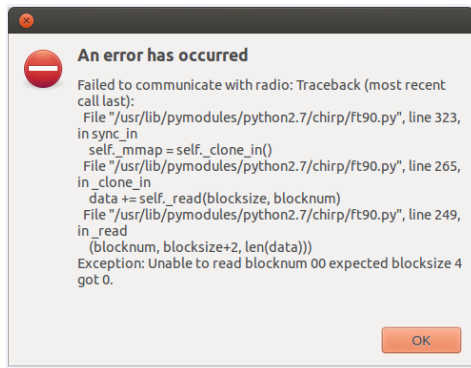


Programming the Yaesu FT-90R with CHIRP and Prolific-based USB cables (CF-29C)

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Problem: I was unable to get CHIRP and my FT-90R to talk to each other; more specifically, attempting to download from the radio, using CHIRP on an Ubuntu 12.04 laptop and a couple of different Yaesu CF-29C (Prolific-based) USB clone cables found on ebay generated the following error:

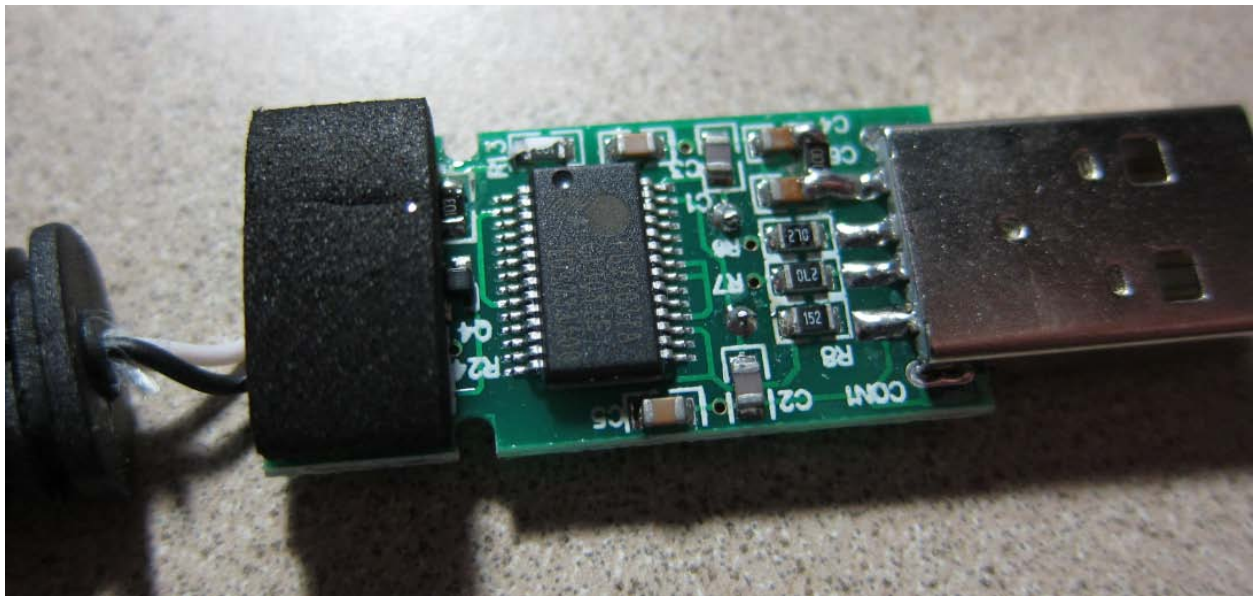
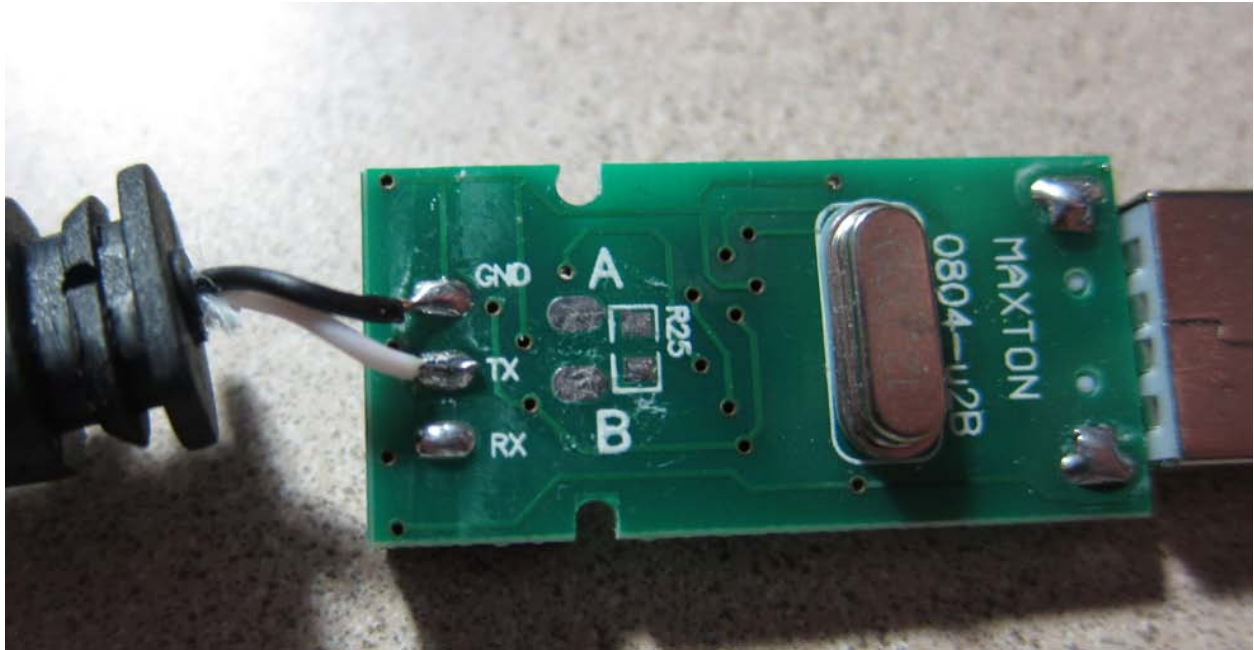


This is a system that has worked fine programming Baofeng and Icom W32A's with no issue.

The FT-90R uses two pins on the mic plug for DATA (RX and TX) and GND i.e. the same pin is used for upload and download of data.

This issue appears to be specific to the USB cables, not the Serial-9pin versions.

FIX: After a bunch of trial an error, and even trying a more common CF-29F cable (which is the same as a "C" version with the exception of which pins on the RJ11/RJ25 plug are DATA and GND³), I took both of the cables apart, and found the following:



CAUTION: With a sharp knife if it does not take much to remove the covers. You do, however, have to be very careful with the knife blade or you may “nick” the board with the blade (notice the chunk of R13 I took out in the previous image, just above the chip.)

Both the KAWA small CF-29F and the AffordableRadio 29C versions were identical inside, both based on the Prolific 2303 chip.

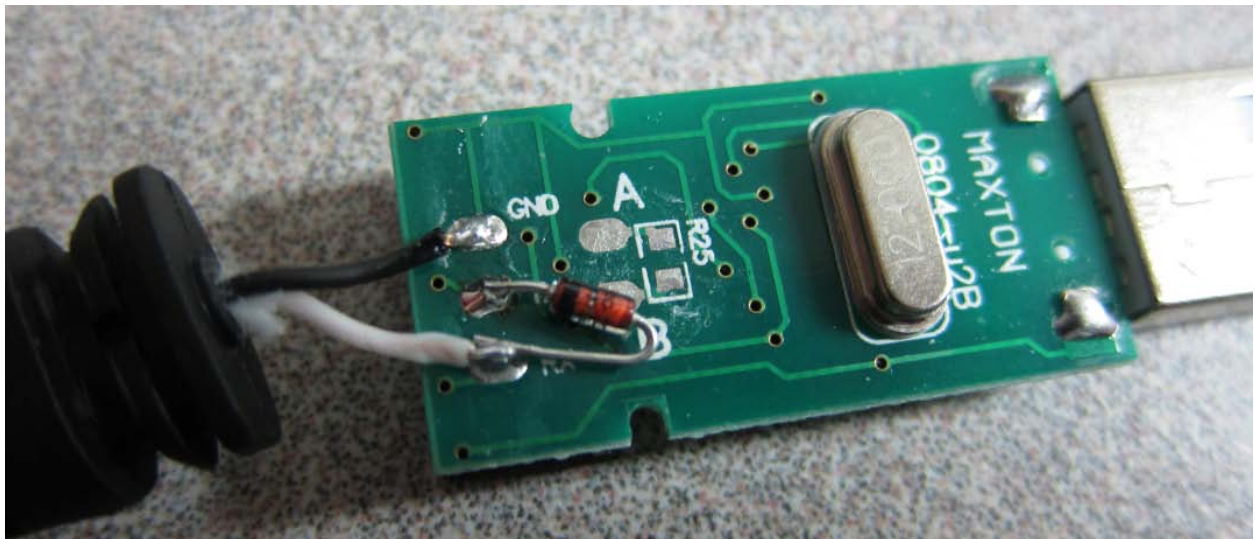
You will note in the first image (board bottom) that the cable is only connected to the TX side of the chip; these cables appear to be designed for upload to the radio only (I later confirmed this when I had finally successfully downloaded an img file from the radio -- they are 1-way cables as delivered). This conflicts with CHIRP's use model which assumes that with a new radio you either

- Download an empty img file from the radio and use that as your reference file -- edit it, and then upload it back
- Obtain an existing img file from some other source that you edit and upload back to the radio.

Not surprising that I got the CHIRP download communication error since there is no physical connection (that I can see) to the RX portion of the 2303.

Referencing another article¹ on hombrewing a cable based on the Prolific chip that shared one wire for RX and TX, I made the following modifications to the cable:

1. I moved the DATA wire (white) from TX to RX.
2. I added a small signal diode (e.g. 1N4148, 1N914) from TX to RX. Note the polarity. (SMD would work, but there is plenty of space for a discrete part).



I put the "clam shell" cover back together with Superglue, and the cable now works fine, upload and download.

This note does not address any possible Windows driver issues with the Prolific chip, since I am using a Linux machine to run CHIRP.

73,

Bill W1PA

References and Thanks

- (1) <http://highfields-arc.co.uk/constructors/other/opc478.htm#usb>
- (2) Jens' posts in the FT- 90R Yahoo Group and email correspondence
- (3) CF-29C (for FT-90R, FT-2600) DATA on pin 2, GND is pin 4
CF-29F (for FT-1802, FT-2800) DATA on pin 6, GND is pin 4

