

# Digital Modes Setup for the ICOM-7610

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Make sure you are logged in with an administrative account or if using a "normal" user account, that you have the password for an administrative account! It is best to use the administrative account for installing software, then use the "normal" account for everyday computing.

The first thing is to download the ICOM Version of the Silicon Labs Virtual COM Port Driver (VCP) from the ICOM Website at:  
[http://www.icom.co.jp/world/support/download/firm/IC-7600/usb1\\_20/CD-301501-003.zip](http://www.icom.co.jp/world/support/download/firm/IC-7600/usb1_20/CD-301501-003.zip)  
Unzip this into a folder that is NOT in your "Downloads" folder. This will protect you from losing the driver software if you need to clean out your "Downloads" folder.

***Please note that if you also have a Kenwood rig, the USB driver for this rig is also made by Silicon Labs and this is also called a Virtual COM Port Driver, but these are NOT the same physical devices! Windows will correctly recognize both devices and install the correct driver!***

Navigate down to folder you saved the unzipped files to. If you have a 32 bit Operating System, Double-click the CP210xVCPInstaller\_x86.exe file. You may need to click the "Install Anyway" button on the Windows 10 App store popup.

If you have a 64 bit OS then install the CP210xVCPInstaller\_x64.exe. You may need to click the "Install Anyway" button on the Windows 10 App store popup.

Once done, apply power to the Icom 7610 then plug in the USB cable to the Icom 7610 **USB1** connector and the other end into your PC. Windows will then install the correct driver software and issue a message indicating success if all goes well.

Open Device Manager and expand the Ports tree to find what COM port settings were applied (defaults). You may wish to change the COM port number to some other number for your own situation (I like to use COM ports with the numbers less than "8"). Ensure that you write down the settings as you will need this data later on!

Now go to the Icom 7610 for the following settings:

Connectors menu.

ACC/USB Output Select: AF

ACC/USB AF Level: about 30%

ACC MOD Level: about 50%

DATA MOD Level: about 50%

USB MOD Level: about 20%

DATA OFF MOD: MIC, ACC

DATA2 MOD: USB

In the CIV Sub Menu

CIV Baud Rate: 19200

CIV Address: 7ah (default for 7600)

CIV Transceive: OFF

Now start WSJT-X and select File>Settings or "F2".

Select the Radio Tab

Set the following:

Rig, Icom IC-7600, (Select this because WSJT-X does not have the 7610 listed yet – Not in The Hamlib library).

Poll Interval: 1s

Serial port Settings: What you previously wrote down.

Baud Rate: 19200

Data Bits: Eight

Stop Bits: One

Handshake: None (You could also use "Hardware")

Force Control Lines: None selected

PTT Method: CAT

Mode, Data/Pkt

Split operation: None

On the Audio Tab select for the input and output USB Audio CODEC

You must be in USB-D mode (DATA-MODE)

TEST CAT function should now turn **GREEN** if all is set correctly.

TX audio adjustment.

First go to Set>Connectors>USB Mod Level, set this to 20%.

(We did this above, this is a starting value)

Set the TX power out to 100%.

Start the WSJT-X program.

On the right side move the Power slider to MAX.

Position the WSJT-X windows for the next step:

Right mouse click on the speaker icon in the system tray and select Playback Devices.

Move this window so that it does not overlap the WSJT-X window.  
Double click on USB Audio CODEC for its properties.  
Move this window for no overlap with WSJT-X window.  
Click on the Enhancements Tab, turn off all enhancements.  
Click on Levels Tab, set the slider at 50% (or better yet, Right-Click the “%” value to change the readings from “%” to dB and set the value to “0 dB)  
Click the “OK or Apply” to save the value.

In the WSJT-X program move the TX/RX cursor to 1500 Hz.  
On the 7610, touch and hold the meter to have all the meters in view.  
While transmitting into a dummy load, click the TUNE button in the WSJT-X program, move the slider on the Levels Tab so that you have 100 watts, if not possible then unkey via the TUNE button.  
Go back to the USB MOD level and increase this level to 30%  
Again touch and hold the 7610 meter to display all meters.  
Click the TUNE button again to check for 100 watts.  
Readjust the Levels slider for 100 watts, you may need to do some fine tuning in single digit step here.

### **This next step is important!**

With the WSJT-X in tune mode and transmitting into a dummy load, go back to the Windows audio codec for the Icom 7610 output and looking at the ALC reading adjust the level so that you get the highest RF output with NO ALC INDICATION. (**Zero ALC reading**)

On the WSJT-X program lower the Power slider to your desired power out. To easily adjust this slider, left click on the slider button then use the mouse wheel to raise or lower the slider to the desired power out.  
Click the TUNE button to exit the TUNE mode.

At this point you have calibrated the audio drive and ALC/Power out for a clean signal, you adjust the power out by the audio drive not by adjusting the power out setting on the 7610! The Levels slider for the 7610 CODEC (TX Audio) should not be touched unless you see ALC action, this is the final point of TX audio calibration.

The TX audio adjustments are the Power slider in WSJT-X, the slider on the Speakers (output) Tab and the USB MOD level in the 7300.

The TUNE button in WSJT-X is used for the TX power/audio adjustment. Again the final point of adjustment is the slider on the Levels Tab for the Speakers CODEC (TX Audio) and the final tweak is to lower the slider for no ALC reading. If you have done all of this correctly, with the TX Power slider all the way up (full audio drive) you should NOT have any ALC indication and your RF output is set to the maximum that your radio can produce without generating any IMD products. Your output should be near 100 watts, but may be slightly less. This is the same process you may wish to follow for Fldigi or any other soundcard digital mode. Using the USB connection prevents any

RFI from being introduced into you transmit path. Do NOT run any high duty cycle modes at full RF output for any extended periods of time! These modes are RTTY or any PSKxx modes. The PSK modes run at about 75% duty cycle and are low power modes (just like the WSJT-X modes). High power is NOT needed, but a "cleaner" signal at lower level is much easier for the software to decode than a stronger and distorted signal.

Running high power in the PSK or JT modes sub-bands will get you noticed, and you will not be making any new friends like that.