller Series (such as STM32CubeF4 for STM32F4 Series). All packages are composed of the hardware abstraction layer (HAL) and the low-layer (LL) APIs, plus a consistent set of middleware components (such as RTOS, USB, TCP/IP and graphics). All embedded software utilities are delivered with a full set of examples running on STMicroelectronics boards.

The STM32Cube™ HAL is an STM32 embedded software layer that ensures maximized portability across the STM32 portfolio, while the LL APIs make up a fast, light-weight, expert-oriented layer which is closer to the hardware than the HAL.

[STM32CubeMX](#) is a graphical tool that allows a very easy configuration of STM32 microcontrollers and the generation of the corresponding initialization C code through a step-by-step process.

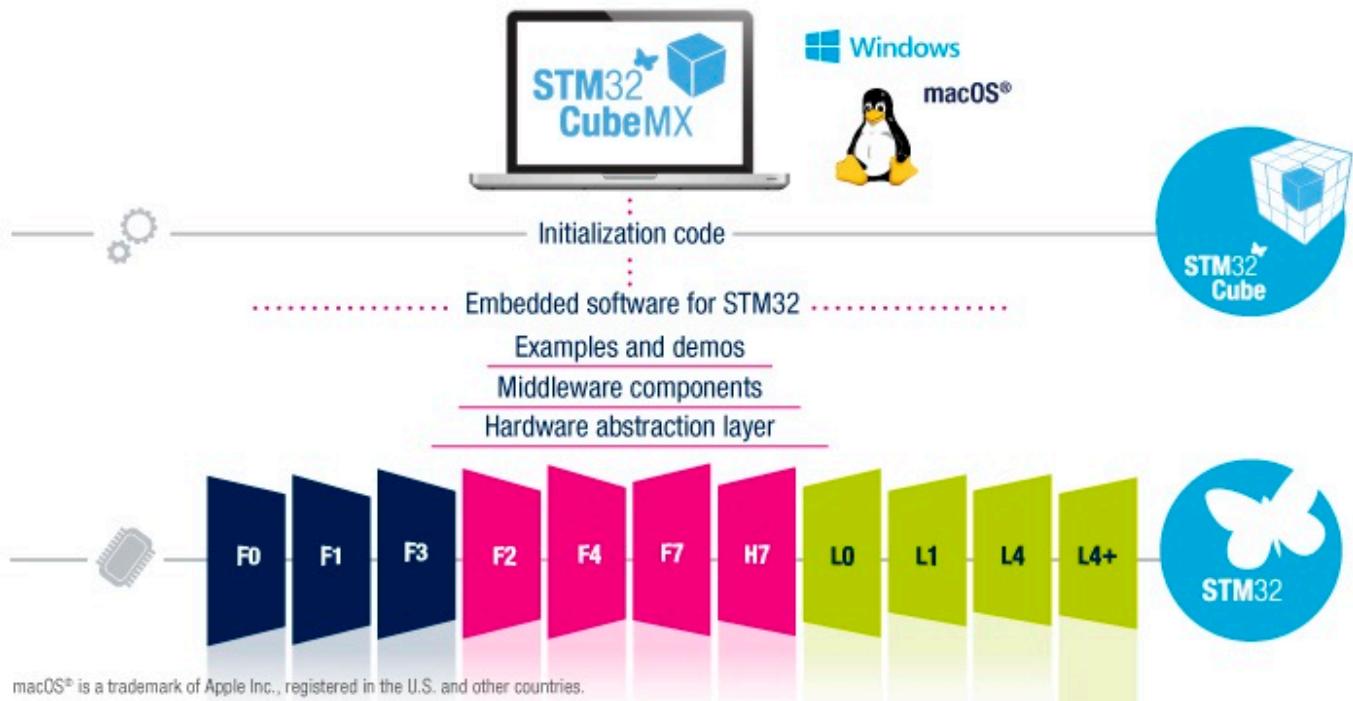
Step one consists in selecting the STMicroelectronics STM32 microcontroller that matches the required set of peripherals.

The user must then configure each required embedded software thanks to a pinout-conflict solver, a clock-tree setting helper, a power-consumption calculator, and an utility performing MCU peripheral configuration (GPIO, USART, ..) and middleware stacks (USB, TCP/IP, ...).

Finally, the user launches the generation of the initialization C code based on the selected configuration. This code is ready to be used within several development environments. The user code is kept at the next code generation.

In addition to [STM32CubeMX](#), other software development tools are available within STM32Cube™, such as STM32CubeProgrammer ([STM32CubeProg](#)) and STM32CubeMonitor-Power (<http://www.st.com/en/product/stm32cubemonpwr>).

Figure 1. NEW STM32CubeMX overview



## 1 Ordering Information

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STM32CubeMX is available for free download from <http://www.st.com/stm32cubemx>.

## 2 License

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STM32CubeMX is delivered under the Mix Ultimate Liberty+OSS+3rd-party V1 (SLA0048) software license agreement.

The STM32CubeMX embedded software package runs on STM32 microcontrollers, based on Arm® cores.

*Note:* *Arm is a registered trademark of Arm Limited (or its subsidiaries) in the US and/or elsewhere.*



## Revision history

**Table 1. Document revision history**

Date	Revision	Changes
14-Feb-2014	1	Initial release.
19-Jun-2014	2	Updated <a href="#">Section Description</a> and <a href="#">Figure 1. NEW STM32CubeMX overview</a> .
16-Jan-2015	3	STM32CubeMX extended to all STM32 series.
08-Feb-2016	4	Added Windows® and Linux® operating systems in <a href="#">Section Features</a> . Removed mention of MicroXplorer tool in <a href="#">Section Description</a> . Updated <a href="#">Figure 1. NEW STM32CubeMX overview</a> .
29-Apr-2016	5	Added OS X operating system.
28-Jun-2017	6	Add low-layer APIs. Replace OS X by macOS operating system. Updated <a href="#">Figure 1. NEW STM32CubeMX overview</a>
04-Jul-2017	7	The footnote on cover page related to macOS has been embedded in the list of features.
14-Nov-2017	8	Updated <a href="#">Section Description</a> and <a href="#">Figure 1. NEW STM32CubeMX overview</a>
03-Jul-2018	9	Updated <a href="#">Section Description</a> Added <a href="#">Section 2 License</a>
20-Nov-2018	10	Added STM32CubeMX logo on cover page. Updated <a href="#">Section Features</a> and <a href="#">Section Description</a> . Updated STM32CubeMX GUI on cover page and <a href="#">Figure 1. NEW STM32CubeMX overview</a> . Updated web page url in <a href="#">Section 1 Ordering Information</a> .

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