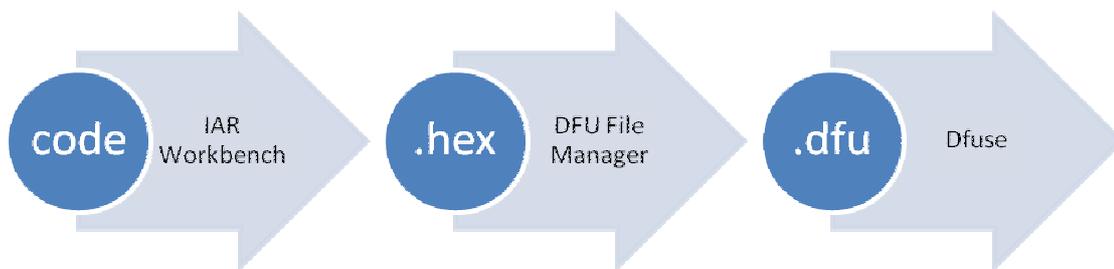


# DSO Nano Firmware Generation

**Intro:** You could modify code and generate binary file via IAR embedded Workbench IDE. Then the binary file (\*.hex) needs conversion to DFU (Device firmware upgrade) image (\*.DFU),



## Tools needed:

A. IAR Workbench evaluation for ARM. (32KB code limit)

<http://code.google.com/p/dsonano/downloads/detail?name=Embedded%20Workbench%204.0%20Evaluation.rar&can=2&q=>

B. Latest APP firmware as reference

<http://code.google.com/p/dsonano/downloads/list>

C. Dfuse

<http://www.st.com/stonline/products/support/micro/files/um0412.zip>

D. A PC running windows with version greater than windows 98.

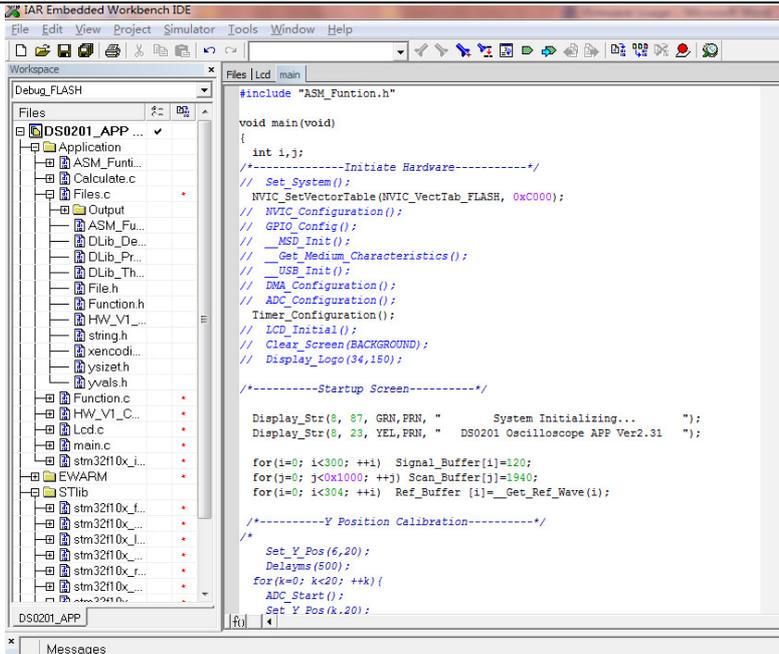
E. A mini USB cable to connect PC and DSO nano.

## Environment

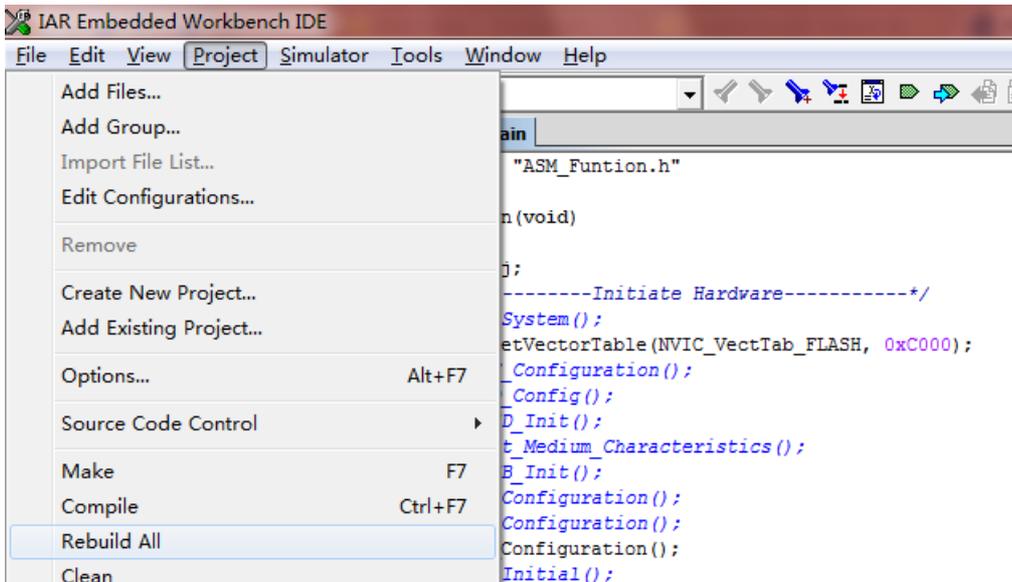
In following sample, we assume the project is located at d:/lab, with project name DS0201\_APP

## Steps:

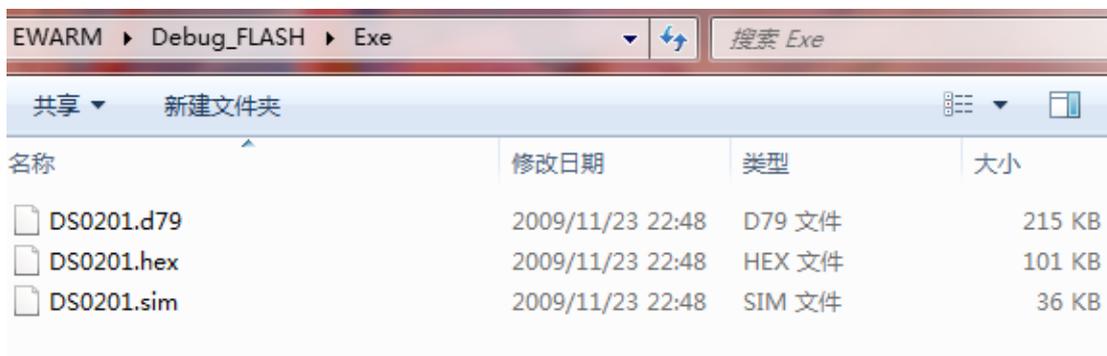
1. Extract firmware to a d:/Lab/
2. Double click d:/Lab/DS0201\_APP\project\EWARM\DSO201.eww to open project.



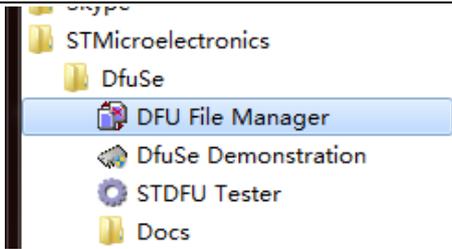
3. After modification, we “rebuild all” to start generate new image.



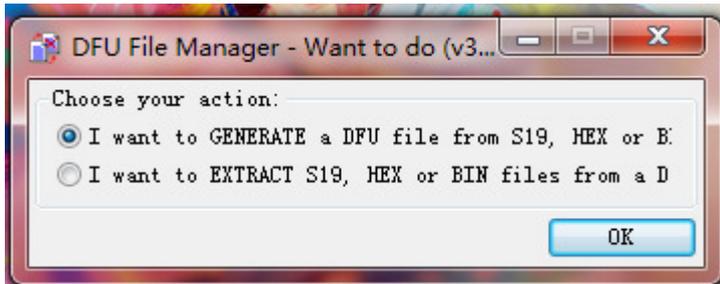
4. By default setting, you will get d:/Lab/DS0201\_APP\project\EWARM\DS0201.hex



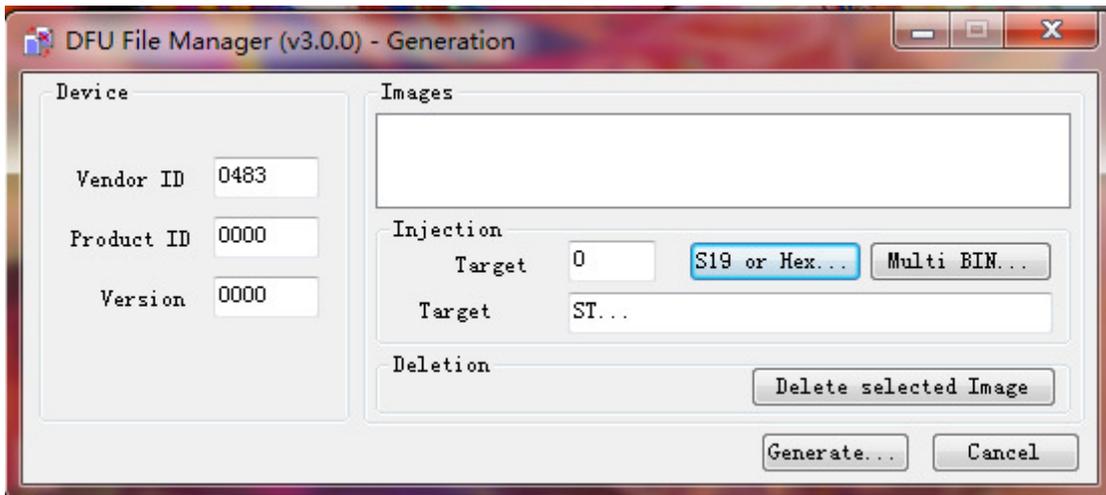
5. Use DFU file manager to generate DFU file from DSO201.hex.



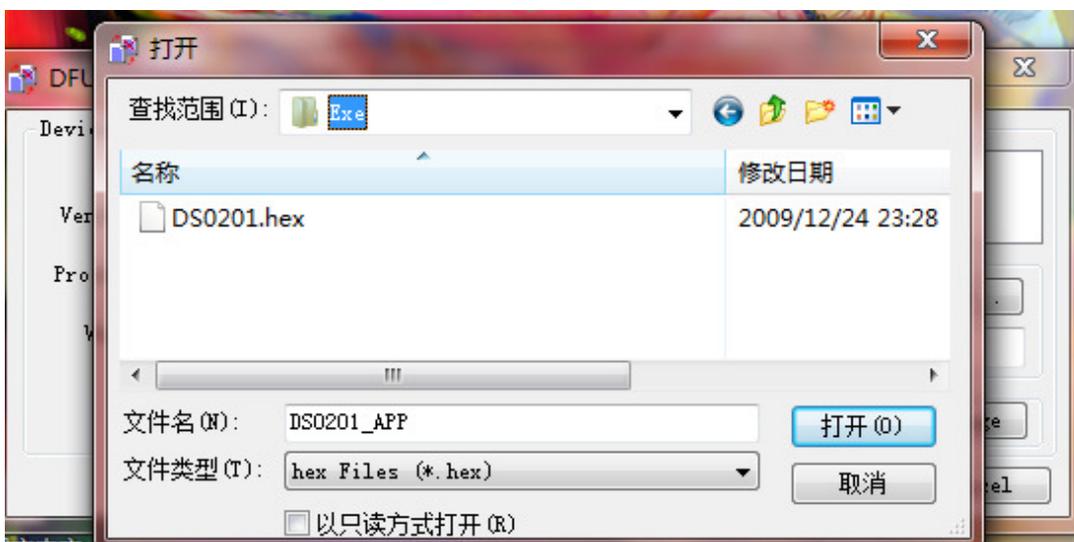
6. Select "Generate"



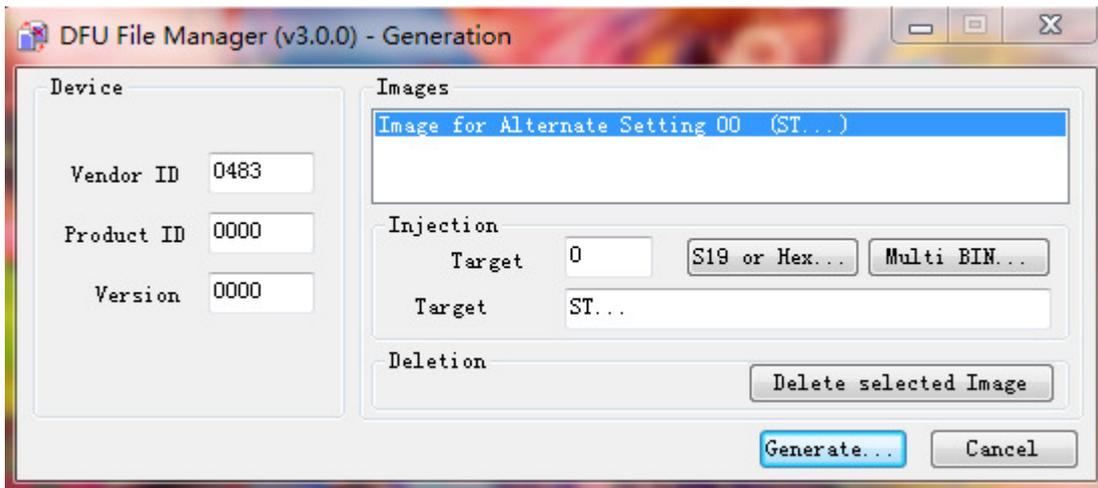
7. Select binary file from "S19 or Hex..." button.



8. Remember to choose file type as .hex file, open the one you just created.



9. Generate...



10. You will get a .dfu file in the same directory of .hex.

## DSO Nano Firmware upgrade

It's easy to upgrade firmware with USB bootloader.

1. Download "DfuSe USB Device Firmware Upgrade" from <http://www.st.com/stonline/products/support/micro/files/um0412.zip> and install. Instruction available at <http://www.st.com/mcu/familiesdocs-110.html#Application%20Note>.

2. Connect Oscilloscope with PC, press and hold , switch on power, until oscilloscope displays:

**"Please Connect to USB Host!"**

**"DS0201 Device Firmware Upgrade Ver 1.0"**

When PC connection is detected,

**"Firmware Upgrading..."**

**"Please Wait"**

**"DS0201 Device Firmware Upgrade Ver 1.0"**

3. Run "Dfuse Demo" on PC, check (1) , select firmware to be uploaded (e.g."DS0201\_FW\_V2.00.DFU") at (2)

**NOTE: In latest versions, you might need to program 1) XXX\_LIB.dfu first and then XXX\_APP file**

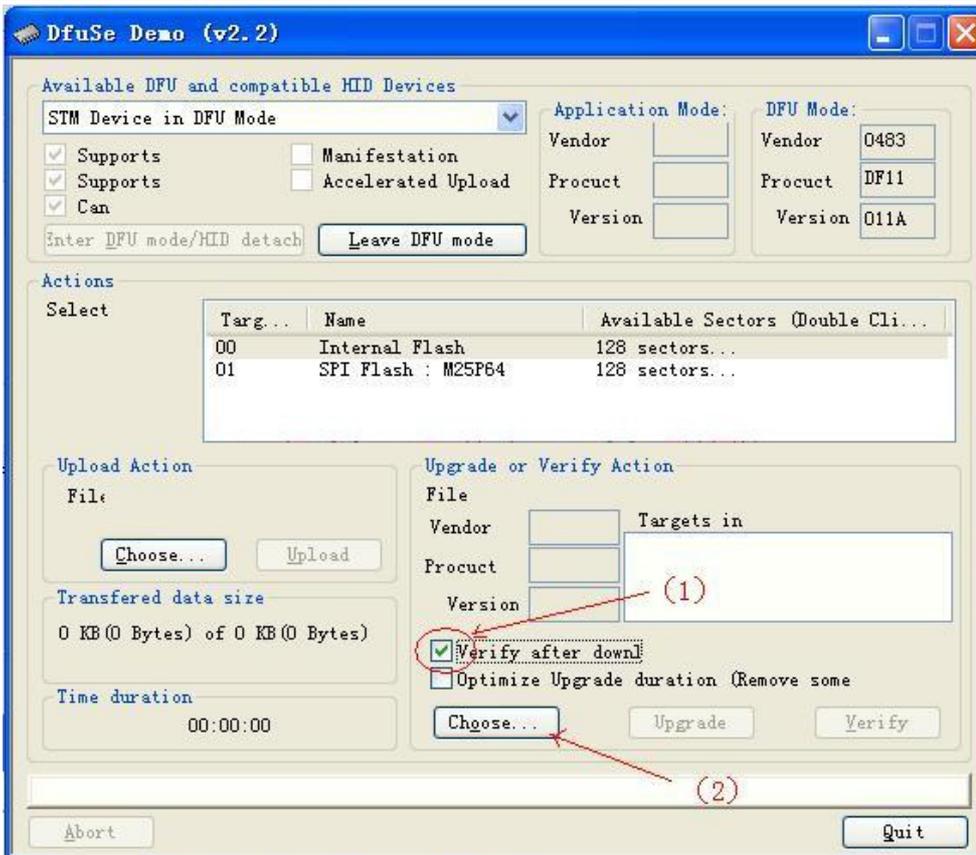
Firmware structure:

**APP** – Application firmware. Basic usage and reference for user modification, kept as simple as possible.

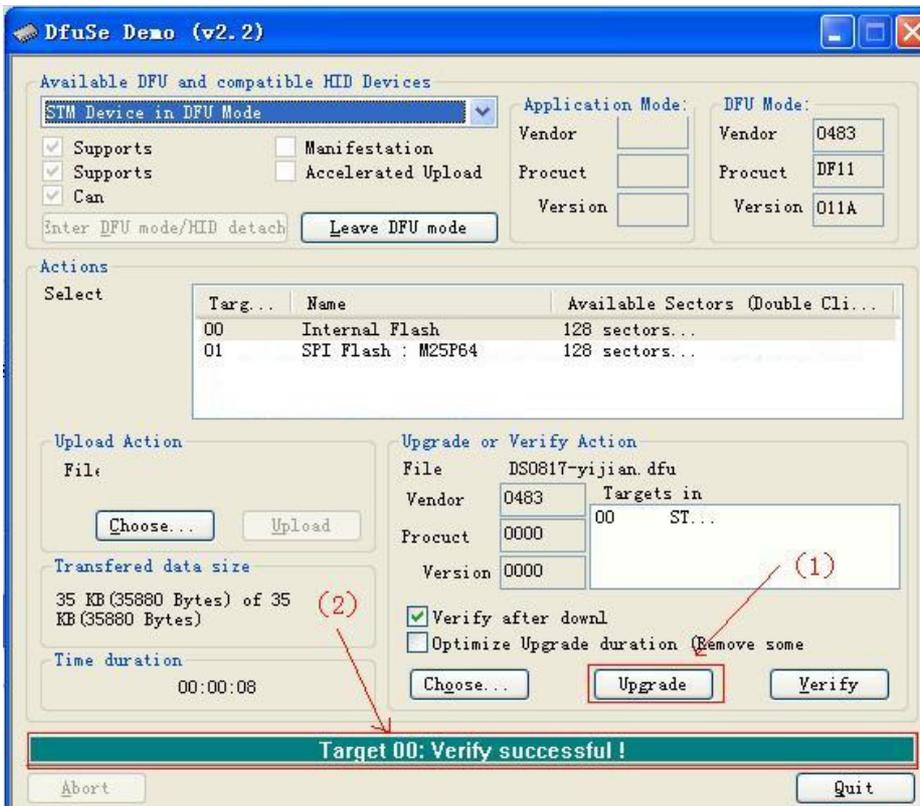
**LIB** – Library firmware. contains libraries for hardware operation, upgrade periodically.

**Bootloader** – contains basic hardware parameter and serial number. Pre-programmed during manufacturing to enable DFU mode upgrading via USB port.

Please note that both APP firmware and LIB firmware (.dfu) files needs to be programmed while upgrading.



4. In the next screen, press (1) "Upgrade", when upgrade finishes successfully, status bar will notify (2)



5. Shut down and reactivate power to use new firmware.