How to update the firmware on the QCX using an arduino uno and AVRDUDESS
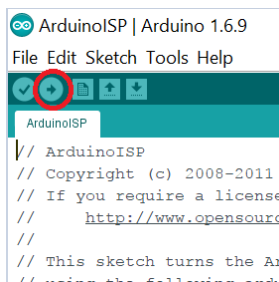
1. Hardware requirements
    a. QCX built and operational (duh!)
    b. Arduino uno
    c. Computer capable of running the Arduino IDE and AVRDUDE (any recent PC or MAC)
    d. USB cable to connect uno to computer
    e. Jumper leads to connect – female one end, male other end.
2. Software requirements
    a. Arduino IDE – https://www.arduino.cc/en/Main/Software.
    b. AVRDUDESS – http://www.nongnu.org/avrdude/ (These files are compressed. I used 7-Zip to extract.)
    c. Updated version of the QCX firmware – download the hex file to your computer from the very awesome QRP-labs website. https://www.qrp-labs.com/qcx/qcxfirmware.html
3. Preparations
    a. Prepare the Arduino Uno

        The Arduino needs to be programmed to act as an **In System Programmer** ("ISP").

        There is a sketch(program) that comes with the Arduino IDE called "ArduinoISP".

        In the Arduino IDE program menus go File>Examples>ArduinoISP>ArduinoISP.

        Connect your Arduino to your computer, select the correct board and port from the Tools menu and upload the ArduinoISP sketch.
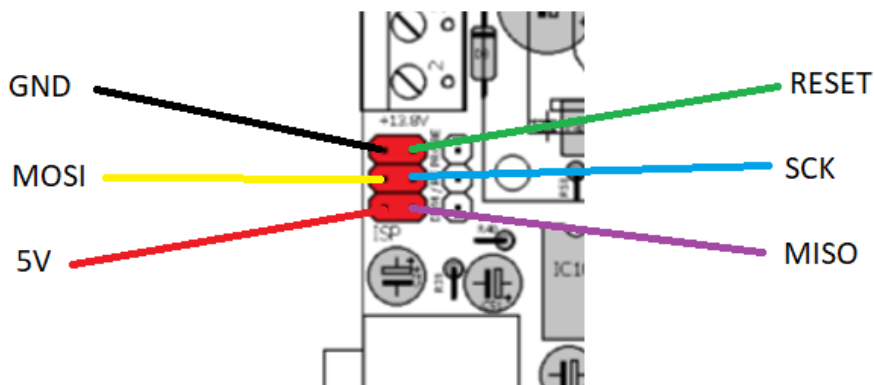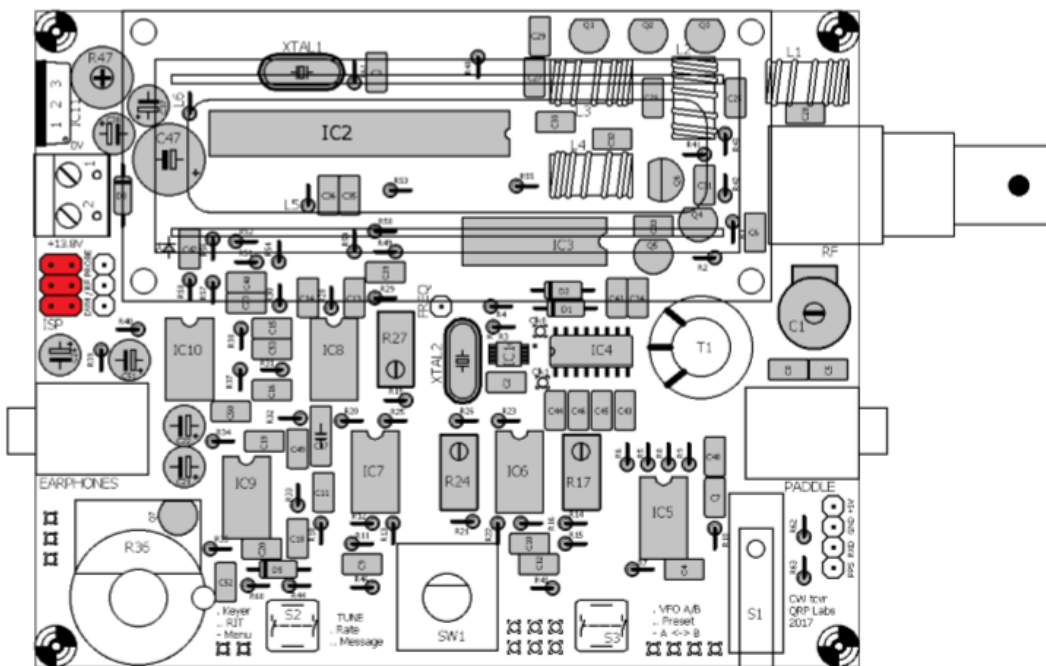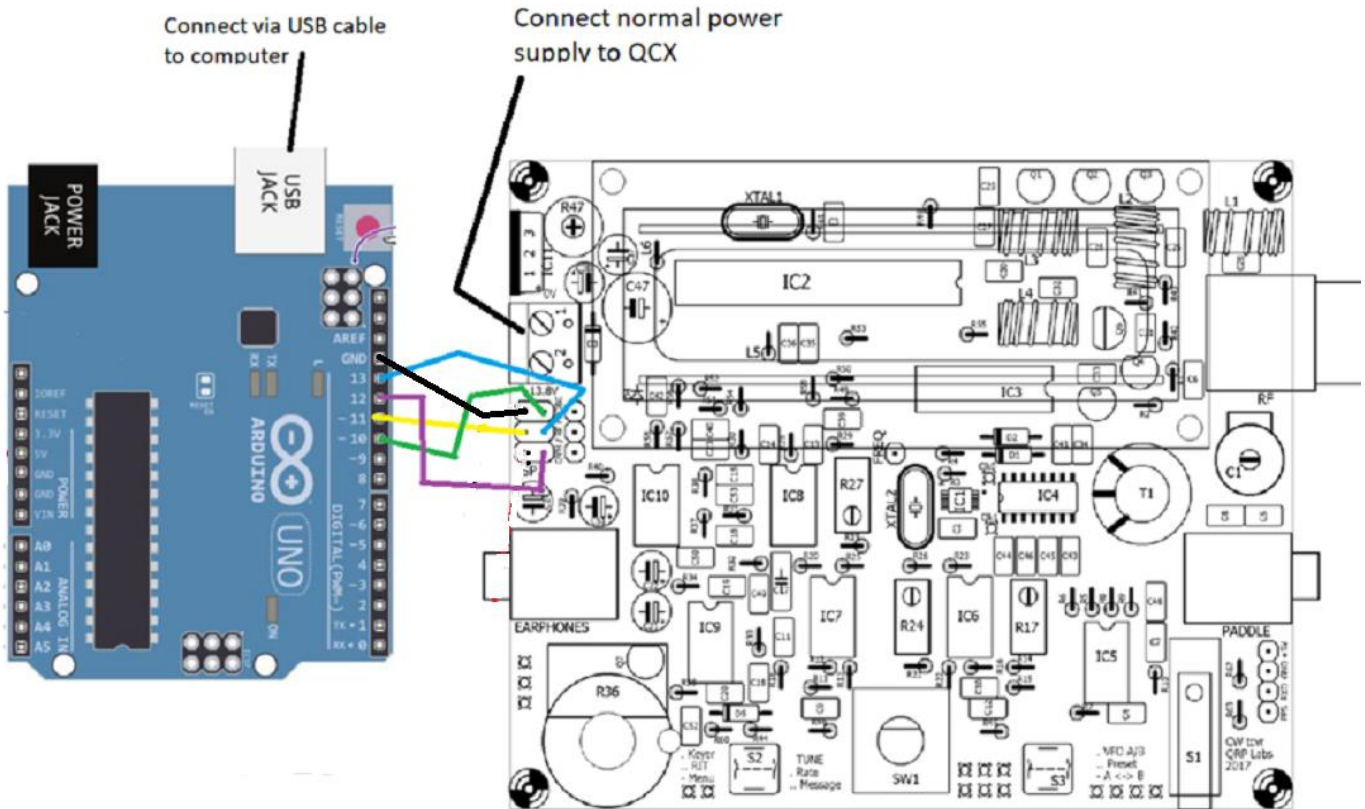

        This is a very basic description of how to load a sketch and there are much better tutorials on the interwebs if you need more detailed help.

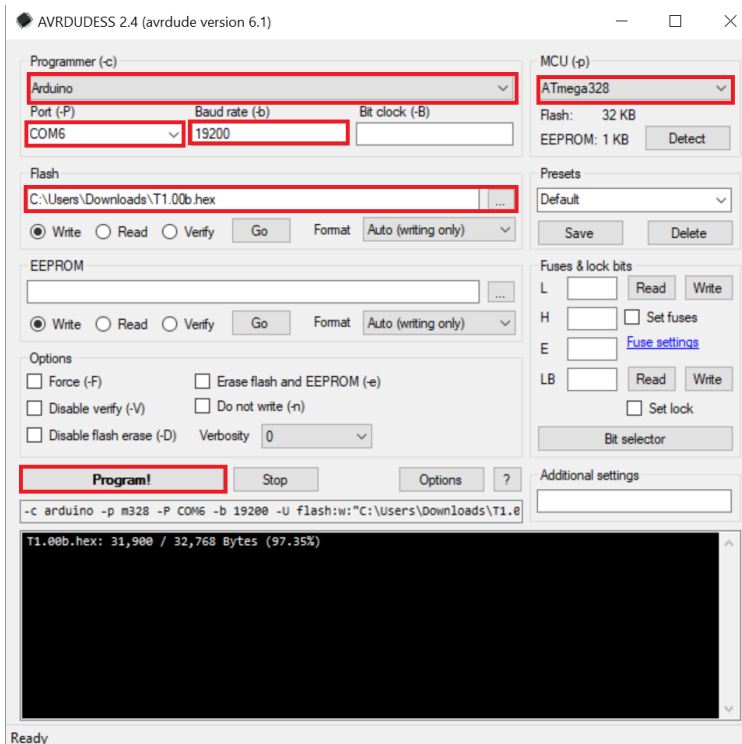b. Connect the Arduino to the QCX's ISP pins as follows:

Arduino Pin Number	QCX ISP pin
10	RESET
11	MOSI
12	MISO
13	SCK
GND	GND

Refer to the following diagrams of the QCX from the construction manual. Power the QCX normally via the 13.8V supply rather than powering it from the Arduino to ensure it gets enough power. Note that the 5V pin on the QCX is not connected to the Arduino.

Connect via USB cable to computer

Connect normal power supply to QCX

4. Flash the new firmware to the QCX
    a. Start AVRDUDESS
    b. Select "Arduino" as the programmer
    c. Select the COM port the Arduino is connected to
    d. Enter BAUD rate 19200
    e. Select ATmega328 as the MCU
    f. Select the path where the new firmware is located
    g. Press the Program button.

Await your newly programmed QCX!!   73, Simon, VK3ELH