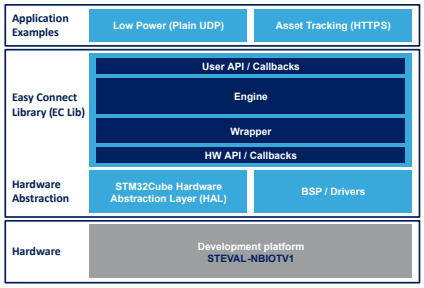
STSW-NBIOTV1

Data brief

Application examples for STEVAL-NBIOTV1 with ST87M01 NB-IoT and GNSS module



Product summary	
Application examples for STEVAL-NBIOTV1 with ST87M01 NB-IoT and GNSS module	STSW-NBIOTV1
Ultra-compact, low-power NB-IoT industrial module series with optional GNSS	ST87M01-1301
Ultra-low-power with FPU Arm Cortex-M33 MCU with TrustZone, 160 MHz with 2 Mbytes of Flash memory	STM32U585RIT6
Integrated Development Environment for STM32	STM32CubeIDE
Software for ST87Mxx evaluation tool	STSW-ST87ECLIB
Applications	Asset tracking/ Metering

Features

- Example list:
  - UDP low power: very low-power implementation for UDP protocol
  - Asset tracking: application example with sensors data, GNSS, and HTTPS communication
- Firmware examples run on STM32U585RI
- Based on STM32 HAL and FreeRTOS
- Onboard sensors for data acquisition
- Based on the ST87Mxx easy connect library:
  - Simplified access to ST87Mxx NB-IoT and GNSS
  - Pre coded sequences of operation to simplify usage
  - RTOS agnostic can be used with or without an operating system
  - Hardware-agnostic interface with no hardware dependency
  - Static configurations in header files to reduce parameters

Description

The STSW-NBIOTV1 software package includes application examples for the STEVAL-NBIOTV1, designed to demonstrate and simplify the integration of the ST87M01 NB-IoT and GNSS module using the ST87Mxx easy connect library.

Basic examples are available in STSW-ST87M01APP, while this package focuses on more practical examples that simulate real-world use cases.

The first example highlights a scenario where the UDP protocol is used to transmit and receive data, with an implementation optimized specifically for low-power consumption.

The second example simulates a complete asset tracking application, where data from onboard sensors is collected and transmitted over the internet to an online dashboard via HTTPS. This example can be configured to activate the GNSS module while the NB-IoT radio is in sleep mode, allowing position data to be retrieved and sent later to the dashboard.

The STEVAL-NBIOTV1 is a compact, battery-powered evaluation platform and reference design tailored for asset tracking, smart city applications, and metering.

The STEVAL-NBIOTV1 integrates multiple key elements: the ST87M01 ultracompact, low-power NB-IoT industrial module featuring additional ADC, GNSS, and Wi-Fi positioning capabilities; the STM32U585RI microcontroller; onboard sensors; and extra memory via a 32 Mbit serial SPI page EEPROM.

The easy connect library (EC_Lib) is a comprehensive C-based software library designed to enable seamless interaction with the ST87M01 NB-IoT module.

It provides a high-level abstraction layer that simplifies access to the module's core functionalities, including NB-IoT connectivity and GNSS positioning. Delivered as source code, the library allows developers to efficiently integrate and control the ST87M01 module within their applications.

Revision history

Table 1. **Document revision history**

Date	Revision	Changes
25-Feb-2026	1	Initial release.

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