

# IC-9700 Dual Band Digital Operations

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## Introduction

I recently discovered that it is possible to not only listen to both selected bands on the [Icom IC-9700](#) through the speakers or a headset, but one can also have instances of [WSJT-X](#) or other digital decoding programs monitoring both the main band and the sub band! This document will describe how to set it up.

Two assumptions; first, the reader has already figured out how to use the IC-9700 with one instance of WSJT-X or some other digital decoding program and secondly, that like WSJT-X, multiple instances of the decoding program can be running on the PC simultaneously.

## Audio Settings

### Windows 10

Most PC users already know that the speakers on the PC or on an HDMI monitor are capable of playing music in stereo, but the USB audio connections to the PC seem to default to monaural.

The key to being able to monitor both bands on the IC-9700 via its USB audio connection to the PC is that the main band audio output is sent to the PC on the left channel of the USB connection and audio from the sub band is sent to the PC on the right channel.

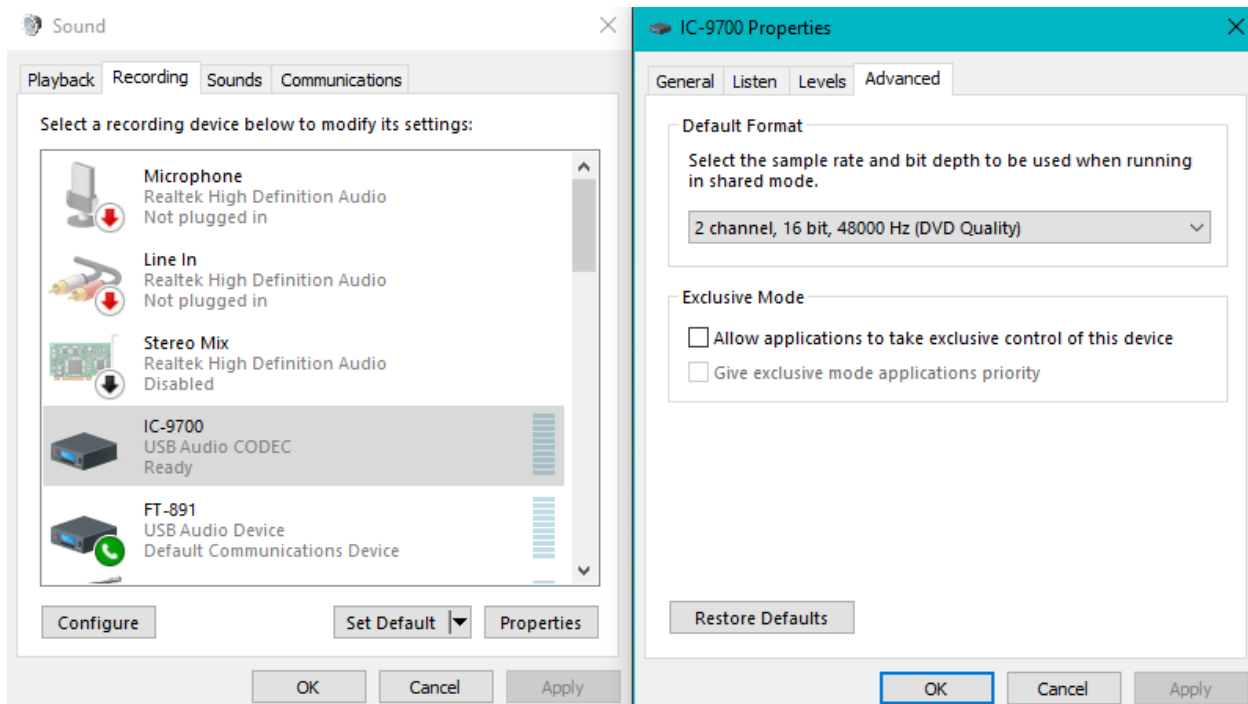
This being the case, the first thing that we need to do is make sure the USB audio connection between the radio and the PC is operating in the stereo mode.

To set the USB audio interface to stereo mode, do the following:

1. Go into the control panel and select 'Sounds'.
2. Select the 'Recording' tab.
3. Select the USB audio device for the IC-9700.
4. Select the 'Advanced' tab.
5. On the 'Advanced' tab, make sure the 'Default Format' is set to '2 channel, 16 bit, 48000 Hz (DVD Quality)'

I did this on a Windows 10 machine; it might be slightly different on other Windows versions.

Here's what mine looks like:



Make sure *NOT* to check the 'Allow applications to take exclusive control of this device' box as when we are finished, multiple applications will be sharing the audio connection.

Notice also, that I renamed the USB CODEC for the IC-9700 (and the one for my Yaesu FT-891) and even changed the icons for them to resemble radios! I highly recommend doing this as it eliminates the confusion that some people experience when they need to set up the audio connection to any of their radios. [Here's a link to a video showing how to rename the devices.](#)

To change the icon, click on the 'Properties' button in the left window above and there will be a 'Change Icon' button there. Clicking that button will bring up a display of the various available icons.

## Mac & Linux

I don't have either of these available to me, but if someone can provide me with the appropriate procedure to set up the USB audio on either one and provide me with similar screenshots to the above, I will be happy to include the information. Feel free to e-mail me at WA2FZW@arrl.net.

## Setting up the WSJT-X Instances

You will need two instances of WSJT-X running. To run two (or more) instances set up desktop shortcuts to WSJT-X with the targets looking like:

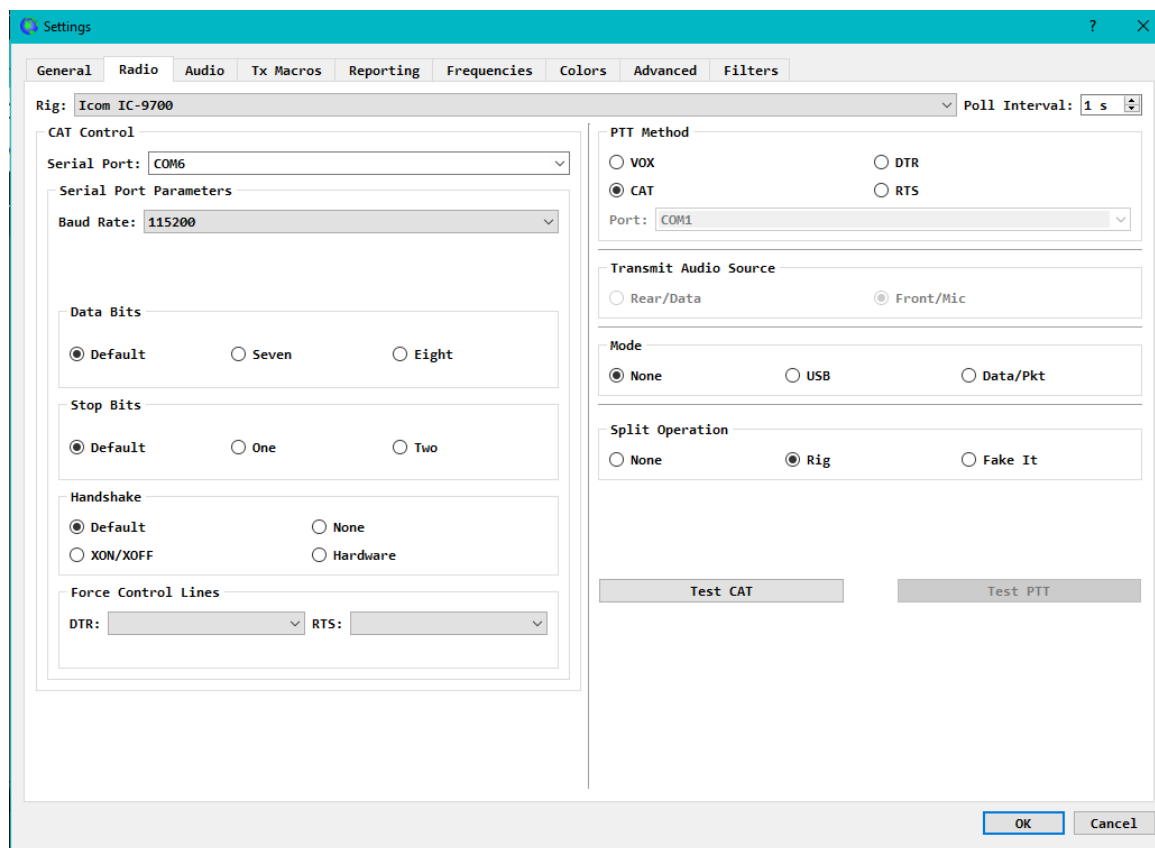
```
C:\WSJT\wsjtx\bin\wsjtx.exe --rig-name=IC9700-MB  
C:\WSJT\wsjtx\bin\wsjtx.exe --rig-name=IC9700-SB
```

If you already have one instance of WSJT-X (or some other decoding program) working with the IC-9700, you can use that instance for the main band, but I strongly recommend setting up two new shortcuts; again to eliminate any confusion as to what's what on your screen.

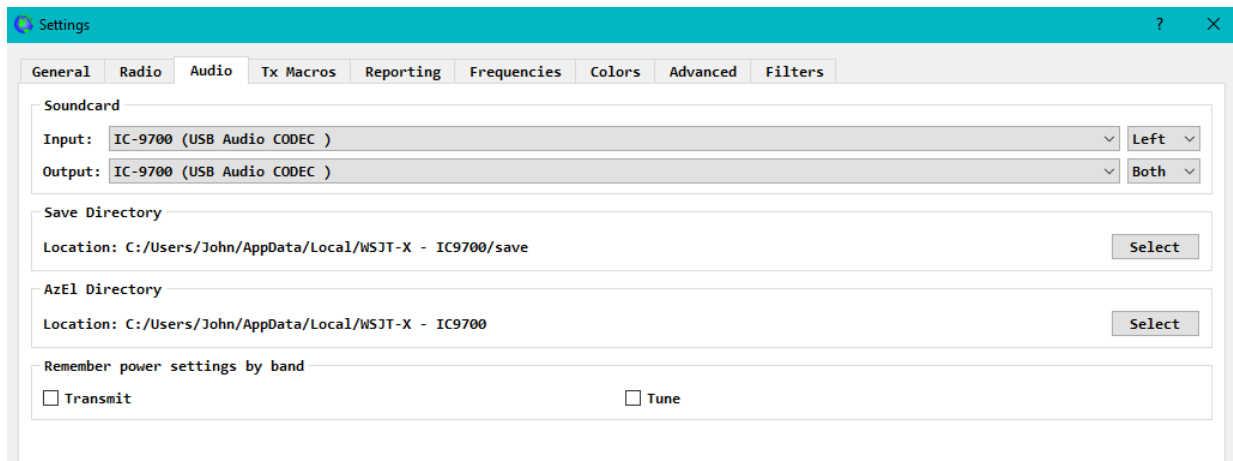
Give the shortcuts different names like 'IC-9700-MB' and 'IC-9700-SB' (or whatever floats your boat).

Start the instance for the main band and configure the radio and audio settings.

In the main band instance, configure the 'Radio' settings as you normally would for the 9700; 'Rig' = IC-9700 and assign the proper COM port and baud rate (what you have set in the radio) for CAT (aka CI-V) control. The other settings in that window should all be as shown here:



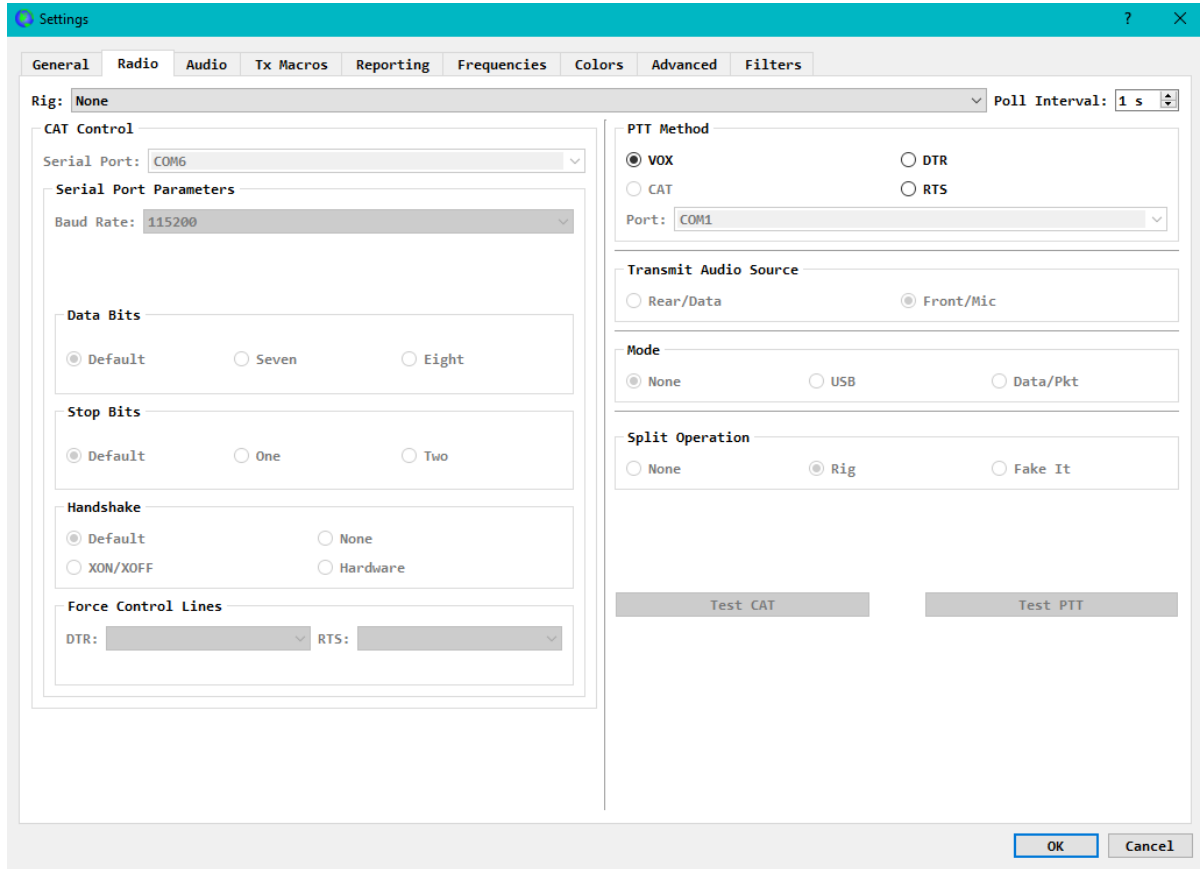
On the 'Audio' settings tab in the WSJT-X settings for the main band instance, set the 'Audio in' to 'Left' and set the 'Audio out' to 'Both' as shown here:



Note the input and output device names indicate that these are those for the IC-9700 since we renamed them earlier!

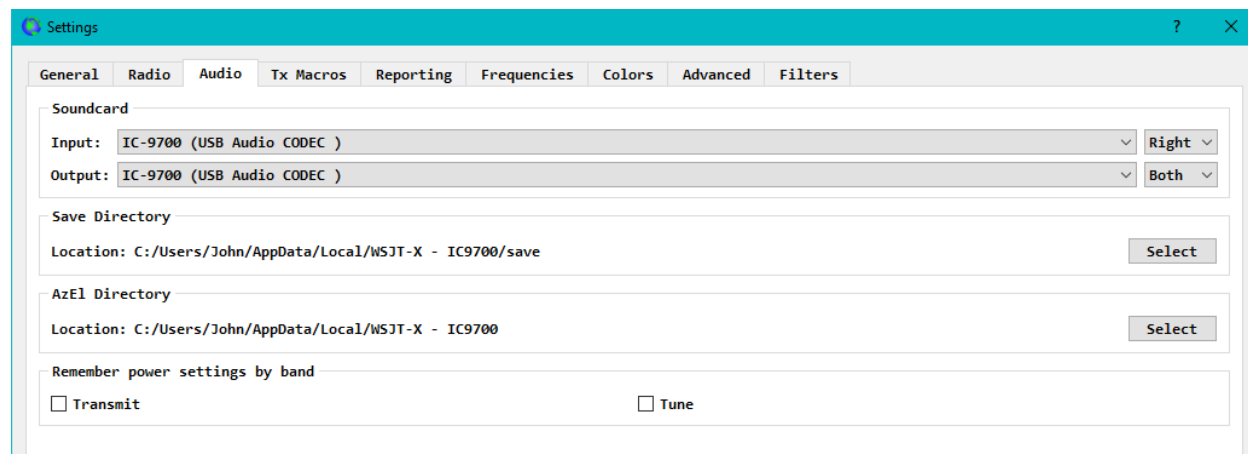
Now start the WSJT-X instance for the sub band.

In the 'Radio' settings for the sub-band instance, set the 'Rig' to 'None' and the rest of the settings as shown here:



The only thing that really matters is that the 'Rig' is set to 'None' as this instance will only be monitoring the audio from the sub band and will have no CAT (CI-V) control capabilities.

In the 'Audio' settings, set the 'Audio in' to 'Right' and set the 'Audio out' to 'Both' as shown here:



One thing to note, is that if you use the 'Configurations' capabilities in WSJT-X (as I do), the above settings need to be done for each different configuration. To make life easier, make the changes above in the 'Default' configuration, then clone that to make any new configurations you desire.

Now the only thing left that you might need to do is to use the Windows audio settings to set the received audio levels appropriately on both instances of WSJT-X.

## Transmitting

Here's where it gets a bit tricky. You can only transmit on the main band. Suppose you have the main band working on 2 meters and the sub-band monitoring 432 and you see a station that you want to work on 432.

In the main band instance of WSJT-X, go to the frequency select drop-down and select the appropriate frequency for the mode being used. Your main band will now be able to transmit on 432 and automatically, the sub-band instance of WSJT-X will now be monitoring 2 meters, *BUT*, it will still be showing 432 in the frequency box! Since there is no CAT (CI-V) control on the sub-band, the frequency shown is meaningless; the sub band instance is only listening to the audio from the sub band. I usually go ahead and select the appropriate frequency that the sub band is on in to avoid confusion.



Wait until you see the station you want to work get decoded on the main band instance and reply as usual or manually enter the other station's call in the box, generate standard messages and proceed as usual.

To go back to operating on 2 meters, go to the frequency select drop-down in the main band instance and select the appropriate 2 meter frequency and the sub-band will switch back to 432.

Why is it necessary to do it this way? Besides the fact that in normal operation (i.e. not in satellite mode) the radio can only transmit on the main band frequency. As a matter of fact there are no CI-V commands to control the frequency on the sub band. The only way to change the sub band frequency in the radio is to swap bands, change the frequency on the main band and then swap them back. There are a few other things Icom forgot to provide in the CI-V command set but I won't get into those here.

## **Using JTAlert**

If you are using JTAlert in conjunction with WSJT-X and have it configured to report to PSK Reporter or other spotting sites, it is important to set the frequency correctly in the sub band WSJT-X instance as described above when switching bands.

If you don't do that, spots from the sub band instance will be reported to the spotting sites on the wrong band.

## **Comments and Suggestions**

If you have questions or think something isn't clear or needs to be corrected, feel free to e-mail me at WA2FZW@arrl.net.