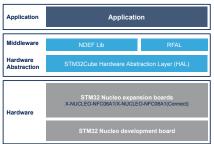# High performance HF reader/NFC initiator IC software expansion for STM32Cube

Features

- Complete middleware to build applications using the ST25R3916/ST25R3916B high performance HF reader/NFC front end IC
- Sample application to detect NFC tags of different types and mobile phones supporting P2P, card emulation mode, and read/write
- Sample application to read and write NDEF messages
- Sample implementations available for the X-NUCLEO-NFC06A1/X-NUCLEO-NFC08A1 expansion board plugged onto a NUCLEO-L053R8 or NUCLEO-L476RG development board
- Easy portability across different MCU families, thanks to STM32Cube
- Complete RF/NFC abstraction (RFAL) for all major technologies, including complete ISO-DEP and NFC-DEP layers
- Free, user-friendly license terms

Description

The X-CUBE-NFC6 software expansion for STM32Cube provides complete middleware for STM32 to control applications using the ST25R3916/ST25R3916B high performance NFC front-end IC supporting NFC initiator, target, reader, and card emulation modes.

The expansion is built on top of STM32Cube software technology to ease portability across different STM32 microcontrollers.

The software comes with sample implementations of the drivers running on the X-NUCLEO-NFC06A1/X-NUCLEO-NFC08A1 expansion board plugged on top of a NUCLEO-L053R8 or NUCLEO-L476RG development board.

Product summary	
High performance HF reader/NFC initiator IC software expansion for STM32Cube	X-CUBE-NFC6
NFC card reader expansion board based on ST25R3916 for STM32 and STM8 Nucleos	X-NUCLEO-NFC06A1
NFC card reader expansion board based on ST25R3916B for STM32 and STM8Nucleos	X-NUCLEO-NFC08A1
High performance NFC universal device and EMVCo reader	ST25R3916
NFC reader for payment, consumer and industrial	ST25R3916B
STM32 Nucleo-64 development board with STM32L053R8 MCU	NUCLEO-L053R8

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Product summary	
STM32 Nucleo-64 development board with STM32L476RG MCU	NUCLEO-L476RG

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.

1.1.1 How does this software complement STM32Cube?

The proposed software is based on the STM32CubeHAL, the hardware abstraction layer for the STM32 microcontroller. The package extends STM32Cube by providing a Board Support Package (BSP) for the X-NUCLEO-NFC06A1/X-NUCLEO-NFC08A1 expansion board for STM32 Nucleo and some middleware components for HF reader and NFC application drivers (RFAL and NDEF).

The drivers abstract low-level details of the hardware and allow the middleware components and applications to access NFC and HF tags or P2P devices in a hardware independent fashion.

The package also includes two sample applications that developers can use to start experimenting with the code.

One sample application has been developed to detect NFC tags of different types and mobile phones supporting P2P.

The other application shows how to read and write URI and text records to tags using the NDEF library.

Revision history

Table 1. Document revision history

Date	Version	Changes
18-Jul-2019	1	Initial release.
20-Oct-2022	2	Added references to X-NUCLEO-NFC08A1 and ST25R3916B

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