



Lyrebird APP firmware update procedure

Overview

In order to update the *Lyrebird APP* firmware (FW), two (!) BIN files have to be programmed (flashed) into the STM32F769I-DISCOVERY board.

One BIN file is the actual firmware which has to go into the internal Flash ROM device (start address 0x08000000). The other BIN file contains the BMP files for the GUI. This one has to be flashed into the onboard, external QSPI flash device (start address 0x90000000).

In order to flash the QSPI content – an External Loader must be configured (see steps below).

Prerequisite

1. Download and install the **ST-LINK Utility**:
http://www.st.com/content/st_com/en/products/embedded-software/development-tool-software/stsw-link004.html
2. Have a **USB cable** ready, with Micro-USB.
Suggestion: use a powered USB hub to connect PC via it to the STM32F769I-DISCOVERY board.
3. Download the latest **Lyrebird APP firmware** (via the *Download* button there):
<http://www.lyrebirdapp.com/support.html>
4. **Unzip** the downloaded firmware files. You should have two BIN files, e.g.:
DISCO769I_QSPI_noDIGI.bin and *STM32F769IDiscovery_noDIGI.bin*

Flash the QSPI GUI pages

The GUI pages are stored as BMP images in file *DISCO769I_QSPI_noDIGI.bin*.

Configure the ST-Link Utility for the onboard *MX25L512G_STM32F769I-DISCO*:

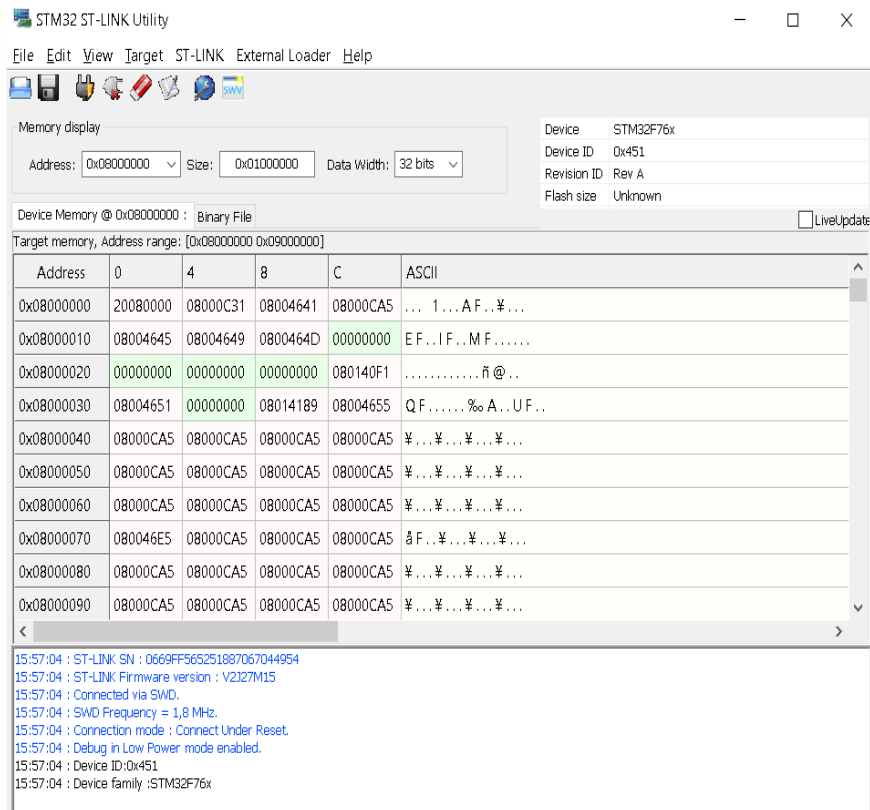


Figure 1: ST-Link Utility main window

- have USB connection to board and click on *Connect* button (the power plug icon)
- Click on *External Loader*
- *Add External Loader* – see list of *Device Name* displayed
- select *MX25L512G_STM32F769I-DISCO* (set the check box)
- see folder *Binary File* in main window
- select this folder, a file selection menu should be opened
- select file *DISCO769I_QSPI_noDIGI.bin*
- set *Address* to *0x90000000*
- click on *External Loader*, see the new device there, select it and see *Program*, make sure *Start address* is set to *0x90000000*
- click on *Start*

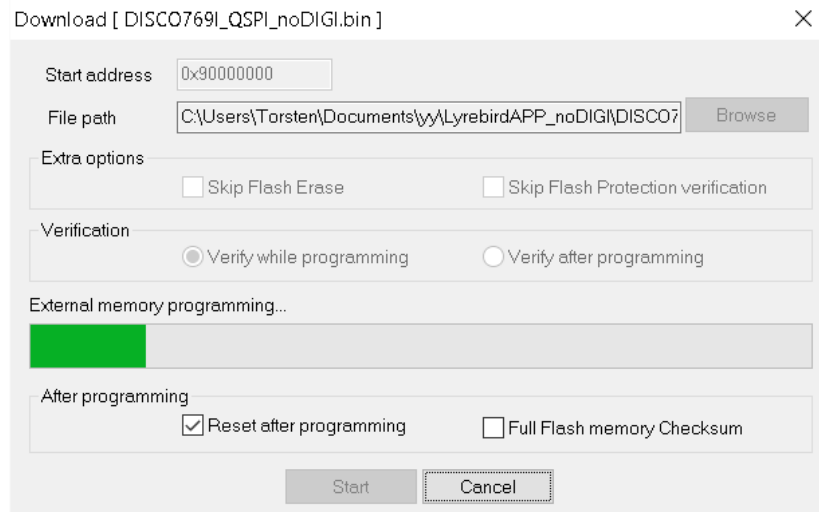


Figure 2: the flash progress on external QSPI device

Flash the Firmware (FW)

- click on *Device Memory* folder in main window
- click the the *File Open* icon (most left)
- select the file *STM32F769IDiscovery_noDIGI.bin*
- check that *Address* is set to *0x08000000*
- click on *Program verify* (the icon looking like a note pad)

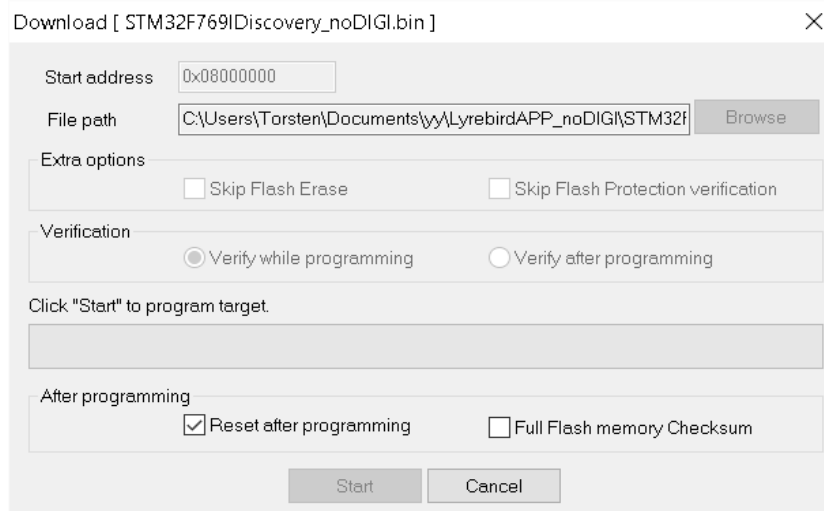


Figure 3: the flash progress for the the actual firmware

Finish the FW update

The *ST-LINK Utility* should boot the device at the end. You should see the main screen of *Lyrebird APP*. Now it is ready to be used.

You can close the *ST-Link Utility*, disconnect the USB (if you do not want to use *UART*). We suggest to press the *Restart* button (the right one) and to start using the device.

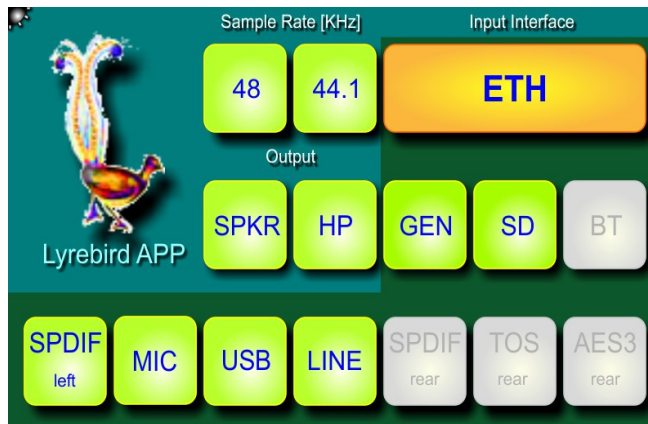


Figure 4: the *Lyrebird APP* main screen (noDIGI)

Remarks

The QSPI flash bin file does not contain any configuration. All **system configurations** are reset to the **default**. You can select your configuration via the *Config Menu* and save it.

Please, see the small icon in the left upper corner which will display the *Config Menu*. Use the *Save* button at the bottom of the GUI page. This will store your preferred system configuration into the QSPI flash device and next time *Restart* with it (right user button pressed).

Sometimes, the ST-Link Utility does not work properly if not a powered USB hub is used, e.g. USB connection directly to PC USB port.

Please use USB connection via a **powered USB hub** just to make sure.

Please, remove also the USB User device (the left USB at the front). It might confuse the *ST-Link Utility*.