

SA Module Firmware Update Instructions

1. Scope

This document describes how to use the *SAM Code Upload* application. The code upload is assumed to occur on an existing system on a vehicle that already has the SA Module harness and Main Data harness already installed.

Available Versions:

- **1.11.0** – Current released version
- **1.11.2** – Latest version for Wheeled Vehicles - updating is only needed on John Deere AutoTrac ready vehicles with a valve issue – contact support before installing this version
- **1.12.1** – Special version for 2010 John Deere AutoTrac Ready Combines – all kits for this combine are shipped with this version installed

2. System Requirements

In order to properly use the software, the following components are required

PC with Microsoft Windows and at least 1 RS-232 communication port
SA Module Programming cable (Novariant P/N: 201-0350-01)
SA Module
Microsoft's .NET must be installed on the computer

3. Introduction to "SAM Code Upload" Utility

The *SAM Code Upload* utility was designed to allow new SA Module firmware uploads in the field. The SA Module programming cable must be connected to the SA Module harness at the in-line connection between Main Data harness and SA Module harness (12-way Deutsch). The power to the SA Module programming cable can be taken from the Main Data harness in-line power to SA Module (2-way Deutsch). The serial connection from the SA Module programming harness must be connected to the PC serial port and then the application can be started.

4. Software Installation

The software package includes several files:

SAMCodeUpload.exe
SAMCodeUpload.mse
MSFCS32.dll
MSLibrary.dll
SA Module Code Upload User Manual.pdf
sam18.mcs
samwh19.mcs
samwh111_0.mcs

In order for the programming utility to run, Microsoft's .NET framework (version 2.0 or later) must be installed on the user's computer. If an error "The application failed to initialize properly (0xc0000135). Click on OK to terminate the application" shows up when the utility is started, Microsoft's .NET framework has not been installed yet. To install Microsoft's .NET framework, download the file from the Dealer Portal and run the *dotnetfx.exe* executable file. It is strongly recommended not to edit, rename or change in any way any of the *.mcs files.

5. Description of the Software

When the software is started, the window shown on *Figure 1* will appear.

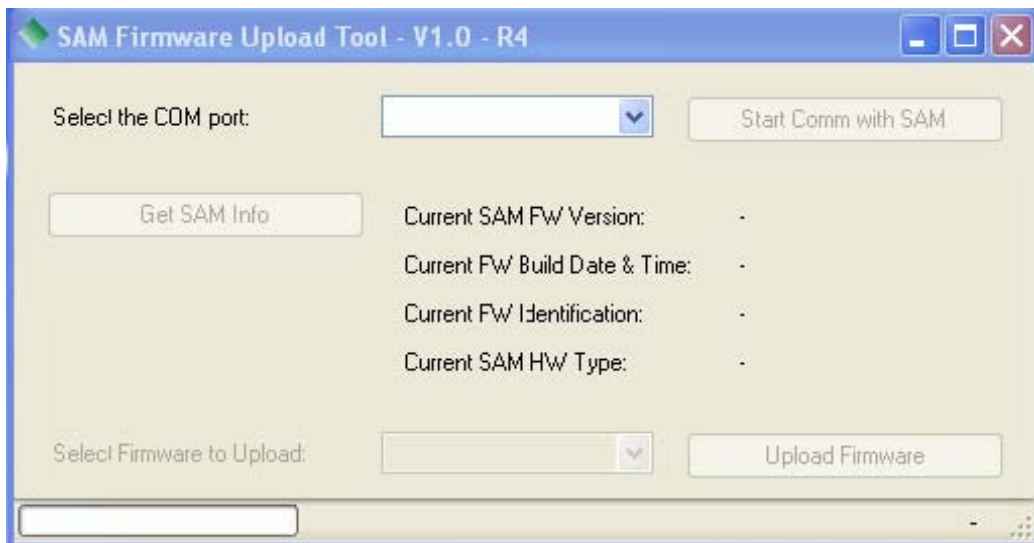


Figure 1 – SAM Firmware Upload Tool startup screen

At this point, the user must select a serial port to be used to connect to the SA Module. The software will list the available COM ports to choose from as shown in *Figure 2*.

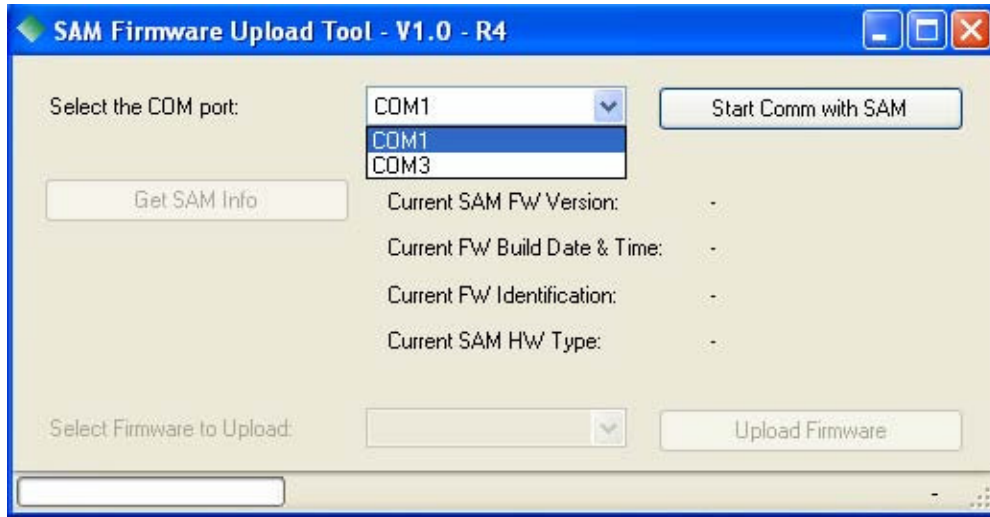


Figure 2 – COM port selection

Once a COM port has been selected, the **Start Comm with SAM** button becomes enabled. Pressing this button will open the COM port and start the communication with the SA Module. *Figure 3* shows the application screen with the button enabled.

Note: Depending on the computer's available COM ports, the list of COM ports will be different than those shown in the figure.

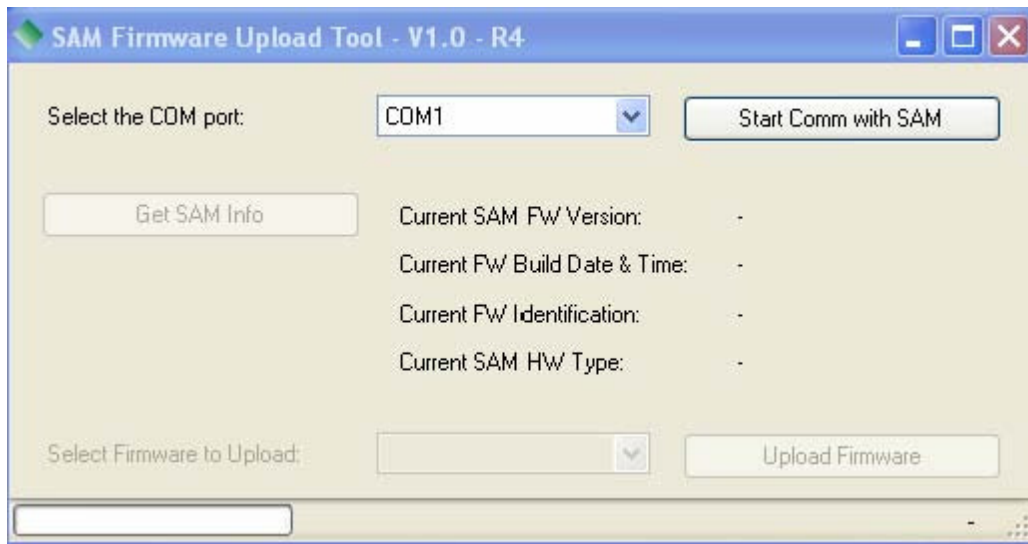


Figure 3 -Application window ready to go

After pressing the **Start Comm with SAM** button, the application starts a message counter in the bottom right of the application window and enables the **Get SA Module Info** button as shown in *Figure 4*. As long as the utility is connected to the SA Module and the communications have been enabled, the counter will continue to count up. If the counter stops, the communications have stopped.

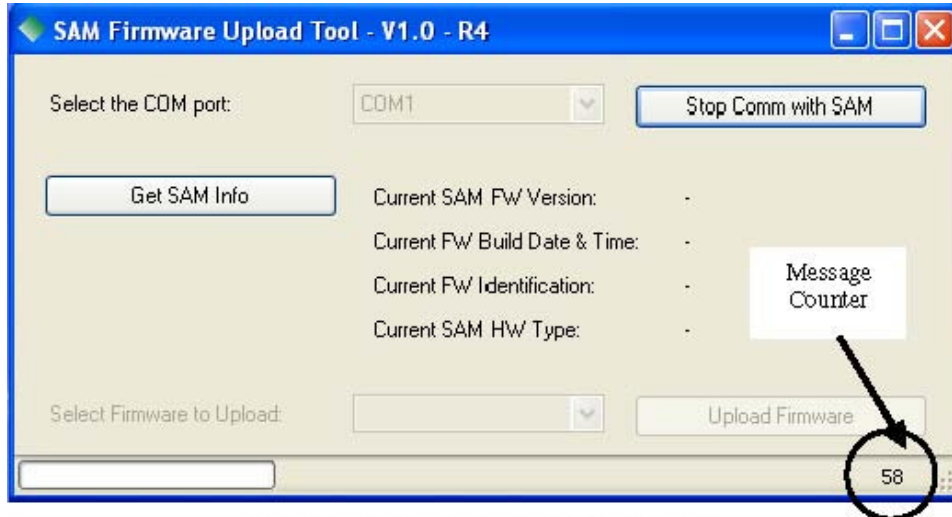


Figure 4 – SA Module communication is running

After pressing the **Get SAM Info** button, the application displays the information of the current SA Module. It displays the *Current SAM FW Version*, *Current FW Build Date & Time*, *Current FW Identification*, and the *Current SAM HW Type*. This information drives the choice of firmware that can be uploaded to the SA Module. *Figure 5* shows the application window with the SA Module info.

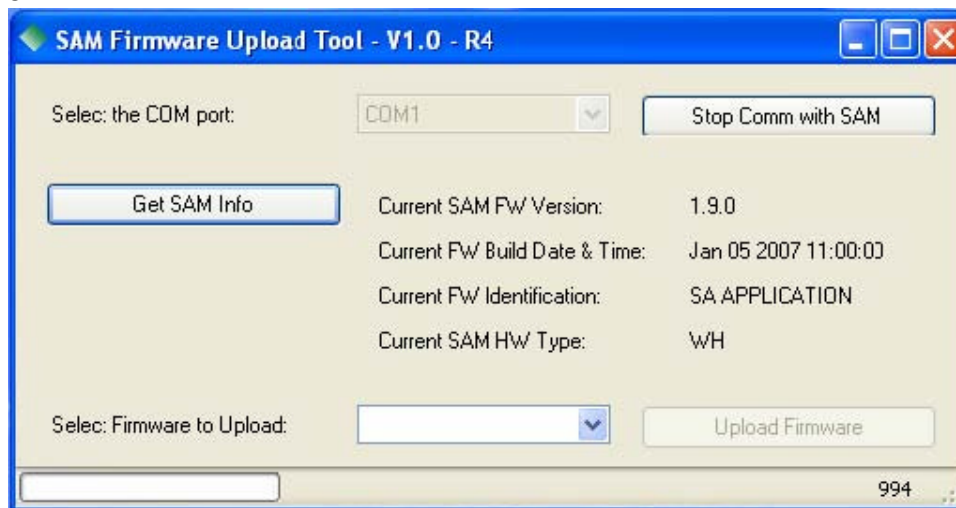


Figure 5 – SA Module info on display

The user can now select the firmware version to upload to the SA Module. Once the *Select Firmware to Upload* has been selected, the **Upload Firmware** button becomes enabled as shown in *Figure 6* and the application is ready to start the code upload to the SA Module. Press the **Upload Firmware** button to begin the process.

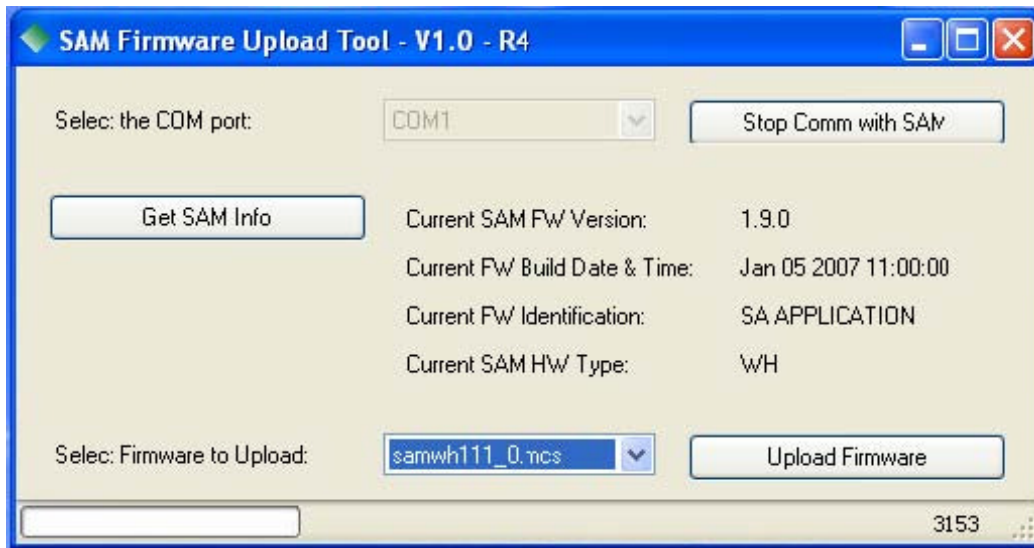


Figure 6 – SA Module ready to upload

While the application performs the code upload, the progress bar will increase. If the process gets interrupted during the upload, refer to the troubleshooting section. Once the firmware has successfully uploaded, the application displays the message "Upload successful!" in the status bar while the SA Module is rebooting as shown in *Figure 7*.

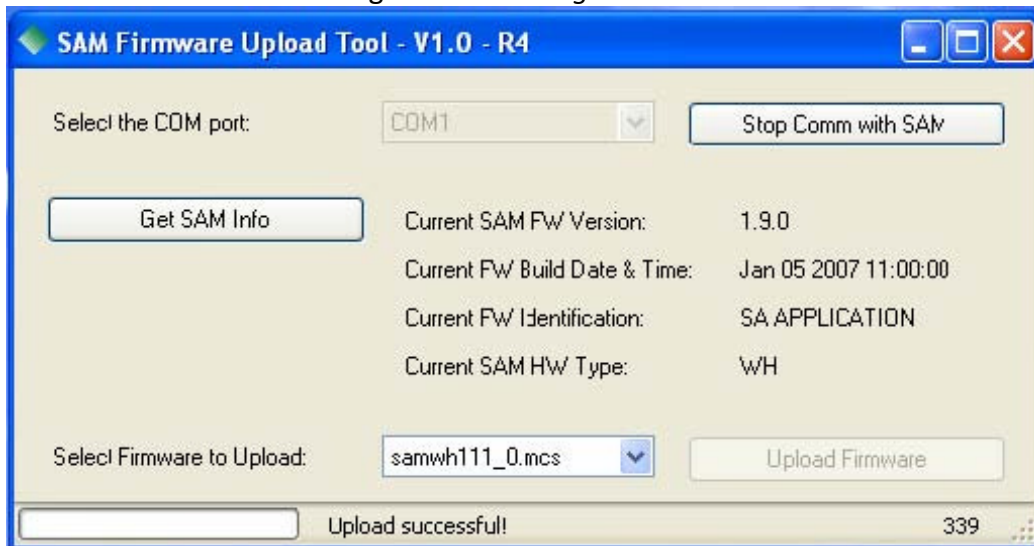


Figure 7 – SA Module Firmware successfully uploaded

After the SA Module has re-started, the *Current SAM FW and Hardware* information should be updated showing the firmware version that was uploaded as shown in *Figure 8*.

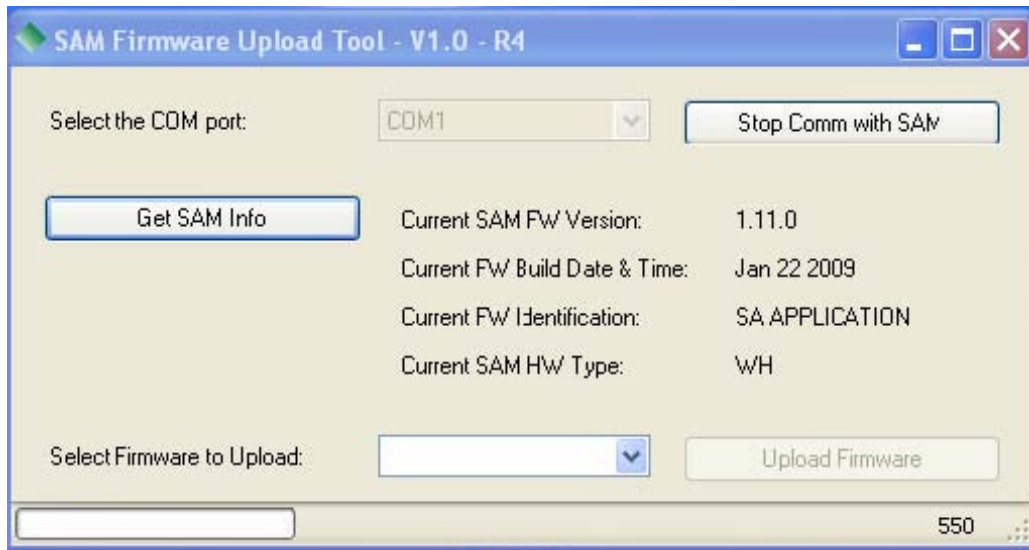


Figure 8 – Window update after code upload

The SA Module has now been successfully uploaded. The program can be closed and the SA Module programming cable can be removed. Reconnect the original harness connections as they were for vehicle operations.

6. Downgrade Firmware Requirements

Downgrading the SA Module firmware is not suggested. If downgrading is necessary, before performing it verify the current vehicle type set in the SA Module is set to a supported vehicle type allowed by the downgraded SA Module firmware, for example, Standard Wheeled.

7. Troubleshooting

“The application failed to initialize properly (0xc0000135). Click on OK to terminate the application error message appears

The following error shows up when the SAM Upload Utility is run.

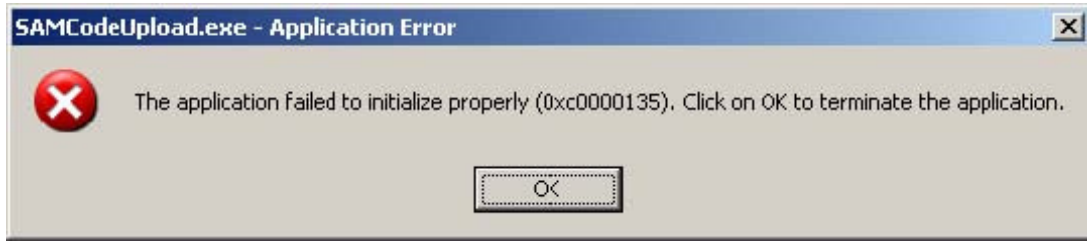


Figure 9: Error message on program start

Download and install Microsoft's *dotnetfx.exe* executable file. This file can be downloaded from the Dealer Portal or from Microsoft's web site. After running this program, the problem should not happen any more. This only has to be installed once.

SA Module is unresponsive

If all the connections are right and the SA Module does not seem to communicate with the application (the message counter at the right end of the status bar is not incrementing), power cycle the SA Module. When the code upload process is interrupted, the SA Module is in code upload mode and is not sending measurement messages out on the serial port. Resetting the SA Module by power-cycling it usually fixes the problem without causing any damage on the SA Module.

SA Module Code Upload application is unresponsive

If pressing the **Get SA Module Info** button does not seem to do anything or the message counter in the status bar is slowing down, the application might be too slow for the stream of messages coming from the SA Module. This can occur on a slow machine or if the computer's virtual memory is running low. Usually stopping and then restarting the communication is not sufficient. The user should completely shut-down the utility and restart it.

SA Module measurement message counter is erratic

If the measurement packet counter (right side of the status bar) is erratic, increasing by some number then pausing for a while, etc. The user may have more than one SA Module connected to the SA Module Programming harness.

8. Appendix A – Quick Reference

SA Module Code Upload application screen

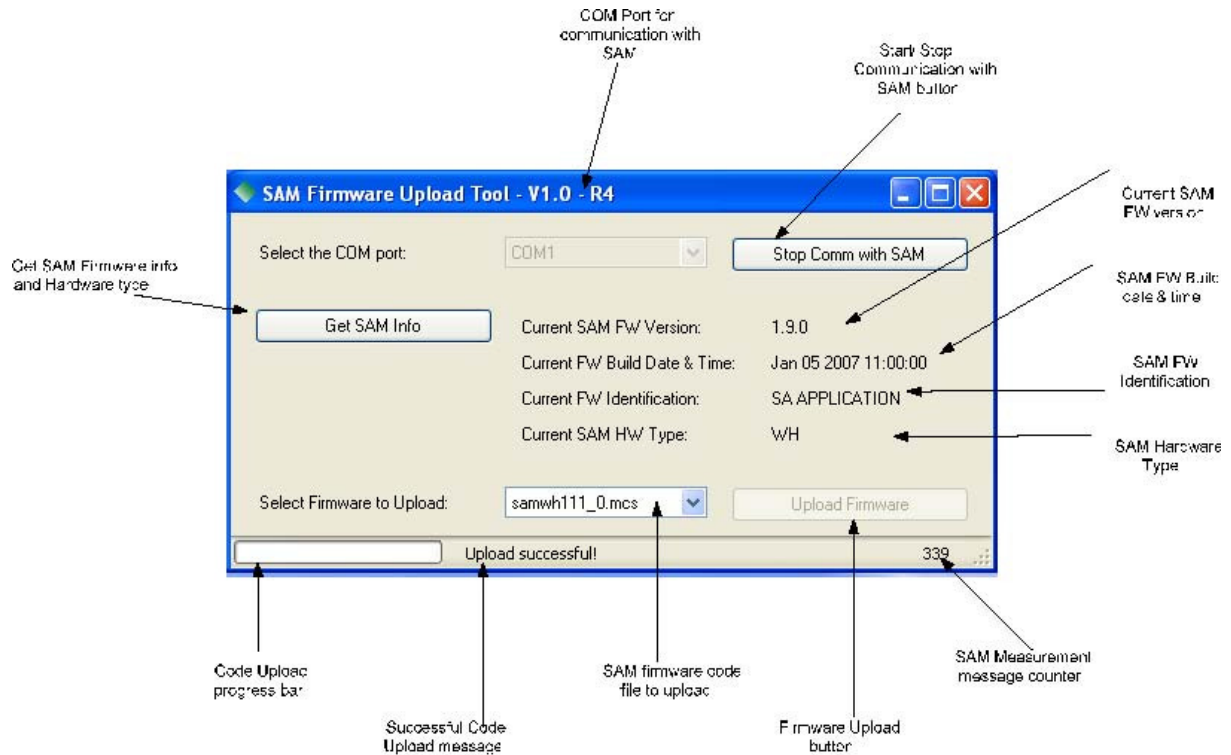


Figure 10 – SAM Code Upload quick reference