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Bootloader Installation - General Comments

Three different options exist to do boot loader installation or upgrade:

- Option 1: Debug adapter approach. Preconditions:
  - STM „ST-Link V2“ adapter, STM Link SW
- Option 2: STM „Defuse“ approach. Preconditions:
  - PC with STM Defuse Tool installed
  - USB to micro-USB cable (to connect PC with OVI40 mini-USB socket)
- Option 3: USB-Stick approach. Preconditions:
  - USB stick with correct boot loader image
  - prior boot loader installation existing and working on OVI40 UI

The latest boot loader SW can be found here. Depending on the upgrade approach chosen (ST-link, DFuse, USB-Stick) you need to either use the

- *.bin file (pure binary file)
- *.dfu file (containing binary and additional info such as target address on MCU)

For a very first boot loader installation (e.g. just after assembling the OVI40 UI board) you need to use the „P6 jumper“ method, see below. Subsequent upgrades do not require this jumper closed anymore.

Please refer to the next sections for more details

"P6 Jumper" Method for very first boot loader upgrade

Close P6 jumper in case:

- There was never a UHSDR boot loader on the MCU (e.g. new assembled board)
- Boot loader malfunctions, no upgrade with Defuse or USB-Stick possible

After closing jumper „P6“ continue with Option 1 (ST-Link) or option 2 (Defuse Tool)

After upgrade please **remember** to remove jumper P6 again!!

Option 1: ST-Link upgrade

ToDo

Preconditions

- Download latest bl-40SDR.bin bootloader from here.
- Connect STM ST-Link V2 adapter to PC and to OVI40 UI.
- ST-Link SW installed and running on PC, USB drivers installed, adapter recognized by PC

- OVI40 UI powered up with 5V (JP1)

Procedure

Further Reading

- ST-Link V2 user manual
- STM32 ST-Link SW Utility user manual
- STM ST-Link/V2 USB drivers available here
- ST-Link SW utility available at bottom of this page

Option 2: DeFuse Tool upgrade

ToDo

Preconditions

- Download latest bl-40SDR.dfu bootloader from here.
- Install ST-Micro DeFuse Tool: http://www.st.com/en/development-tools/stsw-stm32080.html
- Connect PC with OVI40 UI via USB - to - MiniUSB cable. Use MiniUSB plug on OVI40 UI
- ST-Micro DFuse SW installed on PC and running, USB drivers installed, OVI40 UI recognized by PC
- OVI40 UI powered up with 5V (JP1)

Procedure

- Boot loader installation described here

Further reading

- ST-Micro DFuse Tool description
- DfuSe Ressources and SW (bootom of page)

Option 3: USB-Stick upgrade upgrade

ToDo

Preconditions

- Download latest bl-40SDR.bin bootloader from here.
- Format USB-Stick with FAT file partition. MAke sure - just in case - that USB-stick is otherwise empty
- Copy .bin file to stick. Make sure it is copied as file, not just a link / short-cut

- OVI40 UI powered up with 5V (Pin 28 JP1) and 8V (Pin 29 JP1) and GND (Pin 30 JP1). The 8V powers the USB stick via voltage regulator
- Recent UHSDR boot loader installed and working

Procedure

1. Supply +8V on JP1 pin 29 - to pwer USB stick
2. Push and - important - hold switch „BAND -“
3. Supply +5V on JP1 pin 28 - this starts the boot loader
4. insert USB stick into large USB port of OVI40 UI
5. Wait for FW upload to finish
6. Release switch „Band -“
7. Remove +5V, then apply again to reboot OVI40 UI.

Check proper working of newly loaded boot loader

Remove Jumper P6 if previously closed, then boot UI.

When booting the OVI40 UI a correctly installed boot loader will show this splash screen:



Boot loader splash screen at start up

Please also check boot loader version number displayed in system menu corresponds to the version you intended to install.

UHSDR Bootloader further reading

Forum:

- https://www.amateurfunk-sulingen.de/forum/index.php?board=15;action=display;threadid=551;start=75
- https://www.amateurfunk-sulingen.de/forum/index.php?board=15;action=display;threadid=947

- mcHF Inbetriebnahme Tipps

Github Wiki:

- https://github.com/df8oe/UHSDR/wiki/Bootloader-Installation
- https://github.com/df8oe/UHSDR/blob/81dd4afae1a52103b2f1824cba34e2ff35e805ea/mchf-eclipse/useful_manuals/bootloader_doc.md
- https://github.com/df8oe/UHSDR/wiki/Topics:-UHSDR:-SW-Installation-on-SDR
- https://github.com/df8oe/UHSDR/wiki/Firmware-Upgrades

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