NFC Reader 3911 User Manual

Version: v1.0

Date: Jan 2025

Status: Released

Revision History

Date	Version	Release Notes
Jan 2025	v1.0	First Release

contents

1. Introduction

The NFC Reader 3911 is an open-source, ready-to-use development kit featuring the ST25R3911B, a highly integrated HF reader / NFC initiator IC.

It is especially suitable for communicating with ST25DV via mailbox to upgrade device firmware or read or set device configurations.

2. Key Features

- Support for STSW-ST25PC001 Windows® PC software, developed to demonstrate RF communication with all ST25 tags
- STM32L476RET6 32-bit microcontroller with 512 kB of Flash memory
- Based on ST25R3911B high-performance HF reader / NFC initiator.
- ISO 18092 (NFCIP-1) active P2P
- ISO14443A, ISO14443B and FeliCa™
- ISO15693
- Micro-USB connector for communication with the host PC and board powering
- Six LEDs indicating the presence of the RF field and of the protocol used to communicate

3. Application

- Device information interaction

4. How to communicate with the NB DISCO 95 development kits

4.1 What do you need to prepare?

√ Connect the NB DISCO 95 development board to your PC via micro USB

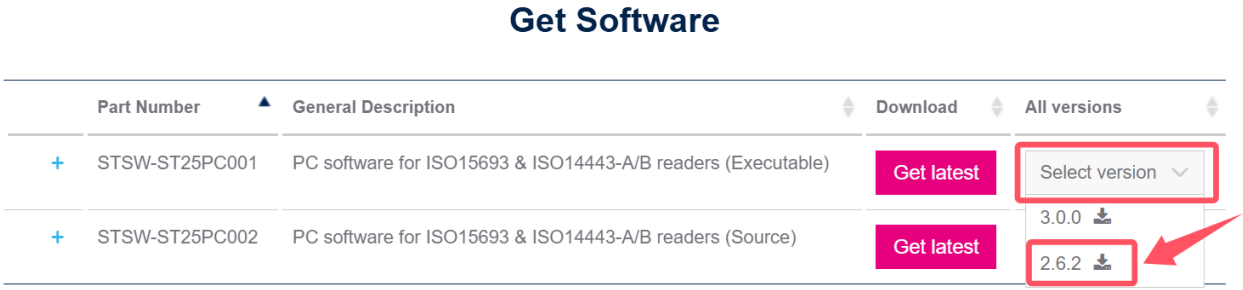
√ Connect the NFC Reader 3911 to your PC via micro USB

√ Download and install Serial port utility Windows® PC software

√ Download and install STSW-ST25PC001 - Windows® PC software for ISO15693,

ISO14443-A/B, NFC and industrial readers - STMicroelectronics

The recommended version is 2.6.2



4.2 Scan the NFC tags

Step 1: Open the ST25PC-NFC software 

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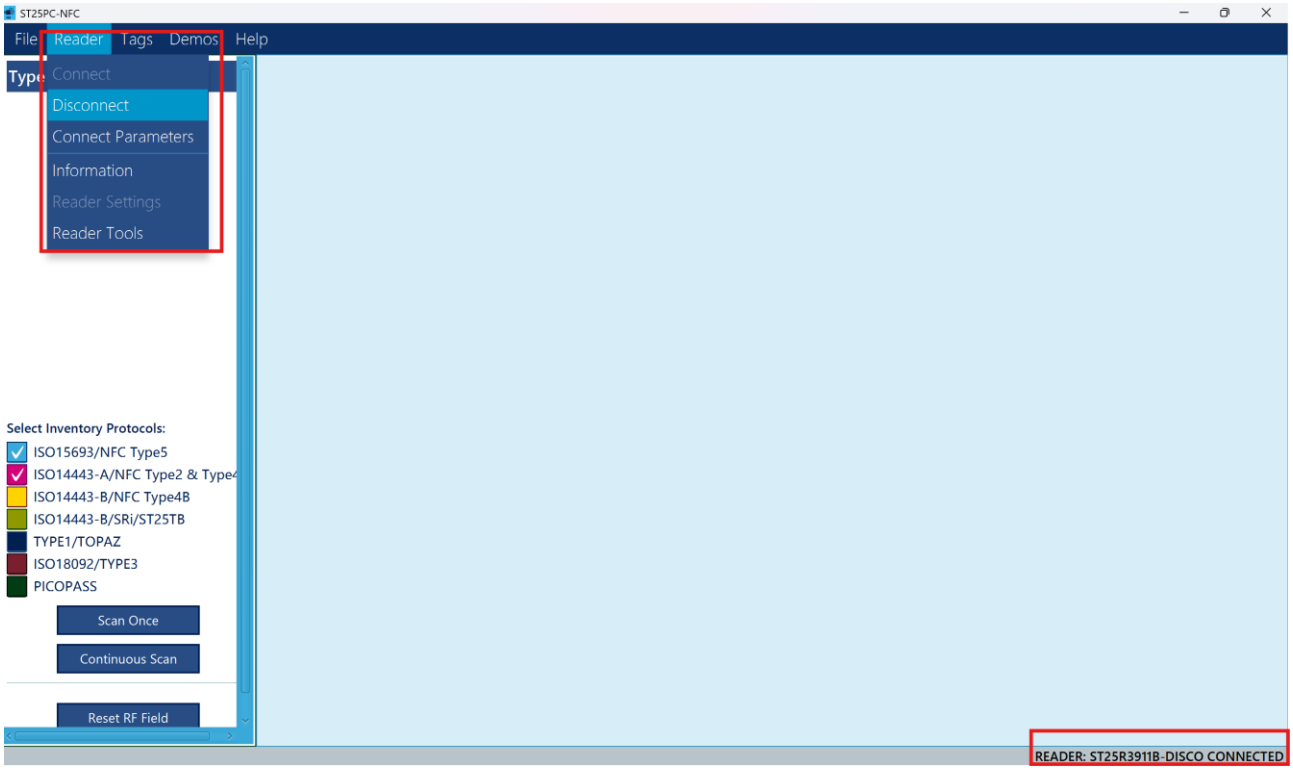
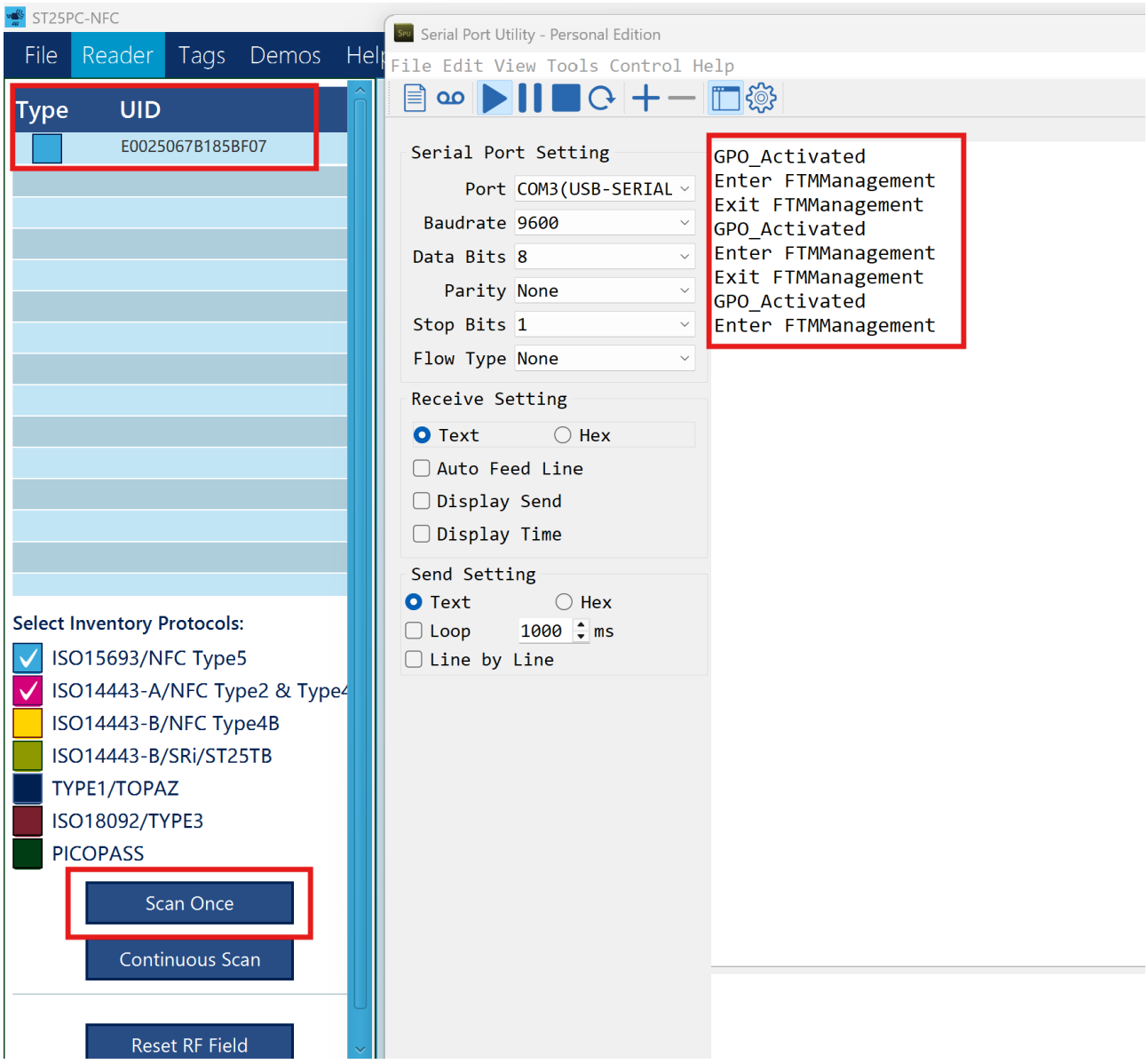
Step 2: Press the NFC Reader 3911 S1 button once to reset the device, The 6 LEDs are fully lit to indicate that the reset is successful;

Step 3: Click Reader → Disconnect → Connect, When ST25R3911B-DISCO CONNECTED is displayed, it means that the NFC reader 3911 is connected to the PC successfully;



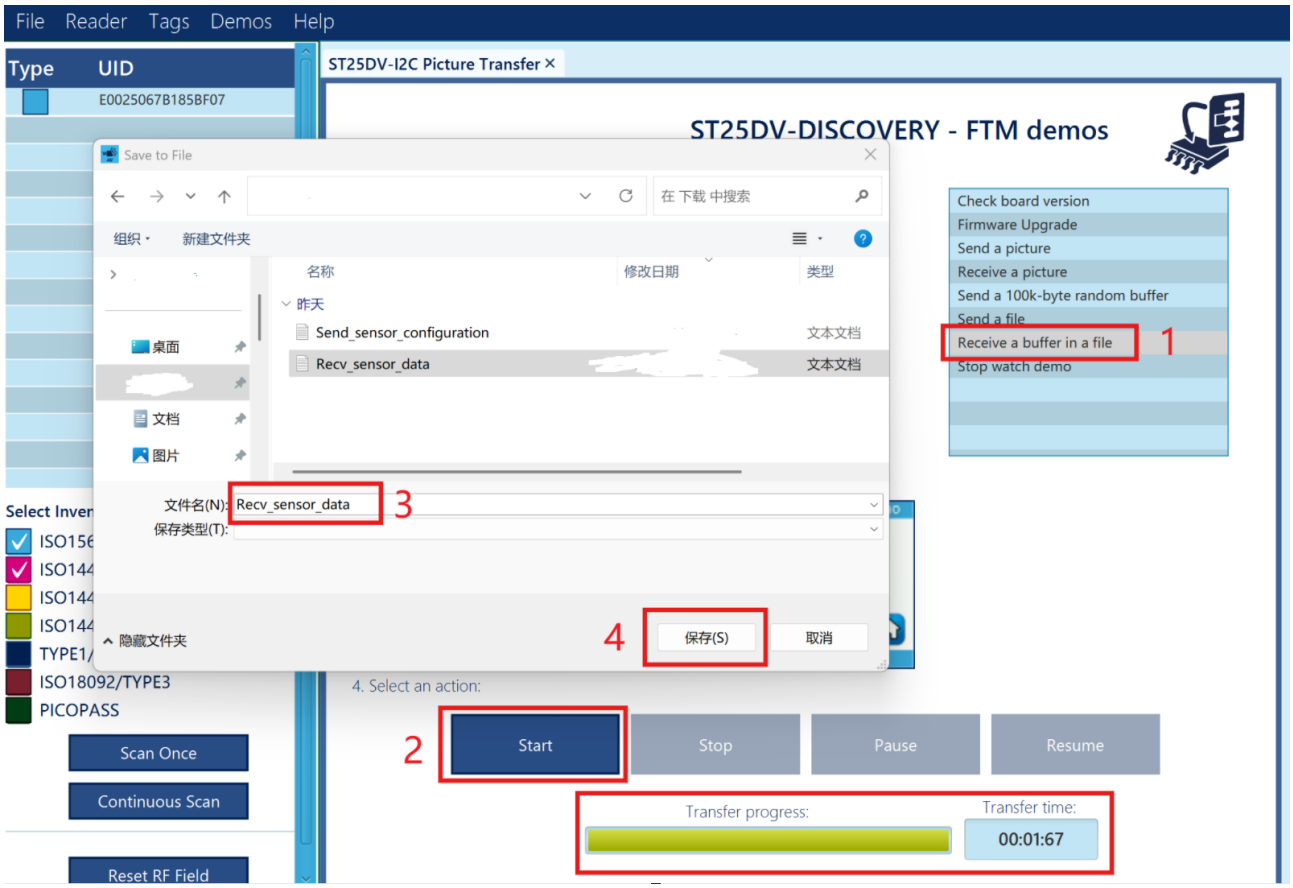
Step 4: Open the serial port utility tool and press the NB DISCO 95 S1 button once to reset the device. Then hold the NFC reader 3911 close to the ST25DV module of the NB DISCO 95 and click Scan Once.

When connected to ST25PC-NFC PC software, use the NFC reader 3911 to approach the ST25DV module of the NB DISCO 95. The serial port will print Enter FTMManagement, and when it is removed, it will print Exit FTMManagement.

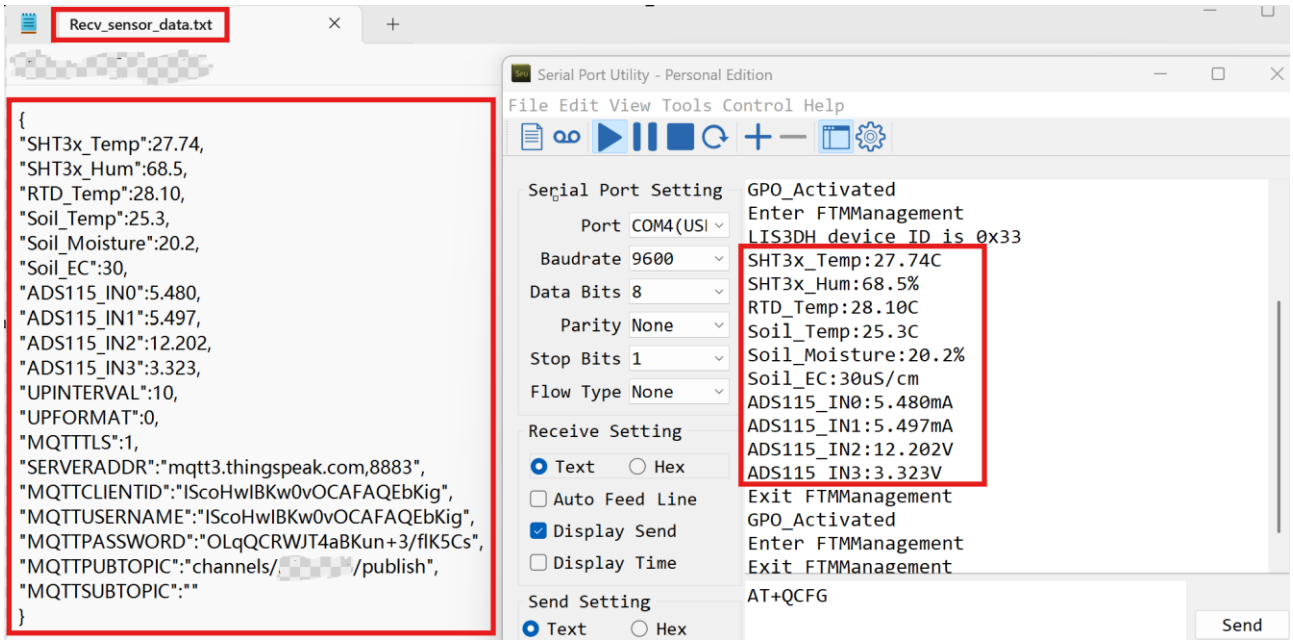


4.3 Get the NB DISCO 95 development board data

Click on the Recv a buffer in a file option, click the start button, and wait for the device to collect sensor data, and then save the content as a Recv_sensor_data.txt

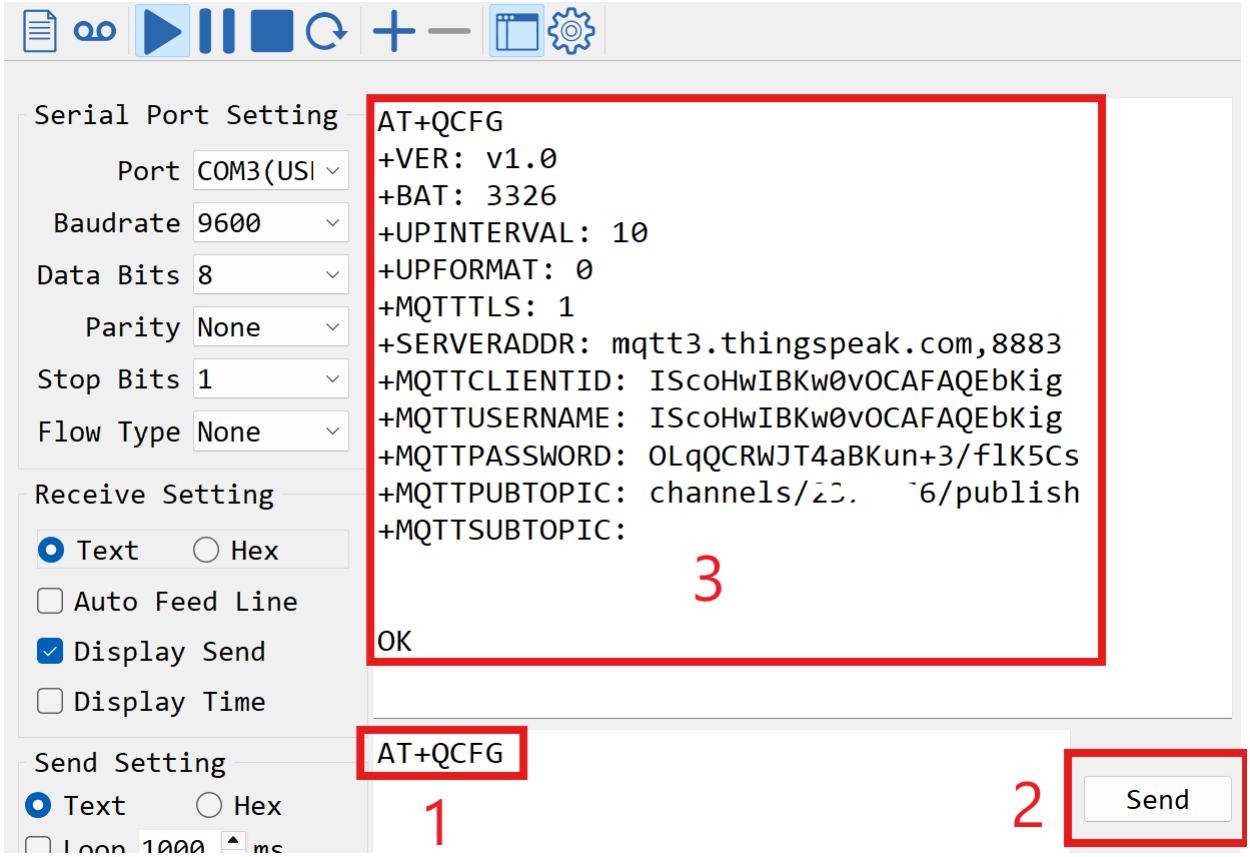


View Recv_sensor_data.txt file content and serial port logs as follows.

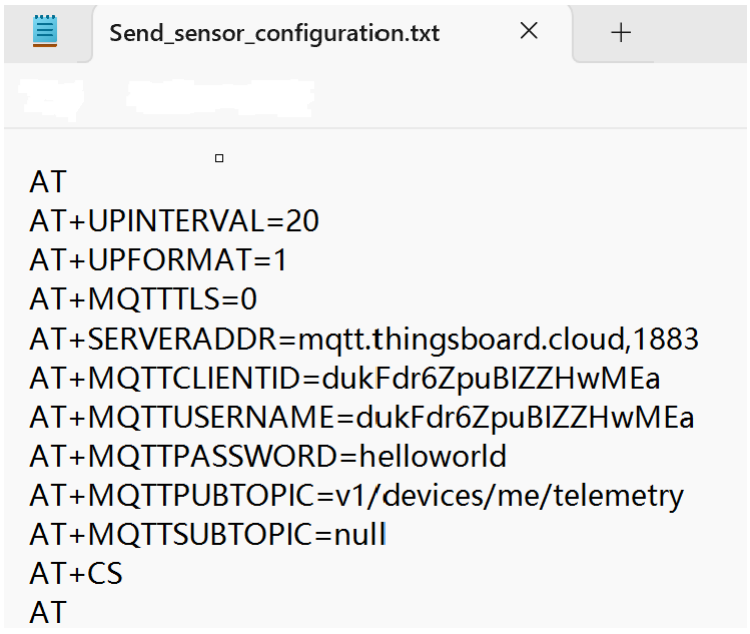


4.4 Set the NB DISCO 95 development board configurations

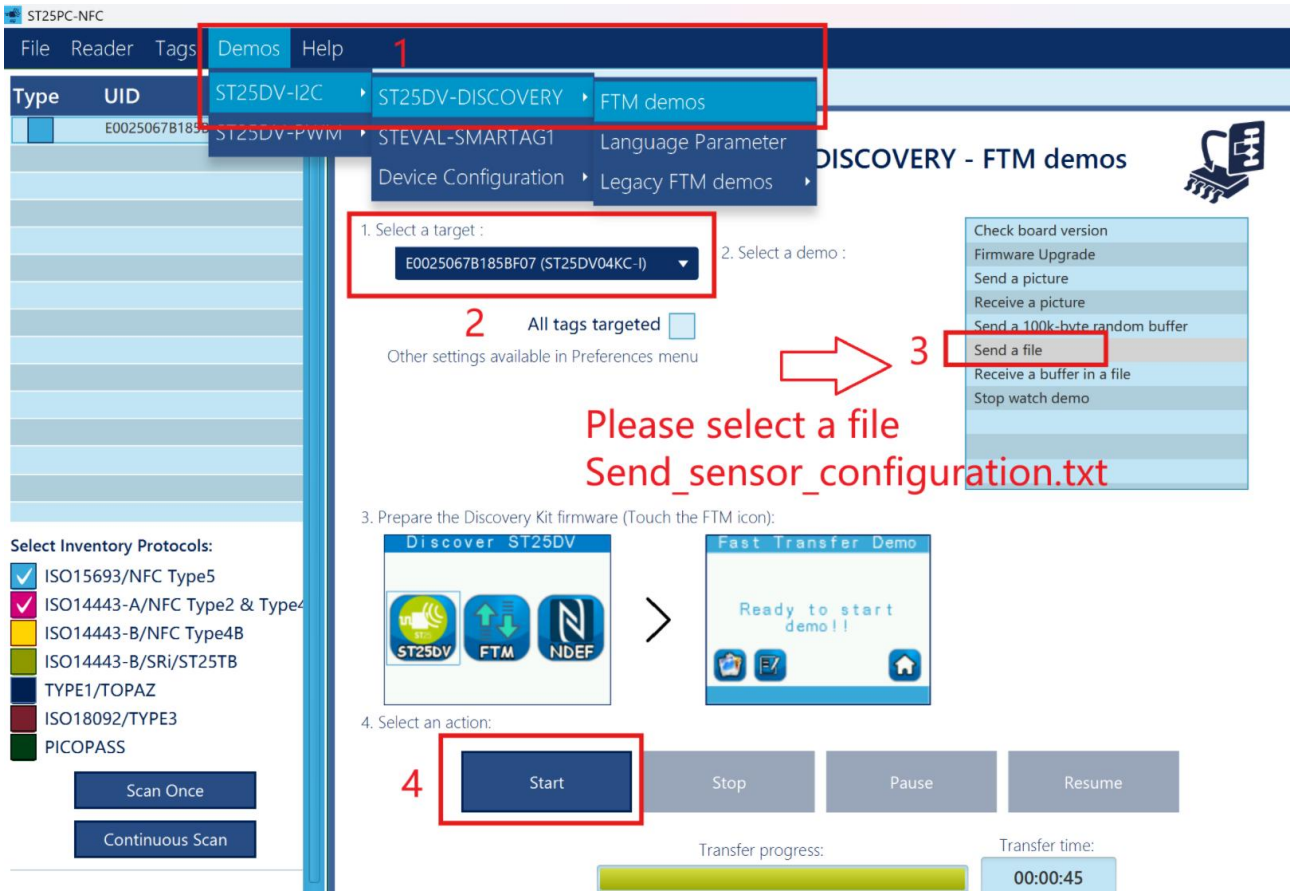
First, Move the NFC reader 3911 board away from the ST25DV module, then use the AT+QCFG command to query the current configuration of the NB DISCO 95 development board. Remember to press the ENTER key to wrap the line after the AT command. The serial port logs are as follows.



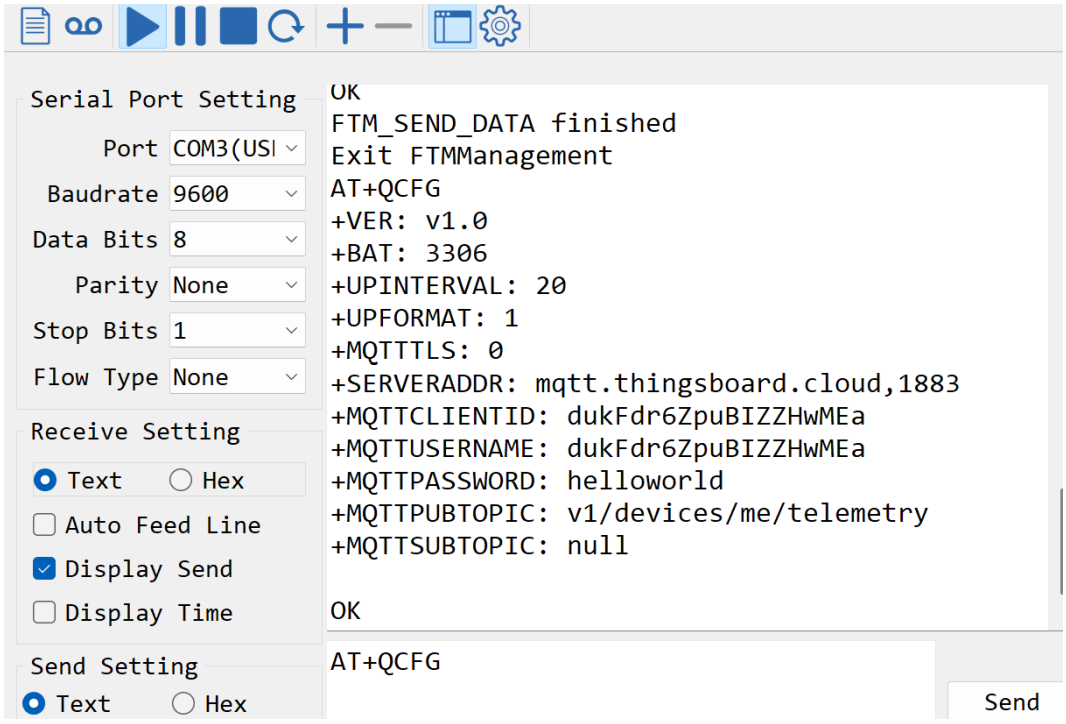
Suppose the following configurations need to be changed;



Use the NFC reader 3911 to approach the ST25DV module of the NB DISCO 95.



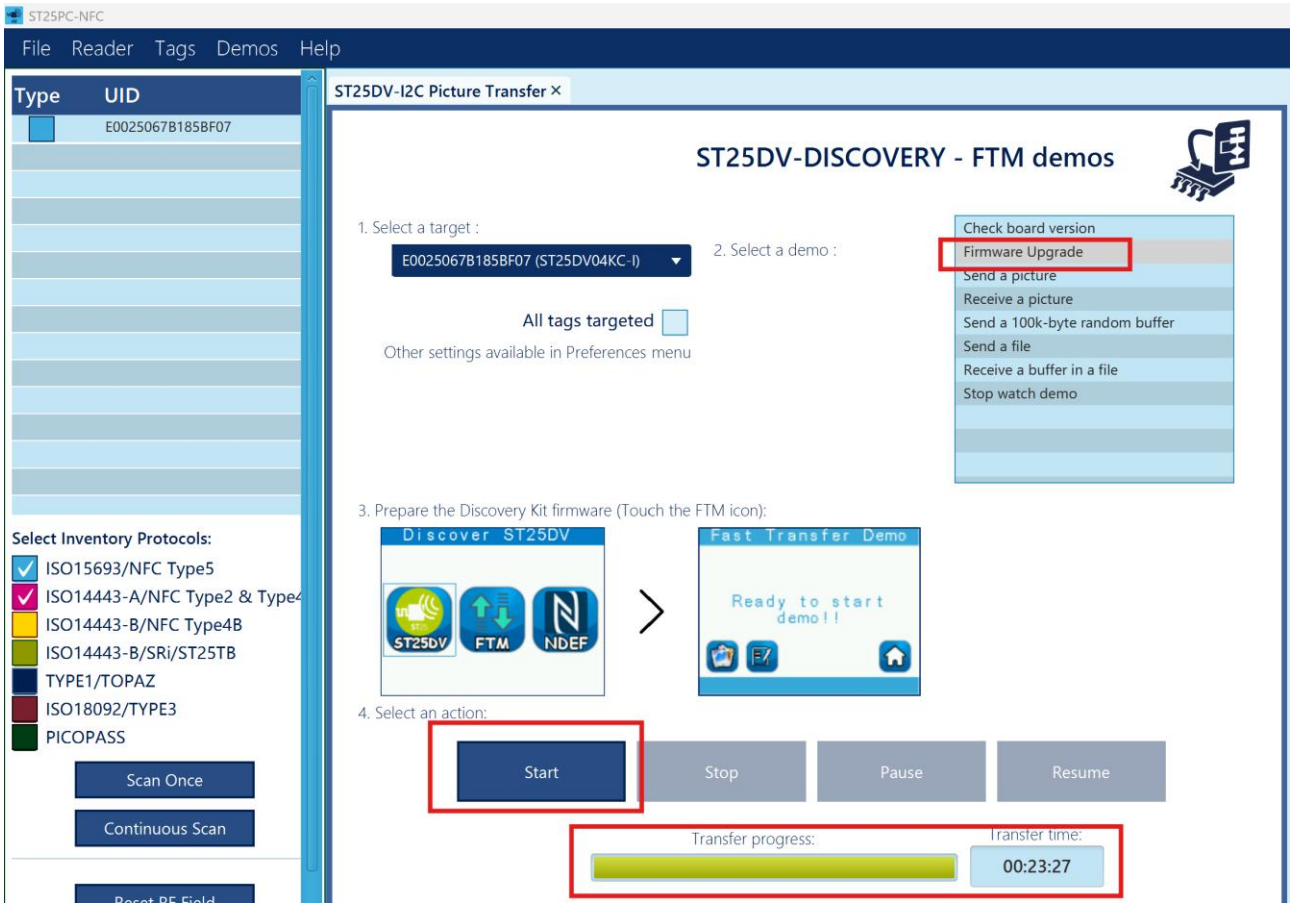
Finally, Move the NFC module away from the ST25 module and use the AT+QCFG command to see if the configuration has changed. The serial port logs are as follows.

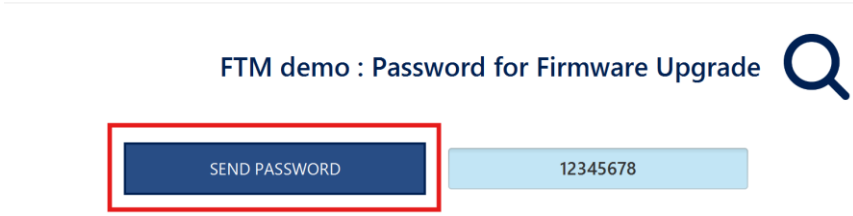


4.5 Upgrade the firmware of the NB DISCO 95 development board

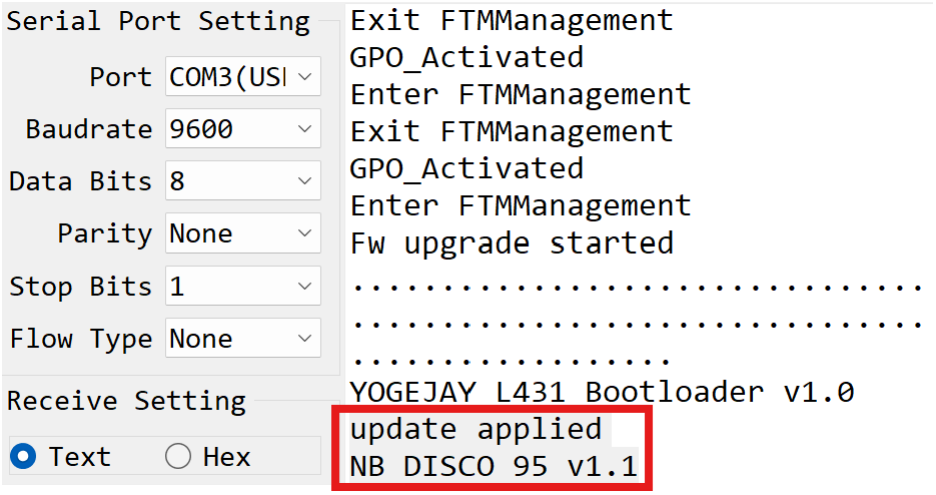
Use the NFC reader 3911 to approach the ST25DV module of the NB DISCO 95.

Click on the Firmware Upgrade option and select a file NB DISCO 95 Application_NFC_OTA v1.1.bin



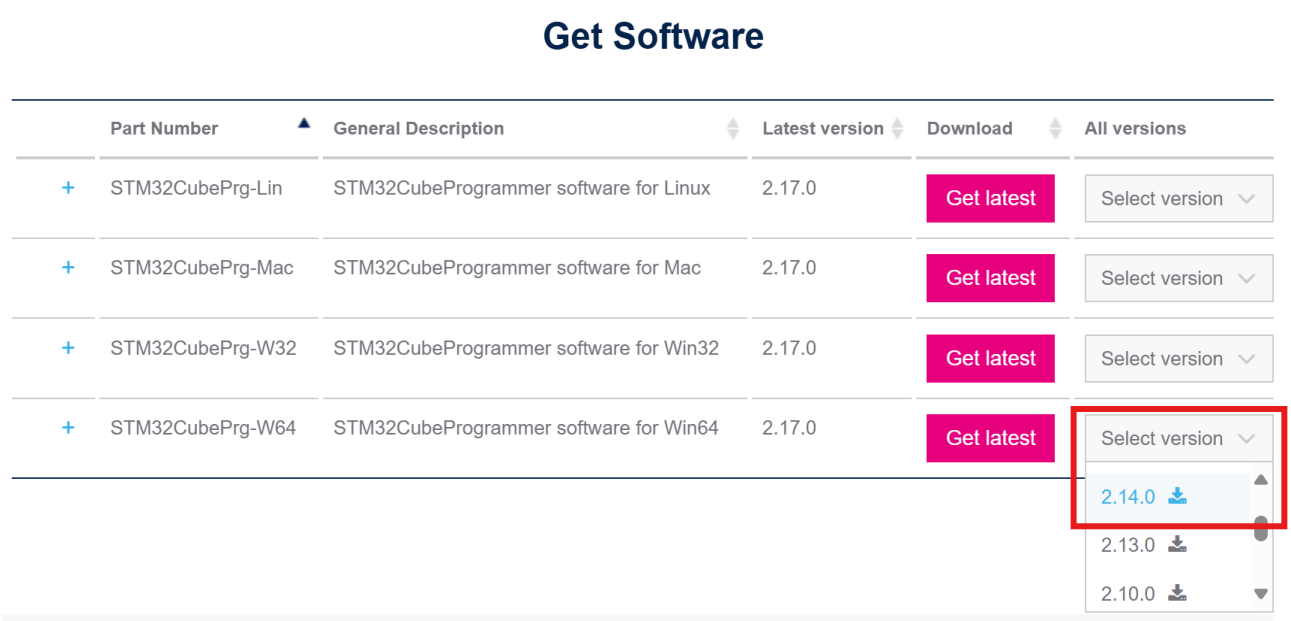


The update is successful when an update applied log appears on the serial port. The serial port logs are as follows.

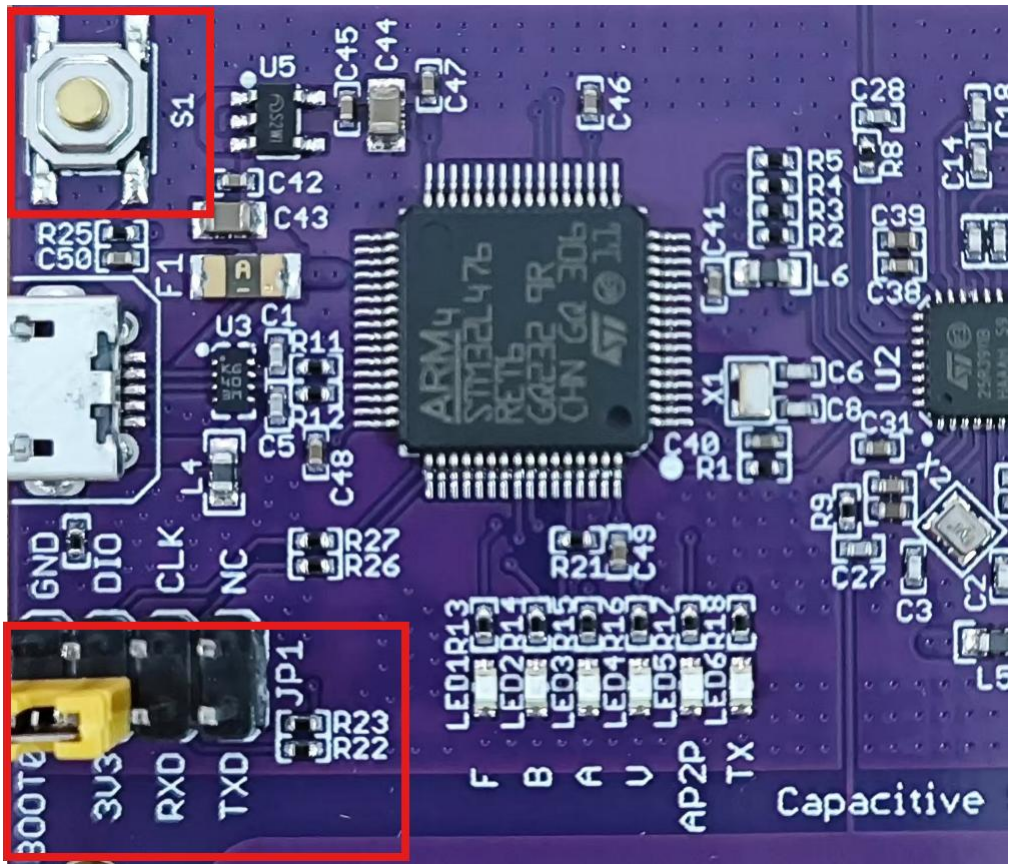


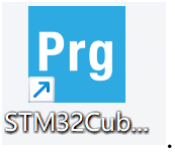
5. How to upgrade the NFC reader 3911 firmware

Step 1: Download and install [STM32CubeProg - STM32CubeProgrammer software for all STM32 - STMicroelectronics](#) Windows® PC software, the recommended version is 2.14.0;



Step 2: Short-circuit the boot pin and 3V3 pin through the yellow jump, then press the S1 button once to reset the device;



Step 3: Open STM32CubeProgrammer PC software 

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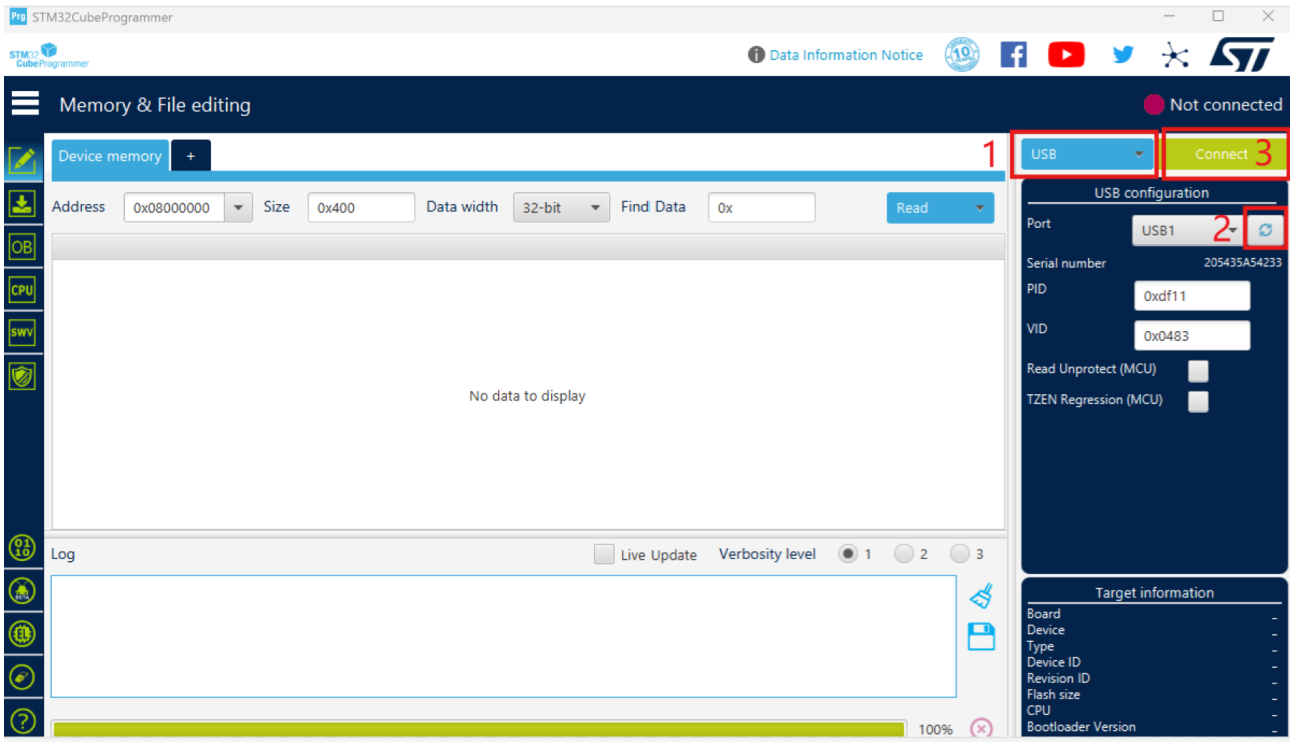
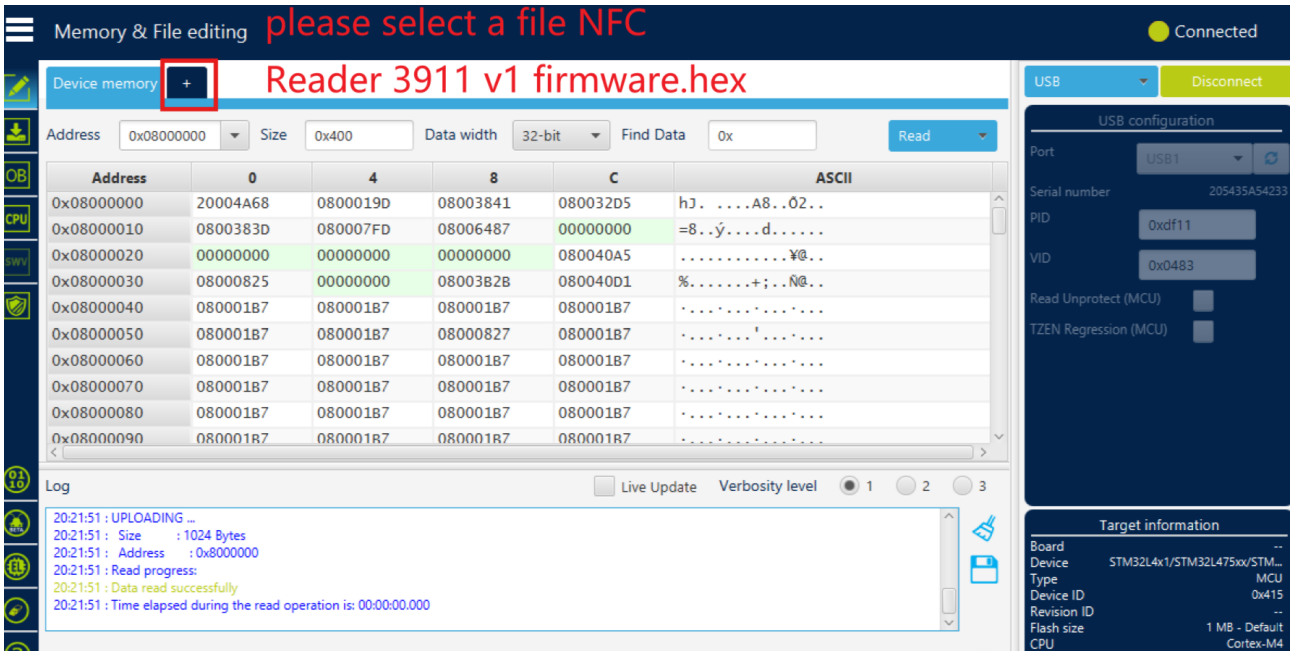
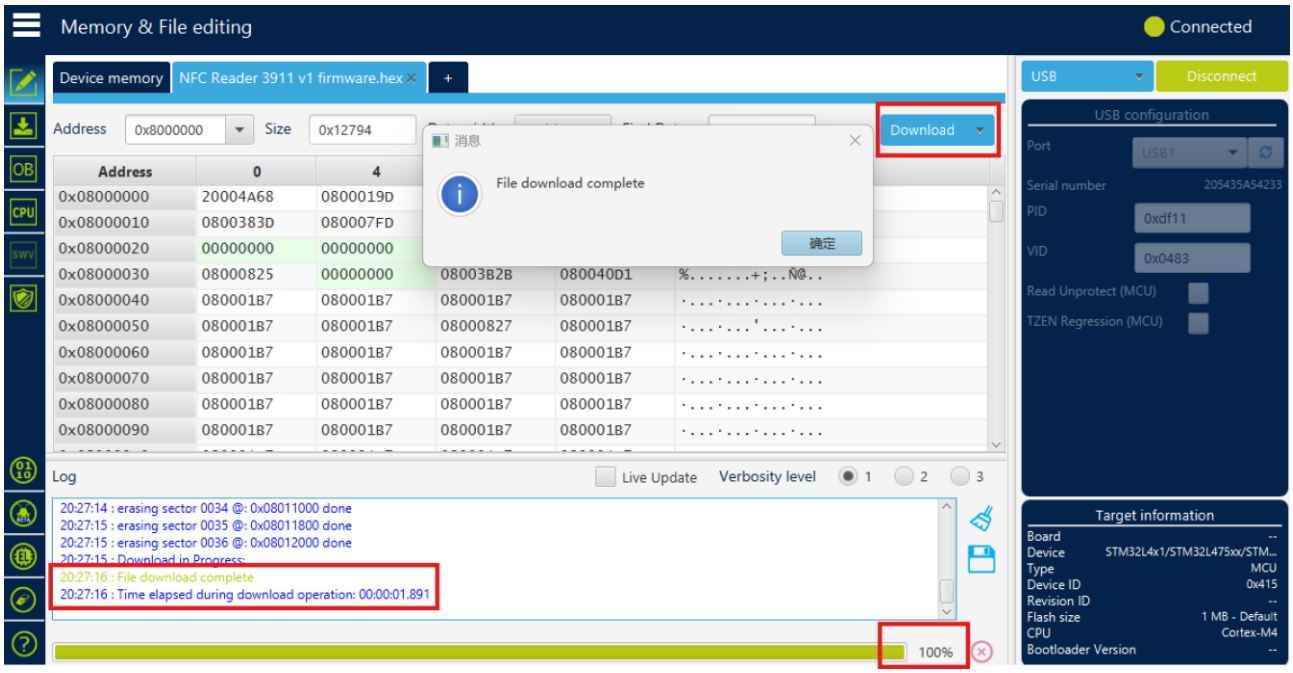

STM32CubeProgrammer
Data Information Notice
Memory & File editing
Not connected
Device memory
1
USB
Connect
3
Address
0x08000000
Size
0x400
Data width
32-bit
Find Data
0x
Read
USB configuration
Port
USB1
2
Serial number
205435A54233
PID
0xdf11
VID
0x0483
Read Unprotect (MCU)
TZEN Regression (MCU)
No data to display
Log
Live Update
Verbosity level
1
2
3
Target information
Board
Device
Type
Device ID
Revision ID
Flash size
CPU
Bootloader Version
100%


Memory & File editing
please select a file NFC
Reader 3911 v1 firmware.hex
Connected
Device memory
USB
Disconnect
Address
0x08000000
Size
0x400
Data width
32-bit
Find Data
0x
Read
USB configuration
Port
USB1
Serial number
205435A54233
PID
0xdf11
VID
0x0483
Read Unprotect (MCU)
TZEN Regression (MCU)
Address 0 4 8 C ASCII
0x08000000 20004A68 0800019D 08003841 080032D5 hJ. ....A8..Õ2..
0x08000010 0800383D 080007FD 08006487 00000000 =8..ý....d.....
0x08000020 00000000 00000000 00000000 080040A5 ....¥@..
0x08000030 08000825 00000000 08003B2B 080040D1 %.....+;..Ñ@..
0x08000040 080001B7 080001B7 080001B7 080001B7
0x08000050 080001B7 080001B7 08000827 080001B7
0x08000060 080001B7 080001B7 080001B7 080001B7
0x08000070 080001B7 080001B7 080001B7 080001B7
0x08000080 080001B7 080001B7 080001B7 080001B7
0x08000090 080001B7 080001B7 080001B7 080001B7
Log
Live Update
Verbosity level
1
2
3
20:21:51 : UPLOADING ...
20:21:51 : Size : 1024 Bytes
20:21:51 : Address : 0x8000000
20:21:51 : Read progress:
20:21:51 : Data read successfully
20:21:51 : Time elapsed during the read operation is: 00:00:00.000
Target information
Board
Device STM32L4x1/STM32L475xx/STM...
Type MCU
Device ID 0x415
Revision ID
Flash size 1 MB - Default
CPU Cortex-M4



6. Package information

1 x NFC Reader 3911 development board.

1 x Micro USB with a length of 1m.

7. Support

Please send an email to dove.huang@aliyun.com.