

## 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

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## 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

### Get Software

Part Number	General Description	Download	All versions
+ STSW-ST25PC001	PC software for ISO15693 & ISO14443-A/B readers (Executable)	Get latest	Select version ▾
+ STSW-ST25PC002	PC software for ISO15693 & ISO14443-A/B readers (Source)	Get latest	3.0.0
			2.6.2

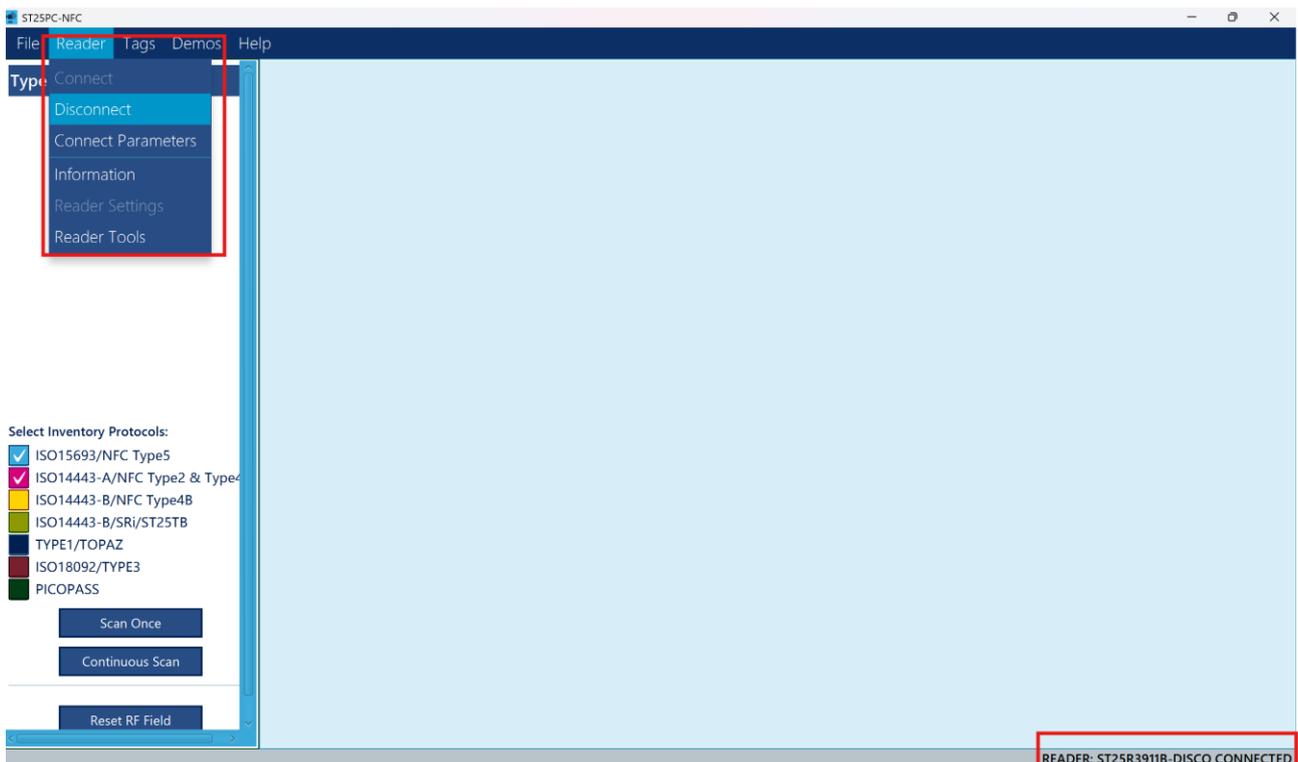
## 4.2 Scan the NFC tags



Step 1: Open the ST25PC-NFC software ;

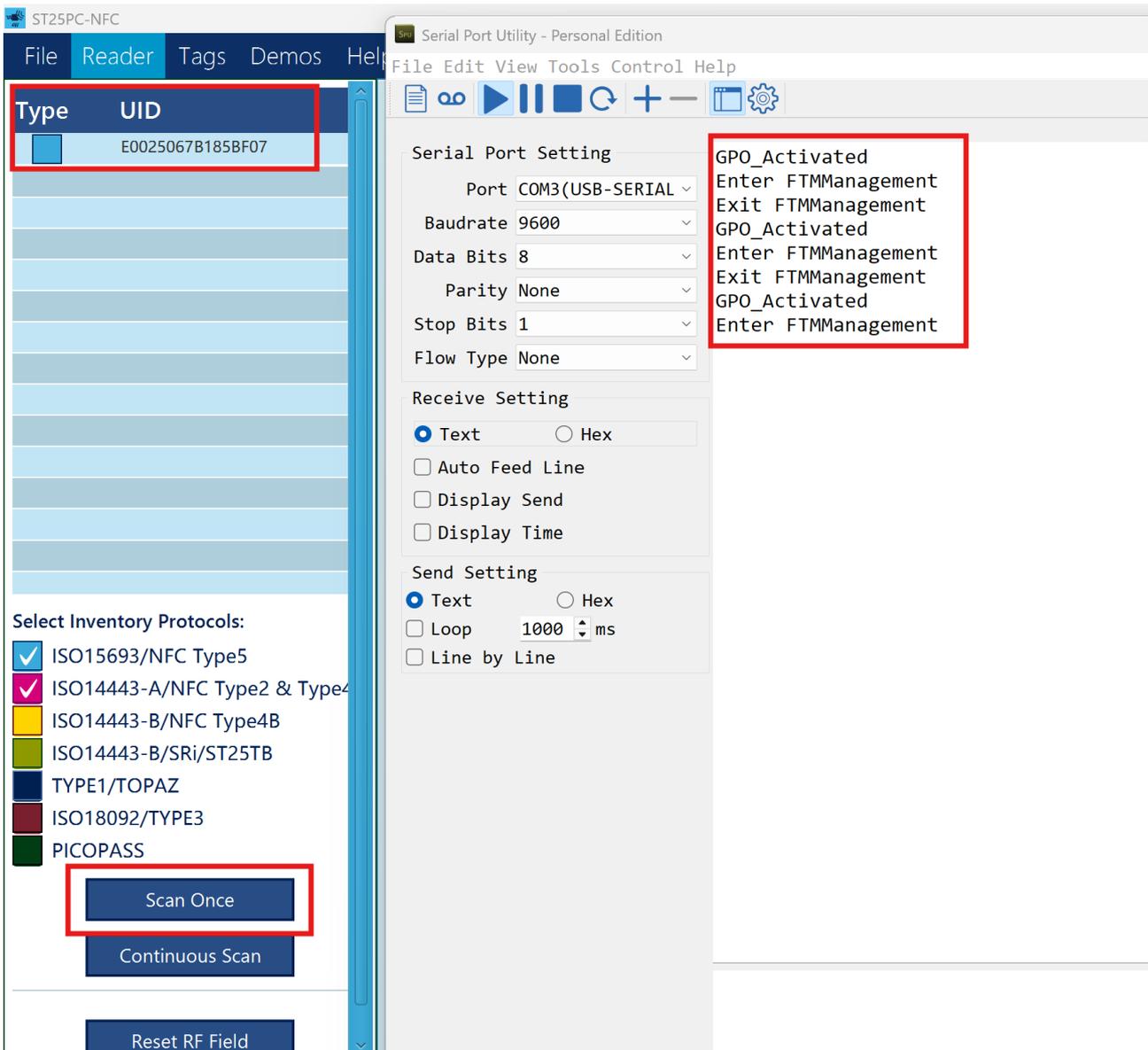
Step 2: Press the NFC Reader 3911 S1 button once to reset the device, The 6 LEDs are fully lit to indicate that the reset is successful;

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;



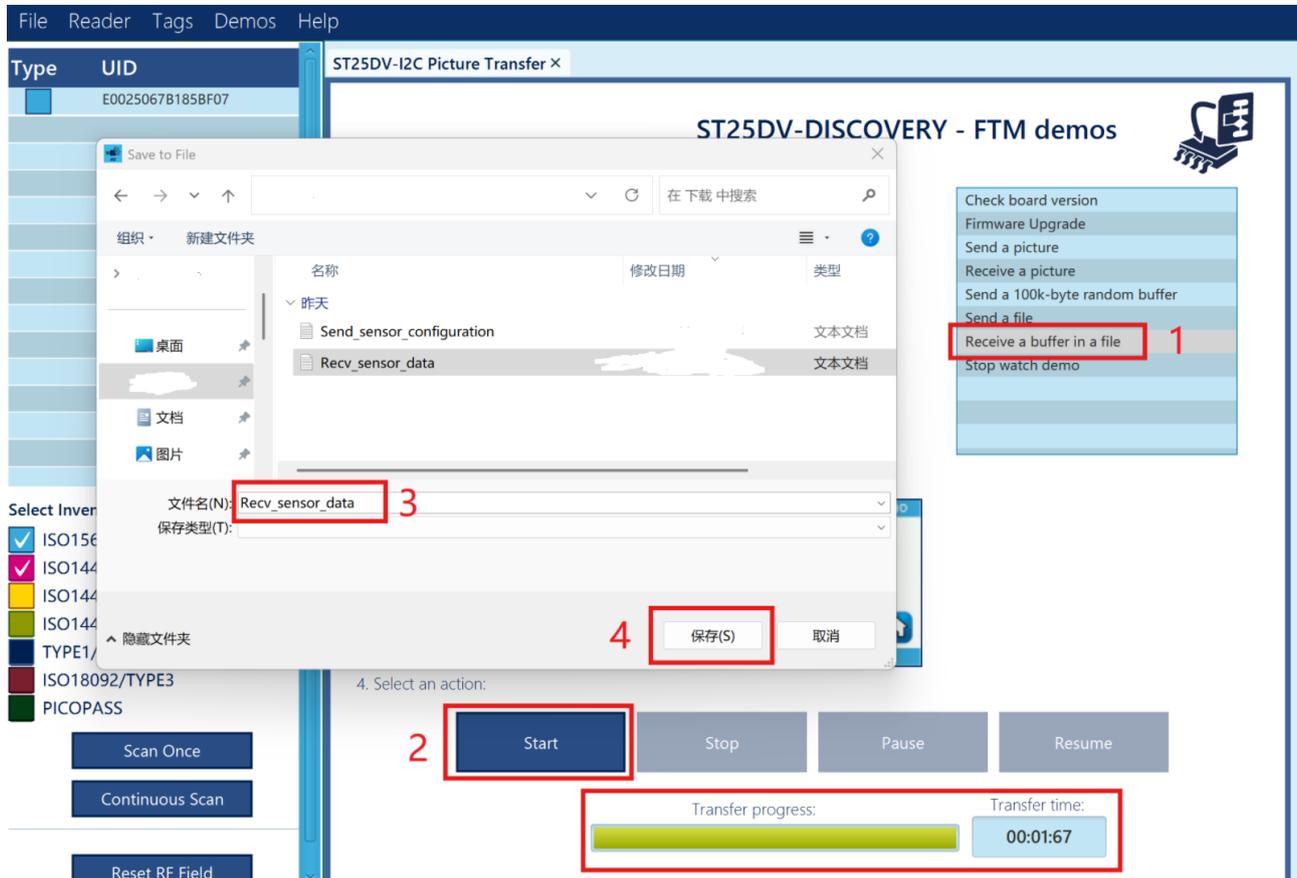
Step 4: Open the serial port utility tool and press the NB DISCO 95 S1 button once to reset the device. Then hold the NFC reader 3911 close to the ST25DV module of the NB DISCO 95 and click Scan Once.

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 FTMMangement, and when it is removed, it will print Exit FTMMangement.

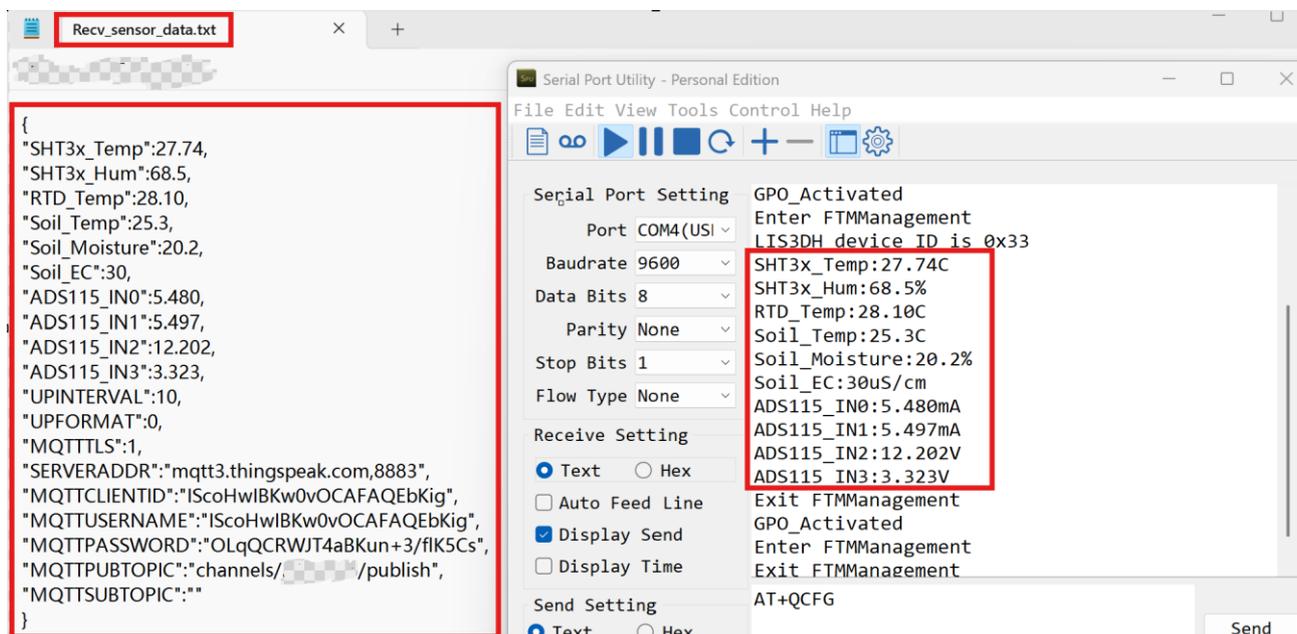


## 4.3 Get the NB DISCO 95 development board data

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

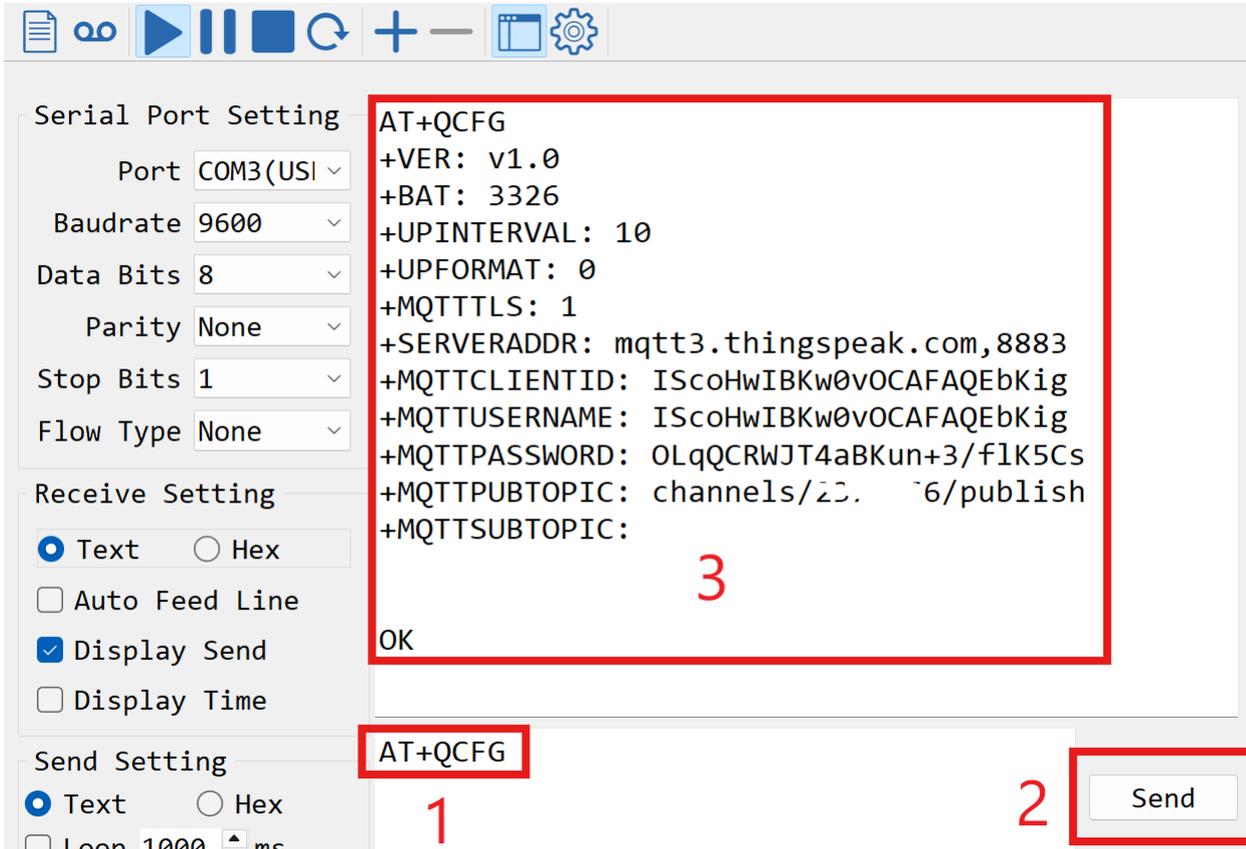


View Recv\_sensor\_data.txt file content and serial port logs as follows.

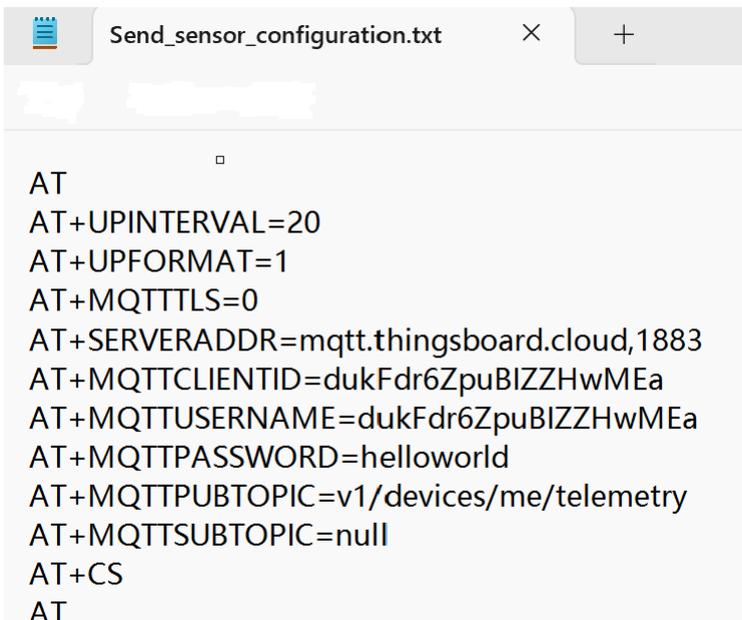


## 4.4 Set the NB DISCO 95 development board configurations

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.

The screenshot shows the ST25PC-NFC software interface. The 'Demos' menu is open, showing 'ST25DV-I2C' selected. The 'DISCOVERY - FTM demos' menu is also open, showing 'Send a file' selected. The interface includes a 'Select Inventory Protocols' section with various options like ISO15693/NFC Type5, ISO14443-A/NFC Type2 & Type4, etc. There are buttons for 'Scan Once' and 'Continuous Scan'. The 'DISCOVERY - FTM demos' menu has a list of actions: Check board version, Firmware Upgrade, Send a picture, Receive a picture, Send a 100k-byte random buffer, Send a file, Receive a buffer in a file, and Stop watch demo. The 'Send a file' option is highlighted with a red box and an arrow pointing to it with the text 'Please select a file Send\_sensor\_configuration.txt'. The 'Start' button is also highlighted with a red box and an arrow pointing to it with the number '4'. The 'Transfer progress' bar is at the bottom, showing a progress indicator and a 'Transfer time: 00:00:45'.

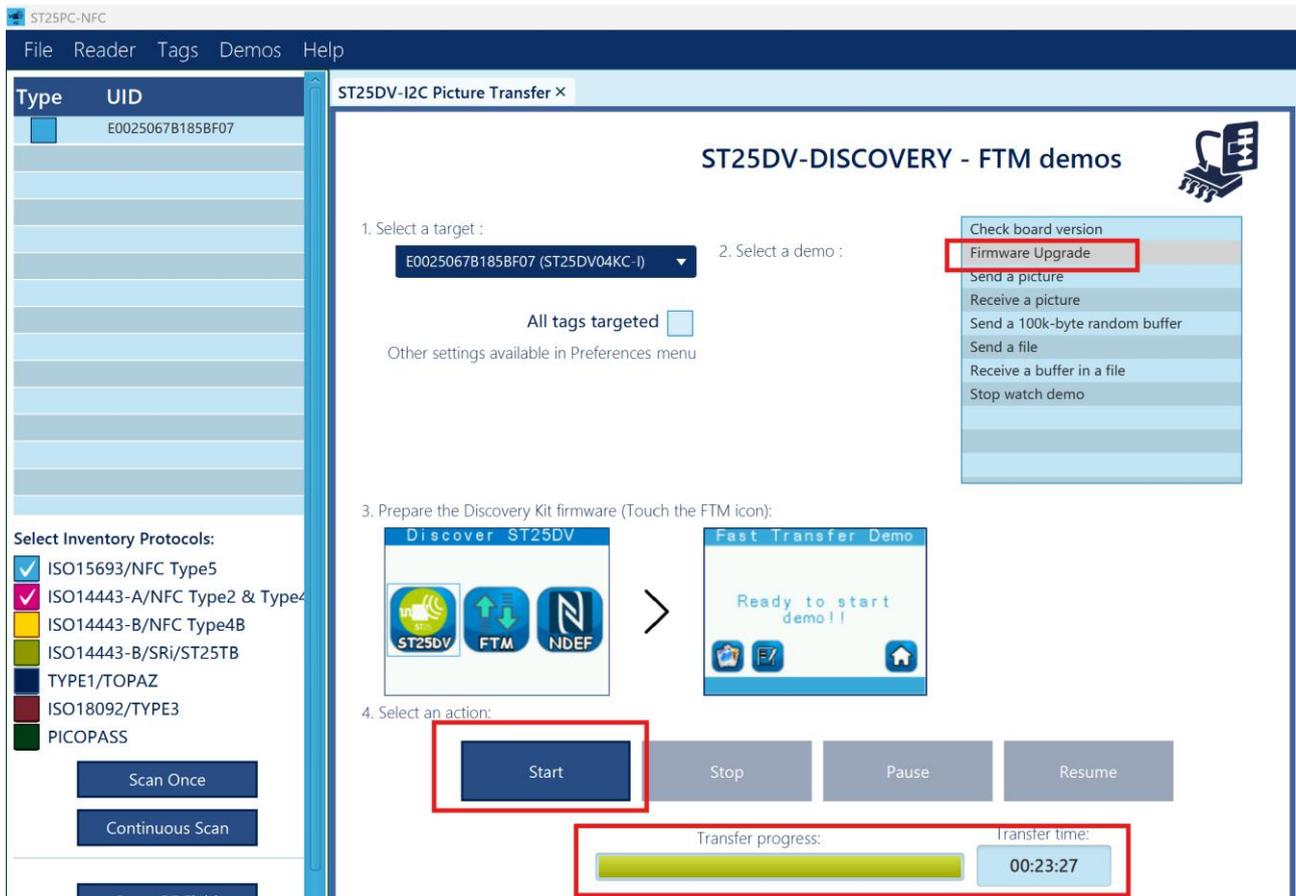
Finally, Move the NFC module away from the ST25 module and use the AT+QCFG command to see if the configuration has changed. The serial port logs are as follows.

The screenshot shows a serial port terminal window. The 'Serial Port Setting' panel on the left shows 'Port: COM3(USI)', 'Baudrate: 9600', 'Data Bits: 8', 'Parity: None', 'Stop Bits: 1', and 'Flow Type: None'. The 'Receive Setting' panel shows 'Text' selected, 'Auto Feed Line' unchecked, 'Display Send' checked, and 'Display Time' unchecked. The 'Send Setting' panel shows 'Text' selected. The terminal output shows the following text: 'OK', 'FTM\_SEND\_DATA finished', 'Exit FTManagement', 'AT+QCFG', '+VER: v1.0', '+BAT: 3306', '+UPINTERVAL: 20', '+UPFORMAT: 1', '+MQTTTTL: 0', '+SERVERADDR: mqtt.thingsboard.cloud,1883', '+MQTTCLIENTID: dukFdr6ZpuBIZZHwMEa', '+MQTTUSERNAME: dukFdr6ZpuBIZZHwMEa', '+MQTTPASSWORD: helloworld', '+MQTTPUBTOPIC: v1/devices/me/telemetry', '+MQTTSUBTOPIC: null', and 'OK'. The 'Send' button is visible at the bottom right.

## 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



FTM demo : Password for Firmware Upgrade



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

The screenshot shows a serial port terminal window. On the left, there are configuration settings for the serial port: Port (COM3(USI)), Baudrate (9600), Data Bits (8), Parity (None), Stop Bits (1), Flow Type (None), and Receive Setting (Text selected). The main terminal area displays the following log output:

```
Exit FTMMangement
GPO_Activated
Enter FTMMangement
Exit FTMMangement
GPO_Activated
Enter FTMMangement
Fw upgrade started
.....
.....
.....
YOGEJAY L431 Bootloader v1.0
update applied
NB DISCO 95 v1.1
```

The last two lines of the log, "update applied" and "NB DISCO 95 v1.1", are highlighted with a red rectangular box.

## 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;

### Get Software

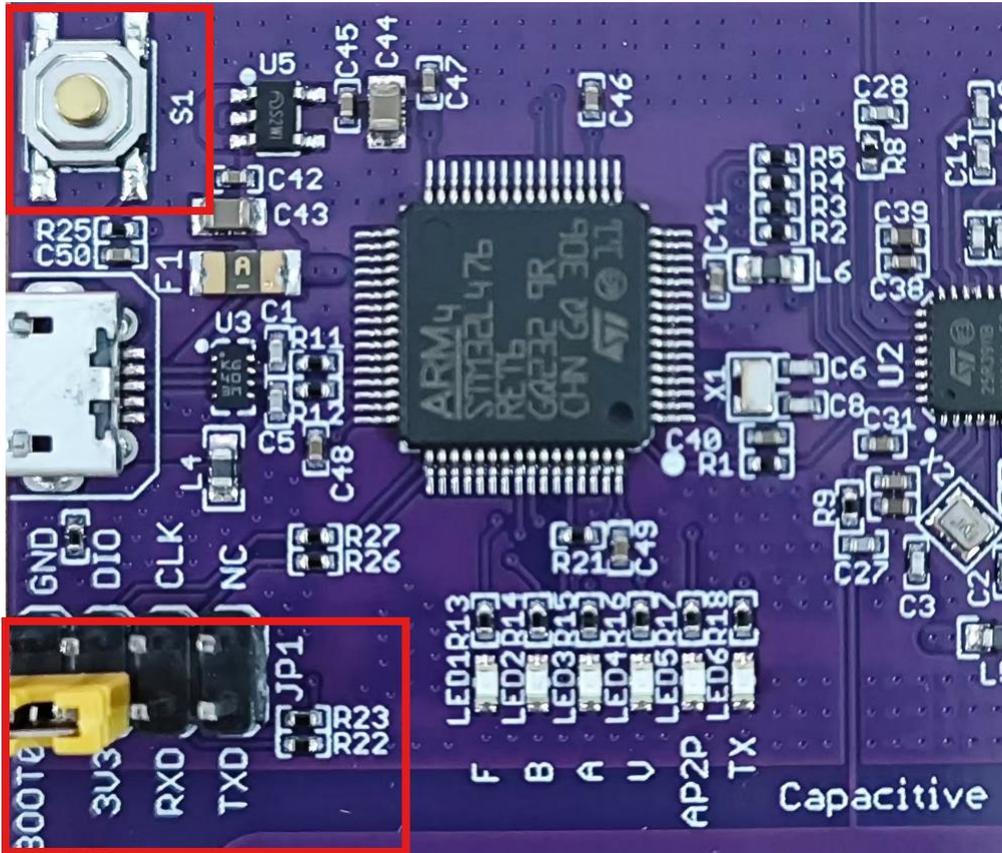
Part Number	General Description	Latest version	Download	All versions
<a href="#">+</a> STM32CubePrg-Lin	STM32CubeProgrammer software for Linux	2.17.0	<a href="#">Get latest</a>	<a href="#">Select version</a> ▾
<a href="#">+</a> STM32CubePrg-Mac	STM32CubeProgrammer software for Mac	2.17.0	<a href="#">Get latest</a>	<a href="#">Select version</a> ▾
<a href="#">+</a> STM32CubePrg-W32	STM32CubeProgrammer software for Win32	2.17.0	<a href="#">Get latest</a>	<a href="#">Select version</a> ▾
<a href="#">+</a> STM32CubePrg-W64	STM32CubeProgrammer software for Win64	2.17.0	<a href="#">Get latest</a>	<a href="#">Select version</a> ▾

The dropdown menu for the Win64 version is expanded, showing the following options:

- 2.14.0 [↓](#)
- 2.13.0 [↓](#)
- 2.10.0 [↓](#)

The 2.14.0 option is highlighted with a red rectangular box.

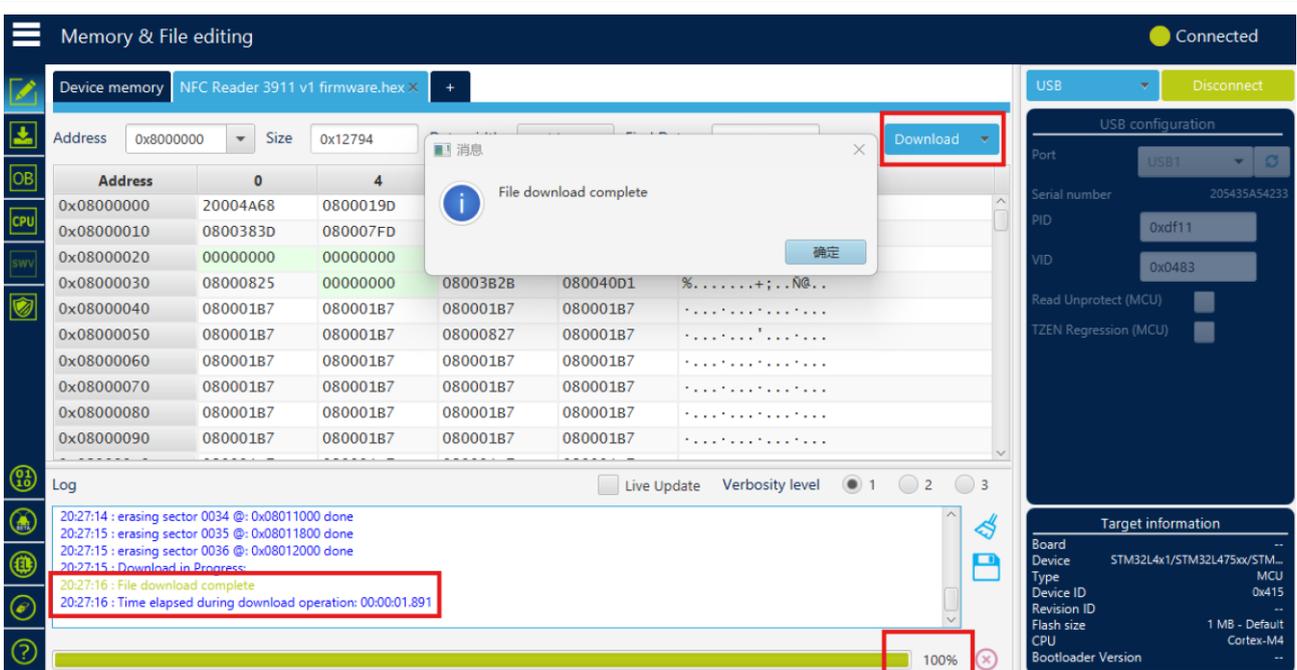
Step 2: Short-circuit the boot pin and 3V3 pin through the yellow jump, then press the S1 button once to reset the device;



Step 3: Open STM32CubeProgrammer PC software







## 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](mailto:dove.huang@aliyun.com).