

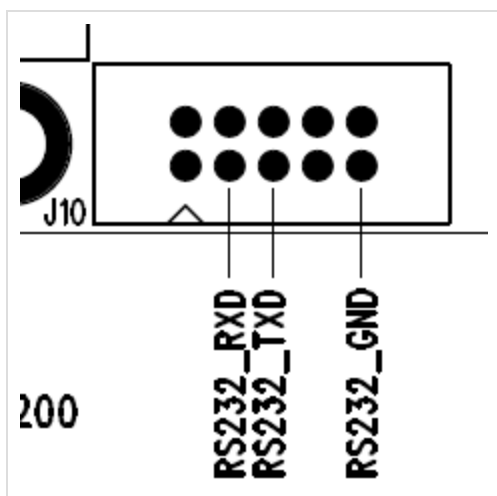
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Soekris R-2R: Firmware upgrade

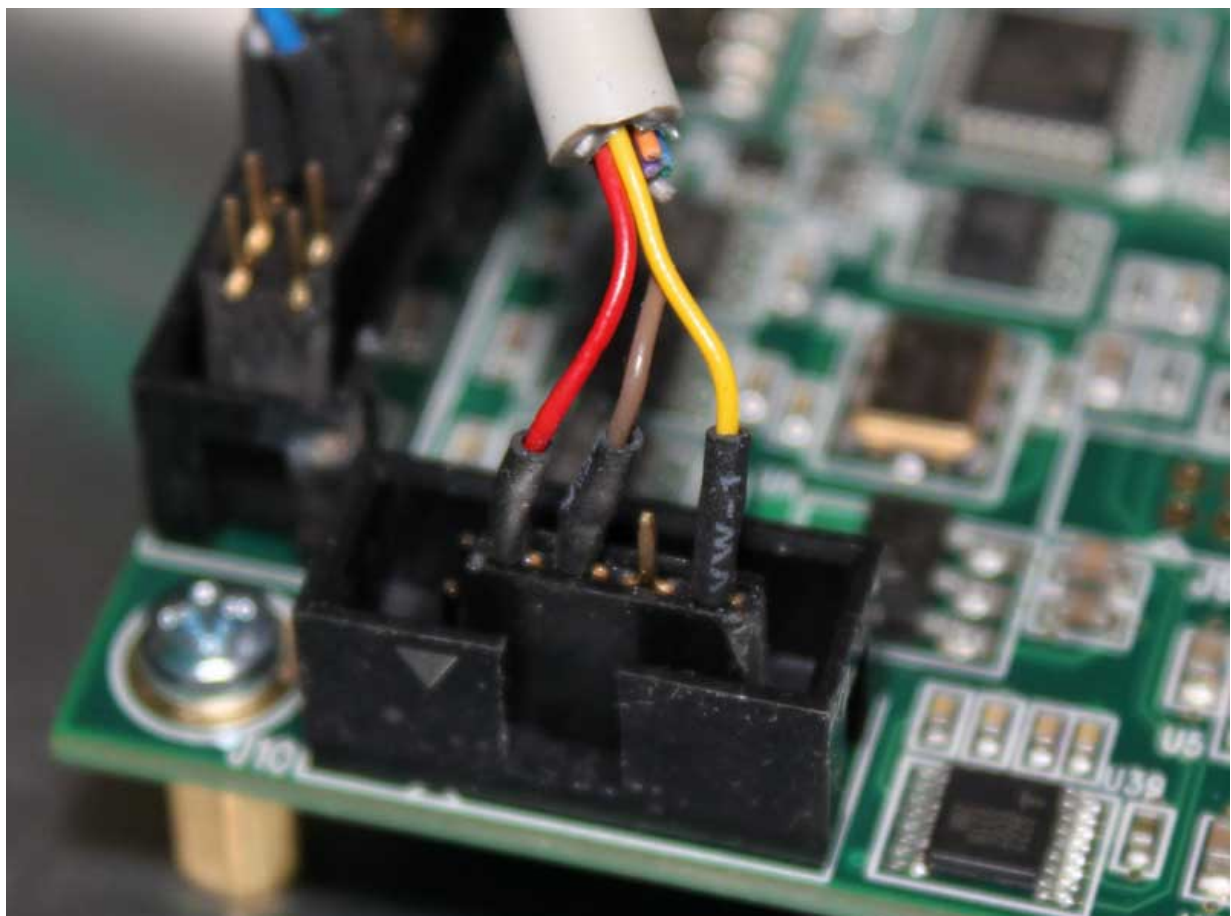
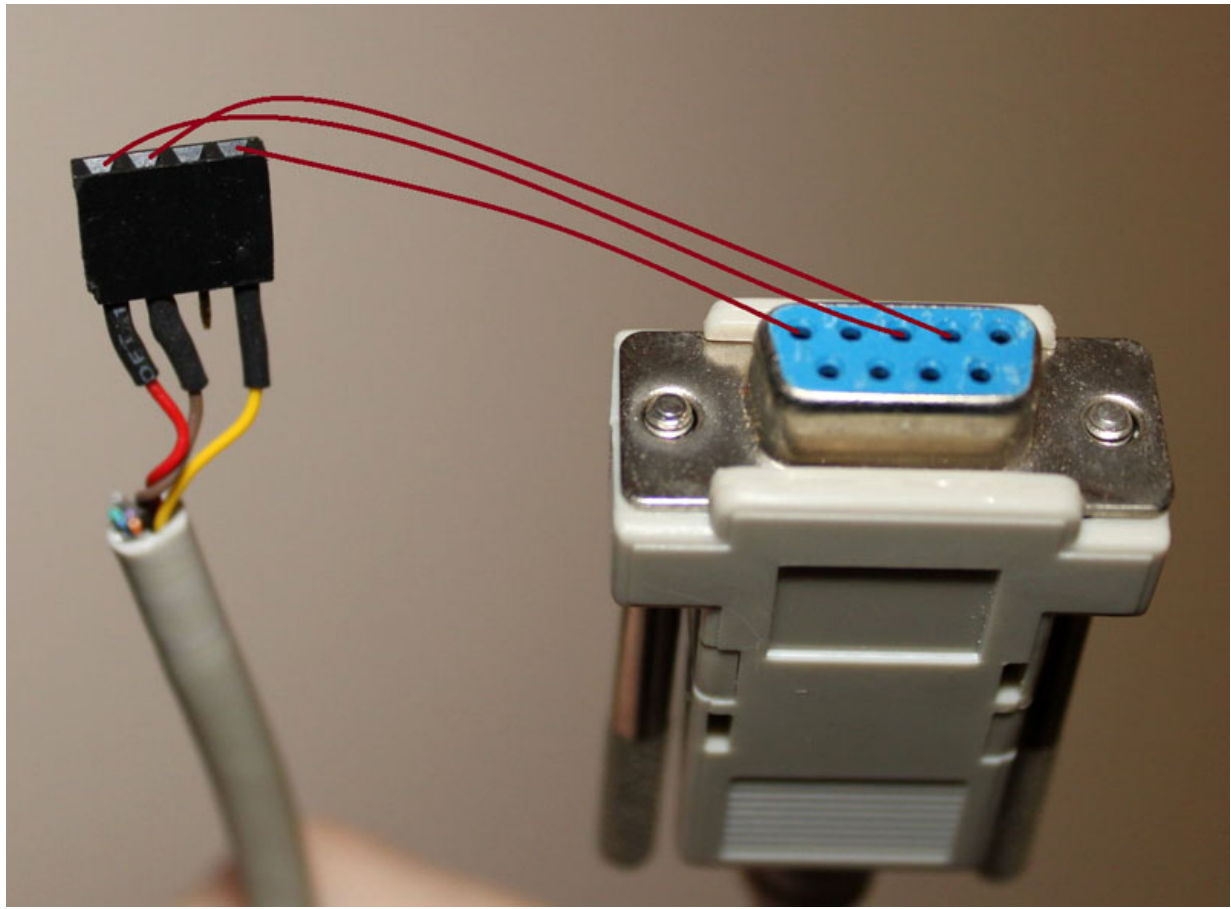
Posted on [February 2, 2015](#)

The DAM1021 originally came with FPGA firmware 0.8. Since then Soren has released a new version of the firmware, [Rev 0.9](#).



In order to upload it to the DAC one must connect the DAC to a computer using either a “classic” serial port, like the one found at the back of older computers, or a USB to Serial adapter. Then a cable must be made connecting three pins of the DB9 connector to the connector J10 on the DAC board.

These pictures illustrate the connections that are needed:

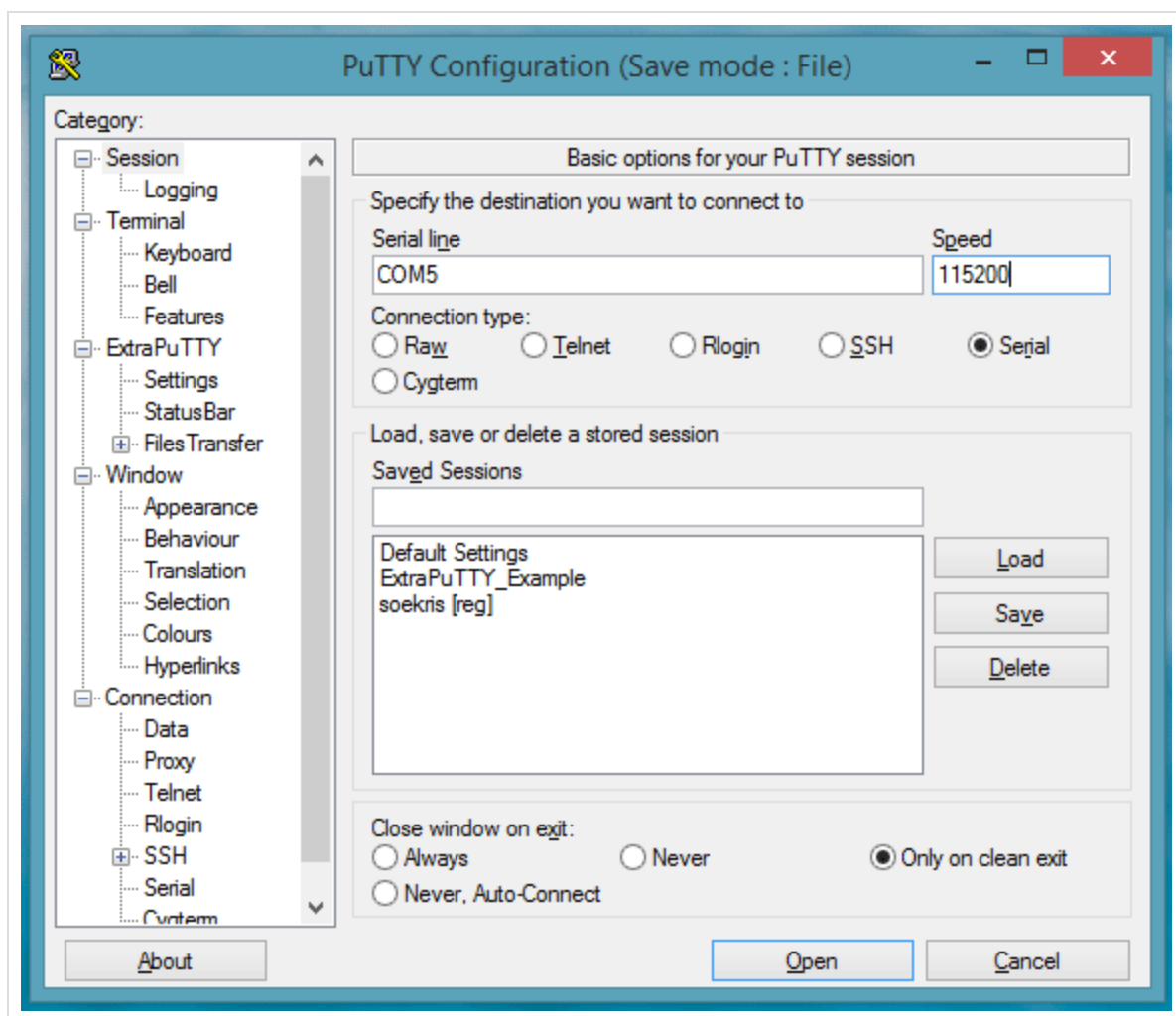




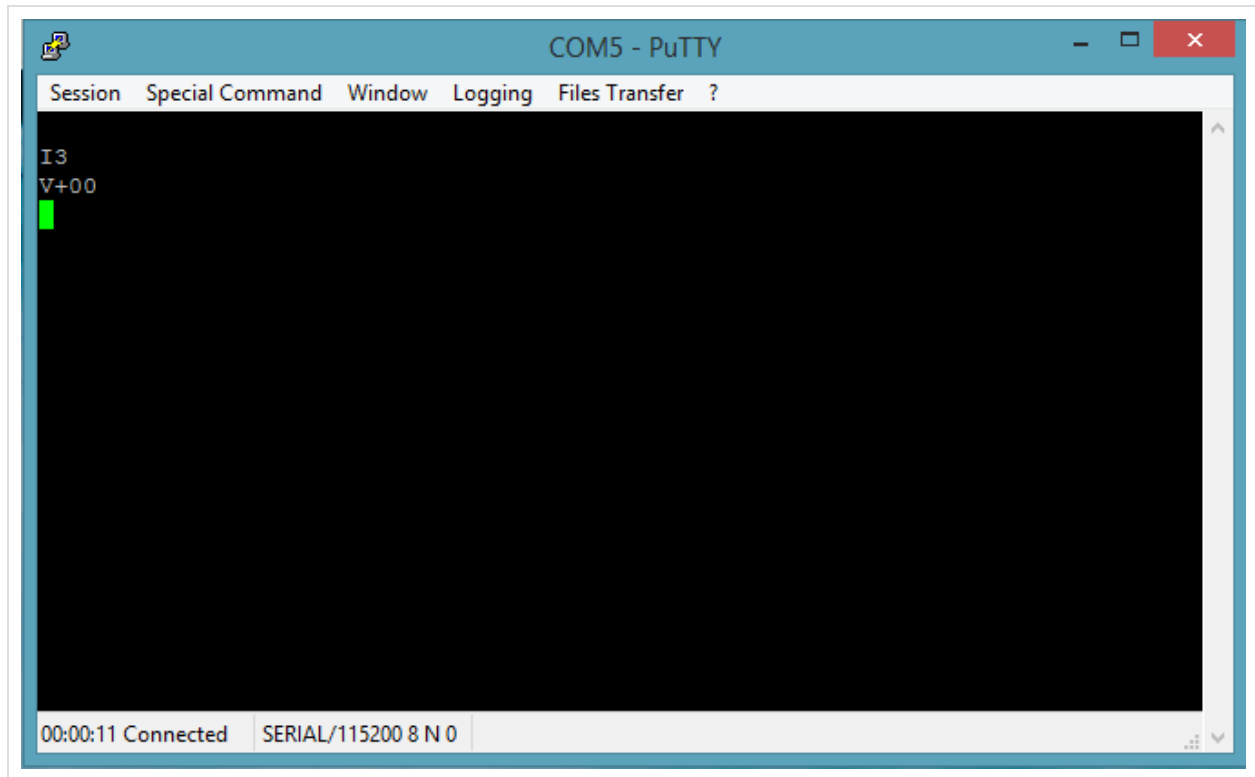
You use your new cable to connect the DAM to your computer's serial port (or USB-to-serial adapter). You do not power on the DAM DAC just yet.

Once you are done with making the physical connection, you need to get your hands on some software that supports the XModem 1K data transfer protocol. This is a pretty old protocol, so your choices in software are pretty limited. One such choice is the "classic" HyperTerminal, but since it is no longer available with Windows I chose the more modern [ExtraPuTTY](#). It is a fork of the classic PuTTY telnet/ssl client software that also supports "vintage" transfer protocols such as XModem.

Once you have it installed it is pretty easy to establish a serial connection at 115200, 8, n, 1, as specified by Soekris. You click on the "serial" tickbox and enter your computer's serial port (in my case it's COM5) along with the specified speed (115200bps):



You click on "open" and you get a black terminal screen. You now need to power on the DAC. Once you do that, you should get something like this:



This means that everything is fine. You might see an “I0” instead of an “I3”. That is OK.

Now you need to get to the uManager prompt. You type “+++” and wait for a second. You will not see the “+” characters as you type them. That is OK. You will get this:



Now type “download”, followed by Enter. You will see something like this:



This means that you have 30 seconds to begin sending your file. To do that you click on File Transfer -> Xmodem 1K -> Send. Select your firmware file and off you go!



When the transfer completes you will see something like this:



One thing – do not forget to give the “update” command once you have uploaded the code followed by a “y” and return.

Next you type “exit” (and Enter) to exit the uManager prompt and you are ready to power cycle the DAC. Once you have done that, you repeat the above steps to get to the uManager prompt and you verify that you have successfully updated the firmware. You should now be at FPGA firmware 0.9!

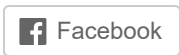


If are having problems connecting, such as getting garbage like this in your serial console:



chances are that your USB to serial adapter is not a “true” RS-232 interface, but outputs TTL levels instead. You can confirm that by measuring the voltages between GND and the RX & TX pins. You should be getting zero volts in one case and about -9V in the other. If you are getting 3.3 or 5 volts, your interface will not work with the DAM. You should try to find a proper RS-232 interface.

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2 THOUGHTS ON “SOEKRIS R-2R: FIRMWARE UPGRADE”

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Craig

on [February 25, 2020 at 16:49](#) said:

Is it possible my cable is scuffed if I get nothing on the software?

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