

The following guide will show you how to update the firmware on your tinySA

WARNING There is a bug with dfu-utils 0.11 that it is extremely slow at writing in USB 3:

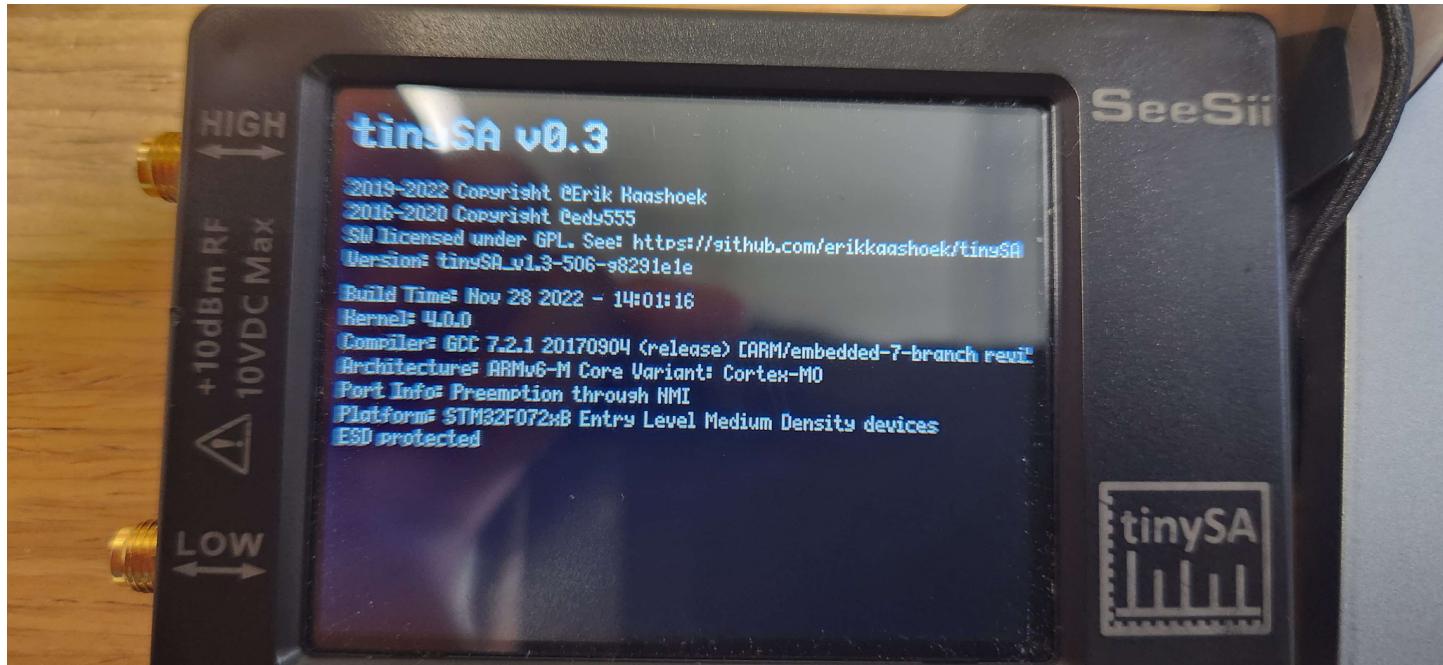
<https://sourceforge.net/p/dfu-util/tickets/4/>.

https://groups.io/g/nanovna-users/topic/slow_nanovna_h_fw_upgrade/75330860

Unfortunately I didn't have a USB 2.0 port to test, but using a 3.1 port took **approximately 2 hours**.

Read all instructions before trying.

Verify the version in which you are running by going under the menu option CONFIG > VERSION



You can also open up the serial console and type 'version' instead. Below is an output from GTKTerm, but on Windows you can use something like PuTTY, or on macOS / *nix systems 'screen'.

```
GTKTerm - /dev/ttyACM0 9600-8-N-1
File Edit Log Configuration Control signals View Help
help
commands: version reset freq dac sweep_voltage saveconfig clearconfig data
frequencies scan scanraw zero sweep test touchcal touchtest pause resume
repeat status caloutput save recall trace trigger marker line usart usart_
cfg capture refresh touch release vbat vbat_offset help info color if actu
al_freq attenuate level sweeptime leveloffset levelchange modulation rbw m
ode spur load ext_gain output deviceid selftest correction calc threads
ch> version
tinySA_v1.3-506-g8291e1e
ch> 
```

/dev/ttyACM0 9600-8-N-1 DTR RTS CTS CD DSR RI

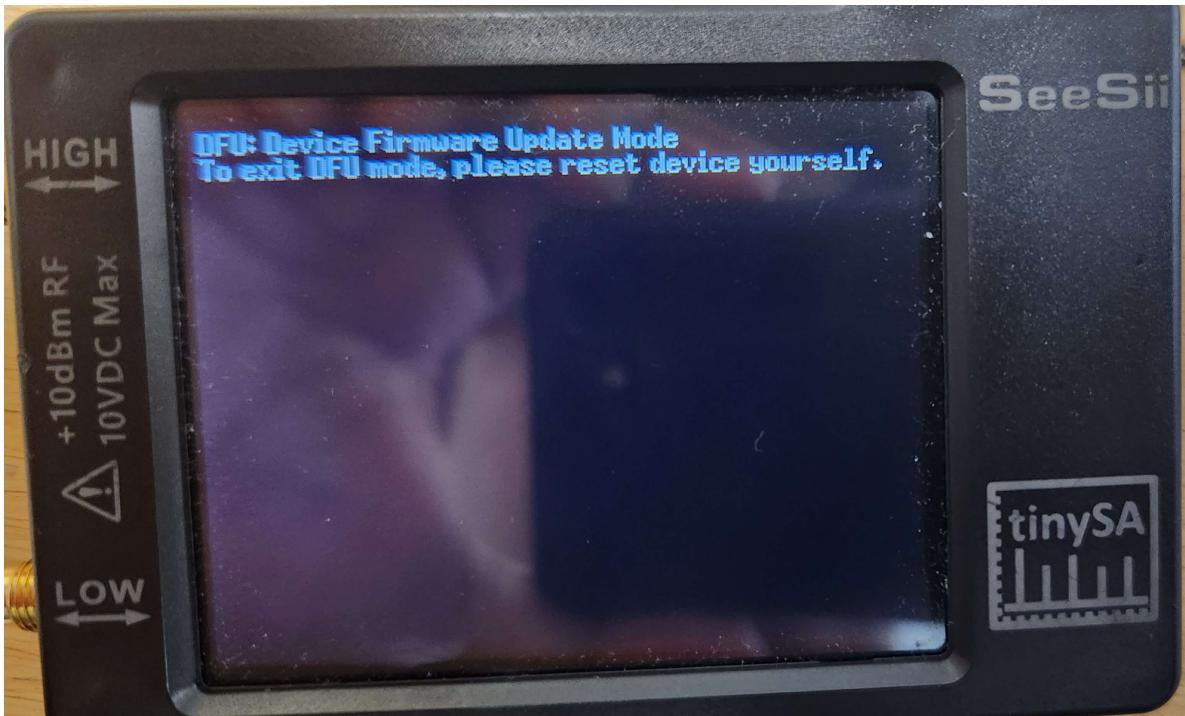
Go to the tinySA's firmware repository and download the version in which you want to use (recommended latest)
<http://athome.kaashoek.com/tinySA/DFU/>

Download the latest release of dfu-util binaries. These can be found here <https://dfu-util.sourceforge.net/releases/>
The examples below are running in Ubuntu, but the commands with dfu-util is basically the same. Just replace the binary shown in the example to your operating system's.

Here I have downloaded the firmware dfu-util-0.11-binaries to ~/Downloads/tinysa

```
:~/Downloads/tinysa$ ls -lah
total 465M
drwxrwxr-x 5          4.0K Nov  7 09:52 .
drwxr-xr-x 3          4.0K Nov  7 09:52 ..
drwxrwxr-x 6          4.0K Sep 28 09:49 dfu-util-0.11
drwxrwxr-x 6          4.0K Sep  5 2021 dfu-util-0.11-binaries
-rw-rw-r-- 1          1.9M Sep 28 09:50 dfu-util-0.11-binaries.tar.xz
-rw-rw-r-- 1          149K Sep 28 09:42 dfu-util-0.11.tar.gz
-rw-rw-r-- 1          253M Sep 28 11:40 en.stm32cubeprg-lin-v2-14-0.zip
drwxr-xr-x 4          4.0K Jul  3 13:42 jre
-rw-rw-r-- 1          1.3K Sep 28 17:07 Makefile
-rw-r-xr-x 1          208M Jul  4 10:11 SetupSTM32CubeProgrammer-2.14.0.exe
-rw-r-xr-x 1          846K Jul  4 10:11 SetupSTM32CubeProgrammer-2.14.0.linux
-rw-rw-r-- 1          112K Sep 28 09:42 tinySA_v1.4-105-g090fcb8.bin
-rw-rw-r-- 1          112K Sep 28 09:43 tinySA_v1.4-105-g090fcb8.dfu
-rw-rw-r-- 1          902K Sep 28 09:43 tinySA_v1.4-105-g090fcb8.elf
-rw-rw-r-- 1          314K Sep 28 09:43 tinySA_v1.4-105-g090fcb8.hex
-rw-rw-r-- 1          110K Nov  7 09:52 tinySA_v1.4-120-g6c349b9.bin
:~/Downloads/tinysa$ _
```

Enter DFU Mode on the tinySA by the menu tree option CONFIG > DFU



Run the appropriate dfu-util command. You may need administrative access for this.

```
~/Downloads/tinyosa$ sudo dfu-util-0.11-binaries/linux-amd64/dfu-util -a 0 -s 0x08000000:leave -D tinySA_v1.4-120-g6c349b9.bin
[sudo] password for [REDACTED]:
dfu-util 0.11

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Please report bugs to http://sourceforge.net/p/dfu-util/tickets/

dfu-util: Warning: Invalid DFU suffix signature
dfu-util: A valid DFU suffix will be required in a future dfu-util release
Opening DFU capable USB device...
Device ID 0483:df11
Device DFU version 011a
Claiming USB DFU Interface...
Setting Alternate Interface #0 ...
Determining device status...
DFU state(10) = dfuERROR, status(10) = Device's firmware is corrupt. It cannot return to run-time (non-DFU) operations
Clearing status
Determining device status...
DFU state(2) = dfuIDLE, status(0) = No error condition is present
DFU mode device DFU version 011a
Device returned transfer size 2048
DfuSe interface name: "Internal Flash"
Downloading element to address = 0x08000000, size = 112516
Erase [REDACTED] 0% 0 bytes_
```

This will take some time. However, when it's done, it should look something like this.

```
Download from image offset 00016800 to memory 08016800-08016ffff, size 2048
Download from image offset 00017000 to memory 08017000-080177fff, size 2048
Download from image offset 00017800 to memory 08017800-08017ffff, size 2048
Download from image offset 00018000 to memory 08018000-080187fff, size 2048
Download from image offset 00018800 to memory 08018800-08018ffff, size 2048
Download from image offset 00019000 to memory 08019000-080197fff, size 2048
Download from image offset 00019800 to memory 08019800-08019ffff, size 2048
Download from image offset 0001a000 to memory 0801a000-0801a7fff, size 2048
Download from image offset 0001a800 to memory 0801a800-0801affff, size 2048
Download from image offset 0001b000 to memory 0801b000-0801b783, size 1924
File downloaded successfully
Submitting leave request...
Transitioning to dfuMANIFEST state
h4des@swatloaner:~/Downloads/tinyosa$ _
```

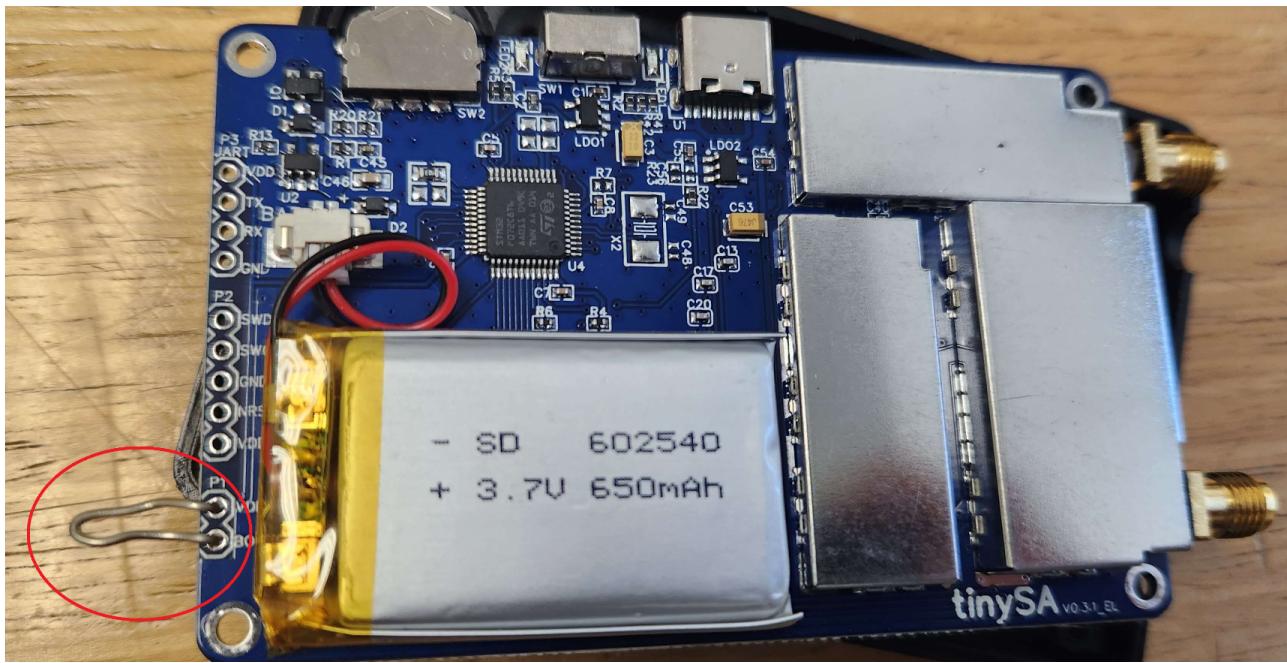
My tinySA is unresponsive! What should I do?

Try resetting the tinySA to its factory state by doing the following:

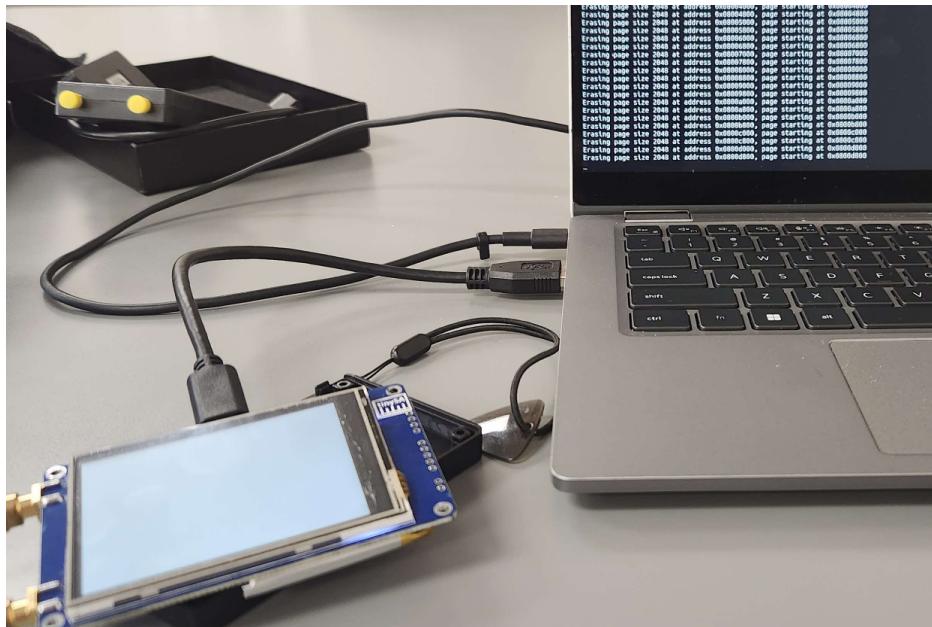
Disassemble the tinySA by unscrewing the four screws in the back.



You will be met with a board that looks like this. Look for the contacts "VDD" and "BOOT0" on the opposite side of the signal input/outputs, and short them together. Here in the example we used a piece of leftover solder wire.



Turn your tinySA on again. The screen should be white. Take the jumper wire / conductor on the contacts off, and connect to your PC. Run the dfu-util command again.



Remember, firmware update takes some time! Be patient!