How to update the firmware by yourself

1. Download the software:

STVP: ST Visual Programmer for programming ST7, STM8 and STM32

http://www.st.com/web/en/catalog/tools/PF210568
Download the sttoolset.zip file, abut 80M size;
Install it by yourself.

2. Install the programmer driver:

Plug the **ST-Link V2 programmer** into the USB socket of your PC computer, it will be detected by the system and ask for installing the driver, follow the steps.
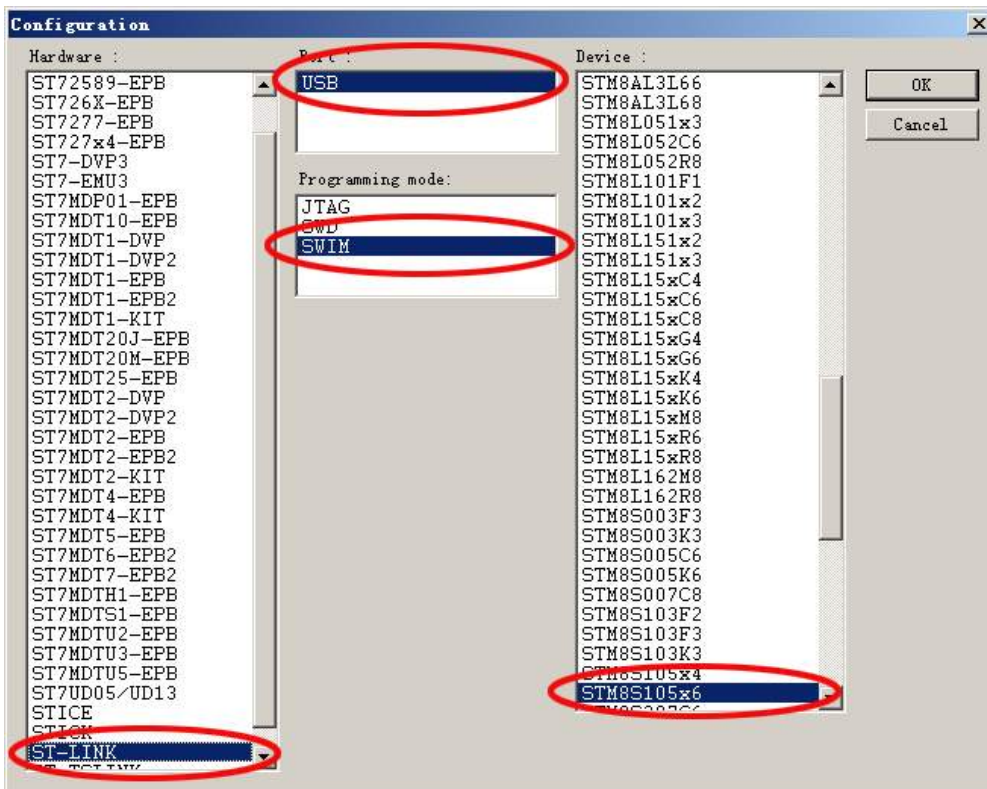
3. Burn the firmware:

Run the "**ST Visual Programmer**" via "**Start**"->"**Programs**"->"**ST Toolset**"->"**Development Tools**"->"**ST Visual Programmer**".

[Step 1]. Configure the programmer:

Select the menu: "**Configure**"=>"**Configure ST Visual Programmer**";
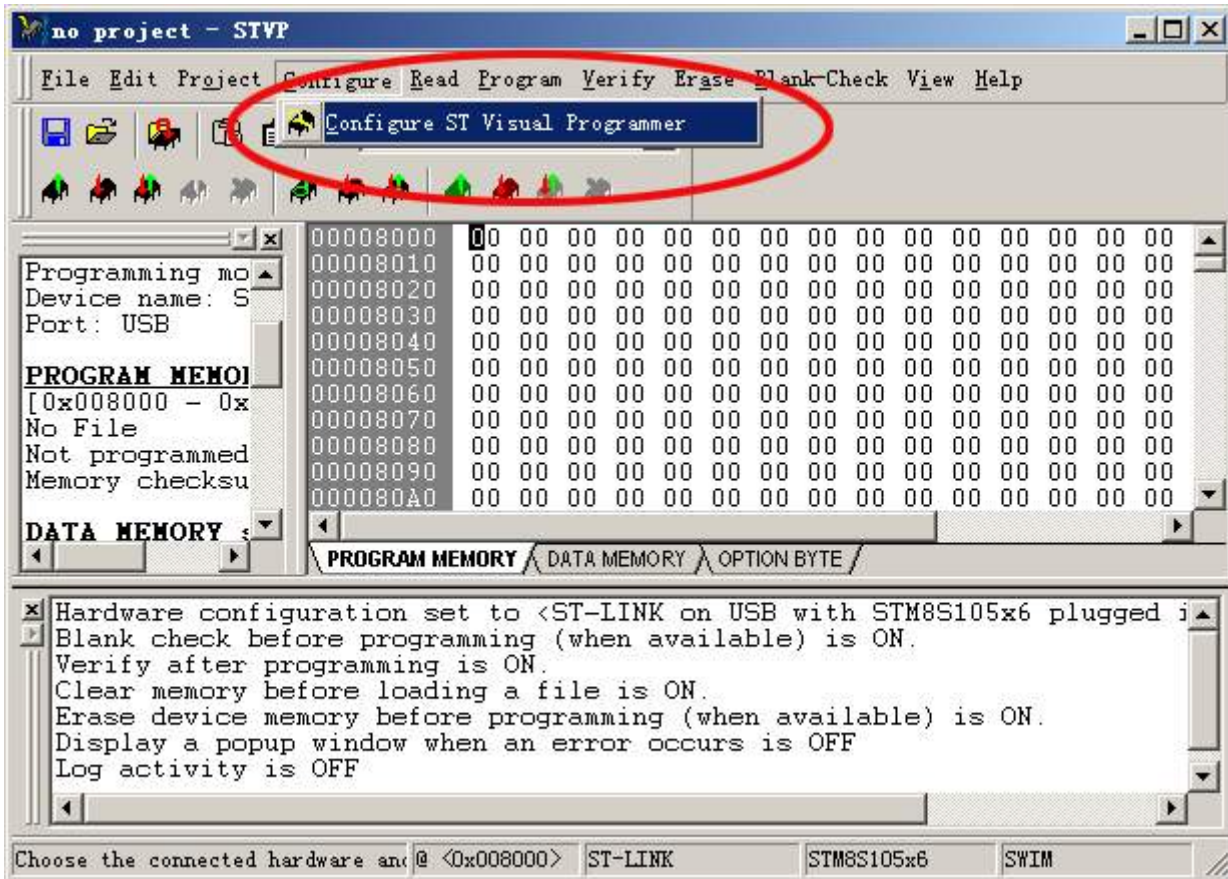
In "**Configuration**" window, select

[Hardware]="**ST-LINK**";

[Port]="**USB**";

[Programming Mode]="**SWIM**";

[Device]="**STM8S105x6**"; (<-check the PCB for the MCU type by yourself.)

Press[**OK**] when finished.

[Step 2]: Open the firmware file:

Select the menu: **"File"**=>**"Open"**, then select the firmware file you have downloaded, like **xxxxx.S19** file, usually compressed in the RAR file, unpack it by yourself.

**(You may download the firmware via http://vfdclock.jimdo.com)**
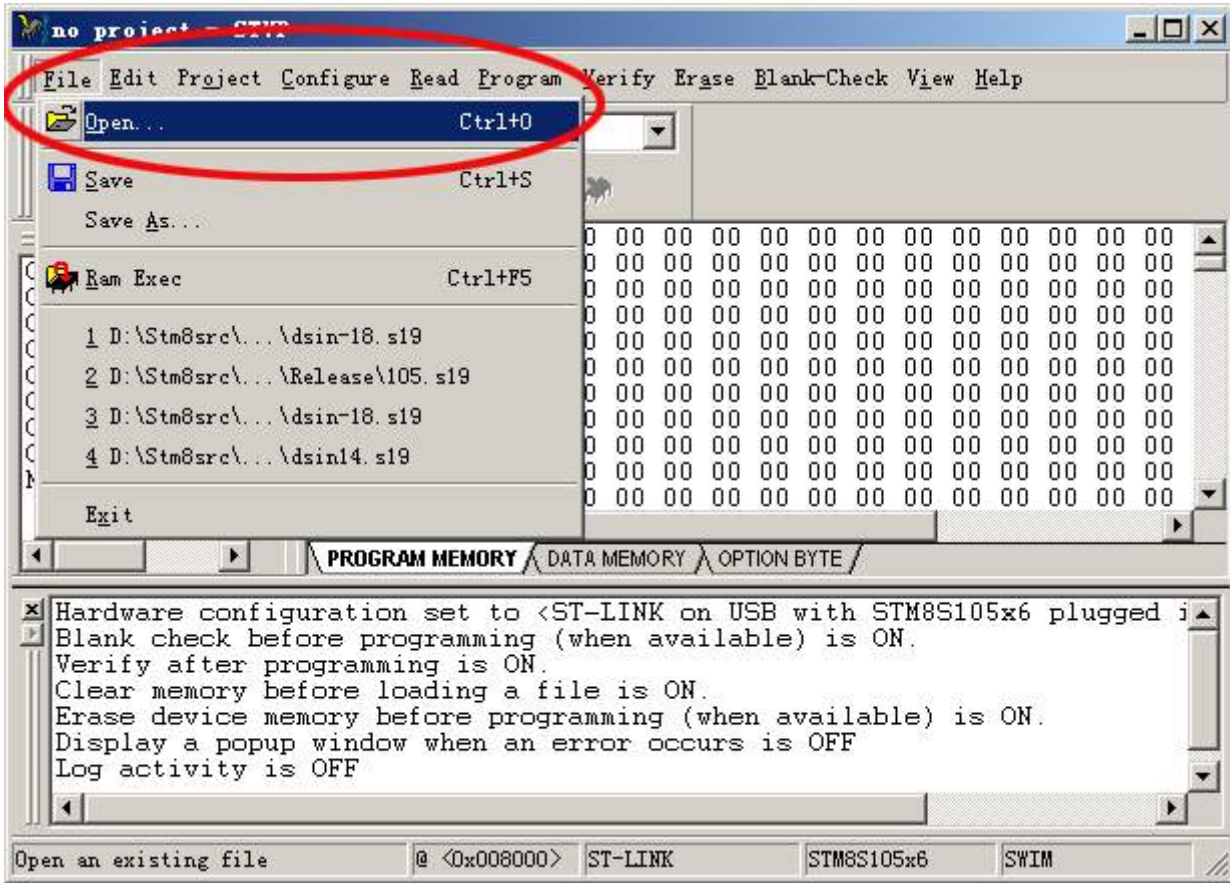
(Tips: If the bottom info window shows few lines like "FILE:line 806:Address 0x4027 is out of range and is ignored!" etc. it's normal. If a lot of lines like this showed up, please wait and till it finished, close the software and reopen it.)
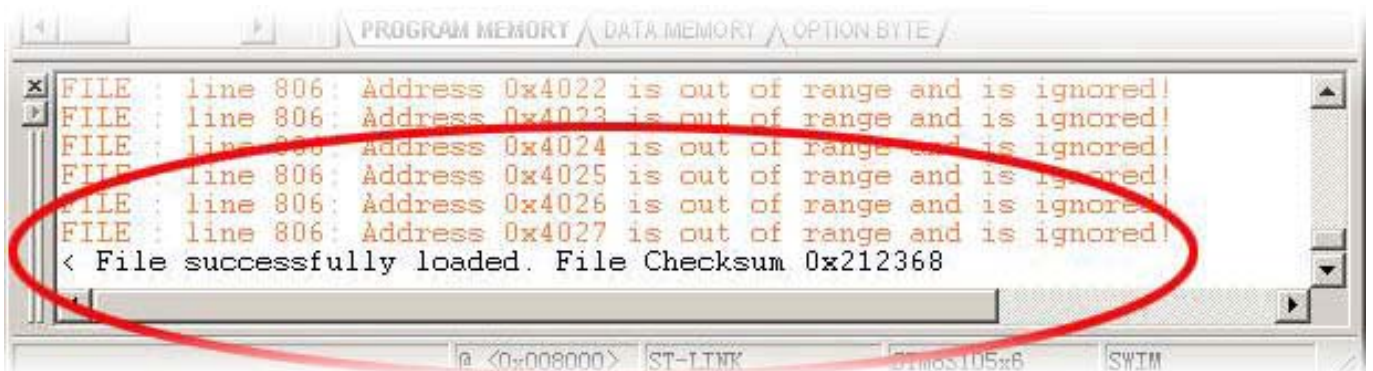
[Step 3]: Configure the MASK BYTE:

Switch to **"OPTION BYTE"** card, set the mask data to [**00 00 A0 00 00 00 00 00 00**];

(Note: The mask byte data may be changed in future, so check the Readme.txt file in the firmware to get the current mask byte).
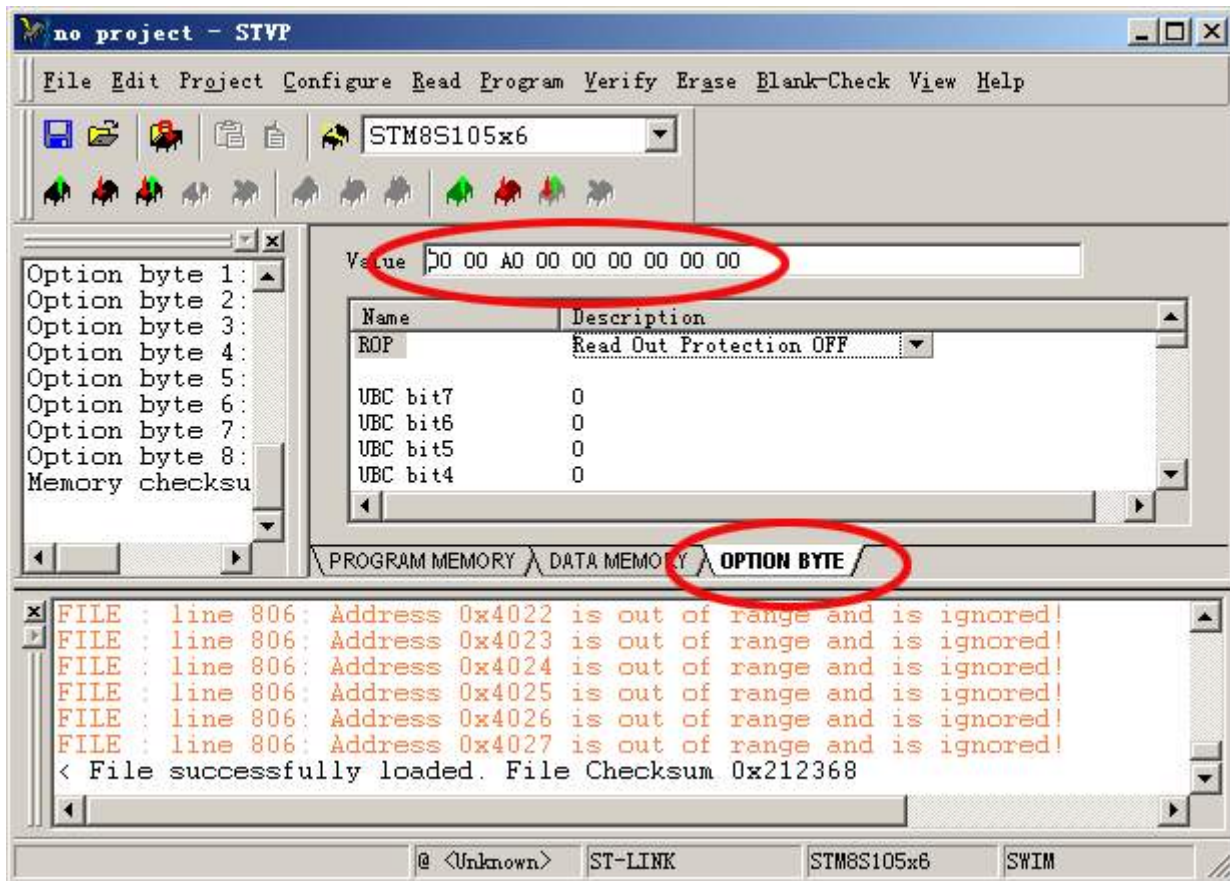
Step 3: Connect the SWIM wires between the Programmer and the Clock:

(NOTE: The swim programmer socket(pins) inside the clock have no invert or over current protection, so please check the connections carefully before you plug the programmer into the USB socket.
Error wires connections will damage the clock's circuit, be careful)

| Programmer Part		Clock part
PIN9	5.0V	+
PIN7	3.3V(no use)	no connection
PIN5	SWIM	S
PIN3	GND	GND

PIN1	RST	RST

No need to connect the main USB power wire to the clock, the programmer will provide the main 5V power.

Tips: For much more safe methord, try this:

Do not connect the "5.0V" pin, just connect the other 3 pins(SWIM+GND+RST) to the clock pins),then use the main USB power(Make sure the USB power and the programmer are connecting to the same computer's USB ports), and give it a try.

[**Step 4**]: Press the Download button to burn the Firmware in.
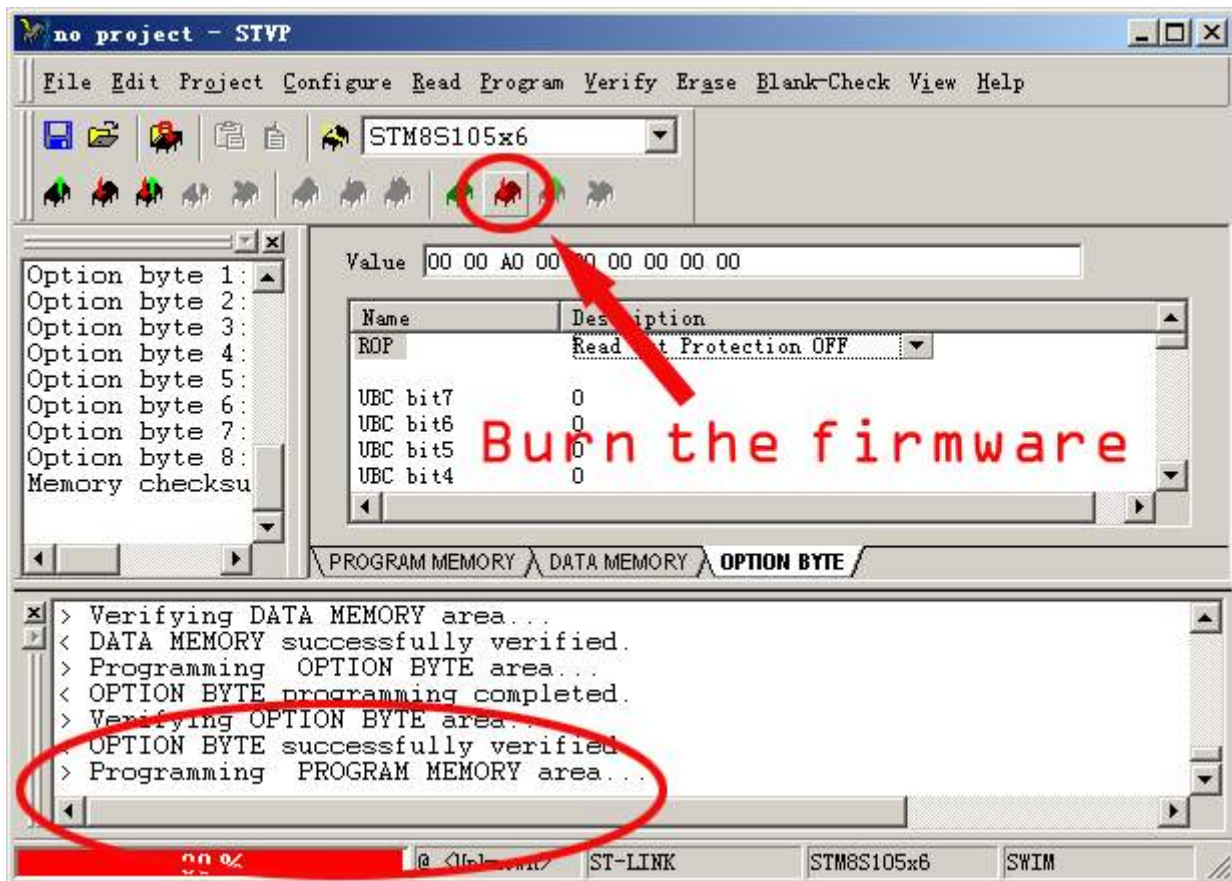
If all fine, after burn the firmware, unplug the wires and re-power the clock to see the result.

If you got the "The device is protected." info in burning, please switch to the [**OPTION BYTE**] card, and check the **Mask byte**, and then use menu: "**Program**"=>"**Current tab**", to erase the protection bit then redo the burn step.
try to use the menu ""
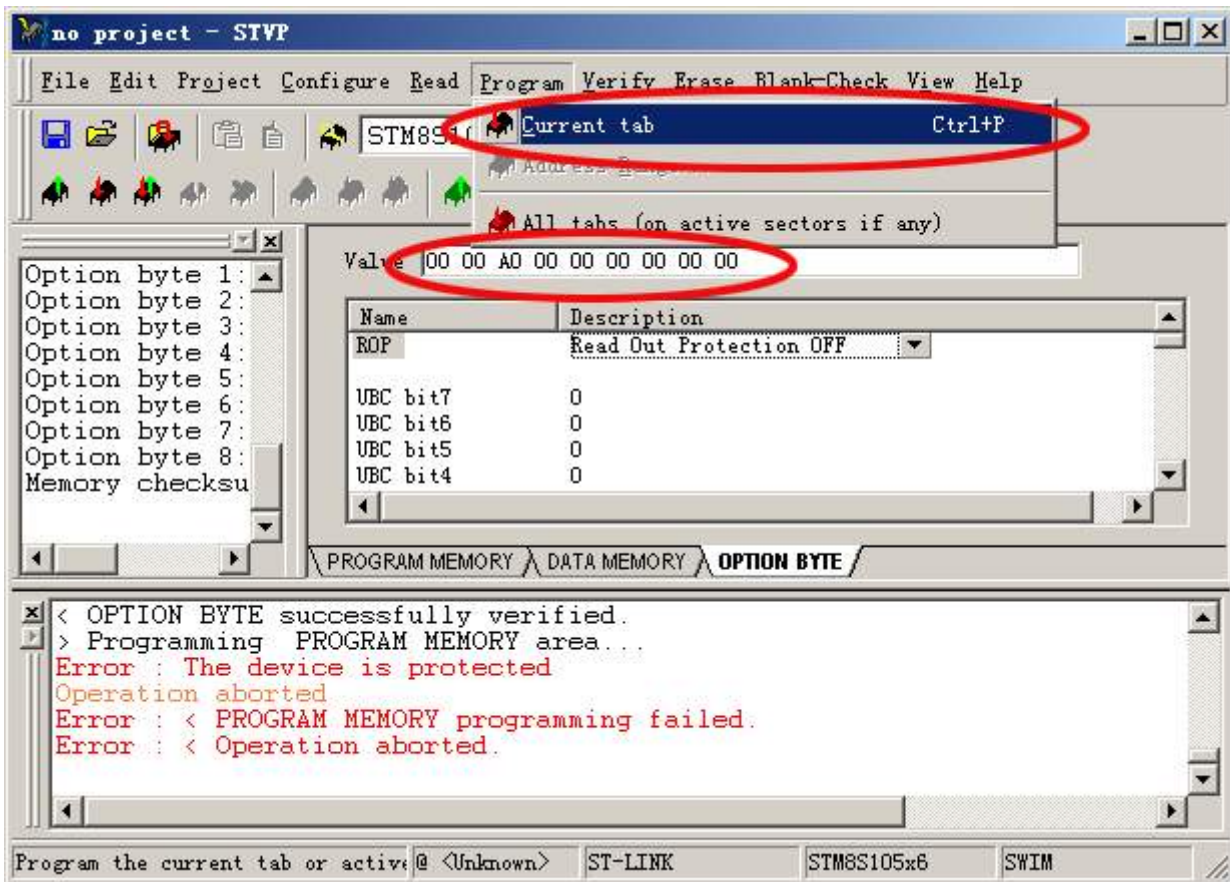
Tips:
If can't burn the firmware in, try:
1. Unplug and re-plug the programmer again;
2. Check the 4 wires between the programmer and the clock;
3. Reopen the programmer software;
4. Reboot the computer;