# The JTDX Fox & Hound Dilemma – Solved
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## Introduction

A few nights ago, I along with several other stations in the Northeast was trying to work the TX5S dxpedition on Clipperton Island on 6 meters. Most of us were chatting on the ON4KST chat page. TX5S was using the WSJT-X Fox & Hound mode which is specifically designed for dxpedition operations.

Some of the stations trying to work TX5S were using JTDX, as many operators are of the opinion that JTDX decodes FT8 signals better than WSJT-X. Unfortunately, JTDX does not support the Fox & Hound mode of operation but with a lot of manual intervention it can fake it.

So, I came up with a solution to the dilemma which is to simultaneously use both WSJT-X and JTDX. There are actually two approaches that can be used; one is pretty simple and one not so much!

Note that I run everything on a Windows 10 PC and everything related to setting up the various software programs described here applies to Windows. I'm not sure if everything I mention is available for Macs or Linux machines.

I'm not making an attempt here to explain how WSJT-X or JTDX work, nor to fully explain how to operate as a hound in the Fox & Hound mode, but rather to simply explain how the various software programs and hardware can be used together. There are plenty of documents and videos available on the internet to explain the basics.

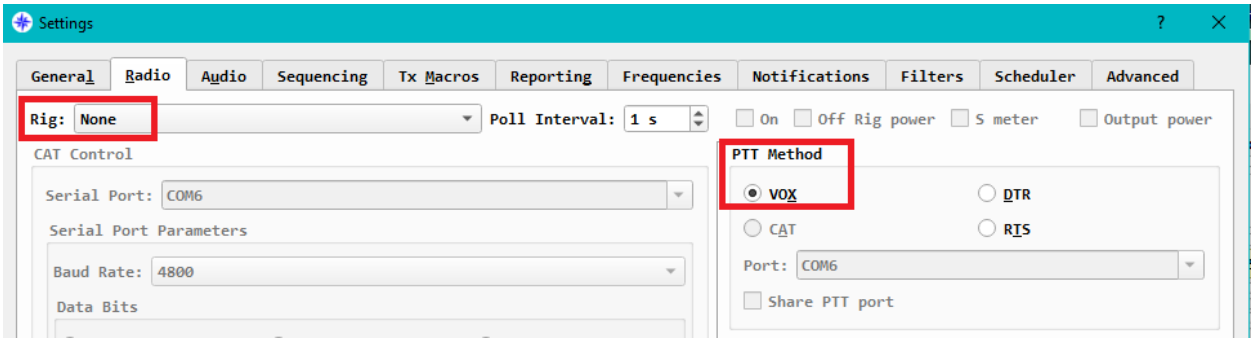
## Using WSJT-X and JTDX with Any Transceiver

### WSJT-X Setup

This is the simplest approach. Set WSJT-X up as you normally would to do FT8 on your transceiver. If you plan to operate in Fox & Hound mode, enable 'Hound' mode on the advanced settings page in WSJT-X and make sure the rig is set up for 'Split' operation; either real split mode or 'Fake It'. The document by Joe Taylor (K1JT) referenced in the *Introduction* explains the setup in detail.

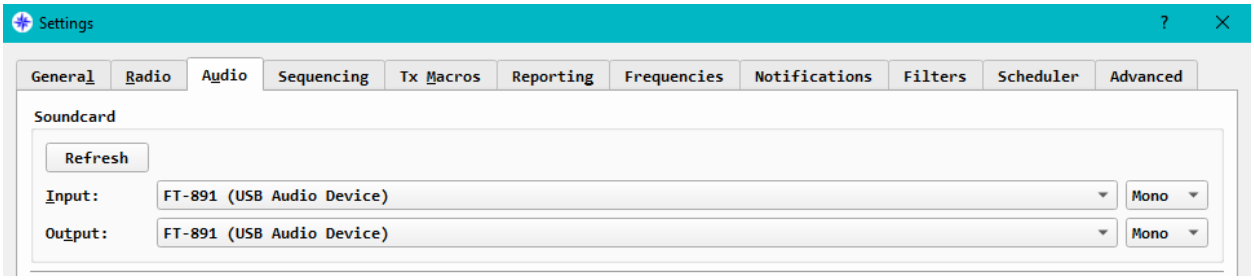
## JTDX Setup

With the WSJT-X instance already set up and running, start an instance of JTDX. In the JTDX ‘Radio’ settings, set the ‘Rig’ to ‘None’ and set the ‘PTT Method’ to ‘Vox’:




Nothing else on this page matters as near as I can tell.

On the ‘Audio’ settings page, set the audio connections to the same ones as you have set for your radio in the WSJT-X instance:




You should now be receiving on both. Notice that I renamed the audio connections on my computer to show which audio ports go with which radios; much easier that trying to remember the generic names. There are documents and videos online describing the procedure. You can also change the icons associated with the ports; my icons look like radios!

### One Possible Problem

There is one possible issue with this setup. Since WSJT-X and JTDX are using the same audio source, the audio level may be appropriate for one but not the other. If you find this to be the case, set the audio level (using the Windows 'Sound' settings) so that the level is appropriate for JTDX since that will be your primary receiver.

I thought there might be a better solution for this, but it didn't work as expected; if anyone comes up with one, let me know.

## Using an SDR as a Second Receiver

This approach is far better than the radio only approach; however it requires some additional hardware and software. At a minimum, you will need an SDR and a splitter device to allow simultaneous reception on the radio and the SDR.

I use a homebrew Splitter/Switcher which is described in this document. The document describes how to connect everything.

Paul (N2EME) also has similar units for sale on his website.

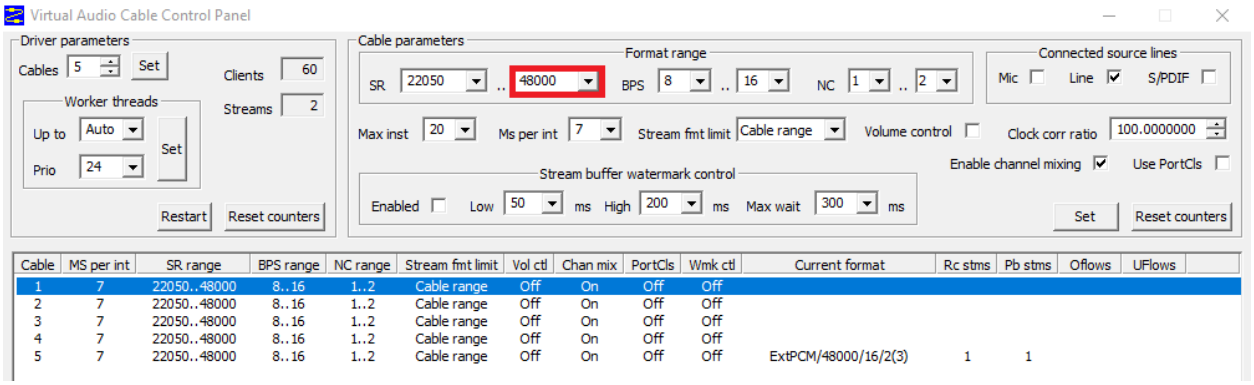
You will also need an SDR. I have both the RSP Play RSPdx and the RSPduo. Both perform quite well. There are others available that may or may not work as well.

Besides the SDR, you will need software to run it. There are two options; SDRUno and SDR Console. I prefer SDR Console; however SDRUno is the only option if you want to listen to two bands when using the RSPduo SDR.

One more piece of software needed is something to provide virtual audio connections. Again, there are a couple of options; VB-Cable and Virtual Audio Cable (VAC). I have both installed but am using VAC.

## Setting up the Virtual Audio Cable

You can create a number of virtual audio cables; I have 5 which are more than enough:




I will confess. I have no clue what most of the settings on this page do other than the 48KHz setting in the red box. When I made the screenshot only VAC #5 was active, so that is the only one showing a ‘Current Format’ in the bottom part of the screen.

I also have the VB-Cable program on the computer, but don’t use it and don’t remember how to set it up. I would assume the documentation available for that program will explain the setup.

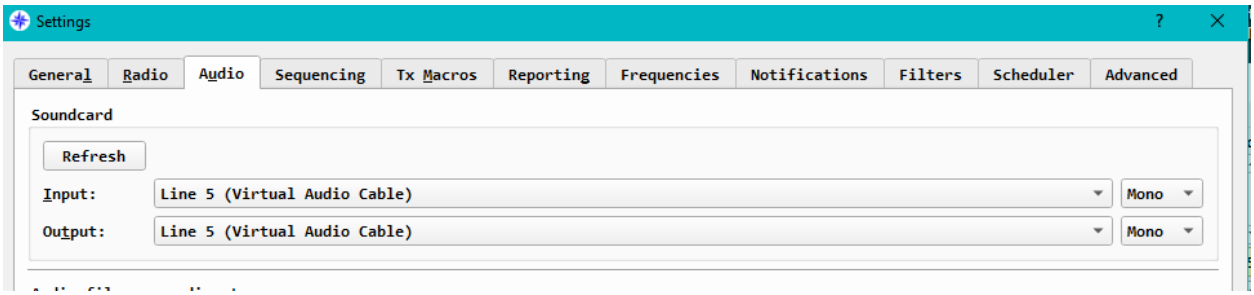
## WSJT-X Setup

Again, set WSJT-X up as you would normally do if you were just going to use it to run the radio.

## JTDX Setup

In JTDX, make the same settings on the ‘Radio’ tab as shown above.

The settings on the ‘Audio’ page are a bit different however. To use the SDR, we’re going to use one of the virtual audio cables as the sound source for the JTDX instance:




I’m using ‘Line 5’, but you can use any one you like. The document describing my SDR Splitter/Switcher explains why you might want to use multiple virtual audio cables for other things.

### SDRUno or SDR Console Setup

I’m not going to explain how to set either of these programs up to work with the SDR. They are both well documented.

The only thing you need to do is to set the audio output from the SDR program to the same virtual audio cable that you used in the JTDX setup.

If you choose to use SDR Console, this excellent video by Hasan Schiers (N0AN) describes a methodical approach to tweaking the parameters for maximum performance.

Another thing you should do with the SDR is to calibrate its frequency so that it agrees with your radio (assuming that is correct). The documentation for whichever SDR program you use will explain the procedure.

## Operating

Using either of the configurations described above, the WSJT-X instance will be used for transmitting just as you would do if only using WSJT-X. This is true regardless of whether you are using the Fox & Hound mode or simply making normal FT8 (or other mode) contacts.

There are two situations however which will require some manual intervention; both occur when you get a decode on JTDX but not on WSJT-X.

In the case I described in the *Introduction*, let's assume I got a decode from TX5S on JTDX but not on WSJT-X and wanted to attempt to initiate a QSO. All you have to do is enter (in this case) 'TX5S' into the 'DX Call' box on WSJT-X click 'Generate Standard Msgs' and proceed as usual.

The second situation occurs when the DX station answers your call and you only see the decode on the JTDX instance. As noted in Joe Taylor's document on Fox & Hound operation, foxes operate using DFs below 1000Hz and hounds use DFs above 1000Hz. But when the fox answers your call, your DF will automagically be changed to that of the DX (fox) station. If you only saw the DX station answering your call on the JTDX instance, you must manually change your DF in the WSJT-X instance to that of the DX station before replying. If you also saw the decode on WSJT-X it should work without intervention.

## In Conclusion

One thing I noticed in the brief amount of time I have played with the SDR setup is that the decodes I got on the JTDX instance running from the SDR generally showed a lower S/N radio than those I got in the WSJT-X instance monitoring the radio's audio stream. I did however get more decodes on the SDR/JTDX combination than on WSJT-X which Hasan says is the more important consideration.

I still need to experiment some more and will update this document appropriately.

Comments are always appreciated! Email me at WA2FZW@ARRL.net.

## Acknowledgements

Thanks to Sid (K3SX), Hasan (N0AN), Pete (KD9VV), Ray (W9VHF), Bob (K2DRH) and Larry (K0TPP) for reading the drafts and providing their comments!