Flash tool

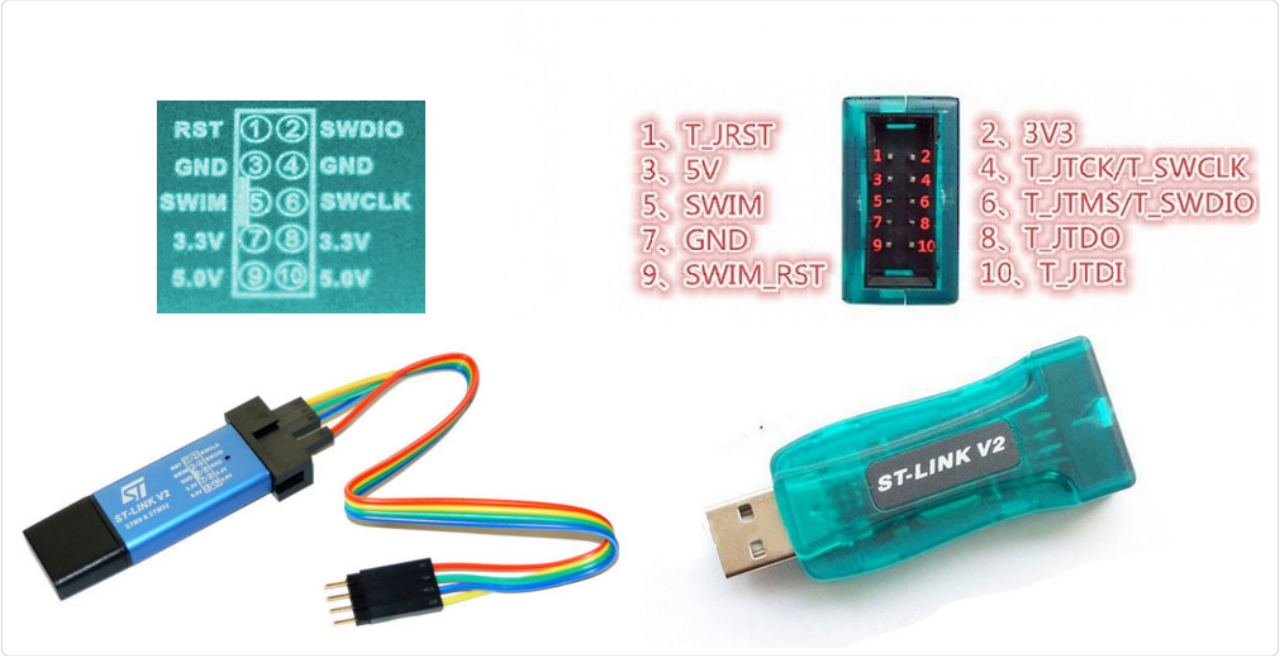
The STM8-Discovery-Boards come with an integrated ST-Link-Interface, but for any other board you need a special flash tools in order to program the CPU. These litte devices look like a generic USB thumb drive and are sold for well under $3 on aliexpress, just search for st-link.

As far as I know there is no solution to use a regular Arduino board as a SWIM-capable flash programmer. The universal programmer uprog2 (http://jcwolfram.de/projekte/uprog2/main.php) (website in german only) is based on an ATmega664 and it might be possible to use an Arduino Mega board with this software (untested).

esp-stlink (https://github.com/rumpeltux/esp-stlink) is a ST-Link programmer based on the ESP8266. It allows programming an STM8 via a Wifi connection. The use of this programmer is supported by stm8flash now, but not yet integrated into the Arduino IDE. I didn't test this yet.

Classic ST-Link V2 flash tools

There are two main versions of the ST-Link V2 compatible flash tool available: One in a USB-Drive-like metal housing (often pink or blue) and one made by Baite in a green plastic housing. Both work well, but they use a different pinout.



Both flash tools support the SWIM protocol for STM8 CPUs and the SWD protocol for the STM32 CPUs. The programmer from Baite additionally supports JTAG and is slightly superior to the more common one in the metal housing.

Pinout

Recently, very similar looking versions of the metal housing flash tool, but with different pinouts, have been seen. Make sure to check your specific tool before building cables! More information on the hardware and the pinouts (https://wiki.cuvoodoo.info/doku.php?id=jtag)

Pinout of Chinese ST-Link V2-clone made by Baite with green plasic housing (supports SWIM, SWD and JTAG):

```
        +-----+
T_JRST  | 1  2| 3V3
5V      | 3  4| T_JTCK/T_SWCLK
SWIM      5  6| T_JTMS/T_SWDIO
GND     | 7  8| T_JTDO
SWIM RST| 9 10| T_JTDI
        +-----+
```

Pinout of Chinese ST-Link V2-clone with metal housing (supports SWIM and SWD):

```
        +-----+
RST     | 1  2| SWDIO
GND     | 3  4| GND
SWIM      5  6| SWCLK
3V3     | 7  8| 3V3
5V      | 9 10| 5V
        +-----+
```

Installation for Linux

Save this as root in in `/etc/udev/rules.d/99-stlink.rules`:

```
# ST-Link/V2 programming adapter

# ST-Link V1, if using a STM8S discovery board
# important: It needs a special entry in /etc/modprob/blacklist
ATTR{idVendor}=="0483", ATTR{idProduct}=="3744", MODE="0666", GROUP="plugdev"

# ST-Link/V2, the china adapter with the green plastic housing
ATTR{idVendor}=="0483", ATTR{idProduct}=="3748", MODE="0666", GROUP="plugdev"
```

Using the STM8S-Discovery board as a flash programmer is a special case and requires some additional blacklisting (Dstm8sdiscovery#usage-with-linux-and-stm8flash).

Installation for Windows

Download and install the ST-Link/v2 driver **before you plug in the flash tool**: STSW-LINK009 driver download (http://www.st.com/en/development-tools/stsw-link009.html) (Registration required, but very easy)

I would love to include this driver with the Sduino install package, but I am not sure if this is covered by the ST licence terms for the driver.

Connection to the CPU board

The pinout of the SWIM connector P3 on my STM8S103 breakout board fits the pinout of the flash tool in the metal housing perfectly:

Signal	SWIM connector P3	Baite ST-Link	Metal ST-Link
3V3	1	2	7
SWIM	2	5	5
GND	3	7	3
NRST	4	9	1

The Discovery boards made by ST all feature a ST-Link interface as well, but only the Discovery STM8S105 supports the SWIM protocol. The Discovery STM32F0308 implements SWD only and is not usable for the STM8.

Pin out CN3	SWD
1	? detect oder so?
2	JTCK/SWCLK
3	GND
4	JTMS/SWDIO
5	NRST
6	SWO
