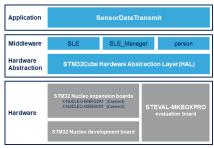


Bluetooth® Low Energy manager software expansion for STM32Cube





| Product summary | | |
|---|----------------------|--|
| Bluetooth® Low Energy manager software expansion for STM32Cube | X-CUBE- BLEMGR | |
| X-NUCLEO- WB05KN1 expansion board for STM32 Nucleo based on STM32WB05KN | X-NUCLEO- WB05KN1 | |
| Ultra-low-power, Arm Cortex-M0+ MCU 64 MHz with 256 Kbytes of Flash memory, 64 Kbytes of RAM, Bluetooth LE 5.4 | STM32WB07KC | |
| Ultra-low-power, Arm Cortex-M0+ MCU 64 MHz with 256 Kbytes of Flash memory, 32 Kbytes of RAM, Bluetooth LE 5.4 | STM32WB06KC | |
| Ultra-low-power, 2.4 GHz network processor, Bluetooth LE 5.4 certified | STM32WB05KN | |
| Bluetooth® Low Energy expansion board based on the BlueNRG-M2SP module for STM32 Nucleo | X-NUCLEO- BNRG2A1 | |
| STM32 Nucleo-144 development board with STM32U575ZIT6Q | NUCLEO- U575ZI-Q | |

Features

- Sample implementation of a Bluetooth® Low Energy connection to the STBLESensor mobile application
- STM32_BLE_Manager library to manage the Bluetooth® Low Energy service according to the Bluetooth® Low Energy middleware APIs
- Sample applications that the developer can use to start experimenting with the code
- References to free Android and iOS apps that can be used with the sample applications
- Sample implementations available for:
 - X-NUCLEO-BNRG2A1 connected to a NUCLEO-L476RG or NUCLEO-U575ZI-Q board
 - X-NUCLEO-WB05KN1 connected to a NUCLEO-U575ZI-Q board
 - STEVAL-MKBOXPRO evaluation boards
- Compatible with STM32CubeMX, can be downloaded from and installed directly into STM32CubeMX
- Easy portability across different MCU families, thanks to STM32Cube
- · Free, user-friendly license terms

Description

The X-CUBE-BLEMGR is an expansion software package for STM32Cube for the Bluetooth® Low Energy manager and runs on the STM32.

This expansion software includes the STM32_BLE_Manager library, which provides APIs to manage the Bluetooth® Low Energy service according to the BlueNRG-MS, BlueNRG-1, BlueNRG-2, BlueNRG-LP, STM32WB07_06 and STM32WB05N middleware APIs.

The software is available also on GitHub, where the users can signal bugs and propose new ideas through [Issues] and [Pull Requests] tabs.



| Product summary | | |
|--|---------------------------|--|
| SensorTile.box PRO with multi-sensors and wireless connectivity for any intelligent IoT node | STEVAL- MKBOXPRO | |
| Bluetooth® Low Energy wireless system-on-chip | BlueNRG-2 | |
| STM32 Nucleo-64 development board with STM32L476RG MCU, supports Arduino and ST morpho connectivity | NUCLEO- L476RG | |
| Programmable Bluetooth Low Energy 5.3 Wireless SoC | BlueNRG-LP | |
| Applications | Connectivity | |
| | Mobility services | |
| | Sensing | |
| | Smart farming | |
| | Gaming and XR accessories | |

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1 Detailed description

1.1 What is STM32Cube?

STM32Cube is a combination of a full set of PC software tools and embedded software blocks running on STM32 microcontrollers and microprocessors:

- STM32CubeMX configuration tool for any STM32 device; it generates initialization C code for Cortex-M cores and the Linux device tree source for Cortex-A cores
- STM32CubeIDE integrated development environment based on open-source solutions like Eclipse or the GNU C/C++ toolchain, including compilation reporting features and advanced debug features
- STM32CubeProgrammer programming tool that provides an easy-to-use and efficient environment for reading, writing and verifying devices and external memories via a wide variety of available communication media (JTAG, SWD, UART, USB DFU, I2C, SPI, CAN, etc.)
- STM32CubeMonitor family of tools (STM32CubeMonRF, STM32CubeMonUCPD, STM32CubeMonPwr) to help developers customize their applications in real-time
- STM32Cube MCU and MPU packages specific to each STM32 series with drivers (HAL, low-layer, etc.), middleware, and lots of example code used in a wide variety of real-world use cases
- STM32Cube expansion packages for application-oriented solutions.

1.2 How does this software complement STM32Cube?

This software is based on the STM32CubeHAL hardware abstraction layer for the STM32 microcontroller.

The package extends STM32Cube by providing a board support package (BSP) for the BlueNRG-2 network processor (embedded in the BlueNRG-M2SP module) and middleware components for communication with other Bluetooth LE devices and to help the users to manage the Bluetooth connectivity, for example with mobile application such as STBLESensor.

The package includes a sample applications and is compatible with STM32CubeMX. It can be downloaded from and installed directly into STM32CubeMX, as detailed in UM1718 (freely available on www.st.com).

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Revision history

Table 1. Document revision history

| Date | Revision | Changes |
|-------------|----------|---|
| 04-Jul-2022 | 1 | Initial release. |
| 02-Mar-2023 | 2 | Added reference to GitHub. |
| 06-Jun-2023 | 3 | Updated Features. Added STM32CubeMX compatibility. |
| 07-Nov-2023 | 4 | Updated Product summary. Added BlueNRG-LP. |
| 12-Nov-2024 | 5 | Updated Cover image, Features and Product summary. Added references to NUCLEO-U575ZI-Q and STEVAL-MKBOXPRO. |
| 09-May-2025 | 6 | Updated cover image. Added X-NUCLEO-WB05KN1, STM32WB07KC, STM32WB06KC and STM32WB05KN in Product summary. |

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