

Guidance on WS90 firmware upgrade

Section1: Brief Guidance

- ① Install the software "Dfuse_Demo_v3.X.X_setup.exe" on a Windows PC
- ② Download the firmware file "WS90_V1.X.X_.dfu"
- ③ Prepare a USB to micro-USB Type A data cable (not included in the package)

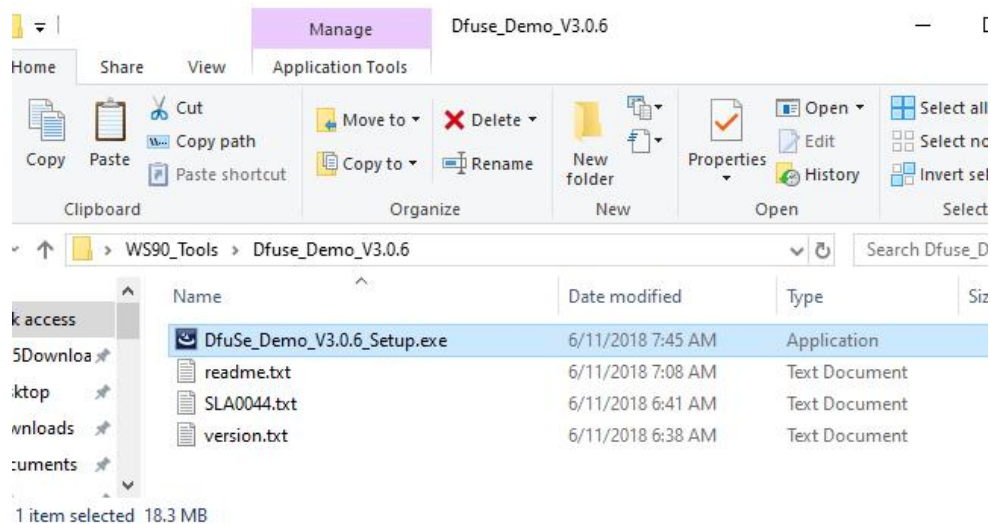


Please see below **Section2: Upgrade** for the details and specific instructions.

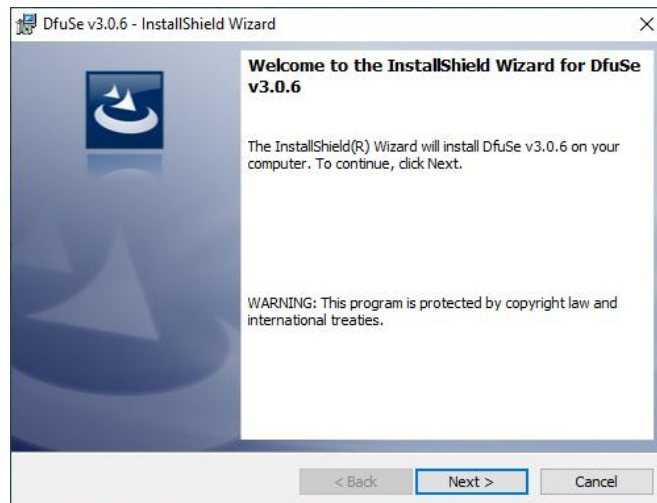
Section2: Upgrade

Step 1: Install DfuSe Demo Software

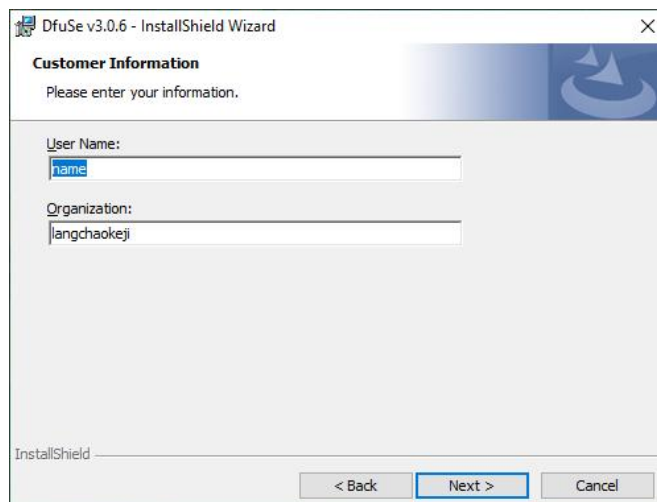
1. Double-click "DfuSe_Demo_V3.0.6_Setup.exe" to start the installation.



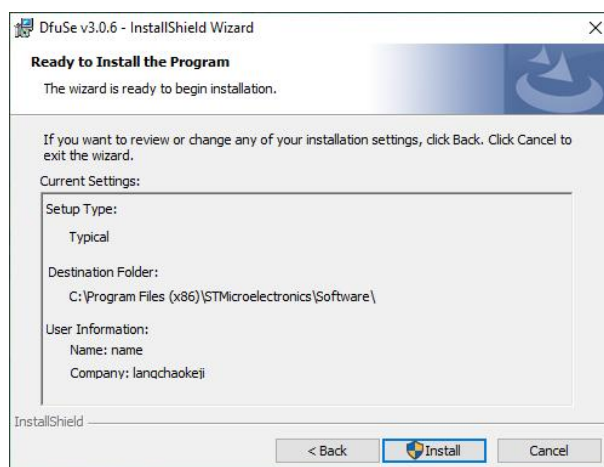
2. Follow the prompts:
Click "Next"



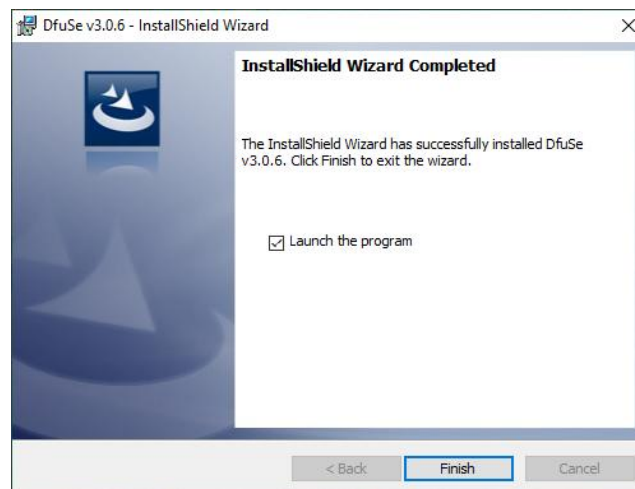
Click "Next"



Click "Install"



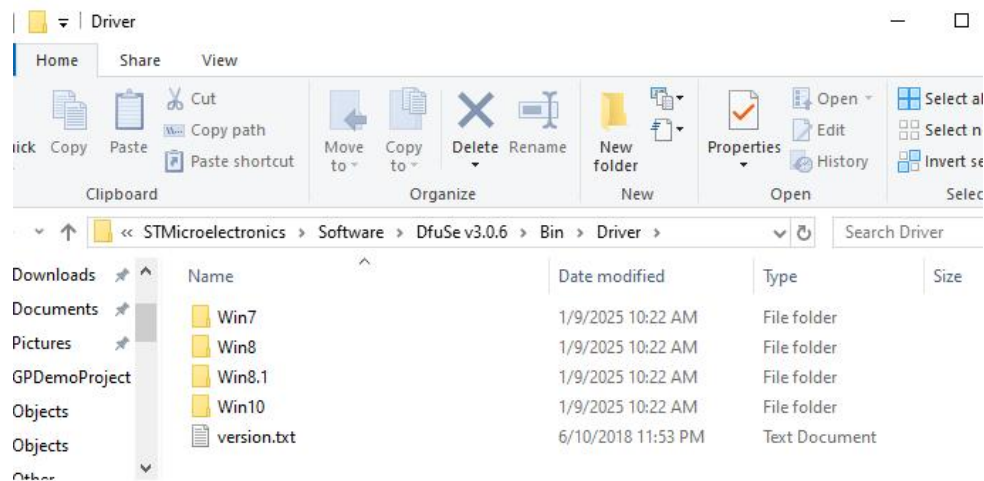
Click the "Finish. Installation completed.



3. Navigate to **C:\Program Files (x86)\STMicroelectronics\Software\DfuSe v3.0.6\Bin\Driver** and select the appropriate driver for your system.

- For 64-bit systems: Run dpinst_amd64.exe.
- For 32-bit systems: Run dpinst_x86.exe.

For example, if your computer system is Windows 10 or Windows 11 64-bit, install the driver found in the "Win10" folder, which is "dpinst_amd64.exe". If the system is Windows 10 or Windows 11 32-bit, install the driver found in the "Win10" folder, which is "dpinst_x86.exe". Similarly, for Windows 7, Windows 8, and Windows 8.1, install the driver found in the corresponding folders "Win7", "Win8", and "Win8.1".

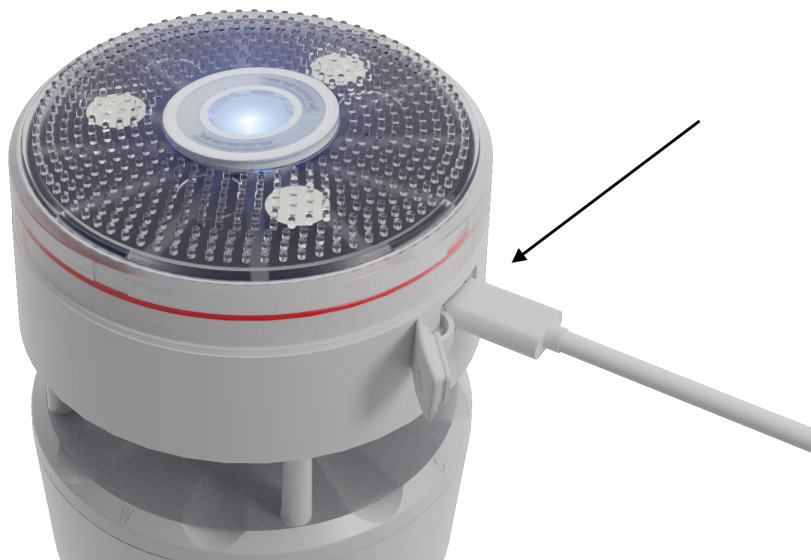


Step 2: Connect WS90

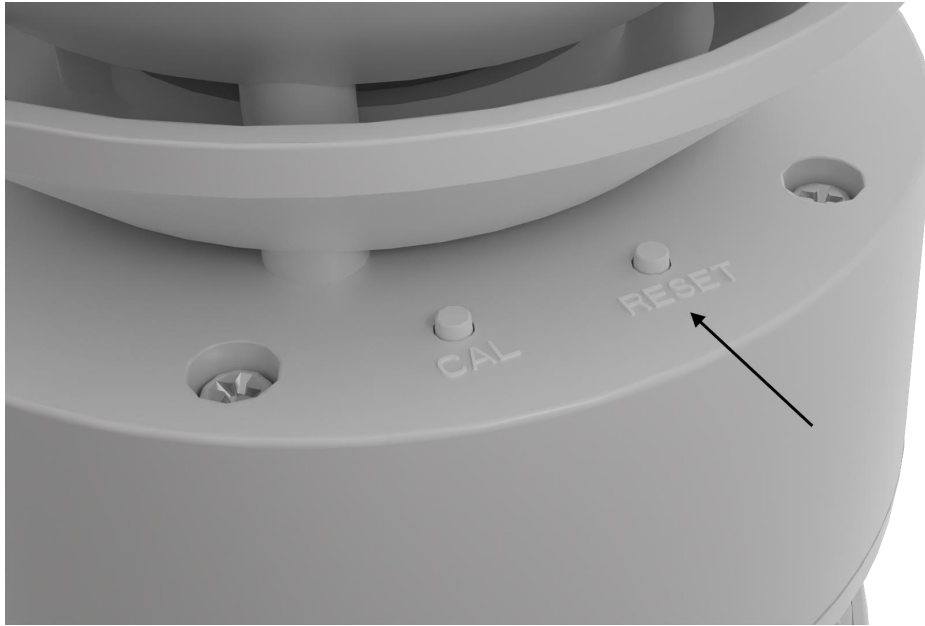
1. Remove the white silicone sleeve from WS90.



2. Use a USB data cable with a mini-USB plug at the WS90 end to connect the WS90 to your PC (ensure it is a data cable, not just a charging cable).



3. Press the "**RESET**" button on the WS90 to enter reboot mode.

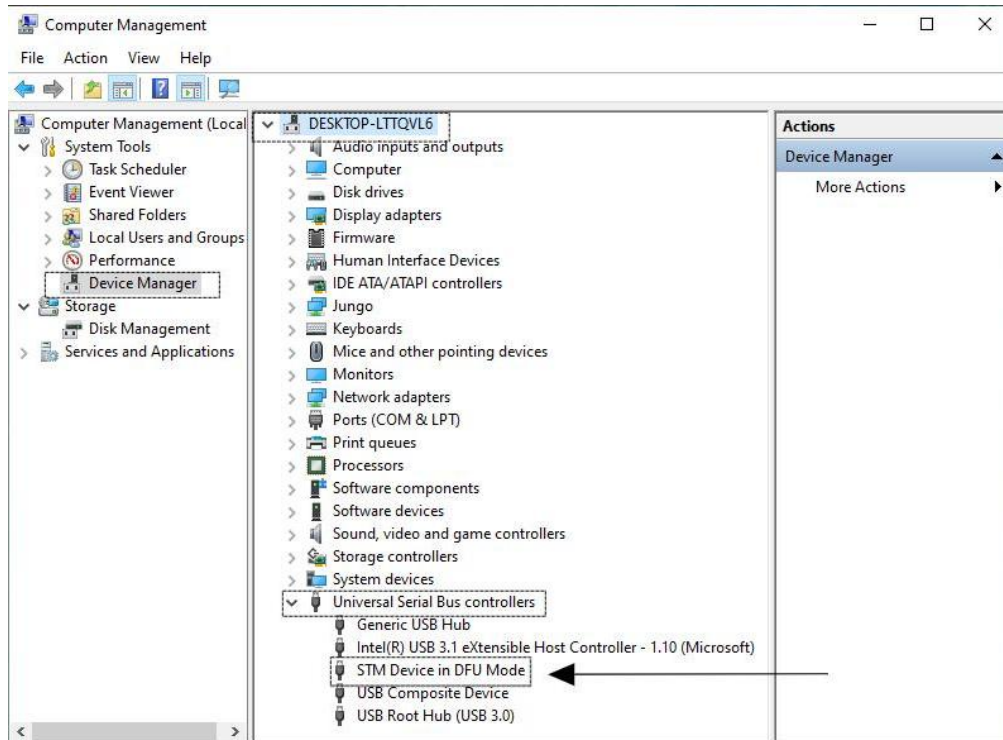


4. Verify the blue LED on the WS90 is flashing..

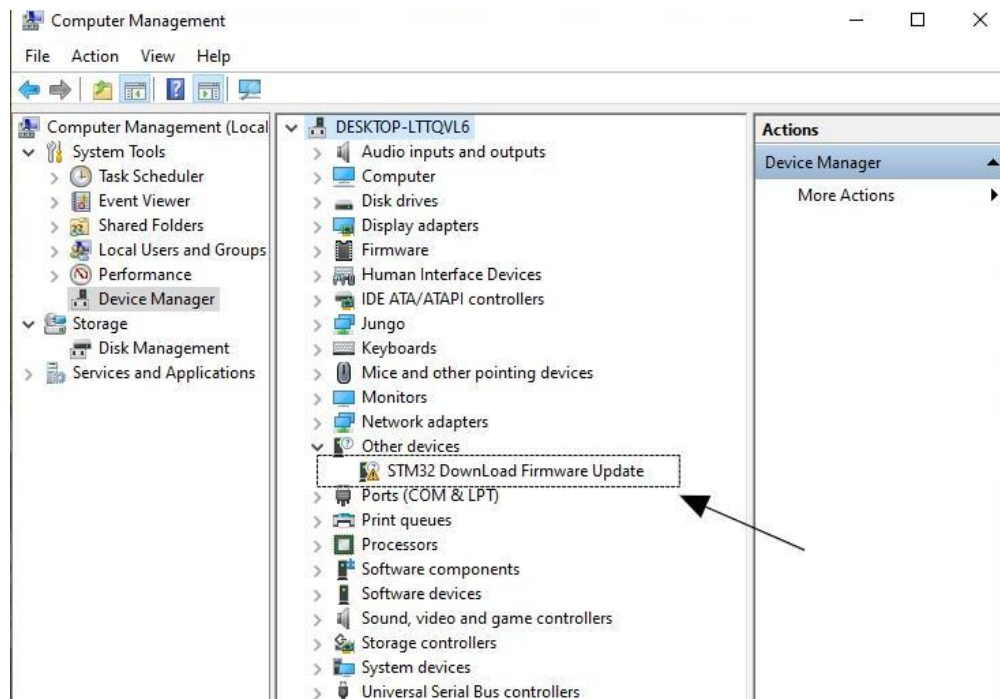


Step 3: Driver Installation Check

1. Open the Device Manager on your computer
 2. Confirm that "STM Device in DFU Mode" is listed.
- The "STM Device in DFU Mode" indicates that the driver is installed correctly.



- The "STM32 Download Firmware Update" indicates that the driver is not installed.



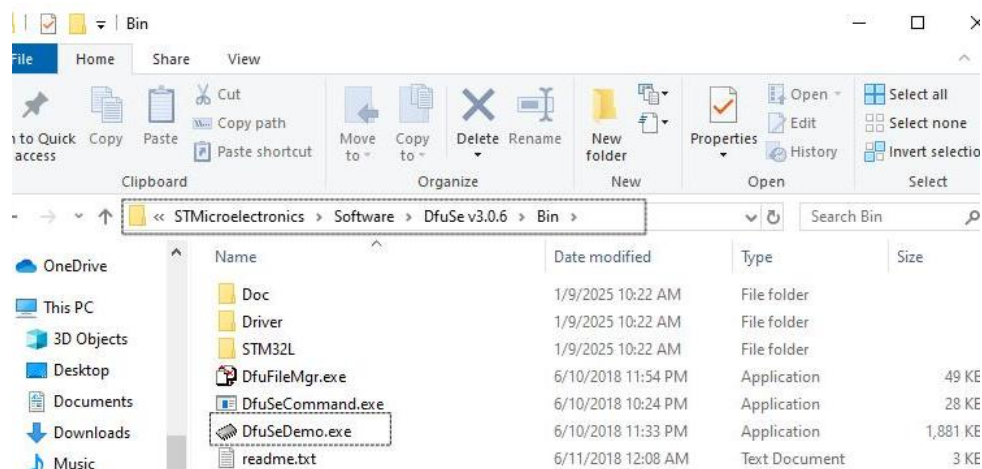
At this point, follow these steps:

- Reinstall the driver.
- If the issue persists, contact support@ecowitt.com for further assistance.

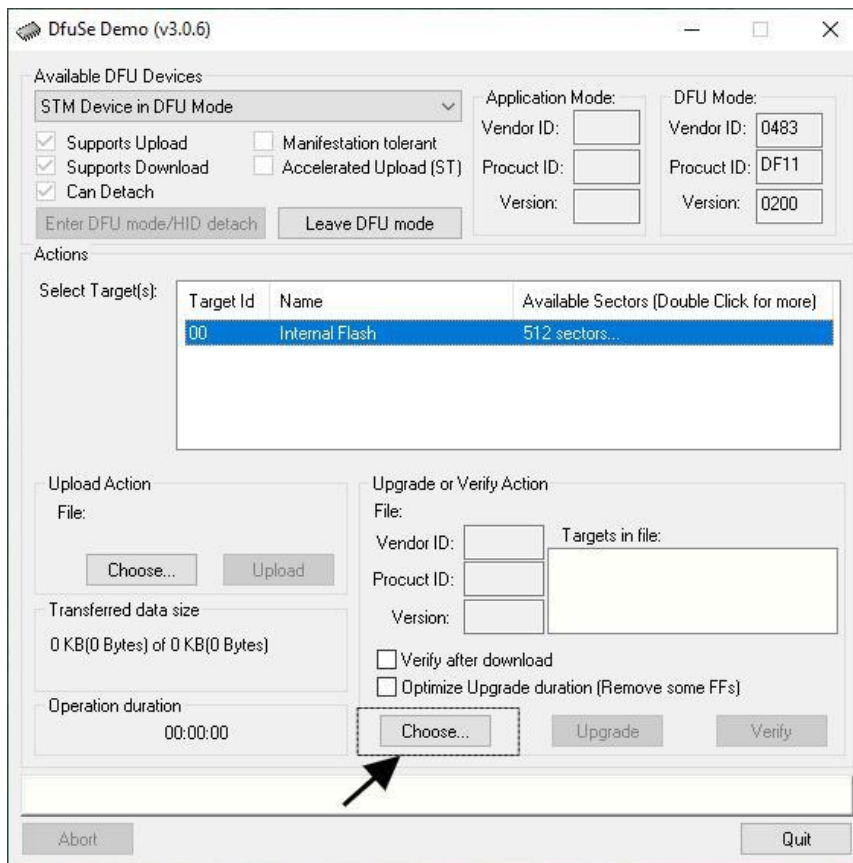
When you open the DfuSeDemo program without the USB connection to the WS90 being established yet, the top field with the driver info will be empty. After connecting the cable and pressing the RESET button, Windows should recognize the device, make a sound and the driver name should appear in the top left field of the DfUSeDemo interface (available DFU devices).

Step 4: Perform Firmware Upgrade

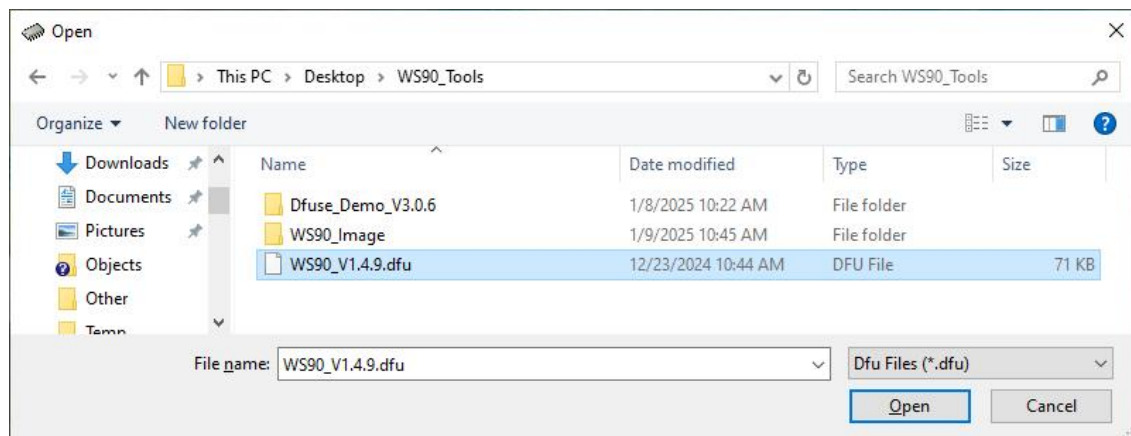
1. Open the software DfuSeDemo.exe.



2. Click Choose....



3. Locate and select the firmware file "WS90_V1.X.X_.dfu" file.



4. Enable "Verify after download".

DfuSe Demo (v3.0.6)

Available DFU Devices

STM Device in DFU Mode

☒ Supports Upload

☐ Manifestation tolerant

☒ Supports Download

☐ Accelerated Upload (ST)

☒ Can Detach

Enter DFU mode/HID detach

Leave DFU mode

Application Mode:

Vendor ID:

Product ID:

Version:

DFU Mode:

Vendor ID: 0483

Product ID: DF11

Version: 0200

Actions

Select Target(s):

Target Id	Name	Available Sectors (Double Click for more)
00	Internal Flash	512 sectors...

Upload Action

File:

Choose...

Upload

Transferred data size

0 KB(0 Bytes) of 0 KB(0 Bytes)

Operation duration

00:00:00

Upgrade or Verify Action

File: WS90_V1.4.9.dfu

Vendor ID: 0483

Product ID: DF11

Version: 0200

Targets in file:

00 ST...

☒ Verify after download

☐ Optimize Upgrade duration (Remove some FFs)

Choose...

Upgrade

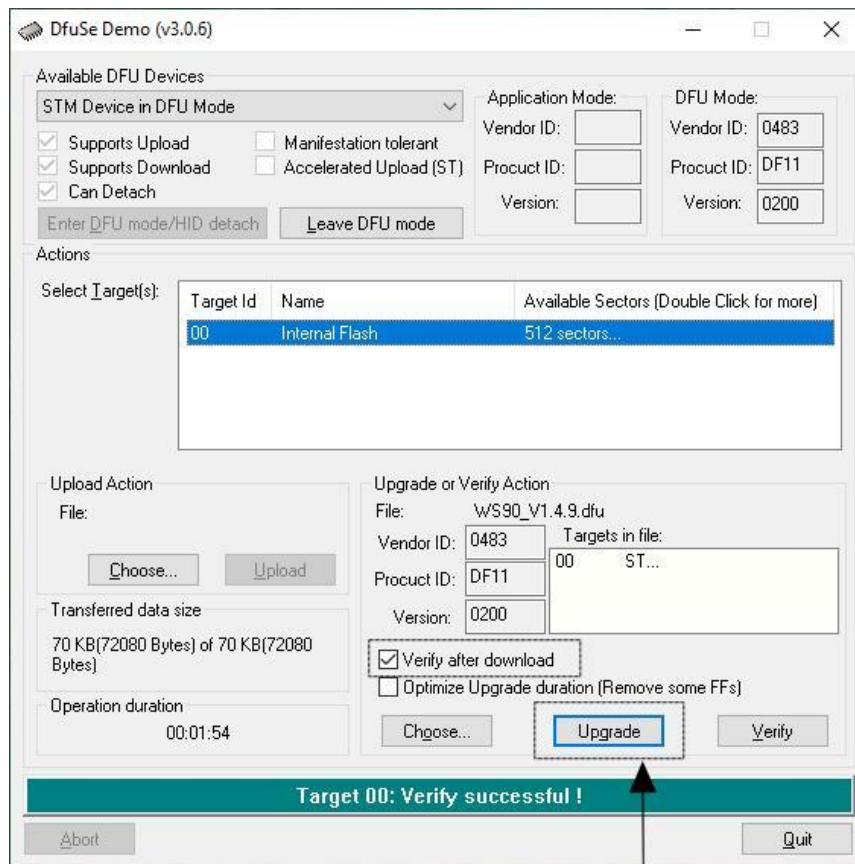
Verify

File correctly loaded.

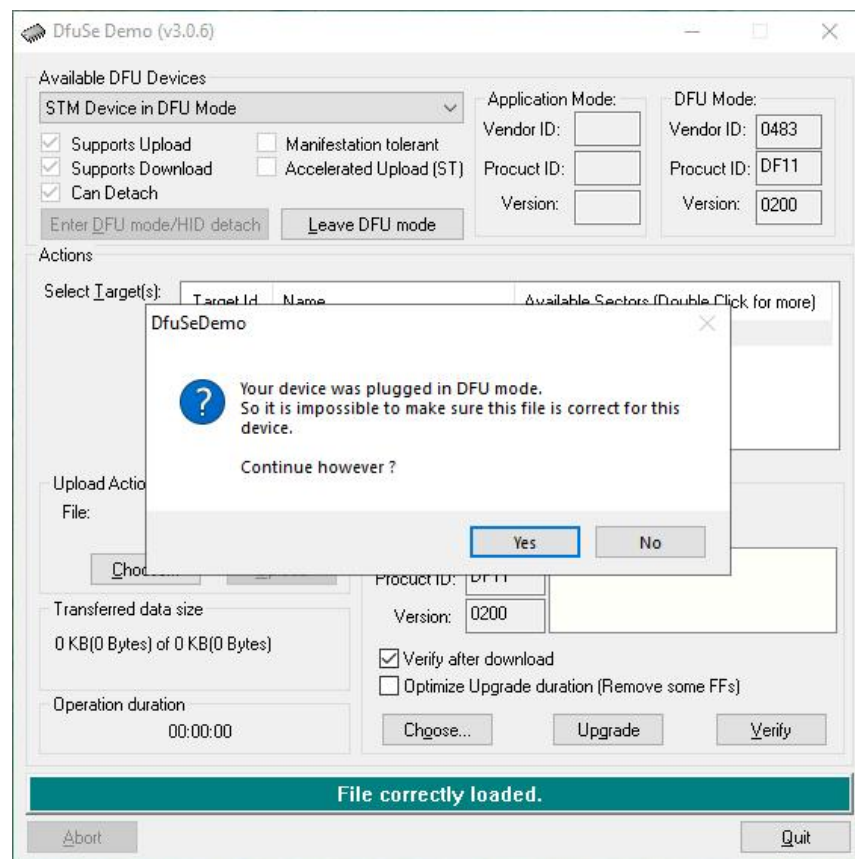
Abort

Quit

5. Click "Upgrade".

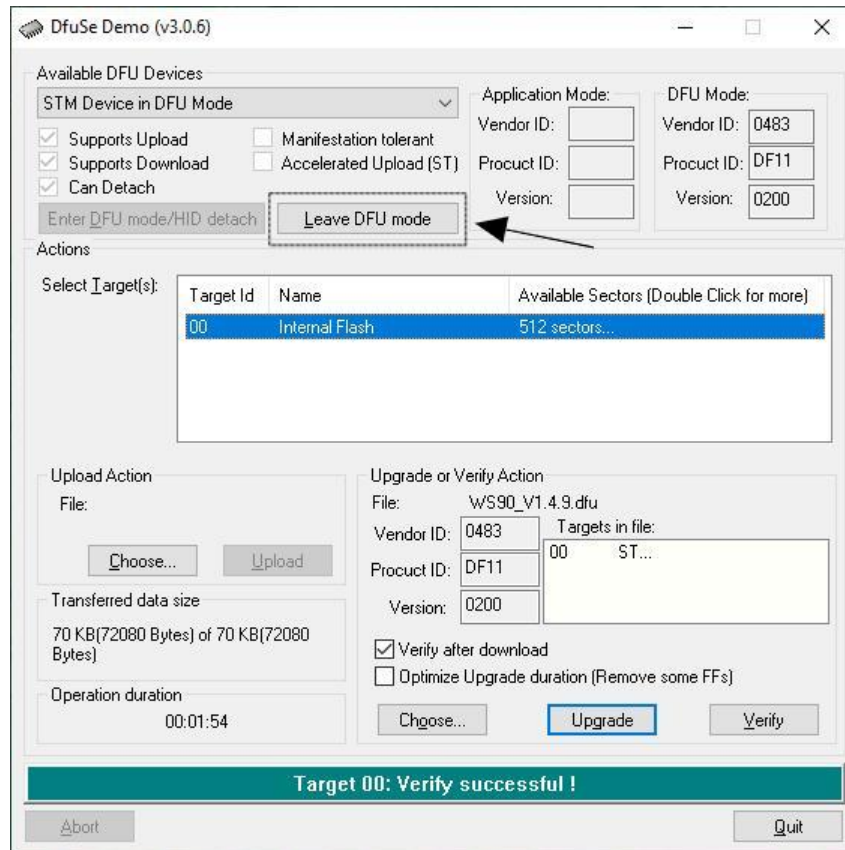


6. Confirm with "Yes".



7. After the upgrade is complete, the interface will show a completion message.

- 1) Click on "Leave DFU mode" to exit the DFU mode.
- 2) The program will automatically jump to the completed upgrade screen.
- 3) Remove the USB cable. Press the "reset" button on the WS90 to enter reboot mode.
- 4) Ensure the LED flashes every 8 seconds to confirm a successful reboot.



Step 5: Final Steps

Ensure that the waterproof cover of the USB port is closed. And then install the white silicone sleeve.



Troubleshooting:

In principle, it doesn't matter if the USB outlet you use on your computer is USB2.0 or USB3.0; USB ports, generally, can be "moody" pieces and be a nightmare. Sometimes, you have to reboot your computer first to get it to work electrically properly. Sometimes, a simple restart/reboot is not enough (warm restart), but you need a complete shutdown and a subsequent restart (cold restart) to get "the electricity" straight. Sometimes, you must change the USB port or computer before the connection gets adequately established.

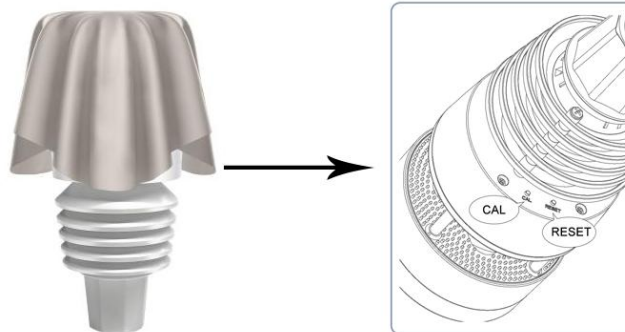
Section3: 0 Wind Speed Calibration.

Wind speed needs to be re-zeroed after the firmware upgrade (establish the zero baseline)

Use a fan to test if the wind speed responds at all angles !

1. Perform calibration in a windless room. Cover the top and wind speed sensor area of the WS90 with a soft cloth.

- Hold the CAL button for 3 seconds until the LED lights up for 5 seconds and starts flashing.
- Wait until the LED turns off, indicating that the wind speed calibration is complete and reset to the zero baseline is done.



2. For some people the LED flashing is disturbing. To stop the LED from flashing, press and release the CAL button three times shortly.

- To restart the LED light function, press the CAL button three times again.