Digital Radio on the Cheap

By Jeff Stahl, K4BH

Getting Started

- Radio

- Computer
  - Mic input
  - Speaker output

- Software
  - WSJT-X
  - FLDIGI
  - MMSSTV

Preliminary Setup

- Identify computer speaker and mic

- Make sure both mic and speaker are enabled on computer

- Make sure radio mic can reach computer speaker

Listen First

- Start the software (i.e. WSJT-X)

- Make sure the radio speaker is near the computer mic

  - Use an external computer mic if needed

- Tune to a frequency where digital activity is common

- Select the appropriate mode in the software

- Make sure the radio is on USB!

Transmitting

- This can be awkward acoustically, but it can be done
    - Easier in SSTV, FLDIGI
- Hold radio mic by computer speaker and press PTT
- Push the transmit button in the software

Let's Use Wires!

- Acoustic interface works OK for receiving but is awkward for transmitting.

- Determine what connections your computer supports

- Determine how your radio interface is implemented

- This is where many hams needlessly spend money

$$$$

- There are plug-and-play solutions
  - Signal Link
  - Rigblaster
- Easy but expensive
  - Need cables for each radio, sometimes other accessories

My Cheap Solution

- My computer only has one jack for audio in/out, can be one or the other, but not both

- I purchased a USB audio interface which has separate mic and speaker jacks, cost around $8
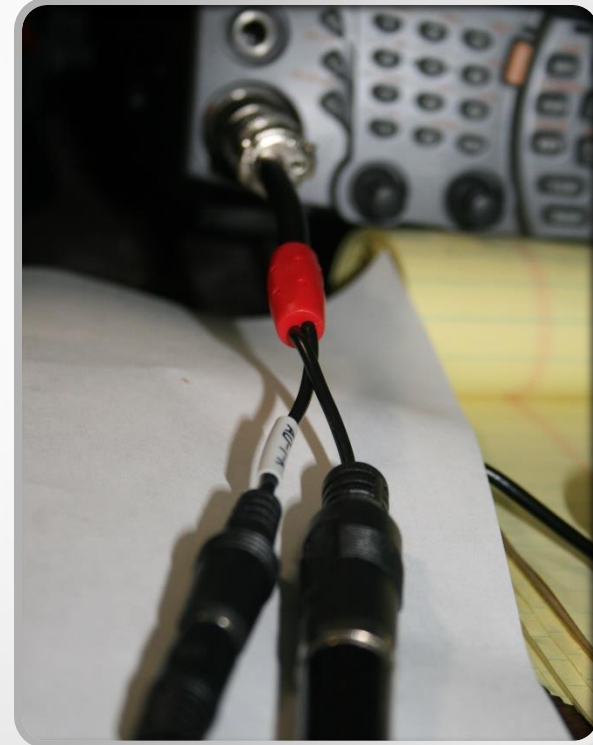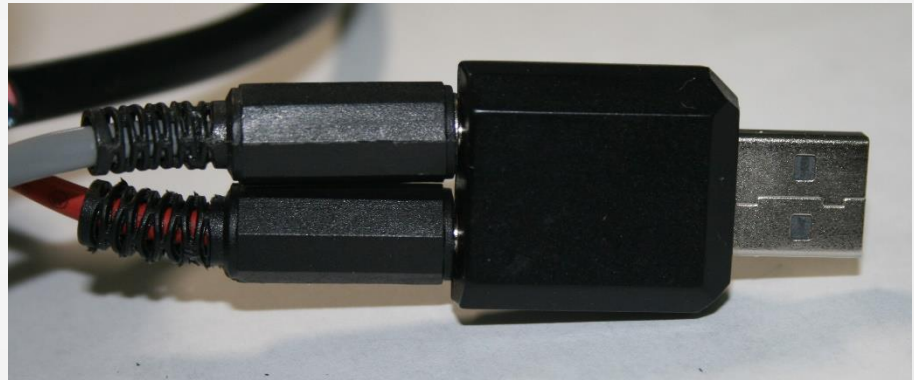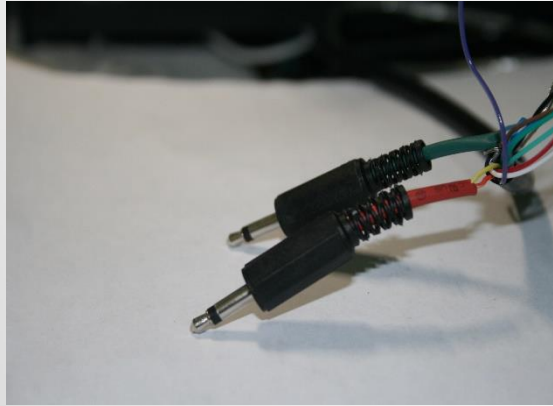
Radio Connection

- My Kenwood TS-2000 provides mic, audio, and PTT on a rear panel accessory jack. Audio out is fixed level.

- I wired the rear panel audio out to the computer mic input

- Wiring the radio mic input to the computer works, but there is the problem of the PTT.

Getting PTT Working

- I use a Heil headset
  - Jack for the mic
- I used a headphone splitter (1 plug to 2 jacks) on the headset adapter.
  - 1 jack for headset, 1 jack for computer
- I use VOX for digital modes

Computer Hook-up

On The Air

- With the VOX enabled transmitting is as simple as telling the program to transmit!

- This setup saved me at least $100 over a plug-and-play solution

- I'm building a PTT circuit to eliminate the need for VOX (on my radio this allows the rear panel mic input to be used)

Results

- I have sent and received many still pictures using SSTV
- I have 34 states confirmed on 80 meters using FT-8
- I have 22countries on 80 meter FT-8
- All in 16 on-air days spanning 22 calendar days!

Questions?