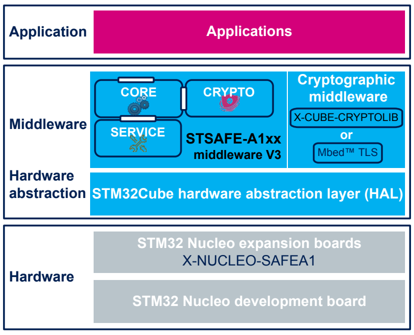
X-CUBE-SAFEA1

Data brief

STSAFE-A110 software package



Features

- STSAFE-A110 middleware application programming interface
- Embedded sample demonstrations provided
- Support for NUCLEO-L476RG and X-NUCLEO-SAFEA1 boards
- STM32L4 Series HAL driver (STM32Cube)

Applications

- Elliptic-curve digital-signature algorithm (ECDSA) authentication (for instance of peripherals, IoT, USB Type-C devices or Qi wireless power transfer devices)
- Elliptic curve Diffie–Hellman (ECDH) secure-channel establishment with a remote host that includes transport layer security (TLS) handshake
- Signature verification service (secure boot and firmware upgrade)
- Usage monitoring with secure counters
- Pairing and secure channel with host application processor
- Wrapping and unwrapping of local envelopes
- On-chip key-pair generation

Description

The X-CUBE-SAFEA1 software package is a software component that provides driver, middleware and several demonstration codes, which use the STSAFE-A110 device features from a host microcontroller.

These demonstration codes use the STSAFE-A1xx middleware built on the STM32Cube software technology. They illustrate the authentication, key pair generation, key establishment, local envelope wrapping and pairing features.

Product status link
X-CUBE-SAFEA1

1 Software package description

The X-CUBE-SAFEA1 software package provides:

- complete middleware to build applications using the STSAFE-A110, a highly secure solution that acts as a secure element, providing authentication and data management services to a local or remote host;
- sample demonstration codes, which can be integrated in Internet of things (IoT) devices, smart-home, smart-city and industrial applications, as well as consumer electronics devices, consumables and accessories:
  - ECDSA authentication (for instance of peripherals, IoT, USB Type-C devices or Qi wireless power transfer devices)
  - ECDH secure-channel establishment with a remote host that includes TLS handshake
  - Pairing and secure channel with host application processor
  - Wrapping and unwrapping of local envelopes
  - On-chip key-pair generation

Sample demonstration codes are available for the X-NUCLEO-SAFEA1 expansion board plugged on a NUCLEO-L476RG development board to ease portability across different STM32 microcontrollers, thanks to STM32Cube.

In addition, the X-NUCLEO-SAFEA1 is MCU-agnostic for portability to other microcontrollers.

Note that all codes are free with user-friendly license terms.

Refer to the STSAFE-A110 datasheet available on the STSAFE-A110 internet page for additional information on the device.

Note that STM32 devices are based on Arm® cores.

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

2 Licence

X-CUBE-SAFEA1 is delivered under STMicroelectronics' *STSAFE software package license agreement (SLA0087)*.

The table below shows the different license schemes delivered with the software components provided in this package.

Table 1. License schemes

Software components	Owner	License
STM32L4 Nucleo board support package (BSP)	STMicroelectronics	BSD-3-Clause[1]
Cortex®-M Cortex Microcontroller Software Interface Standard (CMSIS)	Arm®	BSD-3-Clause[1]
STM32L4 hardware abstraction layer (HAL)	STMicroelectronics	BSD-3-Clause[1]
XCUBE-SAFEA1's application programming interface (API)	STMicroelectronics	SLA0088
X509 certificate parser for X CUBE CRYPTOLIB	STMicroelectronics	SLA0044
Arm® Mbed™ transport layer security (TLS)[2]	Arm	Apache 2.0
Demonstration codes	STMicroelectronics	SLA0044

1. *BSD stands for Berkeley Software Distribution.*
2. *Arm and Mbed are registered trademarks or trademarks of Arm Limited (or its subsidiaries) in the US and/or elsewhere.*

Revision history

Table 2. Document revision history

Date	Version	Changes
09-Dec-2019	1	Initial release.
13-Dec-2019	2	Added Section 2 Licence.