

# Flashing via NFC

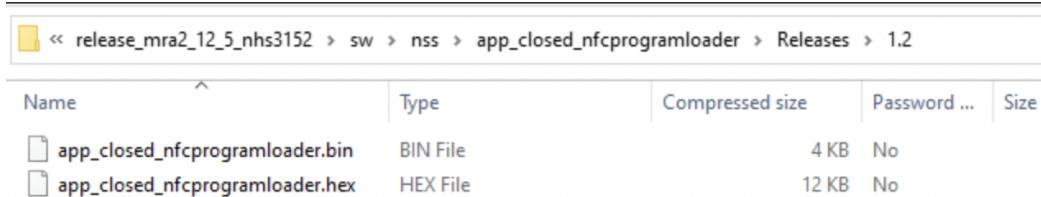
## 1 Description

An NHS chip can be flashed via an NFC using an NFC program loader app. However, the NHS chip can only be flashed if it was in its factory state. Thus, theoretically, the NFC flashing operation is a one-time operation (see the reference from the NXP website documentation [NXP](#)). Fortunately, to escape this limitation, a FlashMagic tool can restore the NHS chip to its factory state, and making the flashing possible again. This document presents the approaches to flash an NHS chip wirelessly, and the steps to follow in order to restore the NHS chip to its factory state.

## 2 Requirements

- Reinitialize the NHS chip
  - NHS chip
  - Android smartphone with NFC (some smartphones might not working)
  - LPC-Link or a fully charged battery
  - FlashMagic
  - app\_closed\_nfcprogramloader.hex (see Fig 1)
- NFC flashing
  - NHS chip
  - Android smartphone with NFC (some smartphones might not working)
  - LPC-Link or a fully charged battery
  - NFC program loader (Android app)

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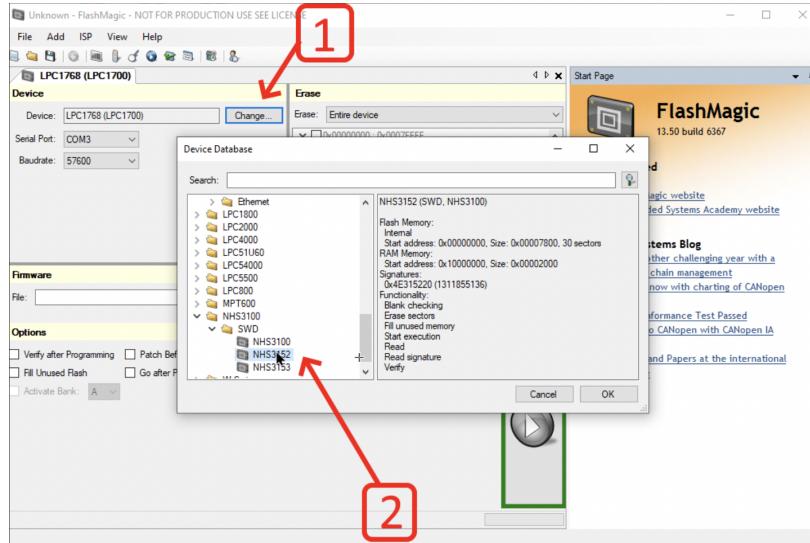


| app_closed_nfcprogramloader     |          |                 |      |                          |           |
|---------------------------------|----------|-----------------|------|--------------------------|-----------|
| Name                            | Type     | Compressed size | Size | Download                 | File type |
| app_closed_nfcprogramloader.bin | BIN File | 4 KB            | No   | <a href="#">Download</a> | BIN       |
| app_closed_nfcprogramloader.hex | HEX File | 12 KB           | No   | <a href="#">Download</a> | HEX       |

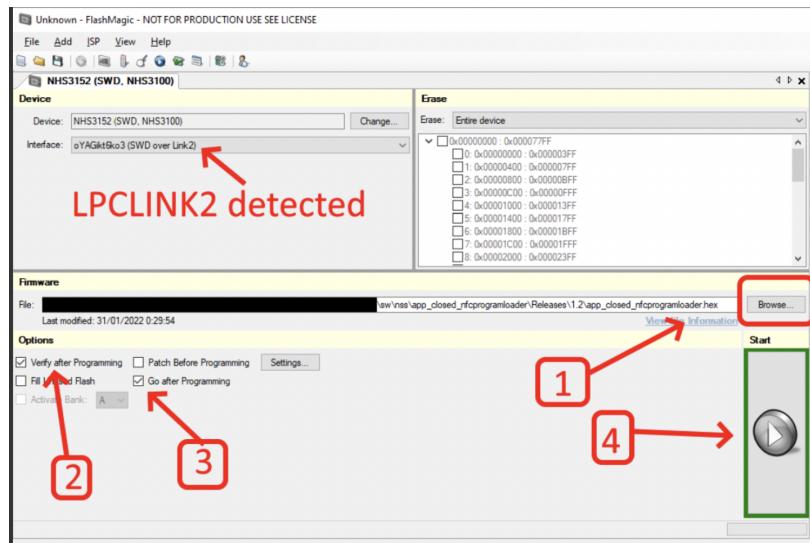
Figure 1: Location nfcprogramloader.hex

### 3 Reinitialize the NHS chip

The FlashMagic can be downloaded from this link [FlashMagic](#). Fig 2a shows the procedure for loading the HSH chip and fig 2b for loading the ncfprogramloader.hex. After clicking on the start button on fig 2b, the NHS chip becomes restored to its initial state factory. To verify whether the operation was a success or not, have a look inside the tag, using an NFC reader. If inside the Tag is n/p, then the operation was a success.



(a) Loading the HSH chip



(b) Loading the ncfprogramloader.hex

Figure 2: FlashMagic user manual

## 4 NFC flashing

### 4.1 Flashing process

In order to flash an HNS chip via NFC, the NHS chip has to be charged. The charge can be realized:  
a) via a battery with enough power or b) via the LPC-Link. For the second case, it is recommended to remove the battery from the NHS chip, and then set the JP2 from the LC<sup>“</sup>-Link (see Fig 3).

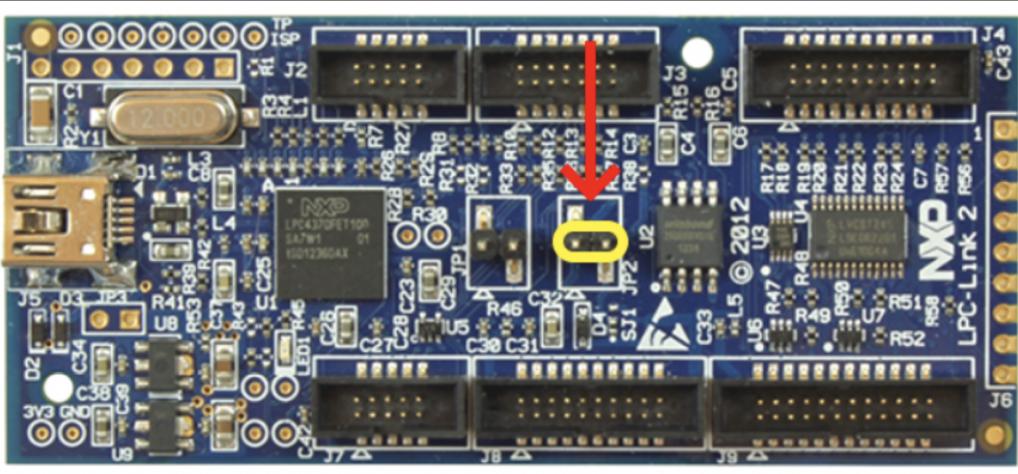


Figure 3: Setting the JP2 for charging via LCP-Link

Once the chip is charged, download the NFC Program Loader Android application. Then select an application from the app, and place the smartphone near the NSH chip for the flashing.

### 4.2 NHS31xx NFC Program Loader Android Application

The NFC Program Loader can be downloaded using this link via an android smartphone: [program-downloader](#). Then, three steps are needed after the installation of the application.

First step consists of downloading a container of some demo applications, proposed by the application. These demo applications can be used as a test to flash. The container has several folders, each of them corresponds to one demo application. And each demo application folder contains at least two files with the extension .bin and .hex.

Third step consists of selecting the demo application to flash.

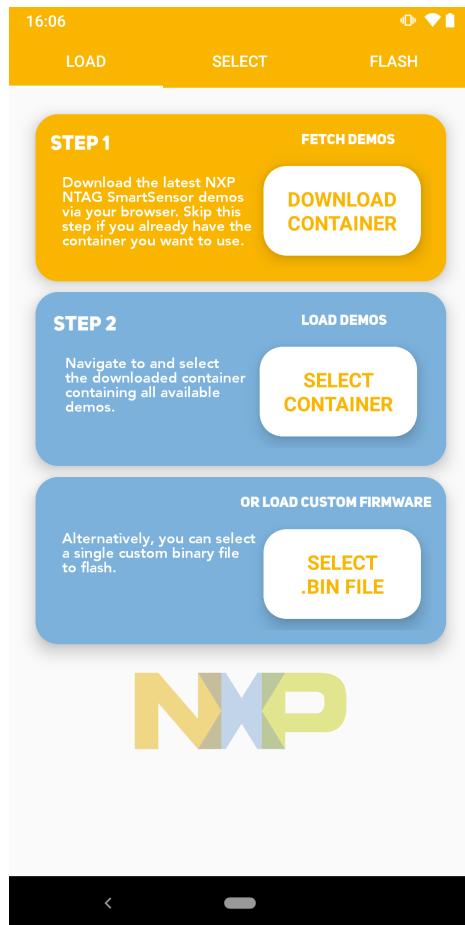


Figure 4: NFC Program Loader Application

### 4.3 Flashing source code

The NFC Program Loader contains some demo applications. However, in most situations, we have our own application to be flashed on an NHS chip. In subsection, the process for flashing from a source code.