ERASynth: An Open Source, Arduino-Compatible RF Signal Generator with Wi-Fi Connectivity

FIRMWARE UPDATE INSTRUCTIONS

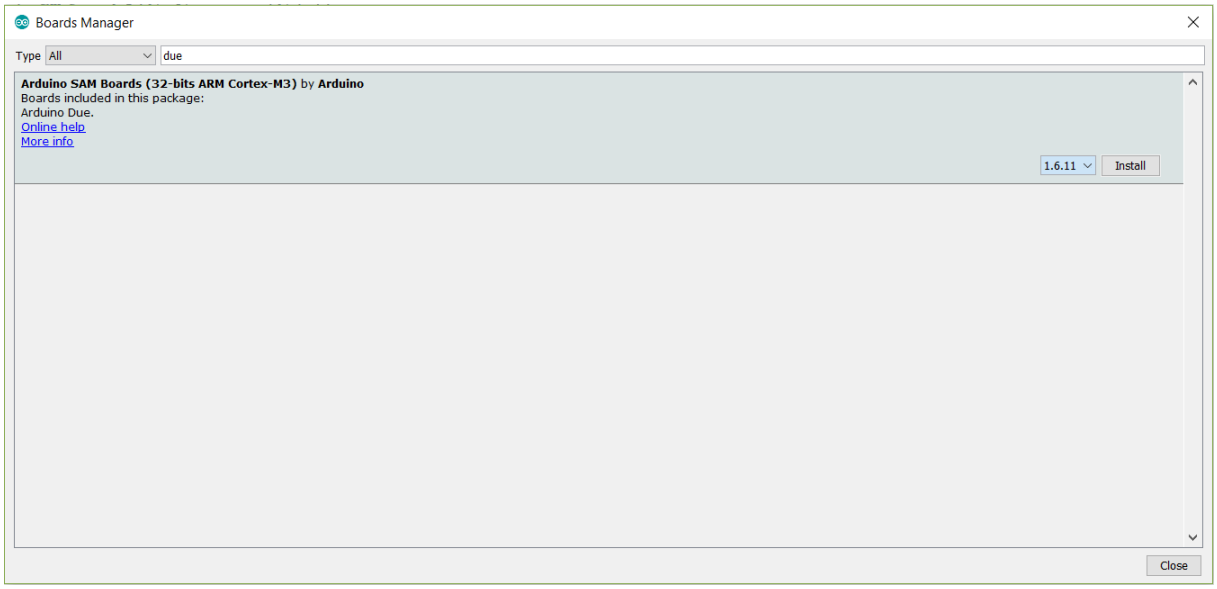
Arduino Due Code

1-) Download the latest Arduino IDE from https://www.arduino.cc/en/Main/Software and install.

(ERASynth is tested with 1.8.5 version of Arduino)

2-) Install Arduino DUE board from Board Manager (Tools>Board…>Board Manager…).

Type due to search bar, select the latest version and install



3-) After doing the configuration above, your system should detect the driver automatically. If it doesn't, please follow next instruction

4-) No driver necessary for Linux and MacOS

For Windows:

- Open device manager
- Find the tab "Other Devices"
- You will see a device named "Arduino Due Prog. Port"
- Right-click and select "Search automatically for updated driver software"
- If it doesn't detect any driver, repeat the process and select "browse my computer for driver software"
- Navigate to the folder with the Arduino IDE you downloaded and unzipped earlier. Locate and select the "Drivers" folder in the main Arduino folder (not the "FTDI USB Drivers" sub-directory). Press "OK" and "Next" to proceed.
- After installing successfully, you should see your device under Ports (COM & LPT) tab in Device Manager

5-) Download the latest ERASynth firmware from GitHub.
https://github.com/erainstruments/erasynth-firmware

6-) ERASynth project has a dependency. Download the library https://github.com/ivanseidel/DueTimer . Copy the unzipped file to Arduino IDE library folder. It is in the Arduino IDE installation folder.

7-) Open ERASynth.ino file with Arduino IDE.

8-) Ensure that a definition for ERASynth is correct for your ERASynth model. It is defined in “definitons.h” file in 19. line. This definition must be

0 for ERASynth model

1 for ERASynth+ model

2 for ERASynth++ model

9-) Change board to Arduino DUE (Programming Port). Go to Tools>Board>Arduino DUE (Programming Port)

10-) Select the device from port (COM1,2,3, etc.). Go to Tools>Port

11-) Click upload or click Sketch>Upload

12-) Arduino IDE will compile the project and upload a .bin file to the device.

13-) After a successful upload it is recommended to apply a FACTORY RESET (**>PR** with carriage return) if a modification is made related with the embedded non-volatile memory (FRAM) that stores the settings of the device.

ESP8266 Code

1-) Download the latest Arduino IDE from https://www.arduino.cc/en/Main/Software and install.

(ERASynth is tested with 1.8.5 version of Arduino)

2-) Open File>Preferences

3-) http://arduino.esp8266.com/stable/package_esp8266com_index.json Add this URL to “Additional Boars Manager URL’s”

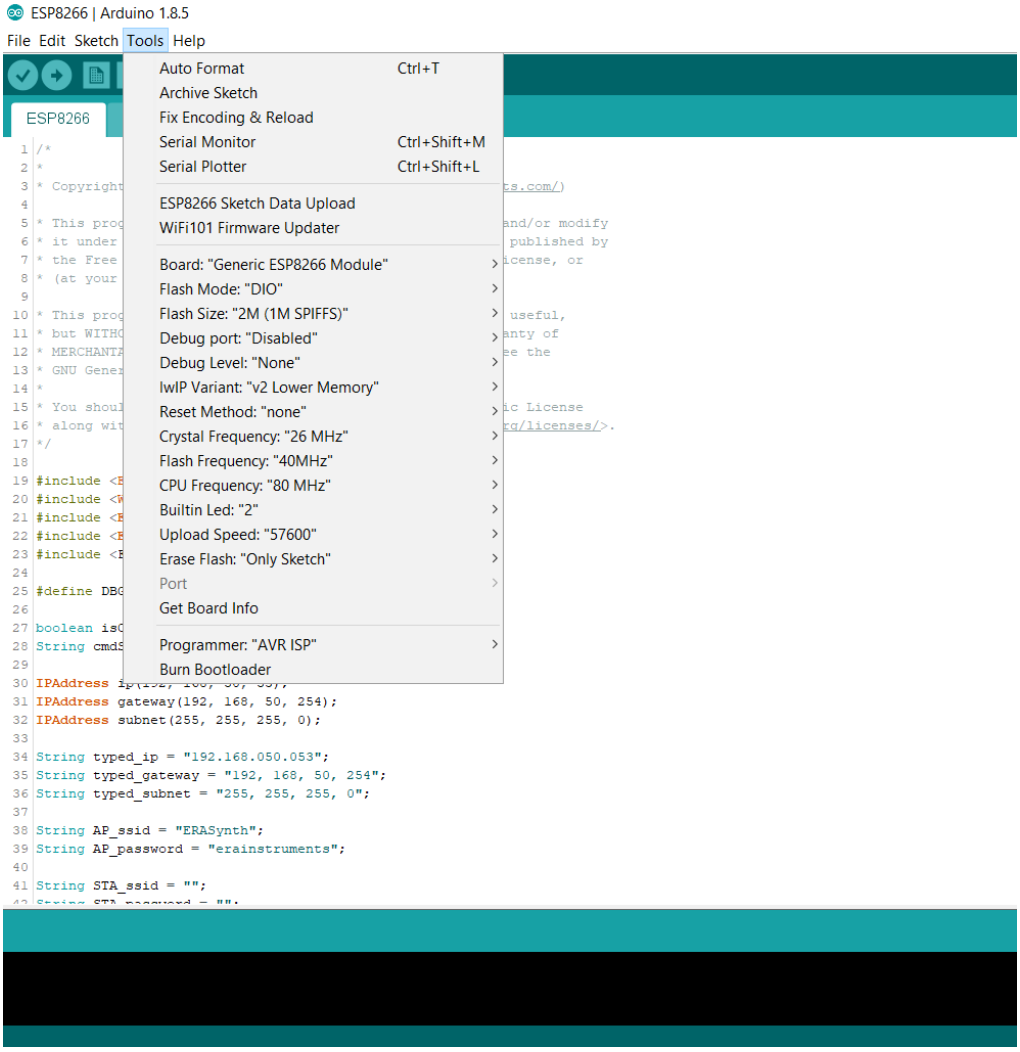
4-) Open Board Manager from Tools tab (Tools>Board…>Board Manager…) and type “esp” to search bar.

5-) Install the latest version.

6-) Restart Arduino IDE.

7-) Download the latest ERASynth firmware from GitHub.
https://github.com/erainstruments/erasynth-firmware

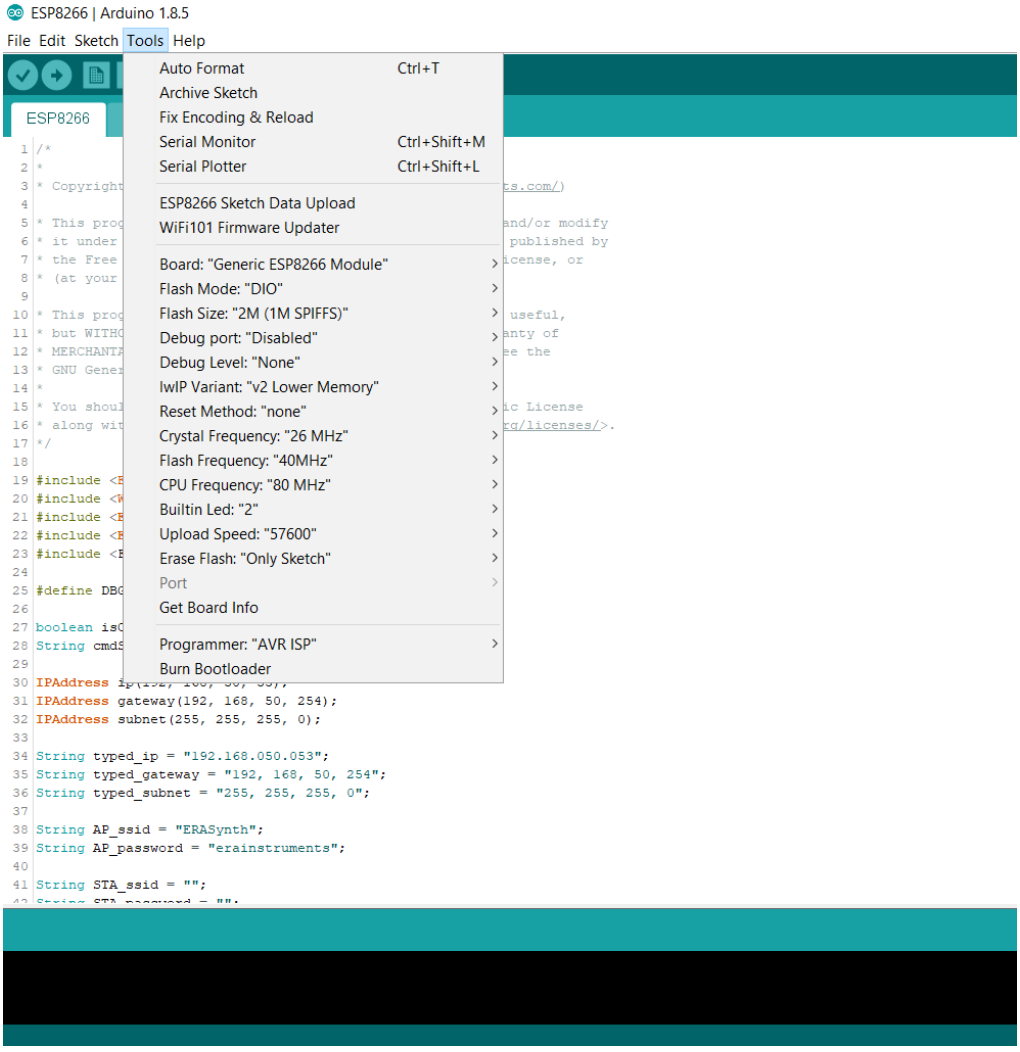
8-) Open ESP8266.ino file with Arduino IDE and change all settings as in picture below



9-) Select your device from Tools>Port.

10-) Before uploading code to ESP8266, you must open PC GUI or any serial terminal emulator program and send ESP8266 upload mode command (**>U** with carriage return). In PC GUI, it is under settings tab. Don't forget to close com-port after sending upload mode command.

11-) Be sure that all settings as in picture below.



12-) Click upload or click Sketch>Upload

13-) Arduino IDE will compile and upload code to module. If any error occurs such as "espcomm_upload_mem failed", try every step again and be sure the COM port of the device is not used by any other programs and closed.

ESP8266 HTML DATA

1-) Download the latest Arduino IDE from https://www.arduino.cc/en/Main/Software and install.

(ERASynth is tested with 1.8.5 version of Arduino)

2-) Open File>Preferences

3-) http://arduino.esp8266.com/stable/package_esp8266com_index.json Add this URL to “Additional Boars Manager URL’s”

4-) Open Board Manager from Tools tab (Tools>Board…>Board Manager…) and type “esp” to search bar.

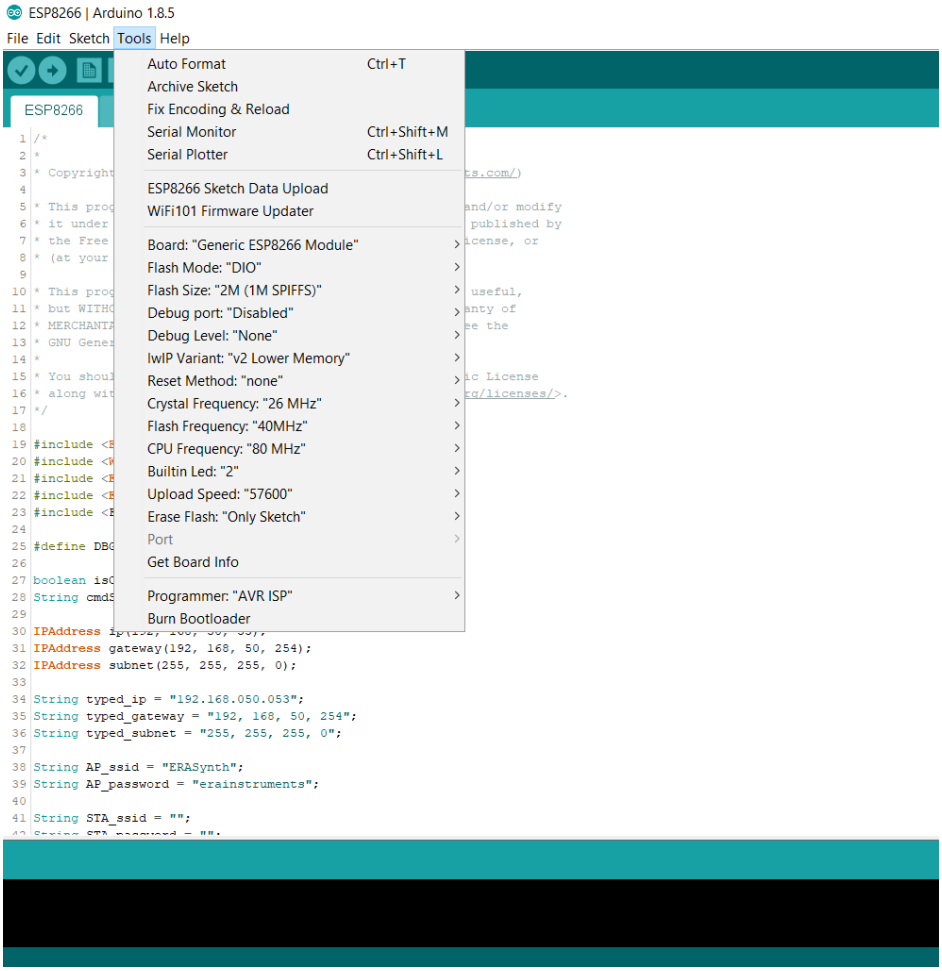
5-) Install the latest version.

6-) Restart Arduino IDE.

7-) Download Arduino ESP8266FS tool and install it as instructed in GitHub. (https://github.com/esp8266/arduino-esp8266fs-plugin)

8-) Download the latest ERASynth firmware from GitHub. https://github.com/erainstruments/erasynth-firmware

9-) Open ESP826.ino file and change all settings as in picture below.



10-) Select your device from Tools>Port.

11-) Before uploading, you must open PC GUI or any serial terminal emulator program and send ESP8266 upload mode command (**>U** with carriage return). In PC GUI, it is under settings tab. Don't forget to close com-port after sending upload mode command.

12-) Click Tools>ESP8266 Sketch Data Upload

13-) Arduino IDE will compile and upload code to module. If any error occurs such as "espcomm_upload_mem failed", try every step again and be sure the COM port of the device is not used by any other programs and closed.