

Terrameter LS current transmitter firmware upgrade



**Instruction made for Windows 7, 8, 8.1 and 10,
32 and 64 bit operating system**

For assistance contact support@guidelinegeo.com

NOTE: PLEASE READ THROUGH THE ENTIRE INSTRUCTION BEFORE STARTING

Part 1 – Requirements

Make sure that the following softwares are installed:

- Terrameter LS Toolbox v2.0.1.107
(See Terrameter LS Toolbox manual for how to do this)
- Atmel SAM-BA v2.15
(See Part 2 for how to do this)

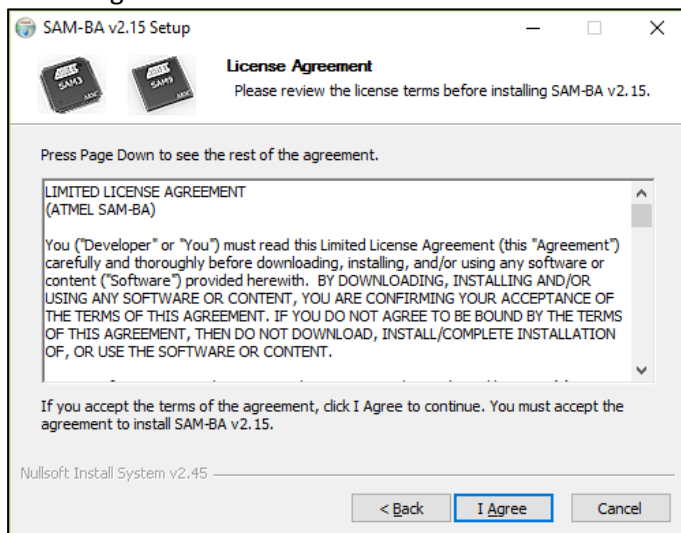
And that you have the latest transmitter firmware file and txusbbootmode, both of which are included in this package.

Part 2 – Installing Atmel SAM-BA v2.15

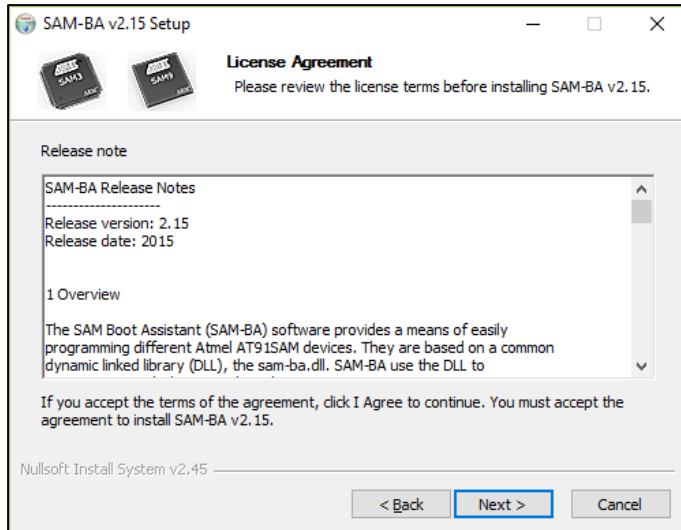
1. Locate the “sam-ba_2.15.exe” file included in this package and start the installation
2. Click “Next”



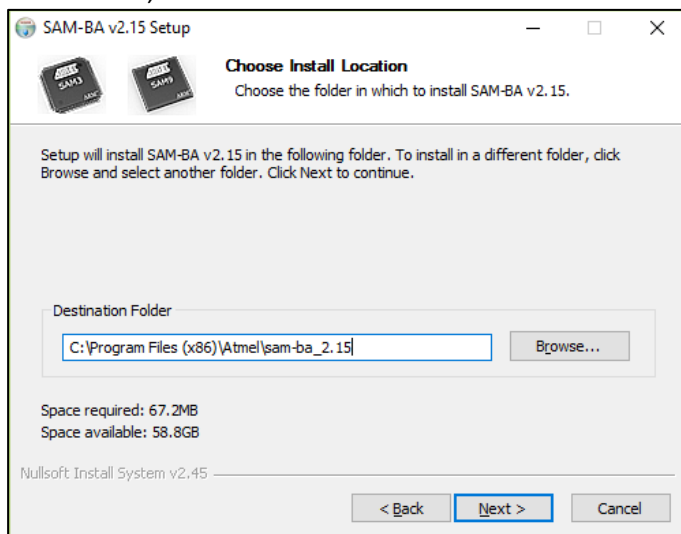
3. Click “I Agree”



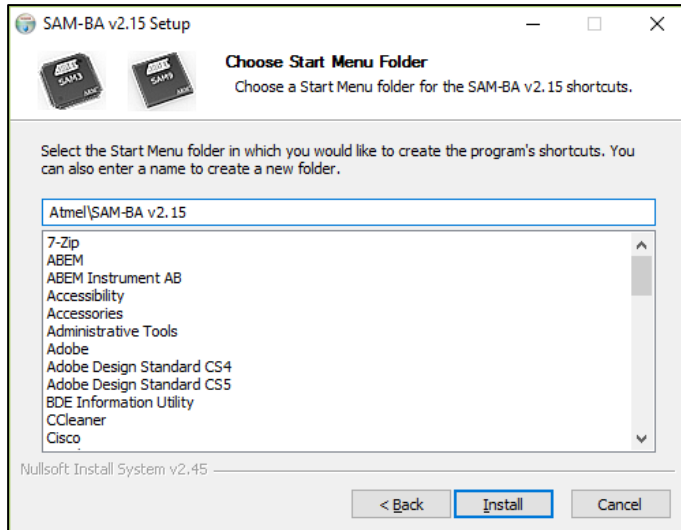
4. Click “Next”



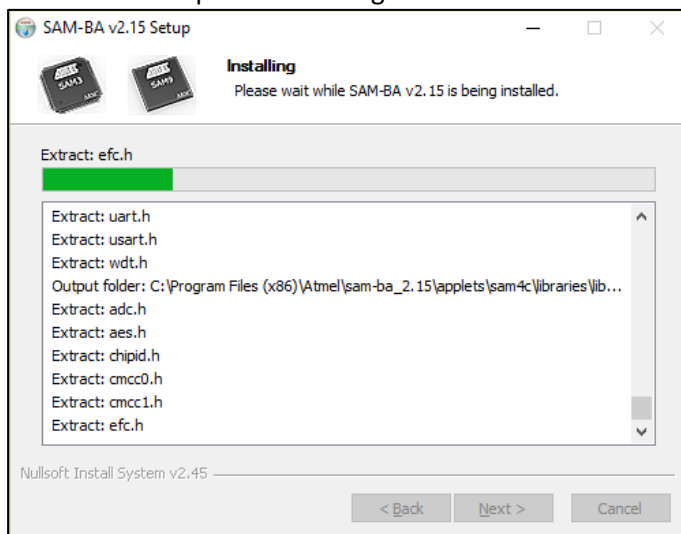
5. Click “Next”, or select a different destination folder



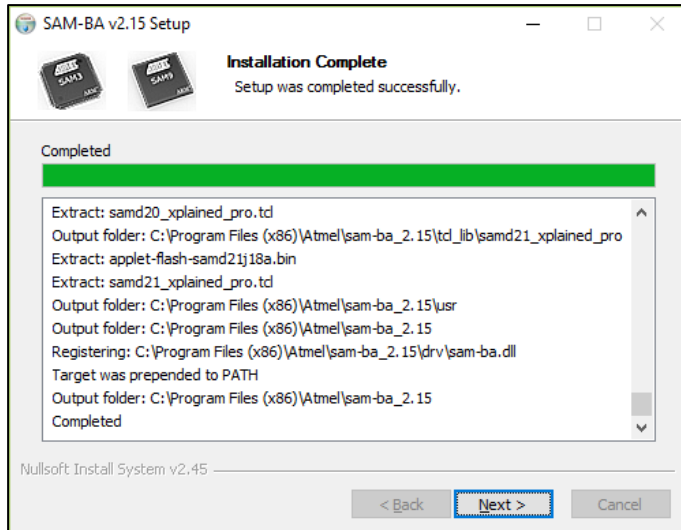
6. Click “Install”, or select a different Start Menu folder



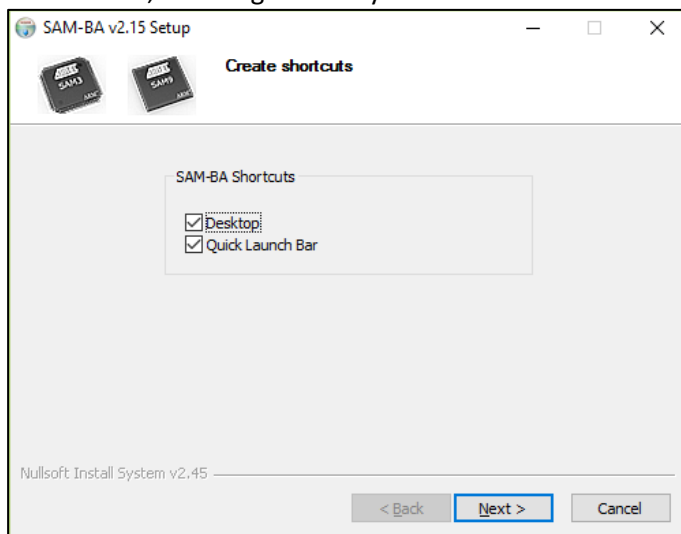
7. The installation process will begin



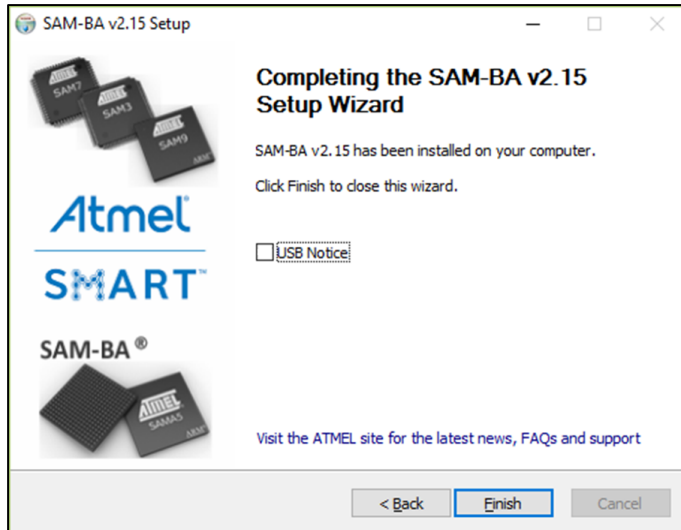
8. Click “Next”



9. Click “Next”, or change where you want shortcuts to be created



10. Uncheck “USB Notice”, then click “Finish”



Part 3 – Setting the current transmitter to programming mode

NOTE 1:

Before starting, please note that when the current transmitter has been put in programming mode it will be out of order until a new software has been installed. It is not possible to undo or reverse the programming mode in any other way than programming the device.

Make sure you have read the entire instruction and have the correct USB cable, physical access to the instrument, the SAM-BA software installed and the correct current transmitter firmware file.

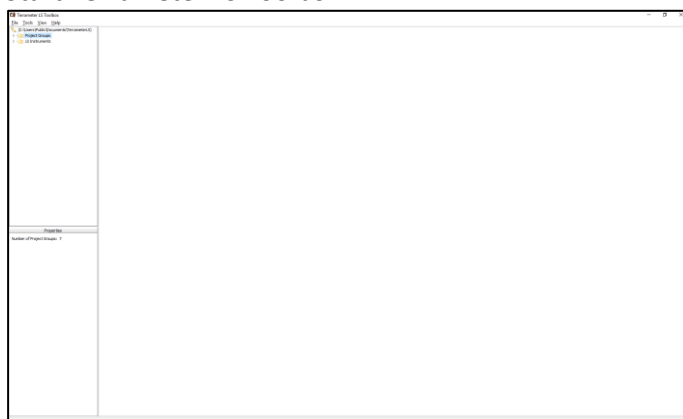
NOTE 2:

In the LS Toolbox 2.0.1.107 the function for putting the current transmitter in programming mode will only work for the Terrameter LS 1, and not for the Terrameter LS 2. In order to update a Terrameter LS 2 current transmitter the following steps must be performed.

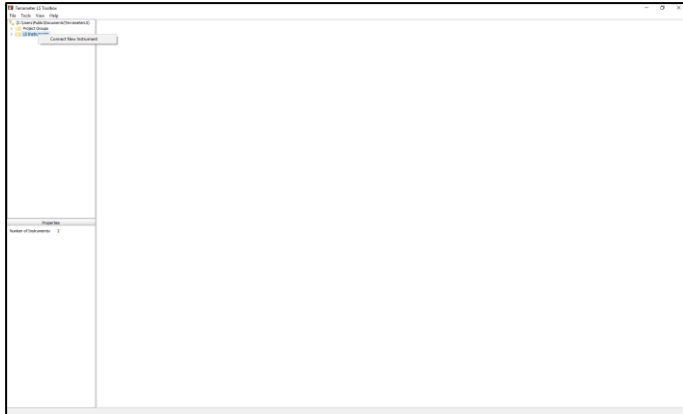
1. Open the folder `C:\Users\Public\Documents\TerrameterLS\Resources`
2. Rename the file `txusbbootmode.tar` to `txusbbootmode.tar_old`
3. Copy the files `txusbbootmode.tar_LS1` and `txusbbootmode.tar_LS2` included in this package to the folder `C:\Users\Public\Documents\TerrameterLS\Resources`
4. Make a copy of the file `txusbbootmode.tar_LS2` and then rename it to `txusbbootmode.tar`

If needing to switch between LS 1 and LS 2 upgrades, you need to switch the `txusbbootmode.tar`. This is simply done by renaming or deleting the file `txusbbootmode.tar`, then making a copy of the LS 1 or LS 2 `txusbbootmode` file and after that renaming it to `txusbbootmode.tar`.

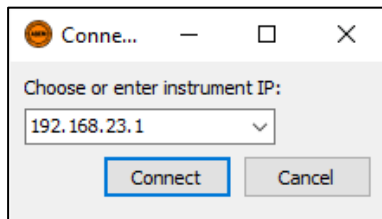
1. Start Terrameter LS Toolbox



2. Right click the "LS Instruments" and select "*Connect new instrument*"



3. Enter the IP number of the instrument and press "Connect"



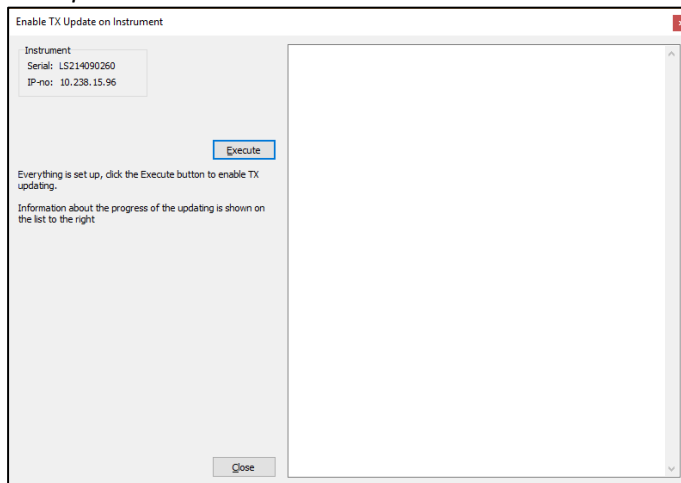
4. An icon showing an instrument and the serial number of the connected instrument should now be shown.



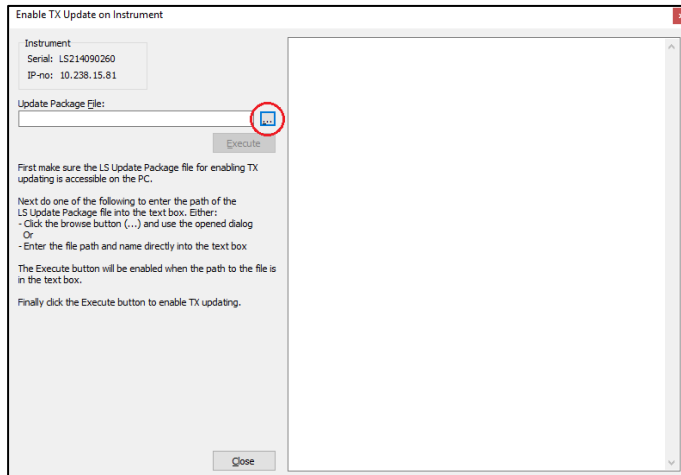
5. Right click on the instrument icon and then select “*Enable TX Updating*”



6. A new window will appear. If everything is OK it will look as below. Click “Execute” and *then continue to step 10.*

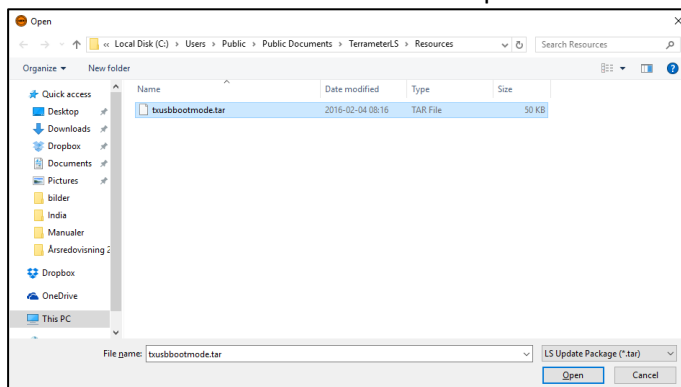


7. If the script file for putting the current transmitter in programming mode is not automatically found, the window will look like this:



Click on the “...” button

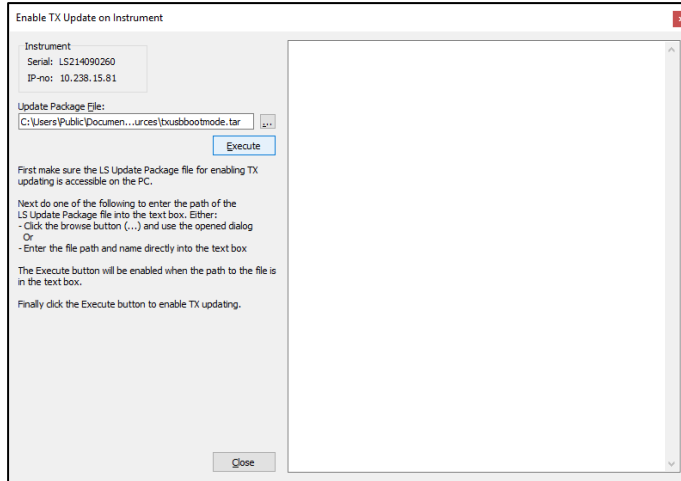
8. An open file dialogue will open, showing a folder were the file “txusbbootmode.tar” should be located. Select this file and then click “Open”



If the file is not there, make sure that the current folder is
 “C:\Users\Public\Public Documents\TerrameterLS\Resources”

If the file is still not there, try uninstalling and then reinstalling Terrameter LS Toolbox, and then repeat the steps. If that does not help contact support@guidelinegeo.com

9. When the Update Package File has been selected, click the “Execute” button



Enable TX Update on Instrument

Instrument
Serial: LS214090260
IP-no: 10.238.15.81

Update Package File:
C:\Users\Public\Documents\busbootmode.tar

Execute

First make sure the LS Update Package file for enabling TX updating is accessible on the PC.

Next do one of the following to enter the path of the LS Update Package file into the text box. Either:

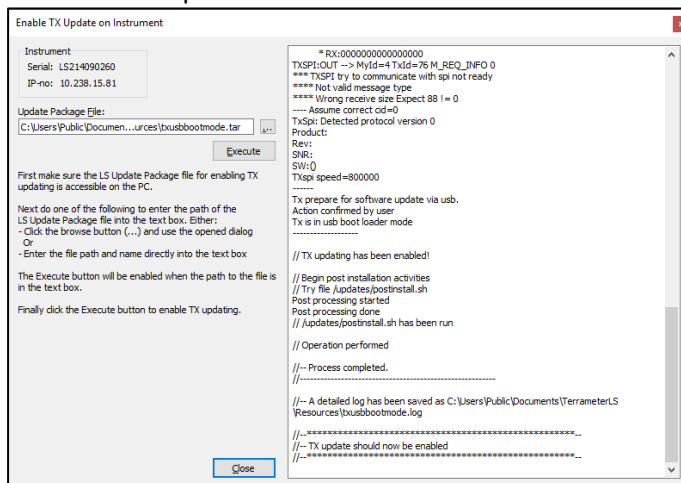
- Click the browse button (...) and use the opened dialog
- Or
- Enter the file path and name directly into the text box

The Execute button will be enabled when the path to the file is in the text box.

Finally click the Execute button to enable TX updating.

Close

10. The LS Toolbox software will now put the Terrameter LS current transmitter in programming mode. This can take up to a minute. Once finished it should look like this:



Enable TX Update on Instrument

Instrument
Serial: LS214090260
IP-no: 10.238.15.81

Update Package File:
C:\Users\Public\Documents\busbootmode.tar

Execute

First make sure the LS Update Package file for enabling TX updating is accessible on the PC.

Next do one of the following to enter the path of the LS Update Package file into the text box. Either:

- Click the browse button (...) and use the opened dialog
- Or
- Enter the file path and name directly into the text box

The Execute button will be enabled when the path to the file is in the text box.

Finally click the Execute button to enable TX updating.

Close

```

* RX:0000000000000000
TXSPI:OUT -> MyId=4 TxId=76 M_REQ_INFO 0
*** TXSPI try to communicate with spi not ready
*** Not valid message type
*** Wrong receive size Expect 88 != 0
---- Assume correct cid=0
TxSpi: Detected protocol version 0
Product:
Rev:
SNR:
SV:0
TxSpi speed=800000
-----
Tx prepare for software update via usb.
Action confirmed by user
Tx is in usb boot loader mode
-----
// TX updating has been enabled!
// Begin post installation activities
// Try file /updates/postinstall.sh
Post processing started
Post processing done
// /updates/postinstall.sh has been run

// Operation performed

//-- Process completed.
//-----
//-- A detailed log has been saved as C:\Users\Public\Documents\TerrameterLS
Resources\busbootmode.log

//-----
//-- TX update should now be enabled
//-----
  
```

Part 4 – Connecting current transmitter and computer

1. Power off the LS
2. Disconnect any external power supply or battery
3. Remove the Terrameter LS internal battery lid by turning the lock studs counter clockwise



4. Disconnect the internal battery
Note: It is not required to remove the internal battery from its compartment
5. In the upper part of the battery compartment there is a micro USB connector



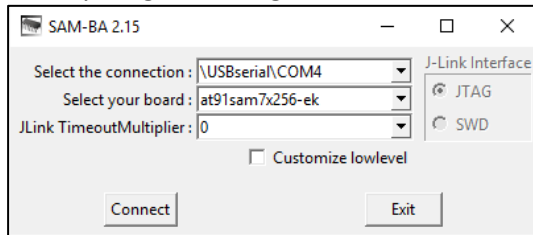
6. Connect the USB cable delivered with the Terrameter LS between computer and the LS



7. Wait approximately 1 minute to allow the computer to detect the Terrameter LS current transmitter

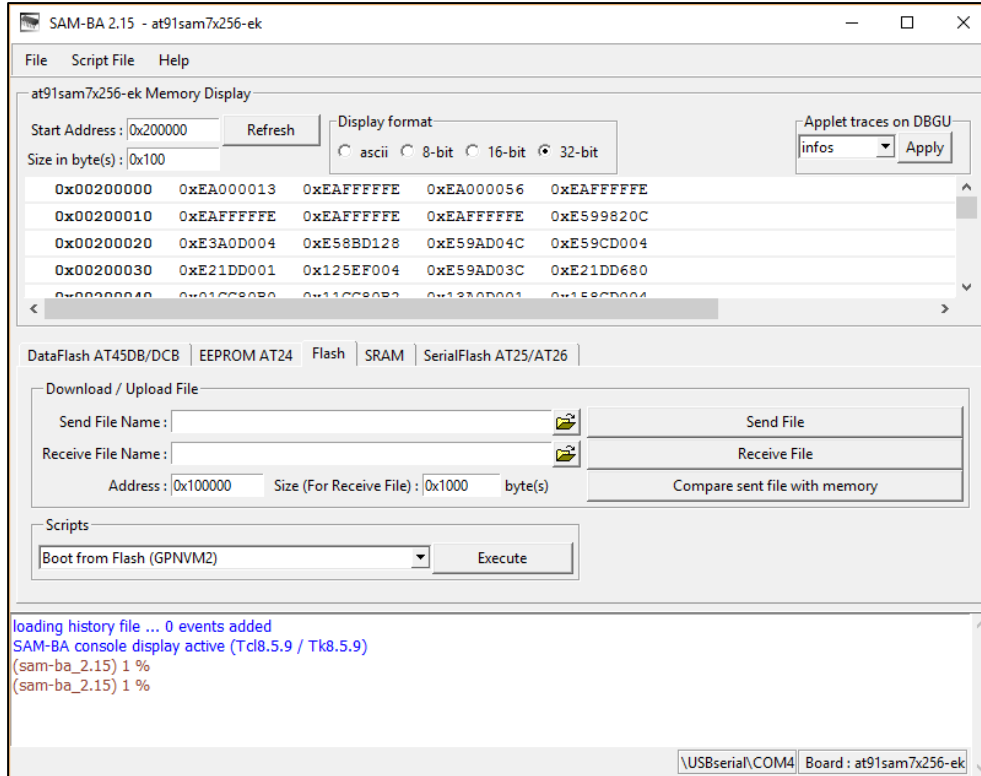
Part 5 – Installing the current transmitter firmware

1. Start the Atmel SAM-BA v2.15 software
2. If everything is working it should look like something this

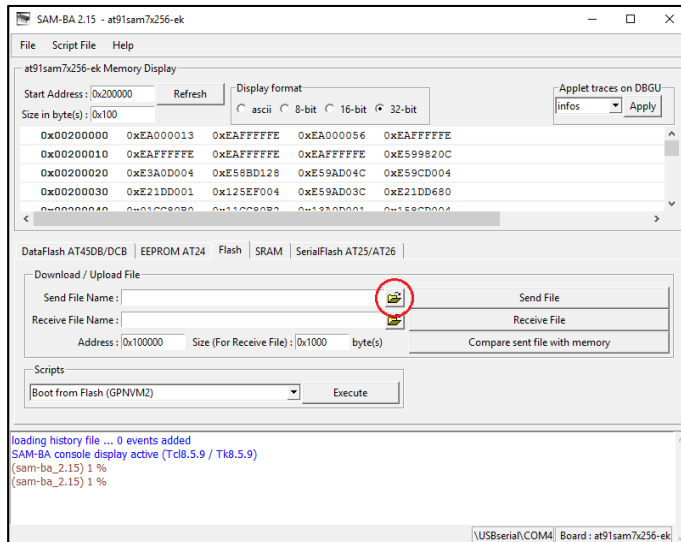


3. The text in the “Select the connection” field may vary, showing a different COM number, depending on how the computer USB serial driver was installed.
If there is no text entered in the field, click the drop-down list and see if you have alternatives available. If nothing can be chosen see Part 6 for troubleshooting
4. If the text in the “Select your board” field is not showing “at91sam7x256-ek”, use the drop-down list to change to that value
5. The text in the “JLink TimeoutMultiplier” field should be “0”, and the “Customize lowlevel” should not be checked.
6. Press the “Connect” button

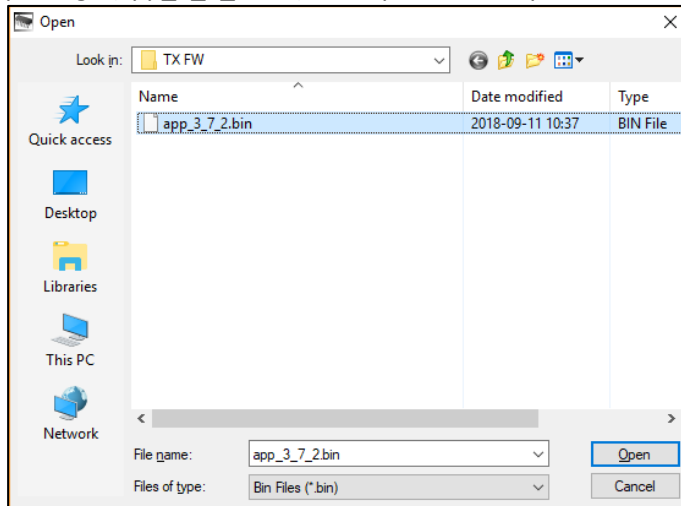
7. A new window will appear. Make sure all settings are the same as the image below



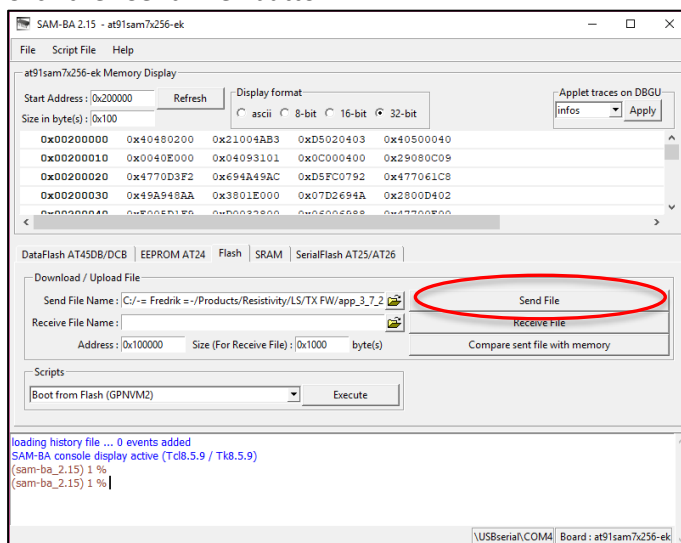
8. Press the icon after the "Send File Name"



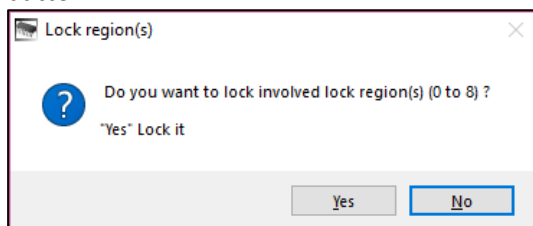
9. The open file dialogue will open, select the current transmitter firmware file (bin file) included in this package (*app_3_7_2.bin*), then press the “Open” button



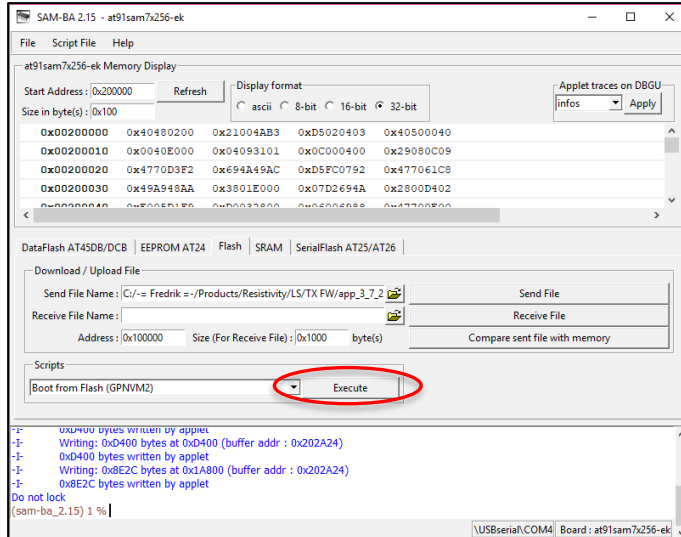
10. Click the “Send File” button



11. Once the firmware file is installed, a dialogue box will ask if the region is to be locked. Click the “No” button

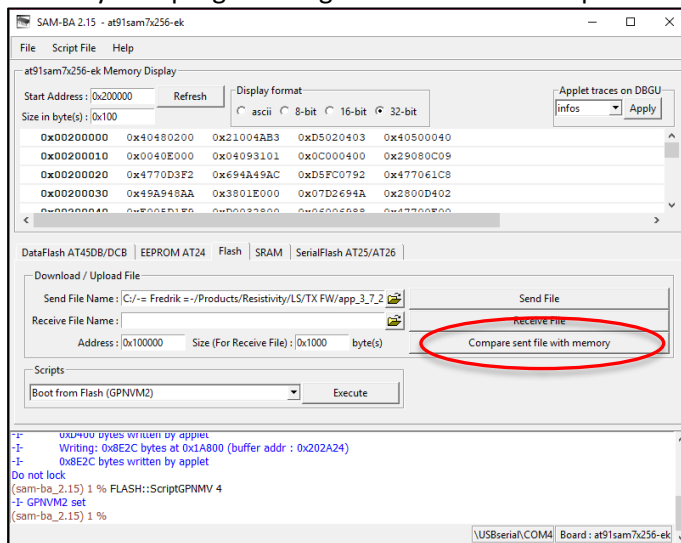


12. Click the “Execute” button

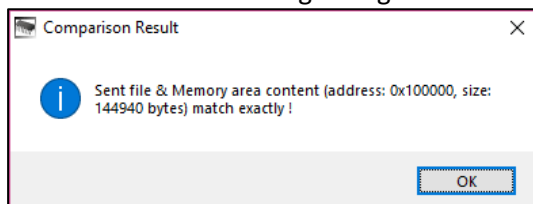


13. The programming of the current transmitter is now finished

14. To verify that programming has been successful press the “Compare sent file with memory” button



15. If successful the following dialogue box will appear, saying “[...] match exactly !”

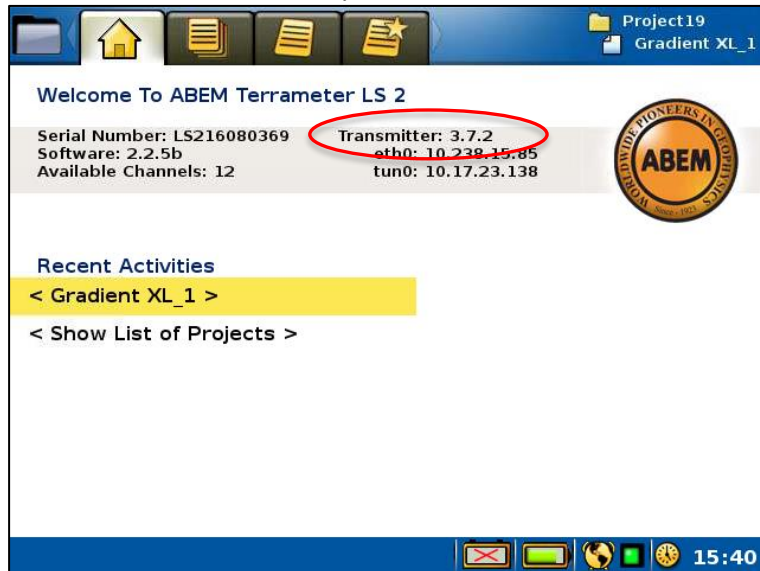


16. Press the “OK” button.

17. Disconnect the USB cable from the Terrameter LS, connect the internal or external battery and power on the instrument.

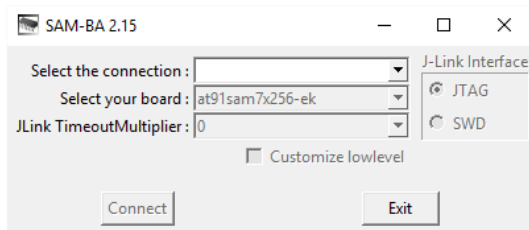
18. For application software **1.15.4 or newer**:

At the welcome screen verify that correct current transmitter firmware version is shown



Part 6 – Troubleshooting

If the current transmitter is not detected when the SAM-BA 2.15 software is started it will look like this



This could be caused by a few things, the most likely being:

1. USB cable not connected between LS and computer
2. Power supply not removed
3. Current transmitter not being in programming mode
4. SAM-BA v2.15 software not installed properly or working correct

1 & 2.

Check connection and power supply

3. Current transmitter not being in programming mode

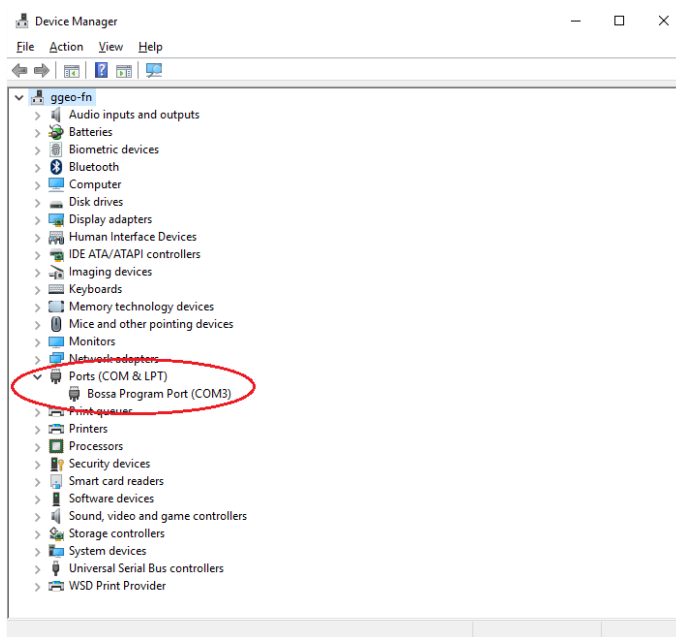
If that does not solve the problem connect the batteries again and power on the unit. When the welcome screen is reached, check in the grey bar for the Transmitter version number (if running application software 1.15.4 or newer) or the Transmitter power rating (if running application software 1.11.4 or older). If there is a number written, then the current transmitter is not in programming mode, so repeat the steps in Part 3 for setting the current transmitter in programming mode. If there is no version number or power rating written, then the current transmitter is in programming mode and to investigate the problem further we need to look into SAM-BA v2.15.

4. SAM-BA v2.15 not installed properly or working correct

If the problem is believed to be with the SAM-BA v2.15 software, a start could be to uninstall and then reinstall the software. Make sure that the current transmitter is in programming mode (see point 3) and then try the steps in Part 5 again.

If that still does not work we need to check if the computer recognizes the current transmitter as a device when the USB cable is connected. To do this make sure that the current transmitter is in programming mode (see point 3), the USB cable is connected between LS and computer, and both external power supply and internal battery are disconnected.

Start the Device Manager on your computer. The Device Manager is a part of the Control Panel, but can also be found by opening the start menu and writing Device Manager, then clicking it. A new window will appear, listing all the hardware devices of the computer. Check for a category called “Ports (COM & LPT)”. If this is not found that means that the current transmitter has not been recognized. If it is found, click the right arrow (or plus sign) to unfold that category. See what devices is shown beneath it.



Note that if your computer is equipped with a physical serial port (COM port), then this will be listed as “Communication port” followed by the COM port number.

Depending on your computer the current transmitter can be detected as different types of devices. In the above picture it is detected as “Bossa Program Port” and then the assigned COM port number is written. In some cases it has also been shown as “GPS Camera Detect” followed by a COM port number.

If the current transmitter has been detected, this means that the current transmitter is in programming mode and that the problem is likely with the SAM-BA v2.15 software. If a reinstallation of the software has not already been done, uninstall and reinstall the software and repeat these steps. If already tried, install the software on another computer, or contact the ABEM support (support@abem.se) for a different version of the SAM-BA software.

If the current transmitter is not detected, and it is certain that the current transmitter software is in programming mode, the problem could be caused by the SAM-BA v2.15 driver not being installed correct. If a reinstallation of the software has not already been done, uninstall and reinstall the software and repeat these steps. If already tried, install the software on another computer, or contact the ABEM support (support@abem.se) for a different version of the SAM-BA software.