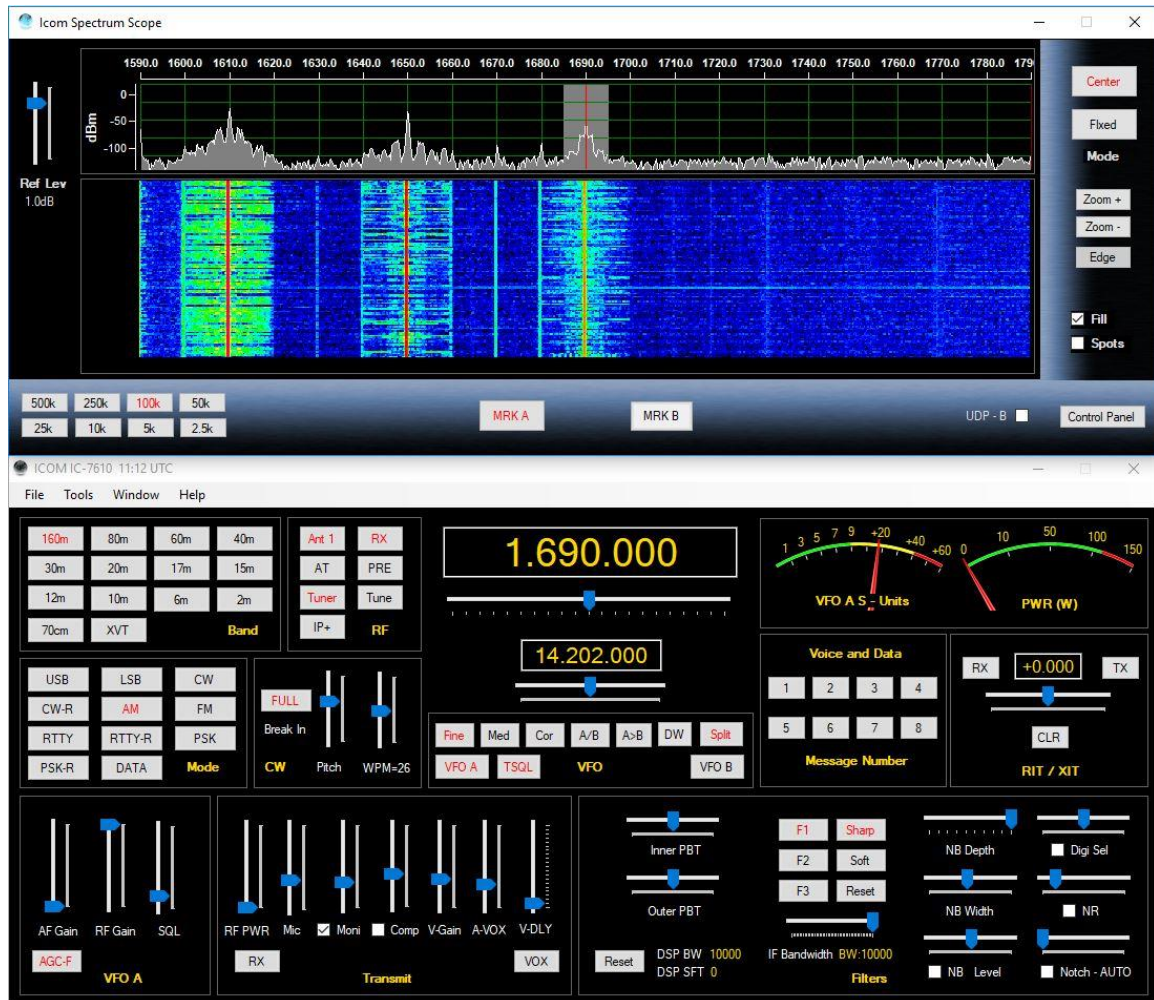


# Win4IcomSuite Documentation April 2023

Thank you for buying Win4IcomSuite. The Suite supports the IC-705, IC-7100, IC-7300, IC-7610, IC-7600, IC-7700, IC-7800, IC-7850/1 and IC-9700. It provides access to the built in Spectrum scope in select Icom Radios and can use the SDRPlay RSP's when used with an RX antenna.



Support is just an email away at [support@va2fsq.com](mailto:support@va2fsq.com). Release notes are available at <http://icom.va2fsq.com/documentation/>

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## Part 1: Installation and Configuration

### Quick Install for the IC-705, IC-7300, IC-7610, IC-7850, IC-7851 and IC-9700

**Important!! Read the section on page 8 about RFI and USB Sleep!!**

This section is meant for people who are used to configuring ICOM radios for use with software on a regular basis. Full installation instructions and details are available after this section down below.

**Note:** Win4IcomSuite needs a dedicated connection to the USB based Com Port. Do not use Com port splitters on this Com Port. Sharing of the radio is covered in the section, [Integration of Third Party Software and Hardware](#).

If you wish to configure the radio for Network usage, you must follow this first section as a prerequisite. Both the direct connection to the radio and the connection via the server are the same.

- 1) Note" If you already have functioning USB drivers for the Icom radios, you may ignore this step. If you have an IC-705 it uses different drivers so install those if you do not have them installed.  
Download and install the Icom USB drivers from the Icom website for your radio. Make sure you do NOT have the USB cable from the radio attached to the PC during the install. Reboot the computer and then attach the cable to the PC. Turn on the radio.
- 2) Using the Windows Control Panel Device Manager, determine the Com Port that the Silicon Labs driver provides. There are two, and usually the first one is the one you need to pick. However, if everything is setup and you still can't connect, try the other comport.
- 3) Go into your radio and set the following (not necessary for the IC-705)
  - a. Set>Connectors>CI-V>CI-V-USB Port = "Unlink from [REMOTE]"
  - b. Set>Connectors>CI-V>CI-V USB Baud Rate = 115200
- 4) Download and install Win4IcomSuite. It is best to disable any antivirus software during the install.
- 5) When you launch Win4Icom for the first time it will take you into the Settings page.
- 6) Select the model of radio
- 7) Enter the Com Port determined in Step 2.
- 8) Click "Connect" and Save.

If you wish to use an SDRPlay RSP as the spectrum scope please see this section: [Win4IcomSuite Spectrum Scopes](#)

For configuration of 3<sup>rd</sup> party connectivity, please see this section: [Integration of Third Party Software and Hardware](#)

To use Win4IcomSuite over a network please see the section on the [VA2FSQ Icom Network Server](#).

If you are using a laptop, be sure to disable any power saving features such as USB selective suspend in Advanced power options in the Windows Control Panel Power Options.

### **Quick Install for the IC-7100, IC-7600, IC-7700 and IC-7800**

This section is meant for people who are used to configuring ICOM radios for use with software on a regular basis. Full installation instructions and details are available after this section down below.

**Note:** Win4IcomSuite needs a dedicated connection to the USB based Com Port. Do not use Com port splitters on this Com Port. Sharing of the radio is covered in the section, [Integration of Third Party Software and Hardware](#)

- 1) Note" If you already have functioning USB drivers for the Icom radios, you may ignore this step.  
Download and install the Icom USB drivers from the Icom website for your radio. Make sure you do NOT have the USB cable from the radio attached to the PC during the install. Reboot the computer and then attach the cable to the PC. Turn on the radio.
- 2) Using the Windows Control Panel Device Manager, determine the Com Port that the Silicon Labs driver provides.
- 3) Go into your radio and set the baud rate to 19200
- 4) Download and install Win4IcomSuite. It is best to disable any antivirus software during the install.
- 5) When you launch Win4Icom for the first time it will take you into the Settings page.
- 6) Select the model of radio
- 7) Enter the Com Port determined in Step 2 and the baud rate.
- 8) Click "Connect" and Save.

Please note that for the IC-7600, turning off the radio disconnects power from the USB port. Therefore the port will disappear from the device manager. Therefore if you want to use the USB port you will need to make sure the radio is always on. Alternatively, you can use the remote jack with a serial port to CI-V level converter. Win4IcomSuite can then turn on the radio as well.

If you wish to use an SDRPlay RSP as the spectrum scope please see this section: [Win4IcomSuite Spectrum Scopes](#)

For configuration of 3<sup>rd</sup> party connectivity, please see this section: [Integration of Third Party Software and Hardware](#)

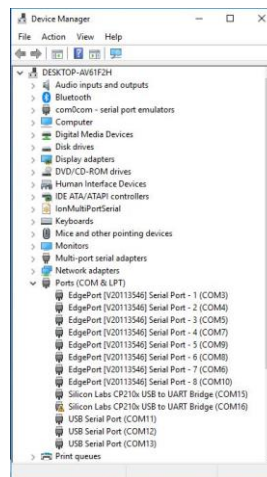
To use Win4IcomSuite over a network please see the section on the [VA2FSQ Icom Network Server](#).

If you are using a laptop, be sure to disable any power saving features such as USB selective suspend in Advanced power options in the Windows Control Panel Power Options.

## Detailed Installation

### Driver Installation

- 1) Download the USB drivers from the Icom website for your radio if you do not already have them installed.
- 2) Disconnect the USB cable from the radio and tuner off the radio. **This is important!!**
- 3) Install the USB drivers
- 4) Reboot your computer
- 5) Attach the USB cable to the radio and turn the radio on.
- 6) The drivers will now complete their installation.
- 7) Open the Windows Control Panel and select “Device Manager”



Expand the “Ports” section and make note of the first Serial Port shown for the Silicon Labs ports. In the above picture it is COM15

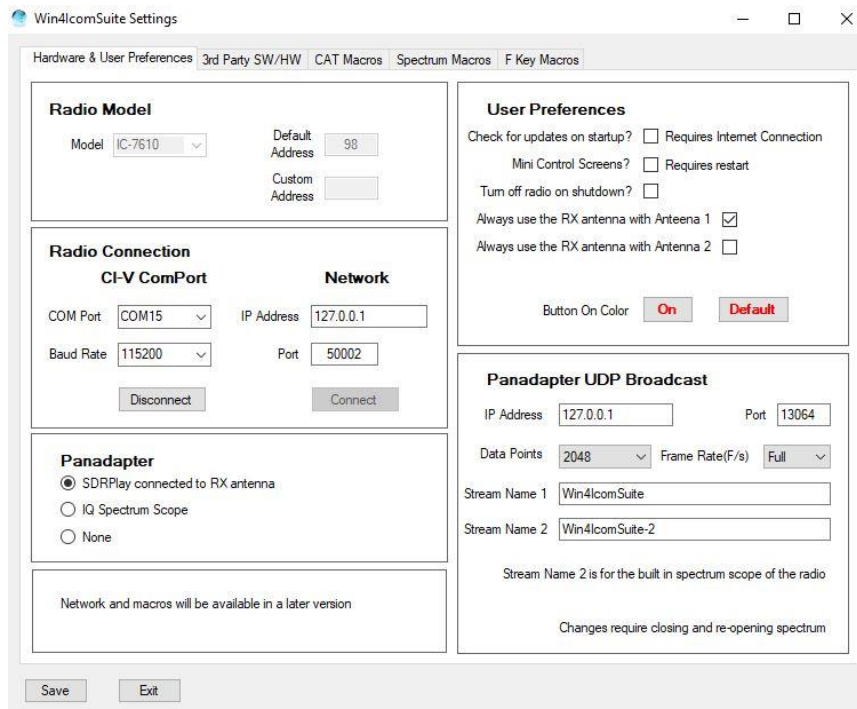
- 9) Prepare your radio as above.

- 10) Download and Install Win4IcomSuite. It is best to disable any antivirus software during the install.
  - a. There are two versions of the software. One is the 64 bit and the other the 32 bit. The functionality of each is identical. The two versions exist to allow the use of 64 or 32 bit drivers for any database connectivity you may need.
  - b. You can run two copies of Win4Icom, each with their separate settings if you install both the 64 bit and 32 bit versions.

11) Launch the program and it will take you into the Settings page:

- 12) Select the model of your radio. The default CI-V address will fill. If you have a custom CI-V address enter it.
- 13) Enter the Com Port number you determined in step 7 and click the Connect button. DO NOT Select "Use RS-BA2 virtual port" ! This is only needed if you are using this with the Icom Remote Utility which you need to purchase. Please see the section on networking.
- 14) If all is well you will see the following





Click the Save Button. The program will now launch. You can come back to this menu at any time by Selecting Tools, Settings in the main control window.

This completes the installation of Win4IcomSuite. If you wish to use an SDRPlay device please see the section on the **Setup of the SDRPlay Spectrum Scope**. If you wish to connect to other software using the built in Virtual Radios please look at “3<sup>rd</sup> Party Software and Hardware”.

If you are having difficulties please look at the “Trouble Shooting” section

## Important Additional Steps

### Preventing RFI

The Silicon Labs USB devices are extremely susceptible to RFI when you transmit. The usual ferrite beads on the cables are not very effective in preventing malfunctions in the port. When you have RFI, the CIV port will often just close down and you will be given a warning from Win4Icom. Don't dismiss this by thinking “I do not have RFI”. It takes only mw's and in all cases adding the right ferrite resolves this.

You should have a FT240-31 ferrite such as this installed on the cable:



I can't emphasize this enough!

### **Turn off USB Sleep Function in Windows**

After a period of inactivity, the USB ports by default in Windows will go into a low power state and stop functioning. It is important that you turn this off in two places. Open the Windows control panel and under Power Options, click on the Change Plan Settings, then Advanced. Select the USB Settings and disable USB Selective Suspend.

The other place where the Power Management should be turned off is in the Device Manager. Open the Ports section, find the Silicon Labs Drivers, right click on them and then select Properties. Next select the Power Management tab and uncheck the option to allow the computer to save power.

### **Win4lcomSuite Spectrum Scopes**

Win4lcomSuite supports the built in spectrum over the CI-V port for the IC-705, IC-7300, IC-7610, IC-7850 and IC-7851. There is no configuration necessary for this spectrum scope.

Win4lcomSuite also supports the SDRPlay RSP 1, 1a and 2 as configured below as well as the IQ output of the IC-7610.

Given the choice between the built in scopes and the IQ scopes, the IQ scopes are superior. Here is a comparison:

#### **Built in scope:**

##### **Advantages:**

- No additional hardware needed
- Will work over slow network links

##### **Disadvantages:**

- Slow refresh rate around 4 frames per second

Low resolution: A maximum of 475 data points for the IC-705, IC-7300 and IC-9700 and 689 for the other radios.

## **SDRPlay:**

### Advantages:

- Refresh rate up to 50 frames per second
- High resolution: Up to 16384 data points depending on the zoom level
- Mouse enabled zooming and panning

### Disadvantages:

- Requires purchase of the SDRPlay
- Requires a transmit receive switch or a hardware modification for use with the IC-7300 and IC-9700 and a signal splitter when used with the IC-7610 RX antenna circuit. (Details for the 7850 will be determined at a later date)
- Performance might suffer over a slow network connection.
- Performance might suffer over a slow network connection.

## **IC-7610 IQ Output:**

### Advantages:

- Refresh rate up to 50 frames per second
- High resolution: Up to 16384 data points depending on the zoom level
- Mouse enabled zooming and panning

### Disadvantages:

- Only available for the IC-7610. No additional hardware needed other than a USB 3 port.

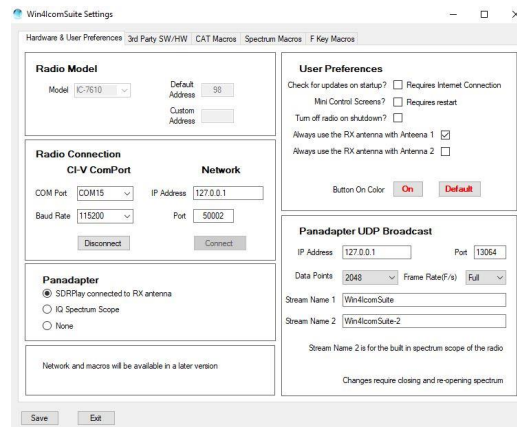
## **Setup of the SDRPlay Spectrum Scope**

### **Prerequisites**

Install the drivers for the SDRPlay. They are usually included with SDRUno. If you do not install SDRUno then the API version 3 drivers must be installed by going to <https://www.sdrplay.com/downloads/> and downloading and installing the **API/HW DRIVER Version 3**. Make sure you have unplugged the SDRPlay when you are installing the driver and Win4IcomSuite is not running.

### **Installation Steps**

Before launching the spectrum open Tools Settings in the radio control window and set the Panadapter to SDRPlay connected to RX antenna. In addition you may click in the user preferences section, “Always use the RX antenna with Antenna x”. This option will set the antenna input for the RSP to the RX antenna port on the back of the radio irrespective on your saved antenna settings on the radio. Use of the RX antenna is needed for the SDRPlay.

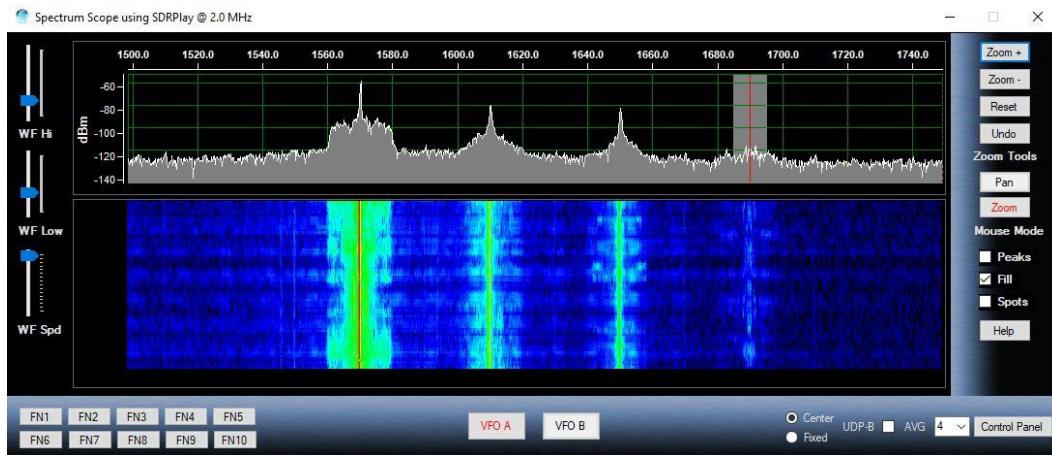


The first time you start the spectrum scope from the radio control program by selecting “Window, IQ Spectrum Using SDRPlay”, you may receive a dialog box such as the following if you have multiple RSP's on your computer.

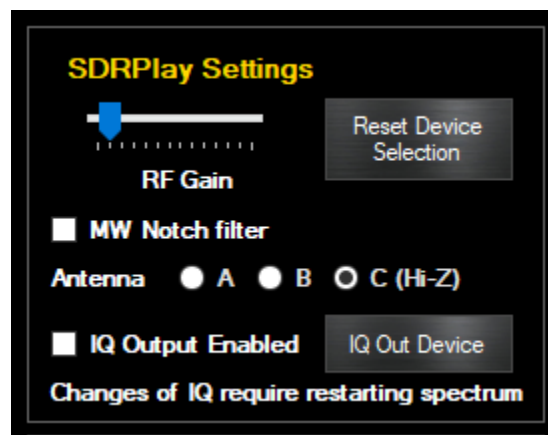


Select an available RSP and click on OK. You can reset this later in the SDRPlay control panel. Please note that the RSP1 does not provide a serial number.

Once you click OK the spectrum scope should open. For the very first time of use, you may need to **press the reset button at the upper right**.



By default, the SDRPlay gain is set for a middle value. This can be adjusted by opening the spectrum Control Panel in the lower right of the spectrum display. You will see the following:



The gain control allows you to set the baseline gain for the SDRPlay. If set too low, then signals will be missed. If set too high, you will see spurious peaks appearing in the spectrum.

Adjust this to provide adequate gain with minimal artifacts. Please see the Advanced topics for more information.

If you are using the RX antenna for the SDRPlay connection then you should set this by band.

If you receive an error “Unable to attach to API” when starting the spectrum scope, the SDRPlay service may not be running on your computer. Open the Windows Start Menu, find the SDRPlay entry and select “Restart API Service”.

This normally should start automatically. If not, please look at the SDRPlay documentation.

Please watch the video on how to use the spectrum scope here:

<https://yaesu.va2fsq.com/video-tutorials/>

For the remainder of the settings please take a look at the CWSkimmer section below.

## Setup of the IC-7610 IQ Spectrum Scope

### Prerequisites

You must have firmware version 1.20 or later installed on your IC-7610. You will also need to download and install the “USB IQ output for HDSDR” from this link:

[https://www.icom.co.jp/world/support/download/firm/IC-7610/usb\\_1\\_00/](https://www.icom.co.jp/world/support/download/firm/IC-7610/usb_1_00/)

For the initial release, Icom specified that this is for the HDSDR software package but you do not need to use HDSDR for this. The above link will install the necessary drivers which are common to all packages that will use the USB 2 port on the IC-7610.

Do not connect the cable to the radio until instructed to do so. Once you have the drivers installed, open Win4IcomSuite and select Tools, Settings. You will see the following:

Win4IcomSuite Settings

Hardware & User Preferences | 3rd Party SW/HW | Spectrum and F-KEY Macros | 60 / 4 Meter Defaults

**Radio Model**

Model: IC-7610 | Default Address: 98 | Custom Address:

**Radio Connection**

COM Port: COM14 | IP Address: 192.168.1.104 | Baud Rate: 115200 | Port: 50001 | Disconnect | Connect

**Server Password**

User Name: va2fsq | Password: \*\*\*\*

**Panadapter**

☐ SDRPlay connected to RX antenna  
☒ IQ Spectrum Scope for IC-7610  
☐ None | Changes require closing and re-starting Win4Icom

**User Preferences**

Check for updates on startup? ☐ Requires Internet Connection  
Mini Control Screens? ☐ Requires restart  
Turn off radio on shutdown? ☐  
Always use the RX antenna with Antenna 1 ☐  
Always use the RX antenna with Antenna 2 ☐  
Button On Color: On | Default  
Windows may need closing and reopening for colors to take effect.

**Panadapter UDP Broadcast**

IP Address: 127.0.0.1 | Port: 13064  
Data Points: Full (16384) | Frame Rate(F/s): Full  
SDRPlay Stream: Win4IcomSuite  
Icom VFO A: Win4IcomSuite-2  
Icom VFO B: Win4IcomSuite-3  
Changes require closing and re-opening spectrum

Save | Exit

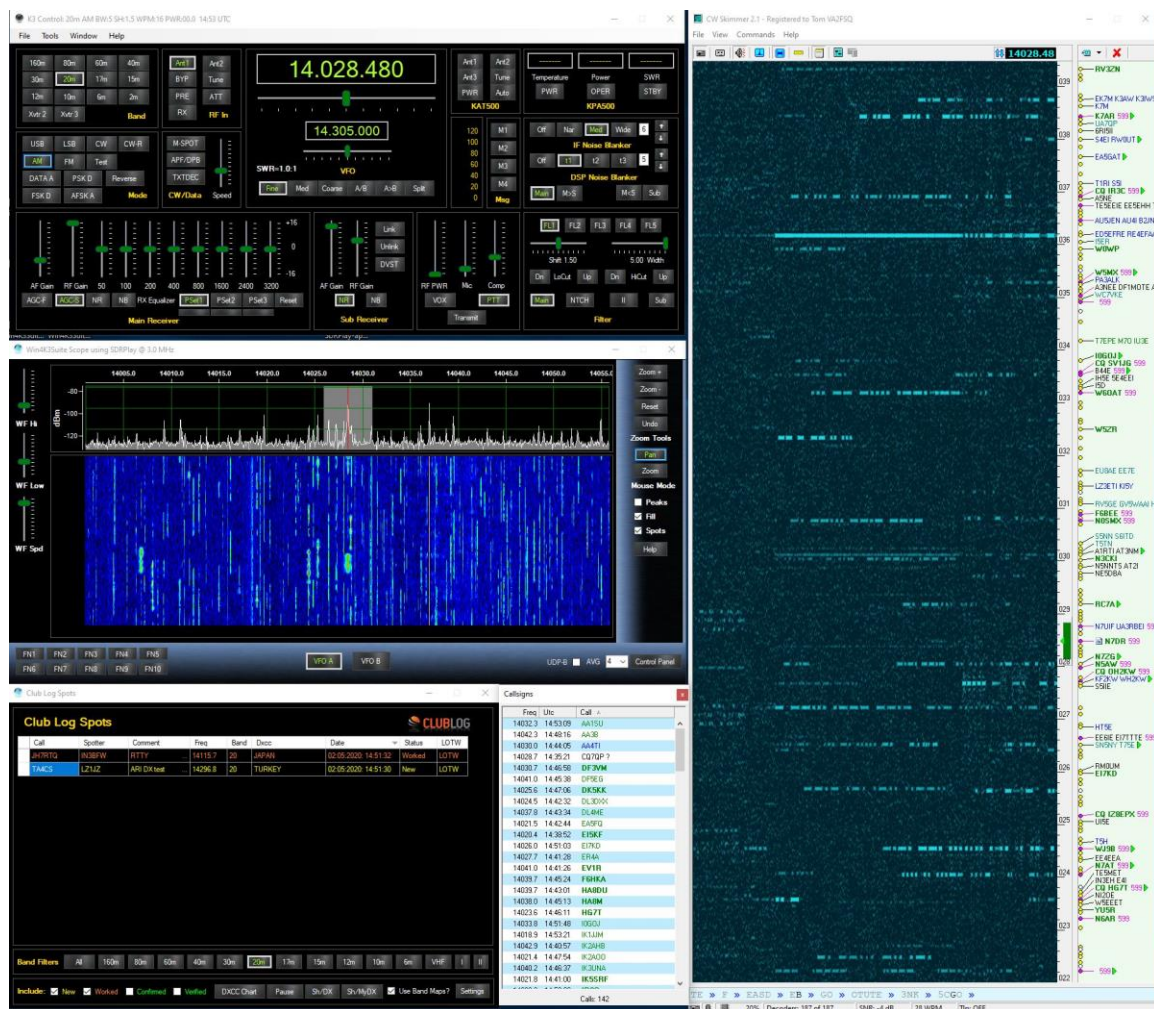


Select "IQ Spectrum Scope for IC-7610" in the Panadapter section. You made need to restart Win4Icom for the settings to be in effect.

## Configuring IQ Out for CWSkimmer

CWSkimmer is a software product that will analyze a section of the CW band and produce a graphic display of all the CW signals with their decoded callsigns.

New in version 1.290 is the ability to output an IQ signal from Win4Icom which can be input into CWSkimmer allowing it to decode any signals within its passband. See the following picture:



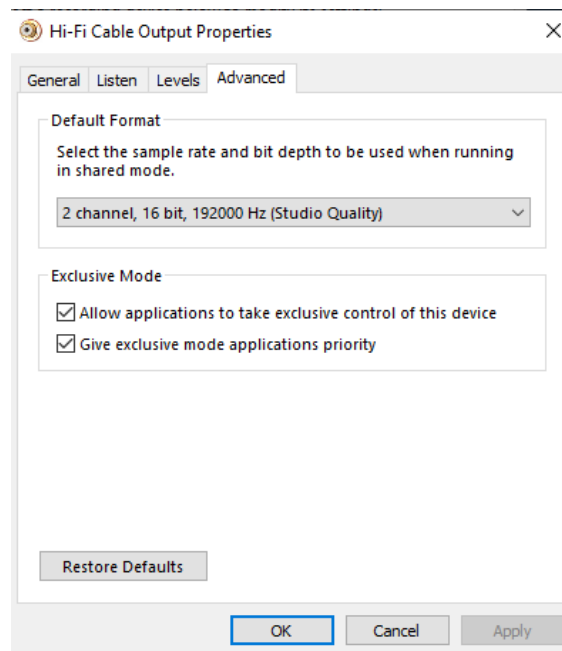
This is very useful when CWSkimmer is integrated with Win4Icom running Split and selecting Tools CWSkimmer QSY B. This allows you to click on callsigns in

CWSkimmer and then do a QSY using VFO B to pounce on the frequency last used by the DX.

There are a few steps that are necessary to get this functionality going. The first is you will need a Virtual Audio Cable.

A good choice is the free cable here: <https://www.vb-audio.com/Cable/>  
Select the “VB Audio HI FI Cable” down the page and install it.

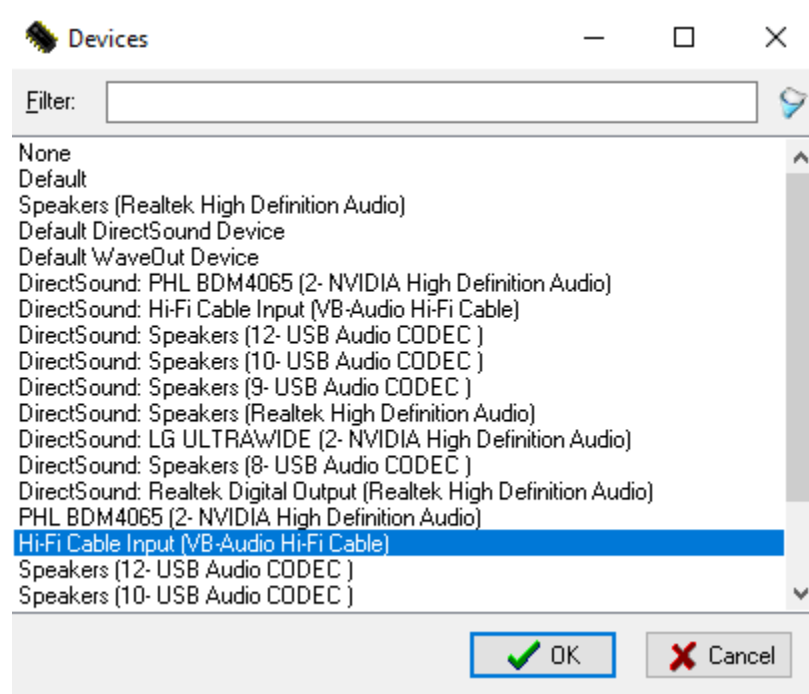
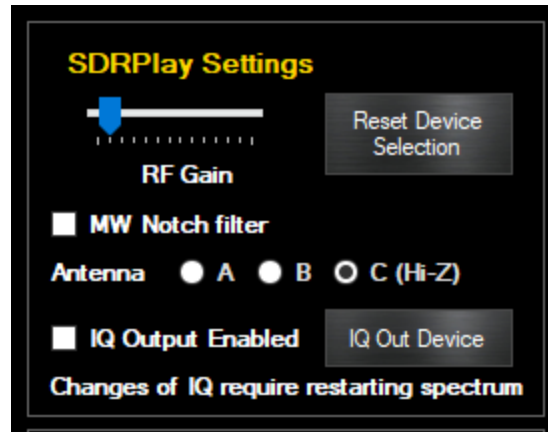
When you have this installed, open the Windows control panel and select Sound and click on the Recording tab. Find the Hi Fi cable output entry and double click on it. Next select the Advanced Tab. In there you will want to select the 2 channel, 16 bit 192000 entry as follows:



You will also want to do this in the Playback tab of the Sound Control Panel.

The input of this “cable” is then connected to in Win4lcom in the spectrum Control Panel by pressing the IQ Out Device button:





(Little note here...For the life of me I can never understand why people have their sound devices messed up when a new Windows update comes along....Never happened to me, and my computer is a little more packed than most!).

You will also need to enable the IQ out device checkbox. Next close the control panel and spectrum and re-open it.

This completes the setup in Win4lcom. The actual output to the IQ out will now occur anytime you select a span less than 192kHz.

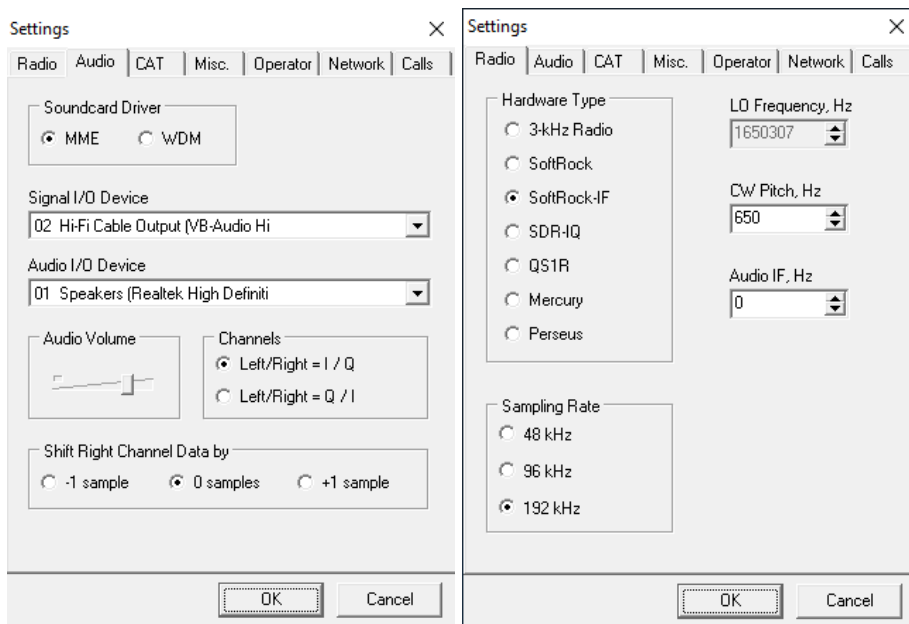
**(continue to next page)**

## CWSkimmer Settings

### For the SDRPlay



### For the IC-7610 IQ out



The above shows the settings necessary for both spectrum scopes.

One thing about CWSkimmer. The audio output may occasionally sound distorted when you are listening to a very strong signal. Discussions with the author have not revealed the cause yet. However, it is a simple matter to just stop CW skimmer and then restart. In most cases this will get rid of the distortion.

The IC-7610 IQ output is not yet fully refined. There may be clicks on some systems but the decoding is working well. This will be improved shortly.

## The Input Output Menu

Win4com has the ability to adjust and control the audio and IF levels and as well as which input is used depending on mode.

The Tools, Input Output menu provides the following display:

Input Output

### Input Output Levels

ACC/AF Out Level

ACC MOD Level

ACC-B/AF Out Level

ACC-B MOD Level

USB Out Level

USB MOD Level

S/P DIF Out Level

S/P DIF Mod Level

ACC/USB IF Out Level

USB IF Out Level

ACC IF Out Level

### Input Connections

In Data Mode (DATA MOD)

Other Modes (DATA OFF MOD)

DATA 1 USB

MIC, ACC

DATA 2 USB

DATA 3 USB

Some models do not use all functions

### Other Functions

ACC/USB Out Select AF

USB Out Select AF

ACC Out Select IF

AF/Beep/Speech Out ON

OK

Refresh

This screen allows you to select levels, and what is used for input connections. These settings are important when you use any software which is dependent on audio input and output as well as IF input and output.

The **Input Connections** section allows you to select which input on the radio will be used when the radio is in Data mode or not in Data mode. This typically provides the modulation signal to the radio. Typically this will be the USB port for Data modes and the Mic input for other modes. However, you could also use the USB input in SSB modes especially if you are working via a network or have a Mic on your PC.

The **Input Output levels**, set the sensitivity and output level of the various input and output signals.

**Other Functions:** This section allows you to select an AF output or an IF output. The IF output is typically used for Radio Mondial signals or CW Skimmer. With CW Skimmer it can provide up to a 24kHz wide spectrum depending on the radio.

**AF/Beep/Speech Out:** This control when activated will send to the selected audio output, any beeps or speech that occurs on the radio. It will also send the CW Sidetone to the output. This is very useful when using a network, so you can hear your CW from the terminal.

## Integration of Third Party Software and Hardware

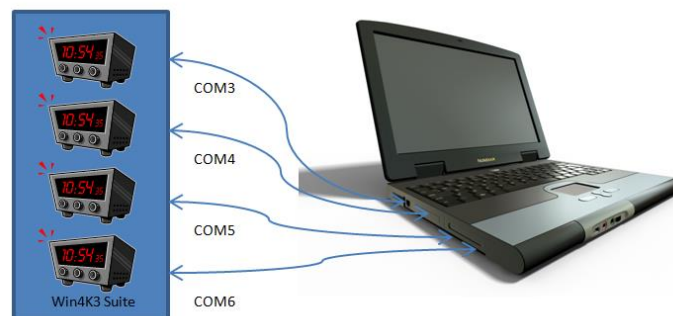
*This section does not apply to **Ham Radio Deluxe**. Win4Icom has a built in TCP based server for connecting to HRDLogBook.exe which you can find in the same folder as HRD.exe. You can run HRD.exe through one of the virtual ports but this is wasting resources and is not necessary. Please see the section on Ham Radio Deluxe.*

Win4Icom supports most third party products that can connect to a supported radio, through the USB Com Port. This includes almost all software packages such as DXLabs, WSJT-X, Log4OM, Logger32, N1MM Contest logger and anything that works with OmniRig. In addition it can interface to stand alone hardware packages that have a serial port connection to a computer.

Unlike Com port sharing programs, each connected device or software has its own dedicated channel to the radio avoiding any contention between them.

### Concept

Imagine for the moment that Win4Icom is a black box existing outside of the computer. This black box has 6 radios imbedded in it. Each of these radios has a com port that you can connect to, just like the real radio. To connect to one of these radios you just connect one of these ports to the computer via a cable and then configure your software to connect to the radio as you always have. Here's the idea:



You can have FLDigi, DX Lbs Commander, N1MM Contest Logging software, or NAP3 Panadapter software connected, each with its own channel to its own radio.

But Win4Icom is not a physical device like in the picture, but rather a virtual device **in** the computer. So then how does one connect Win4Icom up to all of the software?

The answer is using a Virtual Com port Pair. A virtual pair is very much like a NULL Modem cable. It allows connecting two devices together so that the transmit and receive wires are crossed.

When you create a Virtual Com port Pair using various software packages it creates essentially a null modem cable that has one Com port defined at one end, and another Com port defined at the other end. You connect one end to one of 6 specialized "AUX / CAT " ports in the Tools Settings, 3<sup>rd</sup> Party SW/HW page and the other end to the software you want to use telling it you are connecting to an Icom radio. From this point on, the software thinks it is connected to its own Radio.

Win4Icom supports connecting 6 third party products. These products can read and write information to and from the radio. Performance is maintained since the responses to commands have been saved in memory by Win4Icom during its latest round of polling the radio. Thus, high polling rates from software such as N1MM do not directly access the radio but rather the memory. Commands to switch frequencies or modes or any other write commands are executed immediately.

## Connecting to Third Party Applications

The first thing you are going to need to do is download a third party Virtual Com port program. There are a number of these out there but Win4K3 has been used extensively by thousands of people with COM0COM. Others such as Eltima Virtual Com ports will work but they cost money. VSPE will also partially work but there are issues with Omni-Rig. Save yourself trouble and use COM0COM. The exception is if you are using a MicroHam router, you can create a Virtual Cable included in their router software to accomplish the same thing.

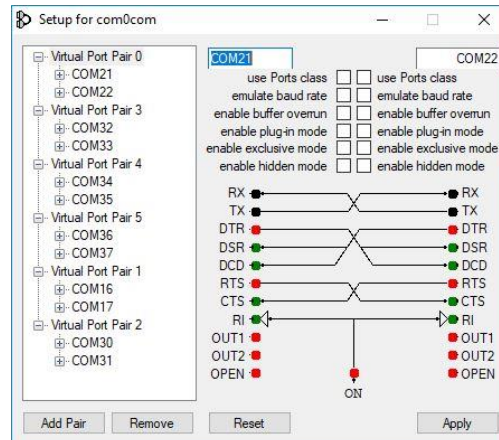
COM0COM which is open source is available at:

<https://sourceforge.net/projects/com0com/files/com0com/2.2.2.0/>

The file you need to download is [com0com-2.2.2.0-x64-fre-signed.zip](#)  
**DO NOT USE VERSION 3 of com0com.** If you do, it will not work with Windows 10 and 11. If you have installed it, please refer to the Frequently asked questions on the [icom.va2fsq.com](http://icom.va2fsq.com) website to remove it.

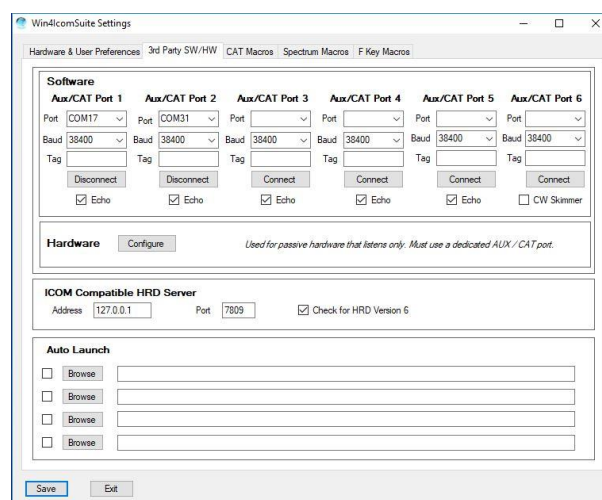
Unzip the file, right click and install it as administrator.

After you install this, open the Windows start menu and in the com0com folder there is a program called "Setup." (Don't run Setup Command line).



There will be, by default, one pair already defined with weird letter names. You can just click on the names and change the names of the Com ports to a Com port name that does not exist on your system. In the above I created many pairs. Do not change anything else in the configuration. You can find out which Com ports are free by looking in the ports section of the Windows Device Manager.

Once the Com port pair is created, start up Win4Icom and select Tools, Settings, and the 3rd Party SW/HW tab. You will see the following screen:



In this screen there are 6 AUX/CAT ports. Each one can connect to a Com Port of a virtual Com Port pair. In this example, AUX/CAT Port 1 is connected to COM17. AUX/CAT 2 is connected to COM31. The others are currently not connected to other virtual port pairs. Please note that if you created the pairs in COM0COM while Win4Icom was open, it will not see them. You must restart Win4Icom to refresh the ports.

All you need to do now is save the settings and then configure your third party products to connect to the other ends of the pairs telling it you have an Icom radio connected to that port. If a particular package has HamLib and Omni-Rig drivers, always use the Omni-Rig drivers.

You can see a video of the whole process here:

<http://icom.va2fsq.com/video-tutorials/>

Up to date examples are located at <https://icom.va2fsq.com/third-party-software-and-hardware-integration/>

**Note:** If the pairs you create in the com0com setup program do not show up in Win4Icom then you will need to update the com0com driver in the Windows Device manager. Select any com0com entry, right click and select "Update Driver". It is then ready for use.

## Additional Settings and Options

### Echo

Most software designed for Icom radios expect the commands that they send to the radio to be echoed back to the software and thus they listen for the command. If they do not see the echo they report that the radio is not connected.

By default the echo is enabled on each port. You can however uncheck it if you wish. If the software expects an echo though it will stop running. DX Lab and N1MM do not expect an echo but they work with it enabled.

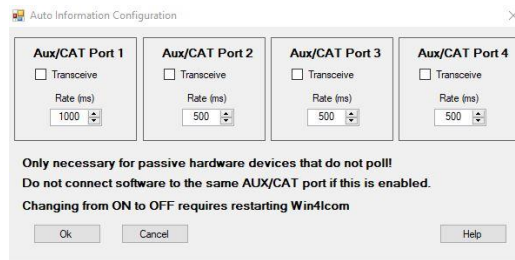
### Tag

The Tag box allows you to put a note specifying what the connection is for. For example you could write DX Lab, or N1MM or SDRConsole etc.

### Hardware



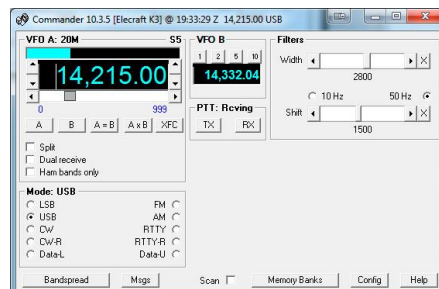
The Hardware section allows you to connect to external hardware on your system. An example would be a SteppIR controller or an external antenna tuner or amp that follows frequency information.



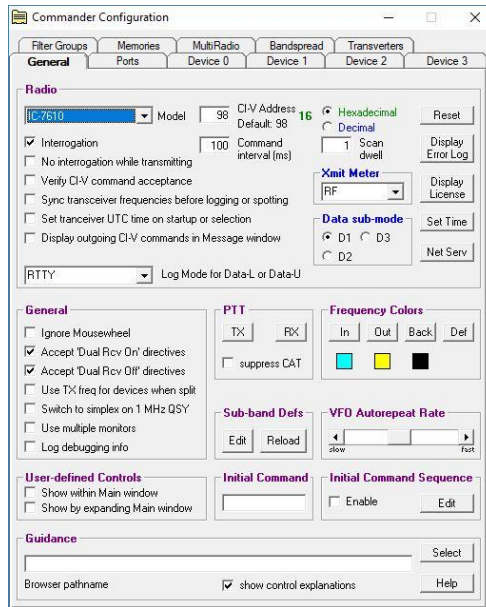
Configuration of this option requires that you connect your device to a free serial port on your computer and then you connect directly to this Com port using one of the AUX CAT ports (1 to 4). You do not use a virtual Com port pair as with software. Enable the feature by clicking on Transceive. This will send frequency, mode and filter information to the connected device at the interval specified in rate. Do not use this AUX/CAT port for anything else.

Note that in some cases you may need to make a custom cable for your device if it expects any kind of handshaking. Please contact support for further information.

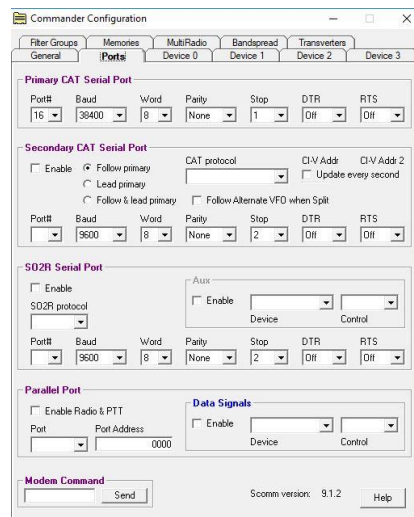
### Example: DXCommander from DXLab Suite



Select **Config** from the main DX Commander screen:  
You will then see the following screen. Select the appropriate radio.



Next click on the Ports tab. Here the port 16 has been selected corresponding to the COM0COM pair 16 and 17 and AUX/CAT 1 in Win4Icom as shown above.



Make sure that DTR and RTS are set to OFF. Win4IcomSuite does not support hardware hand shaking.

Exit out and you should be connected to DXCommander. From the point of view of DXCommander, all it sees is an ICOM radio connected to its Com port. Therefore everything that is supported in DXLabs Suite also works.

You can use the same principle for any other third party software such as N1MM, DX4Win and so on.

Some packages such as FLDigi and LOG4OM use OmniRig. You apply exactly the same principle as above. For further examples, please see the Documentation link on the <http://icom.va2fsq.com> website.

## **Connecting to Ham Radio Deluxe Logbook, DM780 and HRD Satellite**

Win4Icom has a Ham Radio Deluxe compatible TCP server that can connect with the log book, DM780 and HRD Satellite. In order to use this and track the radio modes you must first connect the **HRD Radio Control program to your radio** and run the HRD logbook. You must do this for any radio that you own. It only has to be done once.

To make things simple you will want to create a shortcut to the LogBook on your desktop from the executable in the HRD folder or make an entry in Settings, Third Party HW/SW Auto Launch. This way the logbook will start immediately when you start Win4Icom. The file is called HRDLogBook.exe and is found in the HRD Software LLC folder on your computer.

Up to date information is available here:

<https://icom.va2fsq.com/hrdintegration/>

## **Integration with CW Skimmer**

CW Skimmer is an extremely useful tool for decoding CW transmissions over a wide range of frequencies. It is especially useful for working DX pileups, where you can see where the DX last worked a QSO.

By default CW Skimmer will QSY to a spot using VFO A. However, when you are working DX you are usually in SPLIT mode. So if you click on a spot with CW Skimmer, you will lose the DX transmitting frequency. Win4K3 provides a way to translate all QSY's from VFO A to VFO B. To enable this function, connect CW Skimmer to AUX/CAT port 6 and click the CW Skimmer check box. This will inform Win4Icom that CW Skimmer is connected and it will enable the VFO A to VFO B QSY's. By default, it will use VFO A but in the Tools menu of the radio control screens there is a toggle called CW Skimmer QSY-VFO B.

Please note that CWSkimmer requires a SDR Receiver as its input. It cannot be shared with the SDRPlay. Please see the documentation of SDRPlay concerning this. In any case, you will always use CWSkimmer with Omni-Rig.

## Settings Menu in Depth

The settings menu can be opened from the control program by selecting Tools, Settings. There are a number of tabs here.

**Radio Model:** Select the model of your Icom radio here. There will be more added with time.

**Default Address:** Icom radios use an addressing scheme. The address of your radio will be loaded by default. If you wish to change this, you can select a **Custom Address** but this must also be set on the radio.

**CI-V ComPort:** Enter the com port number determined from the Windows Device Manager, Ports section.

**Baud Rate:** Select 115200 if you wish to use the spectrum in the radio. Select 19200 for the IC-7600.

**Network:** This will be enabled in a later release.

**Panadapter:** There are a couple of choices here. Select **SDRPlay connected to RX antenna** if you wish to use an SDRPlay with the RX antenna of your radio. If your radio does not have an RX antenna circuit (IC-7300) then you will need an

external receive transmit switch that is activated by a transmit signal on your radio.

**IQ Spectrum Scope:** This may be enabled when Icom provides this facility.

### **User Preferences:**

**Check for updates on startup?** Selecting this will check for a new version of Win4IcomSuite when the program starts.

The Win4Icom Compatible HRD Server provides the address and port of the HRD Logbook server. If you are using an old version of HRD, uncheck the check box shown.

**Mini Control Screens:** Available in an upcoming version of Win4Icom.

**Turn Off radio on shutdown:** This will turn off your radio when you close the program. You can also just leave this disabled and do a File, Turn off radio and exit instead from the control screen.

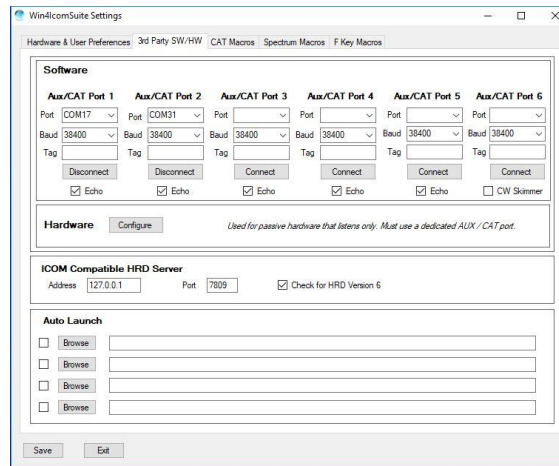
**Always use RX antenna with Antenna x:** Use of the SDRPlay requires that the RX antenna be enabled. Selecting this will do this irrespective of the settings in the radio.

**Transmit Time-out:** When software places the radio into transmit, there is by default a 3 minute timeout if the transceiver has not gone back into receive mode. This is configurable for 3 to 30 minutes or it can be set to Off. It is recommended to have as a minimum, a three minute time out.

### **Panadapter UDP Broadcast:**

This option is used to configure the UDP spectrum broadcast to N1MM+. Please leave at the defaults unless you have a need to change it.

## Third Party SW / HW Tab



Most of the entries are covered in the 3<sup>rd</sup> party software section above.

**Auto Launch:** This provides a facility to automatically launch up to 4 third party programs when you start Win4Icom. You can check or uncheck the check boxes to enable a particular Launch as you deem necessary.

## Power Limits

It is possible to restrict power levels by band by selecting the Power Limits settings:

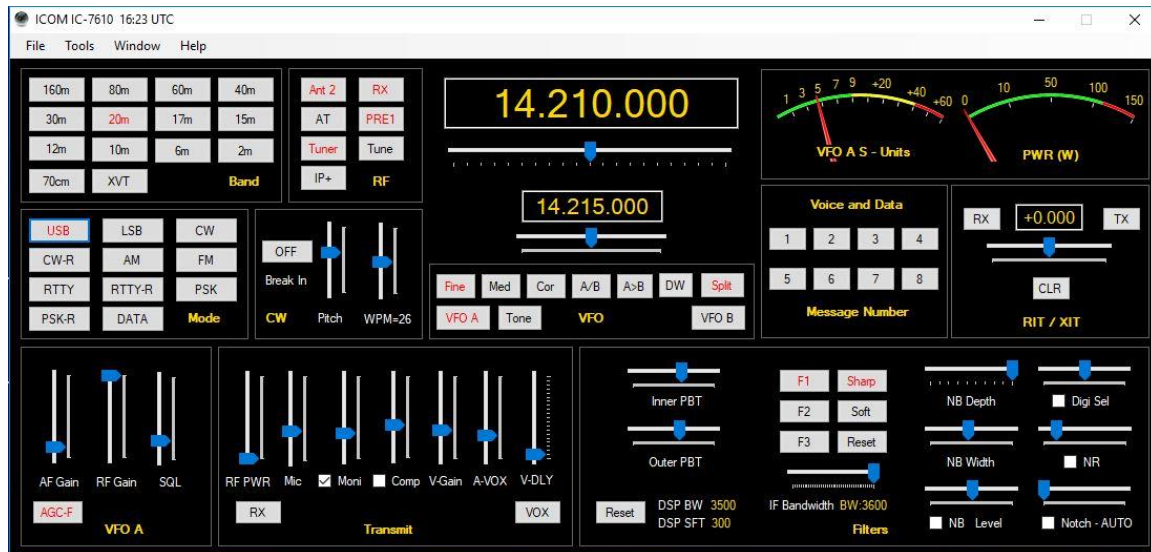
Power Limits per Band												
Band	160m	80m	60m	40m	30m	20m	17m	15m	12m	10m	6m	4m
Pwr (%)	100	100	100	100	100	100	100	100	100	100	100	100

It is not possible to restrict power output directly on the radio. Therefore if you change the power using the control on the radio, there will be a momentary increase in power until Win4Icom reduces it to the above values. Be carefull that third party products do not also change the power levels. This will have the same effect as direct changes on the radio. Settings take effect when you press the save button below.

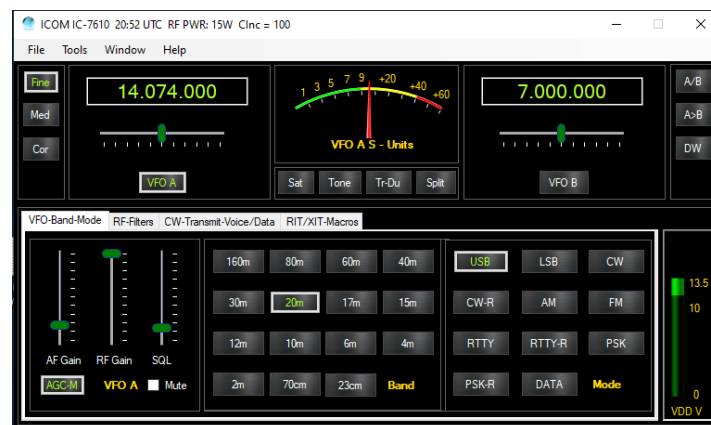
## Part 2: User Interface and Functionality

### Radio Control Screens

Most of the buttons are self-explanatory but there are a few sets of controls that can use further explanation.



Full Sized Control for the IC-7610



Mini-Screen

### VFO A and VFO B Tuning

The radio may be tuned by sliding the slider to the left or right and then releasing the mouse. Tuning rate is governed by the buttons of Fine, Med, or Coarse. If you use the mouse wheel after selecting the slider, the wheel can be continuously turned to change the frequency.

By default **Fine** tuning changes the frequency by one Hz if you use the keyboard to slide the slider. If you use the mouse wheel each "tick" will increase the value by three times the slider increment.

**Medium** tuning will change the frequency in 10 Hz increments and **Coarse** by 100 Hz increments. In all cases the mouse wheel will increase this by three times.

**Double Clicking** the VFO windows will pop up a direct frequency keypad as shown here:



You can use the keyboard or the mouse to enter a frequency. Note that the frequency is in kHz.

You may also click in the VFO A or B frequency digits directly and use the arrow keys or mouse wheel to individually change the values of the digits.

### **Hidden Controls Accessed with a Right Click of the Mouse or Double Clicking**

There are several controls in Win4Icom that can have a dual function. For example, the 60m button can be clicked to select the start of the 60m band or it can be right clicked to select a channel using the US frequencies. (European frequencies will be available in a subsequent release).

In CW mode and RTTY mode, you can right click the CW panel which will toggle the CW, APF, and TPF controls.

**The Split Button** can be right clicked to turn on split and set the transmit frequency UP or DOWN.

**The Meter** section can be right clicked to select one of several meters used during transmit. Please note that the levels shown can vary +/- 10%. You can also double click on a meter to cycle through the available meters.



**The Tone** button can be right clicked to pick repeater tones.

**The AGC** button can be right clicked to select delay times.

**The Mic trackbar** will automatically switch to ST which is the side tone level when you are in CW Mode.

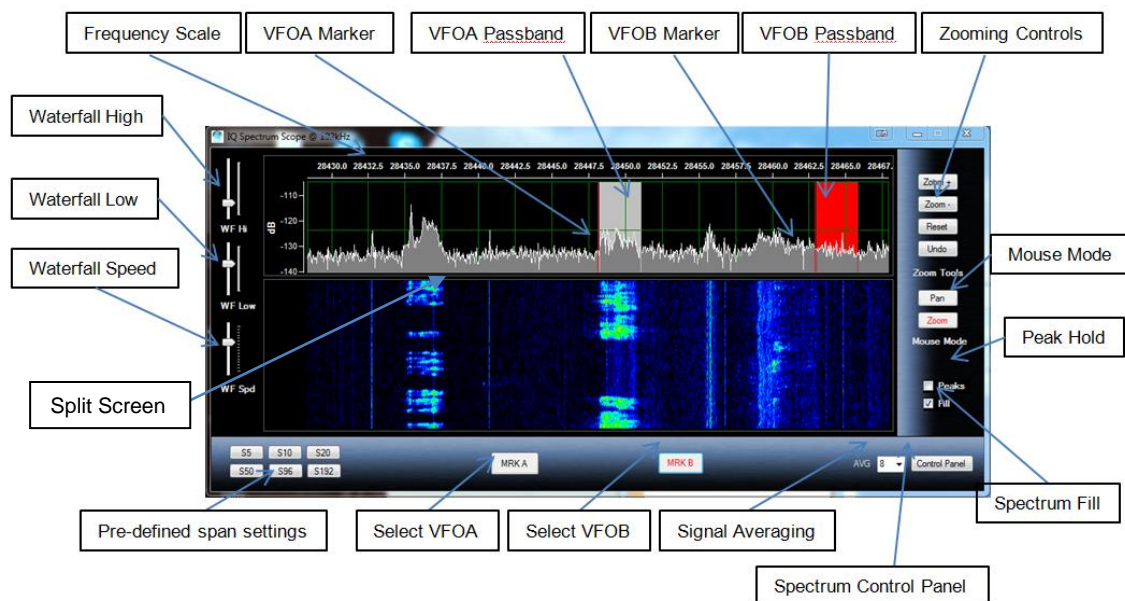
### **Filters and Pass Band Tuning**

Win4Icom allows full control of the filters in the radio. You may select the filters for the IF as well as the bandwidth and you can adjust the DSP pass band tuning. The pass band shows up in the spectrum giving a visual representation of the pass band as you adjust it.

### **Using the Win4IcomSuite SDRPlay and IC-7610 Spectrum Scope**

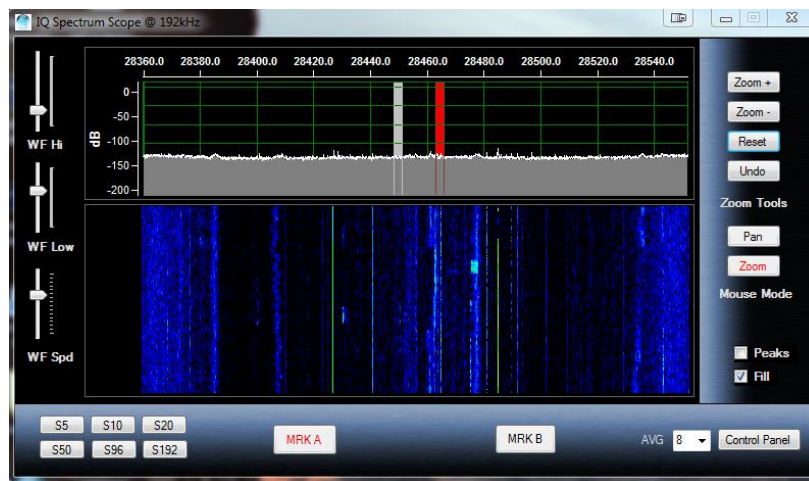
The Win4Icom IQ spectrum scope offers an easy to use spectrum scope with no need to worry about many of the technical aspects of Digital Signal Processing. Much of what will be presented below is available in a YouTube video at <http://icom.va2fsq.com/video-tutorials/>

### **Control Layout**



\*\*\* Note: In the Pre-defined span settings are replaced with programmable macros which will be available shortly after the 1.0 release. These can be set in Tools, Settings, Spectrum Macros.

When you first start the spectrum scope you may see something like the following picture. If not press the "Reset" button.

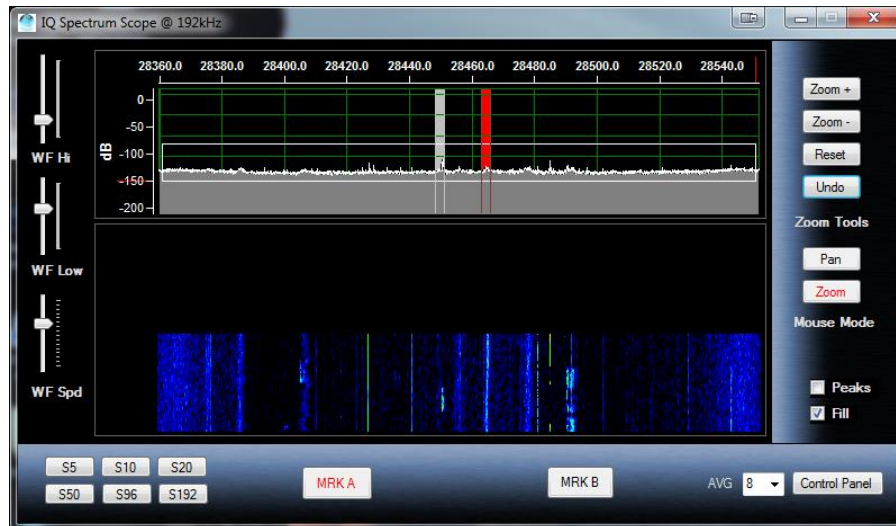


The first thing you will notice is that the amplitude scale goes from -200 to +10 dBm. The number one support question over the years is how to reduce this range! Please read the following or look at the video!

## Zooming and Panning

The spectrum scope has two modes for the mouse: Zoom and Pan. The Zoom button will allow you to zoom into parts of the spectrum using the mouse.

For example you can use the mouse to draw a box around the area you wish to look at as shown below:



It is useful to make a selection across the whole spectrum so that peaks are closer to full scale as has been done in the above picture. You can also select a small section to really zoom into the signals.

You can use the mouse in this fashion at any time as long as the Mouse Mode Zoom button is active. If you make a mistake, you can press the "Undo" button which will revert back to the previous zoom ratio.

**Clicking Zoom + and Zoom -**, will zoom in the X Axis, increasing or decreasing the span of the display.

In addition to the Zoom, there is a Pan Button. This allows you to move the spectrum up and down by clicking and holding the mouse button in the spectrum display. In addition, you can use the mouse to grab the Frequency scale at the top of the spectrum and move it left to right to pan the spectrum over the whole frequency range. This type of panning is also available in zoom mode.

### QSY to Signal

Double clicking in the spectrum window will QSY to the signal of interest. This is possible for both VFO A and B by selecting either the MRK A or MRK B buttons. The VFO Pass bands reflect the actual bandwidth and shift settings on the radio.

**Right clicking** on the spectrum allows you to set a tuning rate for the radio using the mouse wheel and also allows you to "Jump Up" or "Jump Down" to even 500

Hz settings. You can also set a "Snap" which will always QSY to even 100 Hz and 1 kHz boundaries.

## **Waterfall Settings**

The WF Hi setting adjusts the colors for the signal peaks, while the WF Low adjusts the colors for the background. The WF Spd adjusts the waterfall scrolling speed. All settings are saved by band. Please note that average band noise levels change daily or even hourly, so setting these values can change.

## **Signal Averaging**

The AVG box allows setting the averaging rate for the spectrum from 1 to 16. The higher the value the slower the spectrum becomes but the noise is reduced in the process. A good value is either 4 or 8. A value of 16 can be used to dig out very weak signals using the waterfall. In this case adjust the waterfall Low setting to just bring up the background until the noise starts to show.

## **Other Controls**

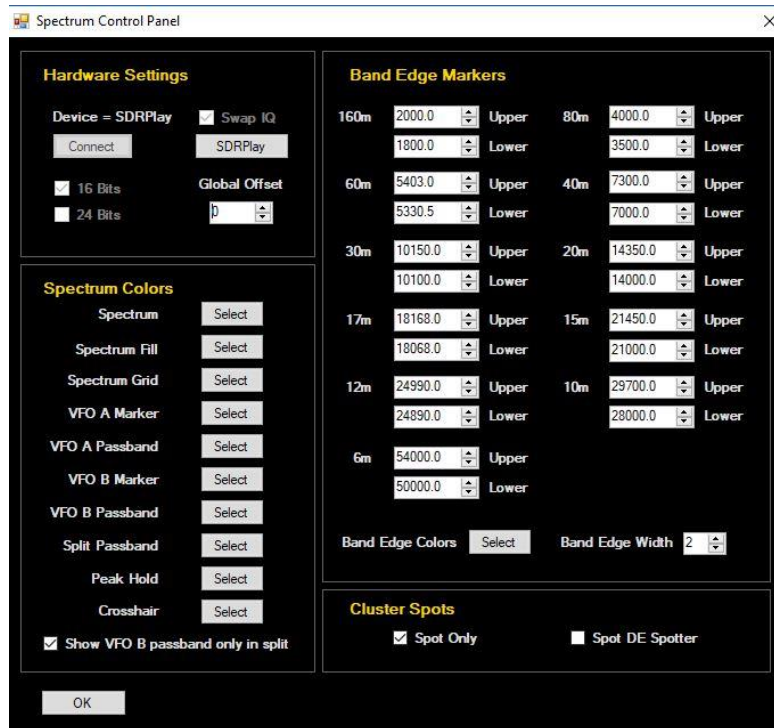
The Split Screen control allows you to resize the relative sizes of the spectrum and waterfall.

Peaks will display the highest signal level in the display and hold them until is turned off.

Fill fills the spectrum for a more pleasing display.

## **Spectrum Control Panel**

Most of the control in this screen is self-explanatory. Please note that the "Connect" button is only used for the IQ spectrum scope when and if Icom releases the specifications.

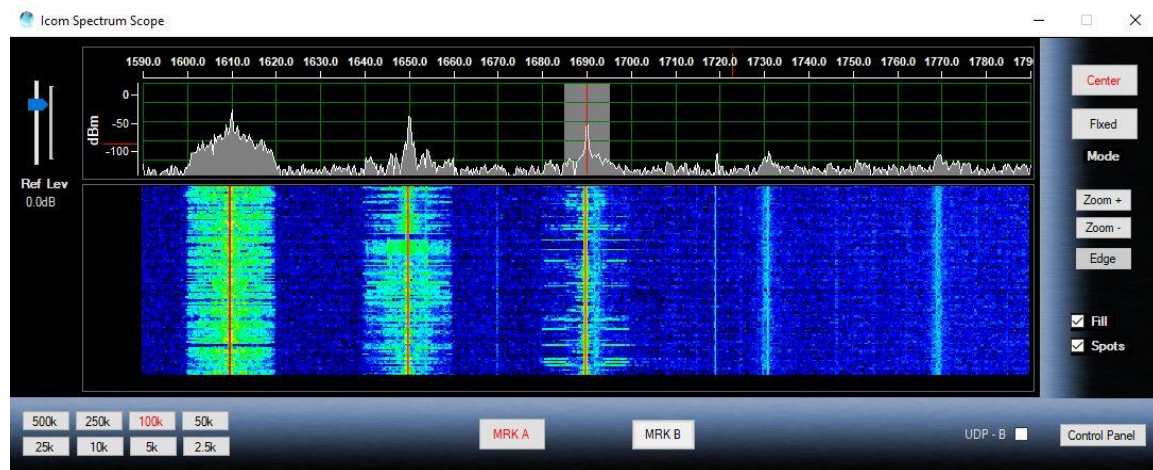


## Spectrum Spots

Spots from the ClubLog screen appear as triangles beneath the waterfall in both the Icom spectrum scope and the SDRPlay spectrum scope. Hovering the mouse above the triangle will display the call sign or call sign DE Spotter depending on the setting in the spectrum control panel. Clicking on the triangle (64 bit version) will QSY to the spot. In the 32 bit version double click above the spot in the waterfall.

## Using the Icom Spectrum Scope

Win4Icom allows the display of the VFO A spectrum and VFO B spectrum (for dual receiver radios) as generated by the radio and sent over the Com port connection. Many of the control function similar to those of the SDRPlay spectrum scope. Please refer to the diagram in that section to become familiar with the parts of the screen.



For the Icom Spectrum Scope there are two modes of operation. Center Mode and Fixed Mode. Just as in the radio, the center mode will keep the radios frequency centered on the spectrum. Tuning the radio will move the spectrum. In this mode there are 8 selectable zoom frequencies in the lower left corner. In addition, clicking on the Zoom+ and Zoom – buttons will cycle through these selections.

In the Fixed mode, the spectrum is fixed and the VFO cursor and the pass band move across the spectrum. The Edge button will toggle through the three edge settings in the radio that define the upper and lower frequencies displayed. The reference level sets the baseline level for the spectrum.

As such, the resolution of the points for the 7300 is 475 data points per frame and 689 for the other radios. In addition, the refresh rate is about 4 frames per second. Due to the resolution, some of the features such as Mouse Pan and Zoom that are present in the SDRPlay are not provided. The SDRPlay provides up to 16384 data points depending on the zoom level.

## Spectrum Control Panel

Most of the settings here are self explanatory





## Spectrum Spots

Spots from the ClubLog screen appear as triangles beneath the waterfall. Hovering the mouse above the triangle will display the call sign or call sign DE Spotter depending on the setting in the spectrum control panel. Clicking on the triangle (64 bit version) will QSY to the spot. In the 32 bit version double click above the spot in the waterfall. If a query from the shortwave database is active, the spots will not appear.

## Frequency Memories

Win4IcomSuite supports the built in frequency memories of the radio. To use this feature select Window Frequency Memories from the control screen. You will see the following.



Clicking on the box in the Channel column will select the frequency, mode and filter for VFO A in the 7300 and 7610. For the 7300, all parameters associated

with VFO B are also saved. It seems that Icom forgot about VFO B on the 7610. Hopefully a future firmware update will correct this.

To enter a new record, or replace an existing one, enter a label, and then select any cell in the line and then right click. You will be given an option to Replace the entry with current settings or delete the row.

## ClubLog Spotting Window

I'm a big fan of Club Log. It's easy to use, you don't have to mess with complicated filters and it just works. What was missing though is a way to just point and click on the spots and have your radio tune to the DX. Thus when Michael Well announced that he was making available a means to obtain your DXCC Matrix of worked and new spots via a programming interface, I know I needed this. So CLSpotter was born. Full QSY capabilities are integrated into Win4Icom as well.



Call	Spotter	Comment	Freq	Band	Dxcc	Date	Status	LOTW
W1AW/1	#	15 dB 22 WPM...	-11.7	2	UNITED STATES OF...	08:12:2014: 23:19:56	New	LOTW
W1AW/1	#	15 dB 21 WPM...	-11.7	2	UNITED STATES OF...	08:12:2014: 23:20:14	New	LOTW
K1AY	#	15 dB 19 WPM...	9.2	2	UNITED STATES OF...	08:12:2014: 23:20:26	New	
W5AT	#	10 dB 36 WPM...	-8.7	2	UNITED STATES OF...	08:12:2014: 23:20:29	New	
ZL1RS	/N5BEK	hrd cq dx 539 in ...	50103.0	6	NEW ZEALAND	08:12:2014: 23:19:32	New	
LU1YT	DD3SP	cq nice sig ...	10122.5	30	ARGENTINA	08:12:2014: 23:19:31	New	LOTW
5P8VW	DJ8VW	simplex EU125 O...	3780.0	80	DENMARK	08:12:2014: 23:20:19	New	
9M2AX	F2DX	CQ	3501.5	80	WEST MALAYSIA	08:12:2014: 23:19:31	New	
JH1MDJ	HI75BR	trn qso 73 ...	24939.0	12	JAPAN	08:12:2014: 23:19:32	Verified	LOTW
W1AW/1	JF2IWL		21335.0	15	UNITED STATES OF...	08:12:2014: 23:19:34	Verified	LOTW
W1AW/9	JG1ULT	cq	21305.0	15	UNITED STATES OF...	08:12:2014: 23:19:34	Verified	LOTW

## How it Works

CLSpotter works by downloading your DXCC matrix from Club Log using your Call Sign, password and email address. Once this is downloaded, it connects to a DX Cluster and then does a lookup in your matrix to see if an incoming spot is new, worked, confirmed or verified. According to some simple filters, it will display these spots in a table.

Clicking any spot in the table will immediately do a QSY to the frequency of the spot. In addition with the Spectrum Scopes, moving the mouse slowly over the waterfall will show any spots that are in the frequency range of the panadapter. If the CW - Terminal is open, the call sign of the spot is entered into the QRZ field.



## Setup

The first time you use Club Log Spots (found in the Window menu from the control screen), it will bring you directly into the Control Panel. There are 4 main sections to the control panel.

The screenshot shows a 'Control Panel' window with a dark background and yellow text for section headers. It contains four main sections:

- Club Log Account:** Fields for Call Sign (va2fsq), Password (masked with dots), and Email Address (tomb18@videotron.ca).
- DX Cluster:** Fields for Call Sign (va2fsq), DX Cluster (dx.ye7cc.net), and a checkbox for 'Use custom cluster?'. Below this are fields for Address and Port.
- Entity List:** A 'Last Update' field showing '4/15/2018 3:29' and an 'Update' button.
- Band Maps:** An 'Edit' button.
- Spot Preferences:** A 'Maximum age of spots (min)' field set to '30'.
- Highlighting Preferences:** Color selection buttons for 'New Spots', 'Confirmed', 'Worked', and 'Verified'.

An 'Ok' button is located at the bottom left of the window.

**Club Log Account:** This is where you must put your Club Log credentials that you are currently using. If this is not correct, then there will be no spots available.

You must enter your Call Sign and the password you use to log into ClubLog. Make sure that your password does not have any reserved characters like a / or ? which are used by website links.

**DX Cluster:** Here you must provide your call sign and pick one of the DX Clusters. In addition to the pre-defined clusters, you can add your own cluster by specifying the ip address and port of the cluster.

**Entity List:** The entity list is a list of DXCC's. This is used to provide the name of the country in the spot window. This table is automatically updated once a month and the first time you run the program. If you wish to update this sooner, press the Update button.

**Highlighting Preferences:** Here you can select the colors you would like to use for the different spots.

## CW - Terminal

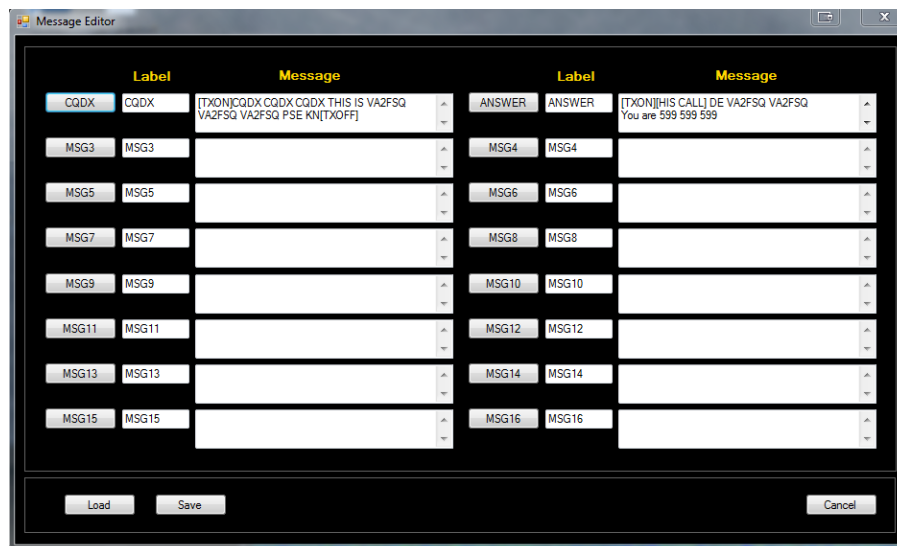
Win4Icom provides a CW terminal by selecting Window then CW - Terminal. The following window will open.



**CW CPM** sets the keyer speed.

## Messages

Win4Icom allows you to set up to 10 messages per file. Clicking on Load will load an existing message file into Win4Icom. Clicking on Edit will provide this screen:



You may enter a Label for the button and a message you want transmitted when the button is pressed. There are a number of special tags that you can use which will perform specific functions.

**[HIS CALL]** This tag will be replaced by the call sign that appears next to the QRZ button.

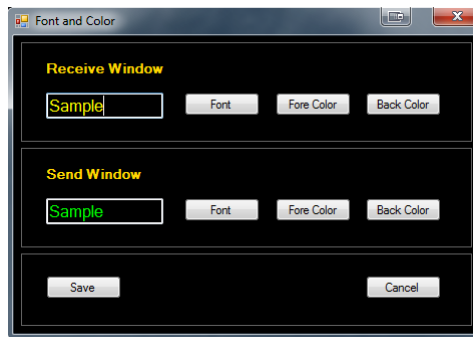
**[TXON]** will start transmitting.

**[TXOFF]** will stop transmitting.

All carriage returns in the message will be sent using the appropriate translation depending on mode.

## Settings - Fonts

Selecting this option will open the font window allowing you to change how the terminal mode will appear.



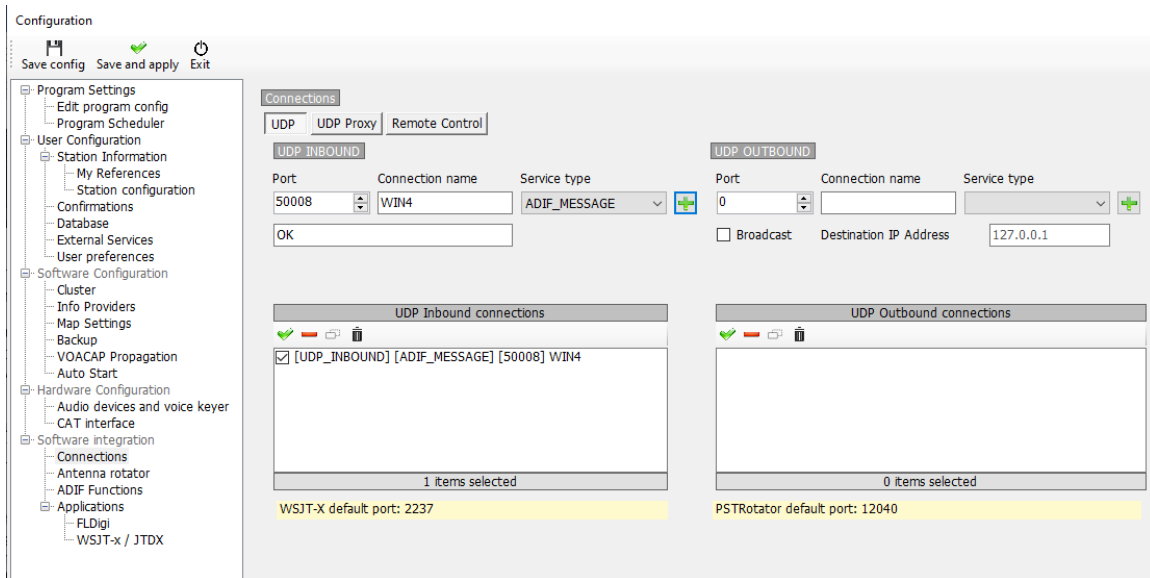
## Logging from the Terminal Screen

It is possible to log QSO's directly from the terminal screen to an ADIF file, or DXKeeper, N3FJP, Log4OM Version 2 or HRD Logbook. To configure this, select Settings, Logging from the terminal screen. There are three options:

**ADIF Logging:** If you select this, the QSO is logged to an ADIF file that can be imported into most logging programs.

**DXKeeper Logging:** If you select this, the QSO is logged to DXKeeper. Please note that DXKeeper must be open for this to work.

**Log4OM:** If you select this, the QSO is logged to Log4OM. Please note that Log4OM version 2 must be open for this to work. Please look at the Log4OM documentation on how to enable this in Log4OM. Here is a screen shot of what the configuration should look like:



**HRD Logbook Logging:** Here you must install the Microsoft Access Database Engine 2010 available here:

<https://www.microsoft.com/en-ca/download/details.aspx?id=13255>

Choose the 32 bit version and install it. Make sure that the path to the HRD is correct and press test. It should be OK.

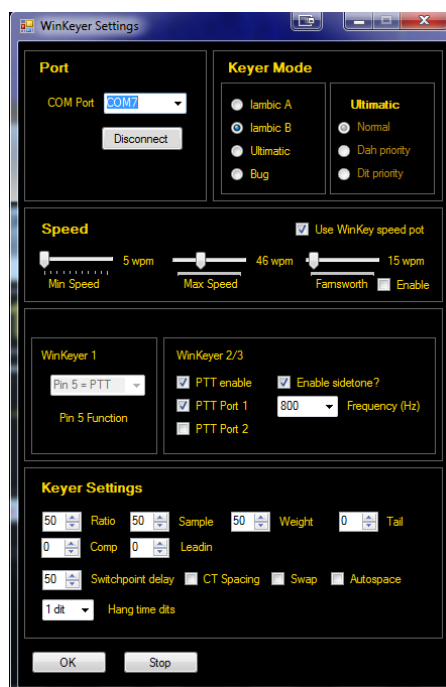
Start Win4Icom and you will now have access to HRD Logbook logging.

**For all HRD Logging scenarios** open HRDLogbook.exe and then in Tools, Configure, Sharing, click the checkbox to allow automatic refresh on new records. Without this, HRD Logbook will accept the entries from Win4Icom but will not display them until you do a Refresh in HRDLogbook.

## K1EL WinKey Support

Support for K1EL's WinKey is built in to the terminal.

The first thing you will need to do to use the WinKey support is to go into the terminal settings and select "Settings - WinKeyer". You will then see this screen:

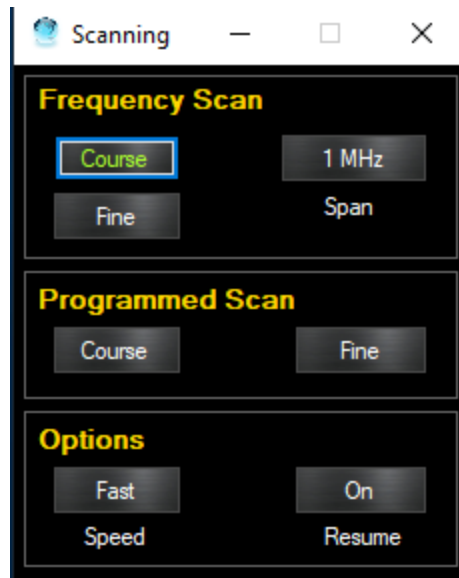


You can then select a Com port and then click on connect. From this point on, WinKey will be used for CW. Please note that Win4Icom will provide all of the settings for the WinKey so any existing settings will be replaced when the interface is started.

It is beyond the scope of this manual to discuss all of the features of WinKey. Please see the K1EL website for in-depth information. However, the most important item is the words per minute settings. There are two possibilities: One is using the Speed pot on the WinKey itself. Make sure that this option is selected in the settings if you wish to use this. The other is to use the speed settings in Win4Icom itself. You can de-select the "Use WinKey speed pot" if this is your desire.

## Scanning

Win4Icom has the ability to perform frequency based scanning and programmed scanning. To access the scanning utility, select Windows, Scanning and then you will see the following:



## Frequency Scanning

In frequency scanning, the radio will scan frequencies over a span of 5kHz to 1 MHz as set by the Span button. You have a choice of a Fine scan or a Course scan as well as a Fast or Slow speed. The radio will pause whenever the squelch is opened on the radio. Therefore, you will need to adjust the squelch as necessary. The Resume button determines if the radio continues scanning when it detects a signal or stops completely.

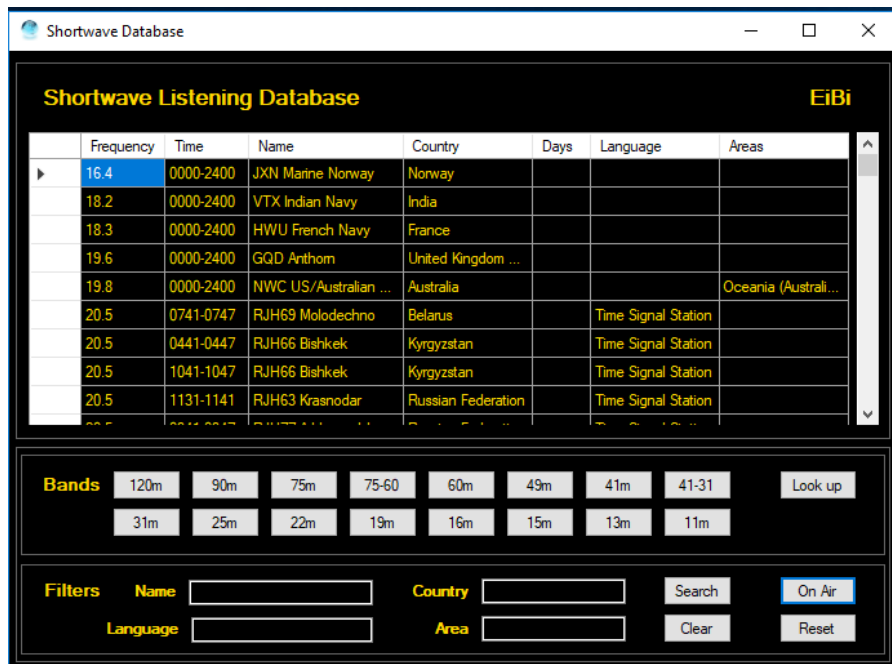
## Programmed Scan

The Programmed Scan will scan from the Programmed Scan frequencies set in the radio. On most radios these are set in the memory positions P1 and P2 where P1 is the starting frequency and P2 is the ending frequency. On the IC-9700, there are three sets of these. P1A and P1B, P2A and P2B, and P3A and P3B. These are for the three bands available on this radio where A is the start and B the end frequency.

## Shortwave Listening Database

The SWL DB uses the free SWL database from <http://eibispace.de/>. Please donate to his cause to keep this quality DB!

The database can be opened from the Windows menu in the control screen. When the database is opened you will see the following:



There are two main sections to master. The **Bands** section will filter the database by band. The **Filters** section has 4 fields where you can enter text to do a search.

The **On Air** button will filter all the results based on the current UTC time. In order for Spots to show up on the spectrum a Band must be selected, the On Air button must be active and you need to click on an entry in the database to tune there.. This is due to the vast number of stations that are included in the database. You also need to be tuned to a frequency within the band to actually see the spots on the spectrum.

**Search Filters:** You can enter a Name of a station, the Language, the Country as well as the Area that the transmission is targeted at. The text is not case sensitive and you can enter partial text such as “eng” for English. Once you have entered any text, click on the **Search** Button. The clear button will delete all search filters.

**Look up:** The look up button will do a search in the database for the currently tuned station. It will also take into consideration if the On Air button is active. Pressing it again will remove the lookup. Note that the lookup needs to be precisely on the frequency for it to return results. Therefore since most shortwave stations appear to be on 1 kHz boundaries, it is best to select QSY Snap to nearest 100kHz in the right click menu of the spectrum. If the station is at x.5khz a few turns of the mouse wheel will get it on frequency.

**Spotting on the spectrum:** If the spectrum “Spot” checkbox is selected then spots will appear on the spectrum if a band filter and “On Air” are enabled. This has priority over the ClubLog spots and they will not appear.

## DStar Repeater Mode

Win4IcomSuite has a built in DStar Repeater Mode which operates similarly to the DR mode on the IC-705, IC-7100 and IC-9700. Selecting Window, DStar Repeater Mode, opens the following window.

**DStar Repeater Mode**

**To:**

**From:**

City: **Montreal** RX Freq (MHz): **446.150000** Duplex: **DUP-**  
State: **Quebec** TX Freq (MHz): **441.150000** Offset (kHz): **5000**  
UTC Offset: **-05:00** Repeater CS: **VA2RKA B** Gateway CS: **VA2RKA G**

**Status:** Radio set to: **CQCCQCQ** From: **VA2RKA B**

**RX Messages** Caller: **KN6AYW**   
Calling station: **KN6AYW** Called station: **CQCCQCQ**  
Note: **Jim** Note: **Jim**  
Message: **LaQuinta California** Repeater: **VA2RKA G**  
Gateway: **VA2RKA B**

**TX Message:**

**My Callsign:**

Before you can use this, there is a one-time setup required. You need to provide a list of Your Callsigns and a list of Repeaters. This information is not available over the CI-V protocol so must be added manually. The way to do this will depend on whether you use RT Systems Programming software or not. Please note that you should NOT be in DR mode on the radio when you use this. DR mode on the radio takes over all controls and prevents Win4Icom from operating correctly. Use this, which provides the equivalent functionality or use DR mode on the radio with this screen closed.



## First Setup

The first time you open the DStar Repeater Mode in Win4Icom you will see a screen like this:

**DStar Repeater Mode**

**To:**

**From:**

City: RX Freq (MHz): Duplex:

State: TX Freq (MHz): Offset (kHz):

UTC Offset: Repeater CS: Gateway CS:

**Status:** DStar connection not configured

**RX Messages** Caller: M30HN

Calling station: M30HN Called station: CQCCQ

Note: Message: Peter Portslade Repeater: VA2RKA G Gateway: VA2RKA B

**TX Message:**

**My Callsign:**

**To:**

The first thing you are going to need to do is populate the To: list. Click on the **'Select my Callsign'** button and the following will appear:

**Your Callsign**

	Your Call	Comment
▶	CQCCQ	Use Repeater
*		

Double click a cell to select a Callsign

You can also Right Click a cell to paste from Excel or the RT Systems DStar settings table. You can also manually add or overwrite existing cells.

There are three possibilities at this point:

**Manual entry:** Enter values for Your Call as needed. It is better to use Excel or RT Systems, but this is available. Note that the Your Call field requires 8 characters. Use spaces if necessary.

**Paste from Microsoft Excel:** Copy a maximum of two columns from Excel and then Paste it into this list by click **once** in the Your Call column. If you click twice, then the cell is in edit mode and if you paste everything will go into this one cell. You do not want that.

**Paste from RT Systems Software:** If you use RT Systems Software you will have downloaded all the memories and settings from your radio, modified them and then sent them back to the radio. You should also at this point, save the settings and memories into a file on your computer by issuing a File Save As in RT Systems. You can then select DStar, Digital, (DStar Settings) and you will see this:

DSTAR Settings

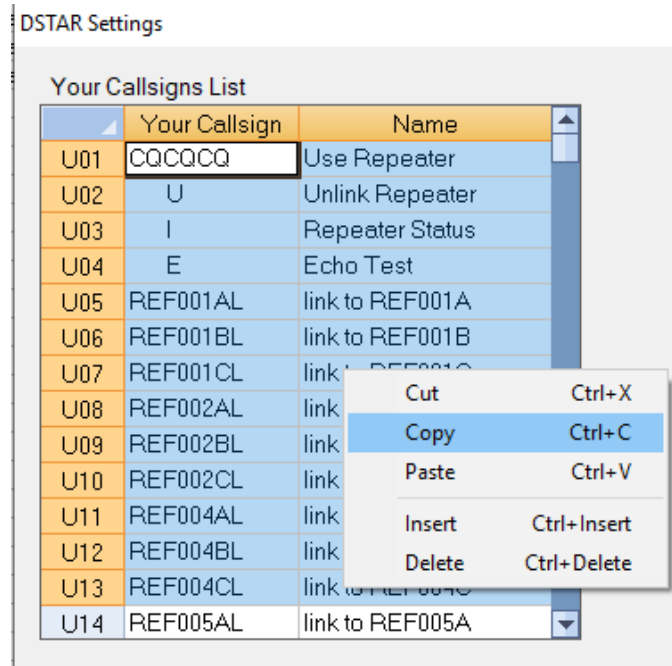
	Your Callsign	Name
U01	CQCQCQ	Use Repeater
U02	U	Unlink Repeater
U03	I	Repeater Status
U04	E	Echo Test
U05	REF001AL	link to REF001A
U06	REF001BL	link to REF001B
U07	REF001CL	link to REF001C
U08	REF002AL	link to REF002A
U09	REF002BL	link to REF002B
U10	REF002CL	link to REF002C
U11	REF004AL	link to REF004A
U12	REF004BL	link to REF004B
U13	REF004CL	link to REF004C
U14	REF005AL	link to REF005A

	Sel	My Callsign	Note
M01	<input checked="" type="checkbox"/>	VA2FSQ	
M02	<input type="checkbox"/>		
M03	<input type="checkbox"/>		
M04	<input type="checkbox"/>		
M05	<input type="checkbox"/>		
M06	<input type="checkbox"/>		

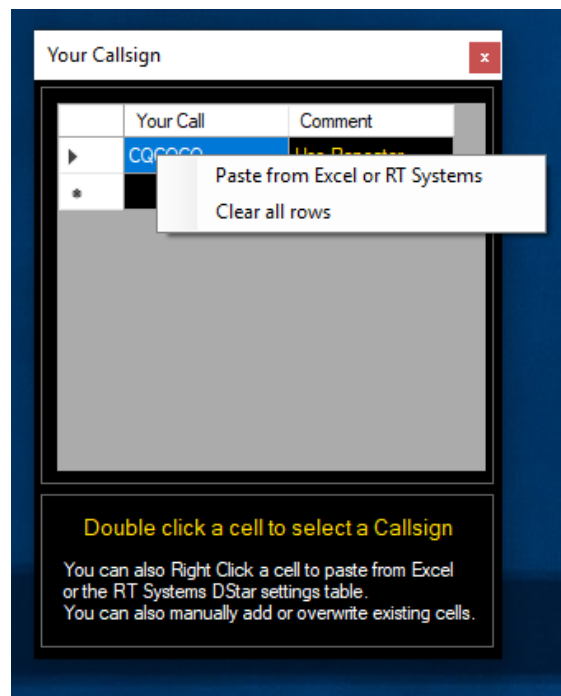
	Use	Text Message
1	<input checked="" type="checkbox"/>	Tom on IC-7100
2	<input type="checkbox"/>	
3	<input type="checkbox"/>	
4	<input type="checkbox"/>	
5	<input type="checkbox"/>	

OK Cancel

What you want to do at this point is to copy all the Your Callsign and Name fields with your mouse as follows in RT Systems:



And then paste them by clicking once in the left column of the To: screen in Win4lcom:



Be careful you do not paste everything into one cell. You want the cell selected not in edit mode. Your list is then complete.

**From:**

Click the “**Select Your Repeater**” button. The first time you do this, you will be presented with a blank screen:

Chan #	RX Frequency	TX Frequency	Offset	Duplex	City	Group	RPT1 Use	Repeater Callsign	Gateway Callsign	State
--------	--------------	--------------	--------	--------	------	-------	----------	-------------------	------------------	-------

Country  State  City

Repeater Call Sign

Search Import Clear

Double click on entry to choose repeater

Press the Import button and then import a CSV file (comma separated values). This file should come from <http://www.dstarinfo.com/RepeaterDownloads.aspx>. Select the 7100A as the radio. Do not select any other radio since the formats are different. All the files have the same information, but the formatting is different so that it can be loaded into the radio. Since the list that is in the radio is not available to software programs, this list must be loaded into Win4icom.

**DStar Info:** The DStar info website has a interactive repeater download page located here: <http://www.dstarinfo.com/RepeaterDownloads.aspx>. You can use this tool to create your list. Follow the directions on their website, select the IC-7100A only and then copy the file into My Documents\Win4icomSuite. When you click on the Import button in the Repeater screen you will select this file. This completes the one-time setup. Please note: These instructions require that the format of the files in RT Systems exports or DStar Info are known. If you change the format by adding columns in excel, the file may no longer work. The number of columns is the most important. Please see the section on Microsoft Excel below.

## Using the DStar Repeater Mode

The DStar Repeater Mode provides an easy to use interactive way to select callsigns and repeaters and connect to the DStar Network. It is very similar to using the DR mode on the radio. When you open the window, you see the following:

Most of the tool is self explanatory if you have used the tool on the radio. There is the Your Call field (**To:**) , the **From** field which is the repeater you are connecting to, a **Status**, **RX Messages** and fields for the **TX Message** and the **My Callsign**.

The **To:** field, can be filled manually in which case it must be 8 characters long, filled with spaces if necessary or selected by pressing “**Select Your Callsign**”. You may also select a Callsign from the dialog box of your Call History by pressing the “**History**” button. The History list is a list of all callsigns received and used since Win4Icom has started. It can show a maximum of 50 callsigns. The **From:** field can be filled by pressing the “Select Your Repeater” button. You can also manually enter a repeater callsign here but then you will need to fill all remaining information such as RX frequency etc.

**Manual Entry:** If you want a one-time setup with manual entries you must fill the To:, From: RX Freq, Duplex, Offset, Repeater Callsign and Gateway Callsign and then press the Update button. The Update button, is greyed out if you have an active DStar setup. The moment something is changed, or the frequency on your radio is changed, the button becomes active and the Status information informs you that the Dstar connection is not configured.

**Status.** The Status section will tell you if the radio is currently configured with all necessary parameters for a DStar connection. Please note that although the radio is ready, you must press the Push to Talk button (RX button in the Win4lcom control) or your Mic to actually send the information to the repeater. So, if you changed the To field to a reflector, then click update, the radio is ready to send this to the repeater when you click PTT. Remember, to switch back to CQCQCQ when you have completed the link!

**TX Message and My Callsign:** Both these fields can be changed as necessary. It is not possible to retrieve the values from the radio and if you change these the values on the radio in location 1 of the respective list will be overwritten.

**Closing and Opening the DStar Repeater Mode:** When you close the repeater mode, the current setup is saved to a file and then when you open the repeater mode it is restored and your radio is set ready for operation on the last setup you used.

## Using Microsoft Excel for Repeater Lists

You can use Microsoft Excel for managing the DStar Repeater List. The first step is to download the list of repeaters from here: <http://www.dstarinfo.com/RepeaterDownloads.aspx> for the IC-7100A. This list is in a comma separated values format. Once you have downloaded this if you double click on it, Excel will open the list and you will see the following:

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1	Group No	Group Name	Sub Name	Repeater	Gateway	Frequency	Dup	Offset	Mode	TONE	Repeater	RPT1USE	Position	Latitude	Longitude	UTC Offset		
2	4	Canada	Calgary	Alberta	VA6ACW	145.65	DUP-	0	DV	OFF	82.5Hz	Yes	Approxim	51.13	-114.25	-07:00		
3	4	Canada	Calgary	Alberta	VA6ACW	445.85	DUP-	0	DV	OFF	82.5Hz	Yes	Approxim	51.13	-114.25	-07:00		
4	4	Canada	Calgary	Alberta	VE6GHZ	444.95	DUP+	5	DV	OFF	82.5Hz	Yes	Approxim	51.14	-114.16	-07:00		
5	4	Canada	Calgary	Alberta	VE6GHZ	147.09	DUP+	0.6	DV	OFF	82.5Hz	Yes	Approxim	51.14	-114.16	-07:00		
6	4	Canada	Calgary	Alberta	VE6PG	444.9625	DUP+	5	DV	OFF	82.5Hz	Yes	Approxim	50.97	-114.07	-07:00		

You may edit this by adding rows updating data and so on. The important thing is that the order and number of columns remain the same. When you are finished, select File Save As, and select CSV file. Ignore any messages about Loss of Data. It will not apply. The file is now ready to be imported.

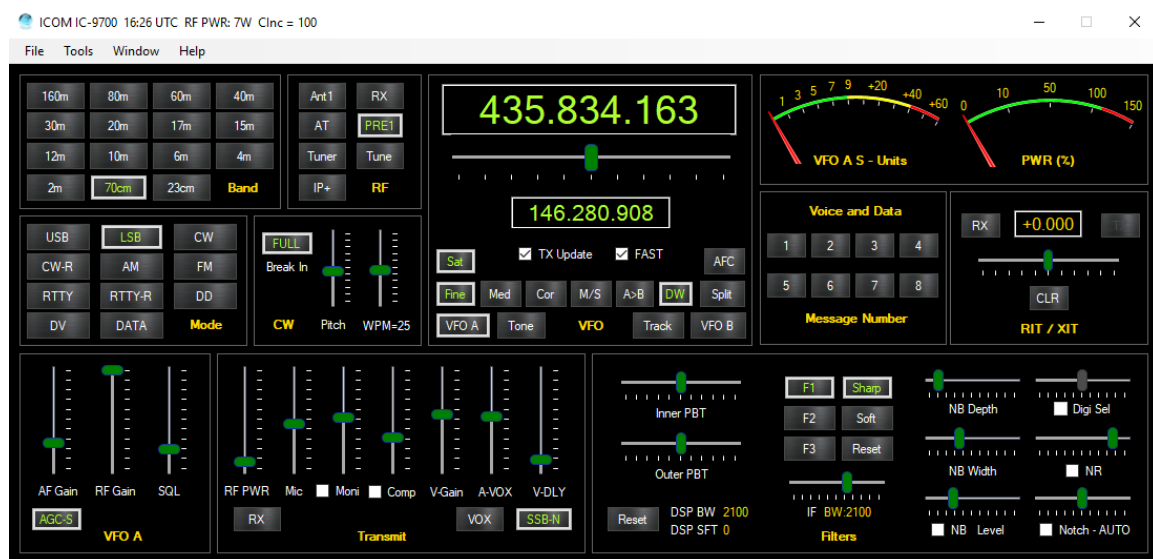
## Satellite Mode on the IC-9700

The IC-9700 is a full duplex 2 receiver radio that can operate in satellite mode with one receiver for the downlink and one transmitter for the uplink. Due to the way it operates it is not possible to have both on a single band. In addition, this radio does not have directly accessible VFOs for the uplink transceiver. The consequence of this is that the Main and Sub radios need to be swapped if you want to modify your uplink frequency.

Win4Icom will handle this for you automatically without switching the VFO's in the application. However, if you look at the radio when you are changing the VFO B (uplink) you will see the swapping occurring.

The same thing will happen if you use a third party application such as SatPC32. You will notice that the radio will periodically be switching between the main and the sub receiver while it tracks the satellite.

By default, Win4Icom will not update the uplink frequency in the Win4Icom display. However, you can turn this on. In the following picture, there is a TX update checkbox that has been enabled.



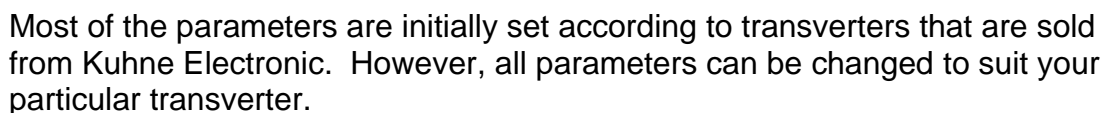
The TX Update checkbox will allow automatic update of the TX frequency when enabled. The rate of the updates is determined by the checkbox to the right of it. Fast gives an update about once a second, medium, once every 5 seconds and Slow, once every 10 seconds. In general, with a program like SatPC32 a setting of medium is a good update rate. Please note, that even if TX Update is not turned on, the radio will still receive it's updates from SatPC32.

There is also a Track button that allows the Uplink to track the Downlink frequency. Clicking the control will cycle between Track +, Track – and off. Please note that if you use a third party product like SatPC32, it will automatically adjust both the uplink and downlink frequencies. You should NOT enable the tracking in Win4Icom if this is the case.

Please note that for SatPC32 there is a special version of SatPC32 that is required to be used if the uplink and downlink frequencies are on the same band.

## Use of Transverters

In the Tools Settings menu, there is a tab called Transverters on the right of the window.





To set up a transverter you need to enable it and then set the radio frequency which corresponds to the frequency that the radio must be tuned to, so as to act as an IF. You also need to set the low and high frequency limits of the transverter as well as the antenna and power maximum. Note that all frequencies shown are in KHz. For radios that have a transverter output, select the TV Output checkboxes.

The RF power is expressed in percent. So for 100W radios it corresponds to the actual power in watts. For other radios, this will change of course.

It is important to realize, that if you use third party software through the virtual radios, the frequency that is sent from Win4Icom will be that of the IF frequency, not the displayed frequency. If your third party software has transverter support then it will show the transverter frequency if it is configured to, otherwise not. This also applies to any logging software you could use.

Another thing to watch out for, is changing the RF power directly on the radio instead of in the software. If it is changed directly on the radio, there will be a momentary increase in power if you exceed the limits defined in the settings. This will automatically be reduced by Win4Icom during the polling cycle. The same can apply if a third-party product changes the RF power. It will initially, increase but then it will be set to the limit.

Once the transverters have been set up in the settings, all that is needed is to right click in the Band section of the control screen and select Transverters. You will see the following screen:



Please note that at the moment (November 2019), Satellite mode on the 9700 is not supported with transverters.

## Part 3: Using the VA2FSQ Icom Network Server and Client

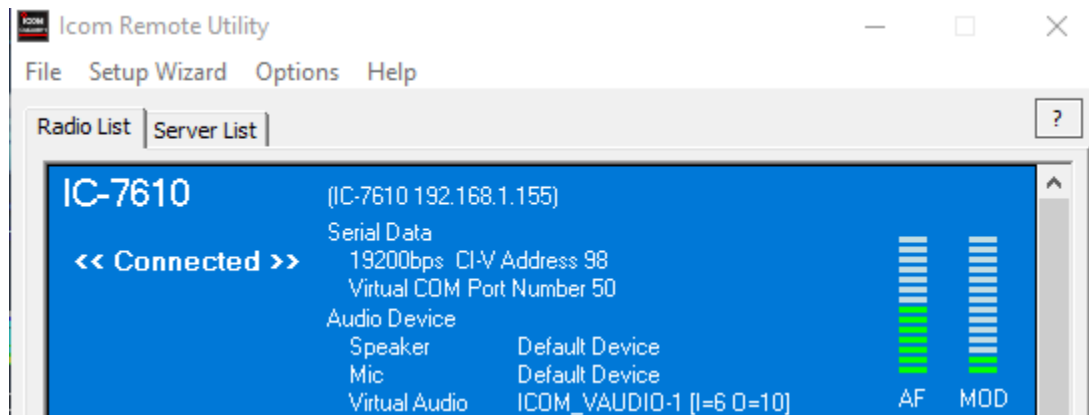
### New in version 1.352

For those radios that have an Ethernet port like the IC-7610, IC-9700 or a WiFi connection like the IC-705 this version has the ability to connect to the Icom Remote Utility that is included in RS-BA1 and RS-BA2. To use this facility, you

will need to have a fully configured RS-BA1 or 2 installation working. In other words, all networking has to be set up and functional with the RS-BA1/2 software. Due to a number of issues in usability, you will need to contact Icom if you cannot get it working. Win4Icom support will NOT help with that since it is not our software.

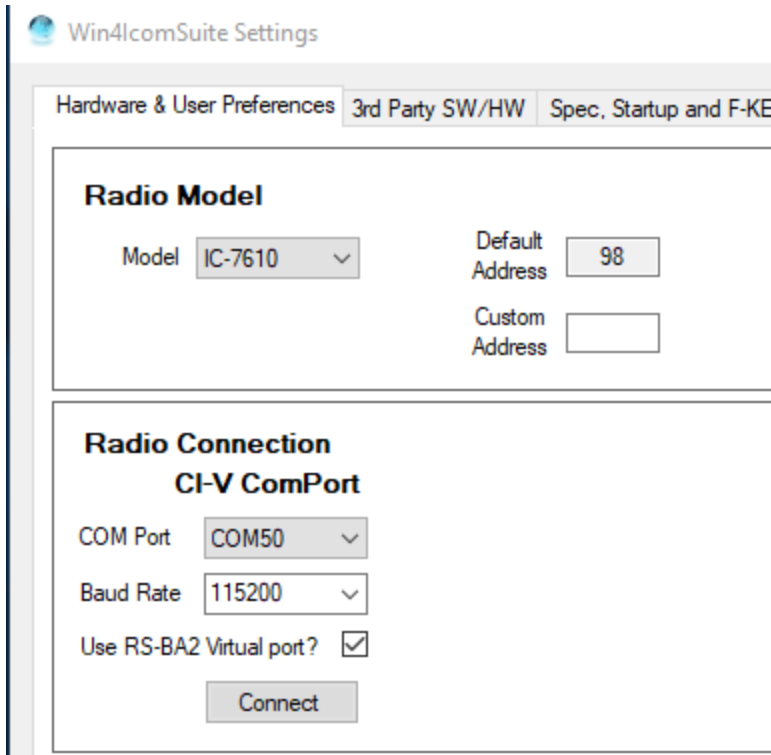
Once it works, AND you are able to connect with the RS-BA1 or 2 software it is simple to get Win4Icom working with the Icom Remote Utility.

To do so, here is an example of the remote utility connected to an IC-7610:



Here the remote utility has connected to the radio and given you a virtual serial port number of 50 for example.

Then in Win4Icom, you will need to start up the software (with RS-BA1/2 NOT running), disconnect if you are using it over USB, and then you must set it up as follows:



Note that the CI-V connection is now connected to the Icom virtual serial port 50 as given by the Icom remote utility and note that the “Use RS-BA2 Virtual port” checkbox is checked.

Click “Connect” and then Save and it will be operating over the network.

Of course, you will need to purchase RS-BA1 or 2 to get this working. Alternatively, and preferred for non-ethernet radios is Win4Icom’s included client server utility. Much easier to use and configure.

### Win4IcomSuite Client Server

The VA2FSQ network server provides access to your radio from anywhere in the world that has a network connection. You can control the radio and transfer audio both to and from the radio. Combine this with the built in virtual radios and all of your 3<sup>rd</sup> party products are available as well. You do NOT need to purchase RS-BA1 to use this but you do require a server PC.

To use the network facilities you will need a PC to act as a server that is connected to your radio via the USB cable. Although, the 7610 and 7850 and other radios have a direct network connection, Icom has encrypted and not released the specifications for the network interface so a direct connection cannot be used at this time. You pay for the hardware and then have to pay for the software separately.

The following sections illustrate the use of the VA2FSQ Network Server and Client in a local area network and over the Internet.

## Use on the Local Area Network (LAN)

The use of the Server and Client requires that you download and install the VA2FSQ Network software from [icom.va2fsq.com](http://icom.va2fsq.com). Make sure you temporarily disable any antivirus services during the install.

### Using the Server Application

Once you have done the installation launch the VA2FSQ Server application and you will see the following:



The application is divided into 3 sections: The Radio Control section, the Audio Control Section and an information section where the connected clients and messages are displayed.

### Radio Control

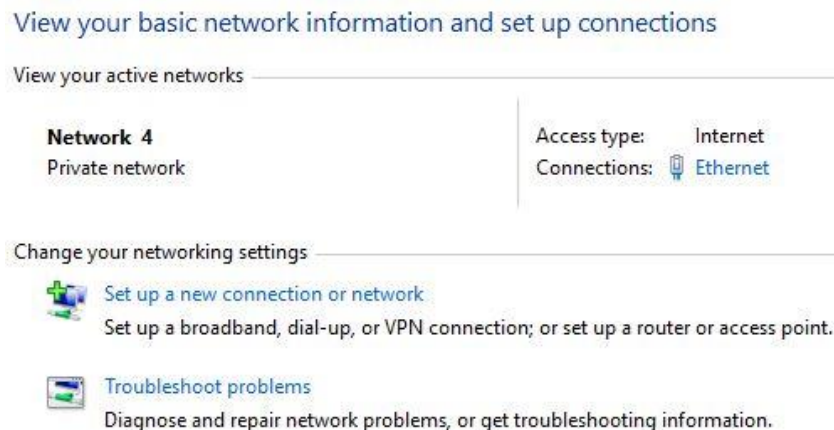
The Radio Control section provides a place where you can enter the connection to the radio via the USB port as well as the networking parameters, IP Address and Port.

The connection to the radio is the same as the connection that you initially set up in the very first few pages of the manual. This must be done following those instructions. You will need to enter the Com port and baud rate. In addition, you also need to provide a user name and a password which is used when a connection is made to the radio from the client.

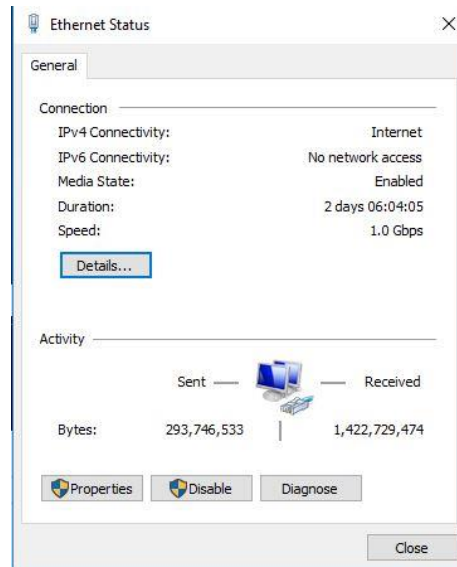
For the network, there are two parameters that must be set. One is the IP Address and another is the IP Port. The port is arbitrary but the suggested value of 50001 is what is used by Icom for its networking servers.

For the IP Address, you can use the local address which by convention is 127.0.0.1 or the address of a network interface on your machine. If you use the local address then the server will only communicate with a client on the same computer. For the greatest flexibility, it is recommended to use an IP Address on a network adapter instead.

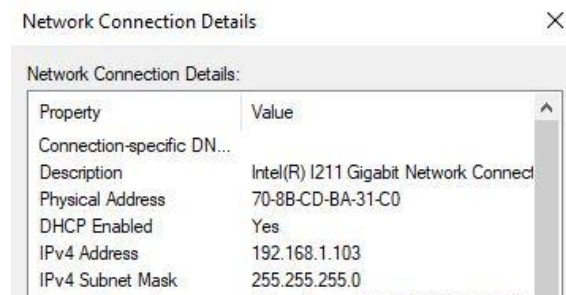
To determine the address in use by your server PC, open the Windows Control Panel and select Network and Sharing Center. You will see the following Window:



Next click on the item next to the word Connections which in this example is Ethernet. The following appears:



Click on Details and you will see details about your network connection. The item of interest is **IPv4 Address** which in this case is **192.168.1.103**. This is the value you will need to enter into the IP Address section of the Radio Control.



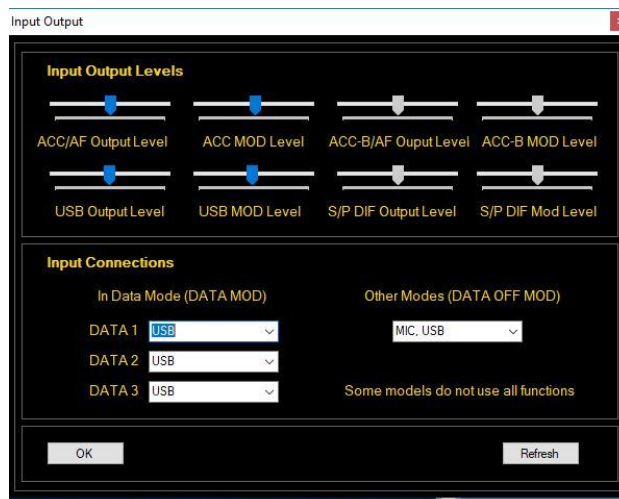
Once you have entered all of these initial values you will see something like the following:



## Audio Control

### Preparation of the Radio

In order to stream the sound both to and from the radio, the radio must have its inputs and outputs set to use the USB audio codecs that are installed when you install the ICOM USB device driver. This can be set after the software install is running from the Tools, Settings, Input Output Menu menu.



The section that is important is what input connection the radio uses when it is in different modes. The above diagram shows an appropriate setting where when you use Data modes like USB-D1, the audio input is from the USB connection and when in other modes, you can use both the MIC input and the USB input. You can also set the USB Output level and the USB Input level (USB MODulation).

## Audio Control Section

The Audio Control section streams audio to and from your radio. Just like in the Radio Control section you need an IP Address and IP port. The address is the same as that for the Radio control but the IP Port has to be different. The default is 50002. If you change this make sure the VA2FSQ Network Client uses the same port number.

The Speak and Listen drop downs select the audio devices that you want to stream. The Speak drop down is the output of the radio that will be sent across the network to your client while the Listen drop down, is where the server will send the sound from your client to the radio. These devices are installed when you install the USB drivers for your radio. For the Icom radios there are two of these devices installed: The Microphone (for Speak) and the Speakers for Listen.

VA2FSQ Icom Server v1.03

**Radio Control**

IP Address: 192.168.1.103      Radio Control port: 50001

Com Port: COM14      Baud Rate: 115200

User name: va2fsq      Password: \*\*\*\*     

☐ Auto Start

**Audio Control**

Samples per Second: 8000      Jitter buffers: 10

Audio Network Port: 50002

Speak: Microphone (3- USB Audio CODEC)

Listen: Speakers (3- USB Audio CODEC)

**Client**

**Messages**

Server stopped  
Serial port closed  
Client closed connection  
Waiting for connection



There is also the ability to specify the Samples per Second. This is selectable from 5000 b/s to 44100 b/s. The higher the value, the better the quality but the higher the network usage. A value of 8000b/s provides an audio bandwidth of about 4kHz which is adequate for any amateur radio usage.

The Jitter buffers provide a buffering capability for the audio data packets. Transfer of audio packets must be done in real time. However, the Internet is NOT real time. There will be delays depending on the quality of the network connection. Therefore, a certain minimum number of packets must be sent to accommodate this. This is what the Jitter buffer provides. It attempts to buffer packets so that if some are delayed, there are still packets to provide the sound at the proper time.

A value of 10 for the Jitter buffer is a good starting point. You can monitor this by looking at the Client section as shown below:



Here you see that a client is connected and the green indicator is near the middle of the scale. If the network connection is good, it will most likely always be near the middle of the scale. If there are a lot of delays, the green indicator may be closer to the left and vary significantly. If it ever disappears completely, then you

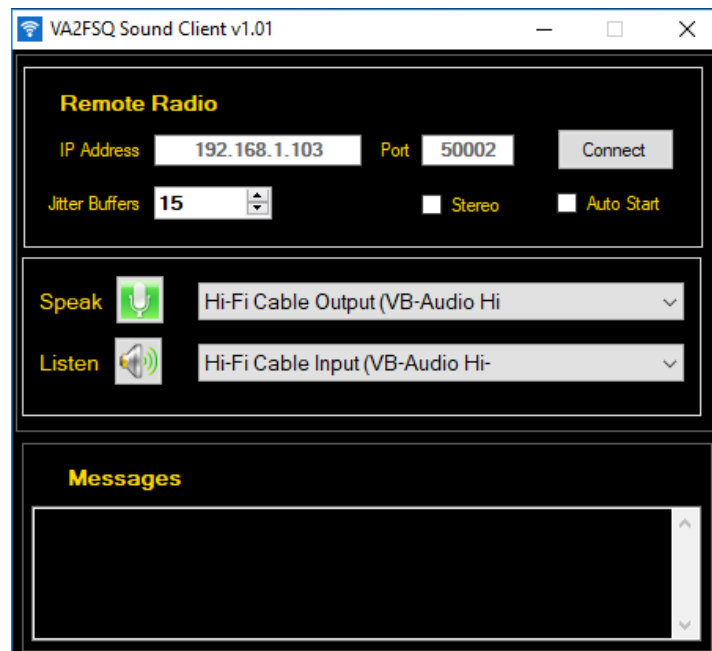
will be losing sound packets. If this occurs, close the server and client and increase the number of Jitter buffers to avoid the loss of data. Each jitter buffer introduces a delay of about 16ms, thus 10 will delay the audio signal by about 160ms.

## Connect Button

The connect button will start the server in operation: It will connect to the radio, and then start streaming and receiving audio. If there are any errors a message will appear in the messages section.

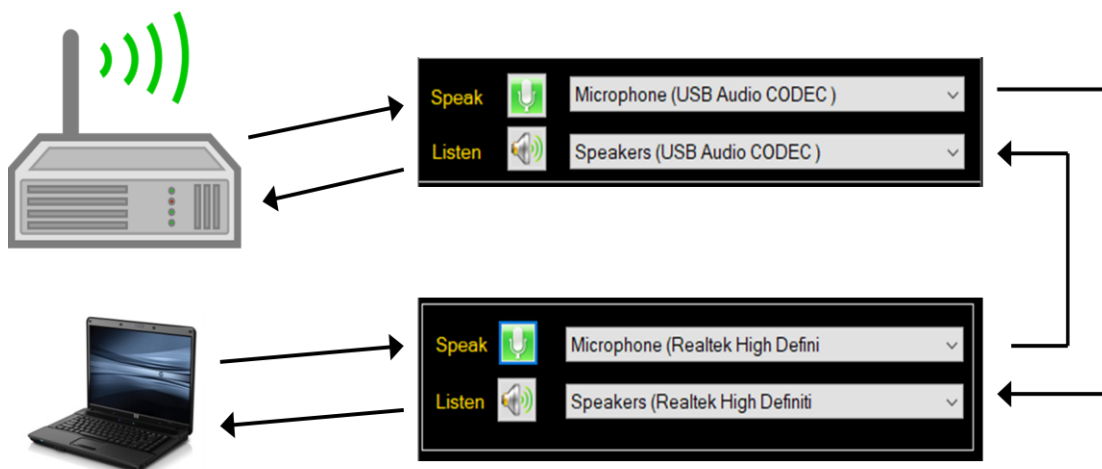
## Using the Network Client Application

When you install the VA2FSQ Client Server application the Client is also installed. When you launch the client software the configuration is simpler than the Server requiring only that you select the IP Address of the Server, the same Port defined in the Audio Control and matching Jitter buffers.



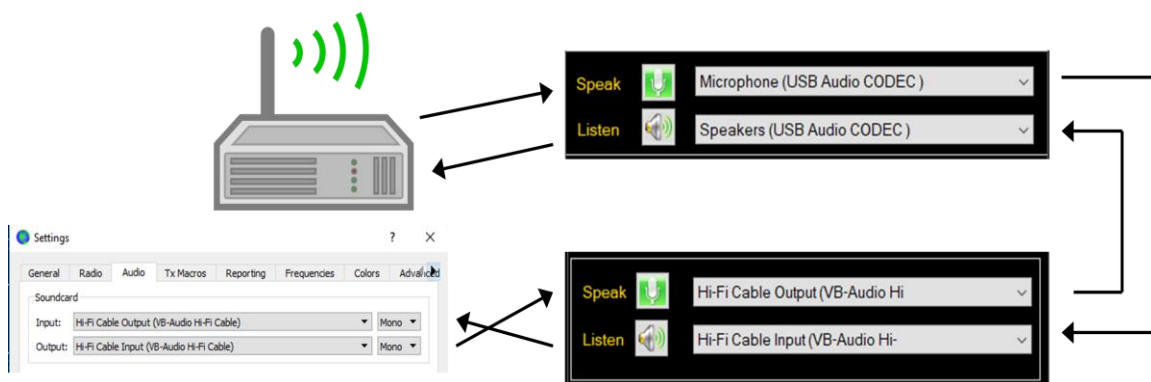
The devices that you use are also similar. However, depending on how you wish to use the client you may need some additional steps.

If you want to use the client with a microphone for example on a laptop, you would select the Microphone device on your laptop. You may then speak into the microphone and it will send the sound to the server. Vice-versa, the sound output will come out of the radio and go to your speakers as shown in the following diagram.



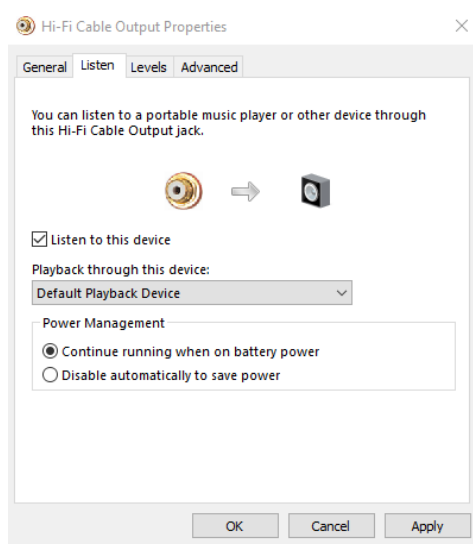
However if you want to use software such as FLDigi or WSJT-X you will need to download a Virtual Audio Cable (VAC). This virtual audio cable will reroute the sound from the input and output of these applications to the equivalent of a Microphone and Speaker. There are a few free ones on the internet. Just search for virtual audio cable. An example is here: <https://www.vb-audio.com/Cable/>

Installation of the VAC will set up two Windows sound devices, one acting as a speaker and the other as a microphone. The following is an example of how this would be set up with WSJT-X.



The above configuration will route the sound so that WSJT-X can send and receive from the radio. However, to actually hear what is being received at the same time, there is an additional step.

Open the Windows control panel, select Sound and then click on the Recording tab. Next select the virtual audio cable output device and click properties. Click the "Listen" tab and select "Listen to this device" as shown below.



## Stereo Checkbox

The stereo checkbox when checked provides two channels of sound. If you are using a transceiver with two receivers built in like the 7610, 7600, 7850/51 then the VFO A audio output will be in the left channel and the VFO B output (if dual watch is enabled) on the right channel. Unchecking the Stereo box will result in a mono signal where the left channel is copied into the right channel. This should always be set like this on the 7300.

In all cases however, only a mono signal will be set from the client to the server.

## Connecting with Win4IcomSuite

Once you have the network Server installed and connected you can start up Win4IcomSuite. Next open Tools Settings and you will see the following:

Enter the IP Address of the server, the port, and the user name and password and click Connect. If all is well, the software will connect to the server. You can then run the network sound client.

## Use over the Internet

Using the VA2FSQ Client Server over the Internet requires some network knowledge, in particular how to use your router.

For the Server, the setup is exactly the same as shown in the Server section. However you will need to add a Port forwarding entry into your router. Every router is different so you will need to look up the instructions for your router. As an example, on a TPLink router, you will need to go into advanced settings and setup a “Virtual Server” where you specify what IP address the VA2FSQ Server uses, the ports that are used and the protocol. So you would set it as 192.168.1.103 (as in the above example) and port 50001, and port 50002, and they will use both TCP and UDP as the protocols.

Next you will also need to determine the address of your router to the outside world. You can usually find this in the WAN settings of your router. This will then be the address that you put into the VA2FSQ Network Client.

Please note that in general this is good enough for testing purpose. To have a final installation you should also set the IP Address of your Server to Static so that it does not change if the computer is restarted. In addition, the same holds true for the outside address of the router. That should be set up with a Dynamic

DNS service. There are a number of free ones out there. Once you have set this up with a dynamic DNS and picked a host name, you can also enter the hostname in the IP address box. Discussion of these topics is beyond the scope of this document.

## **Network Quality and Troubleshooting**

Win4IcomSuite is engineered to be pretty fault tolerant. However, nothing is perfect. It is just as good as the weakest link. In the case of the Network Client Server, that is the network itself.

As much as possible, you should use a wired Network connection. This is by far the most reliable way to use the network. This would then be followed by a Wi-Fi connection. If your router has both 2.4GHz and 5 GHz radios, the 5GHz will give the best speed and lowest latency. However, the range of the 5GHz signal is less so you should be reasonably close. The worst connection is using a Mobile Phone hotspot.

If you are using a public Wi-Fi network such as at a coffee shop or something like that, don't expect miracles! Most of the time these are slow connections and there are many people using them, resulting in dropped and delayed packets in the control protocol for the radio.

There are two parts for the network control of Win4Icom. One is the radio control and one is the sound control.

The sound control has fairly large packet sizes and uses TCPIP as the network protocol. TCPIP is connection based and has full error checking and retransmission of packets. You can pretty well be sure that you will get all the sound if you are on a bad network if the number of Jitter buffers is large enough.

The radio control protocol however, is based on UDP (User Datagram Protocol). This protocol has little overhead and packet sizes can be much smaller than a TCPIP packet lending itself under good conditions to a very fast control of the radio. The downside is that this protocol is connectionless, and there is no guarantee that the data will arrive at all or in the right order.

To circumvent this, Win4Icom uses Datagrams to communicate with the radio. A typical datagram would be to send the CI-V command to read the frequency. This packet is sent and then the Win4Icom client will wait for the appropriate response. If it doesn't get the result within 5 seconds, it will register an error, and then retry. This will continue for 8 retries. Once this has happened, Win4Icom will present an error message asking you if you wish to retry or close then restart the software. If you have indeed received 8 consecutive time outs then your network connection is very bad and you should consider improving it.

On the server side, the server will wait indefinitely in the background for data to arrive until the server Time – out is exceeded. It will then consider that the client has disconnected and will do the following: It will turn off the spectrum on the radio (otherwise packets keep coming into the serial port buffer) and then reset the connection waiting for an additional login.

So the two of them work together. You want the server to wait long enough for the client to recover. If it's just a poor connection and you don't lose it completely, you may find that the client will pause. It will then recover and you will see all the missing spectrum packets arriving quickly. If the client has 8 consecutive errors, then most likely the server will reset and if the client then recovers, you will see you have radio control but there will be no spectrum since the server turned it off. You can then retry, and restart the spectrum but the best recourse is to close Win4lcom, get closer to the Wi-Fi source and try again.

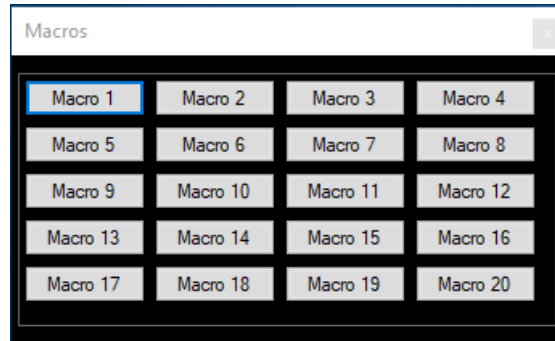
If you are serious about remote control, you will also want an additional way to connect to your PC that has the server and radio connected to it. I recommend TeamViewer which is free for personal use. Windows remote terminal is not a good solution since it seems to modify the sound settings in a way that it can fail to stream the sound if you log in to your server PC with it. Having a tool such as TeamViewer will allow you to connect to your remote server and then restart the server if necessary.



## Part 4: Trouble Shooting and Advanced Topics

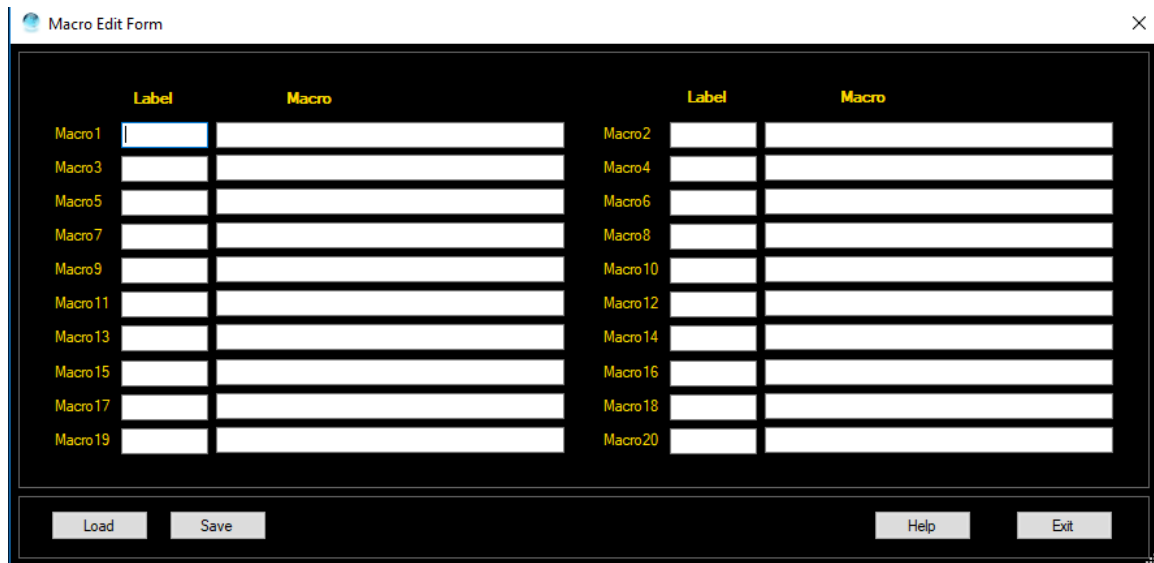
### Win4IcomSuite Macros

The macro capability of Win4IcomSuite is accessed by selecting Window, Macros. When you start this for the first time you will see something like this:



This window is very flexible in terms of what is displayed. You can resize to show 1 macro or all 20 in various orientations.

If you right click anywhere in the screen you will be able to edit the macros.



Please see the syntax below for macros. You may also put macros in Tools, Settings, F-Key and Spectrum Macros.

## Macros

Win4Icom supports the use of Macros in an easy to use “Kenwood Protocol” language.

### Kenwood Protocol commands

These commands are easy to use. The following is a table of commands supported in Win4Icom. Please feel free to contact support if there are any commands you may wish to be added.

The syntax of the command in general is a 2 letter command followed by the parameter and ended with a semicolon. For example to QSY to a frequency of 14.2 MHz the following command would be used:

FA14200000; where **FA** is the command for setting the frequency of VFO A  
**14200000** is the frequency in Hertz  
; signifies the end of the macro

The following table shows the available commands and parameters

Command	Description	Parameter	Example	Notes
FA	QSY VFO A	Frequency in Hz	FA10000000;	QSY to 10MHz
FB	QSY VFO B	Frequency in Hz	FB14210000;	QSY to frequency
VFO	Select active VFO	A or B	VFOB;	Selects VFO B
MD	Mode	Mode (see table)	MDUSB;	Mode of active VFO
DT	Data mode	00 = OFF, 01, 02, 03	DT00;	Data mode of active VFO. Use 01 for IC-7300
SP	Set Split	0 = OFF 1 = ON	SP1;	
UPB	Move VFO B UP	Offset in kHz	UPB5;	Add 5 kHz to VFO B frequency
DNB	Move VFO B Down	Offset in kHz	DNB5;	Subtract 5kHz from VFO B
AN	Set antenna	1,2,3,4	AN2;	
PA	Preamp	0 = OFF 1, 2,3	PA1;	Sets active VFO preamp 1 ON
PC	RF Power Control	Power in Watts	PC50;	Sets power out to 50W
CP	Compression	0-255	CP10;	Check CI-V manual for values
VX	VOX	0 = OFF 1=ON	VX1;	
A/B	Swap VFO A / B	none	A/B;	
A>B	Copy VFO A to B	note	A>B;	
DW	Dual Watch	0 = OFF 1=ON	DW1;	
NB	Noise Blanker	0 = OFF 1=ON	NB1;	
NR	Noise Reduction	0 = OFF 1=ON	NR0;	
NT	Auto Notch filter	0 = OFF 1=ON	NT0;	

FW	Filter	01, 02, 03	FW02;	Filter of active VFO
BW	Bandwidth	0 to 49	BW35;	Sets bandwidth of active VFO: Please check CI-V docs for values.
KS	Keyer speed	0-255	KS200;	Check CI-V manual for values
KT	Keyer type	STR, BUG, PDL	KTPDL;	straight, bug, or paddle
KQ	QSK Break in	OFF, SEMI, FULL	KQSEMI;	
AGC	AGC	F,M,S, or a value from 0 to 13	AGC0	0 is for off. See the note below on using AGC
SWL	Looks up frequency	None: Current tuned frequency	SWL	ShortwaveSchedule.com
TUNE	Used to tune an external tuner	Power: 1 to 99%	TUNE10	The tuner in the radio must be OFF. This command will save the current power level, switch to RTTY and start a tune. You must press this button again when you are done. All previous settings will be restored.
AL	USB Audio Output Level	0 to 255	AL128;	128 = 50%
ML	USB Modulation Level	0 to 255	ML255;	255 = 100%
VA	Volume for VFO A	0 to 255	VA128;	See note
VB	Volume for VFO B	0 to 255	VB128;	See note
TX	Puts radio in transmit mode	None	TX;	
RX	Puts radio in receive mode	None	RFX;	
VM	Voice/CW Memory	01 - 08	VM04;	
BE	Band edge	VFO A or B and 1,2, or 3	BEA2;	This will switch the spectrum for a given VFO to fixed mode and then select the band edge.
SSB	SSB Bandwidth	W,M,N	SSBW	Wide, Mid or Narrow
RG	RF Gain	0-255	RG255;	
RA	Receiver Attenuate	0 to 24	RA24;	Values depend on radio. Please see the CI-V documentation for the allowed values.
MN	Monitor function	0-255	MN125;	
TV	Transceive	0,1	TV1;	0 = Off, 1 = On

Acceptable modes include LSB, USB, CW, CW-R, AM, FM, RTTY, RTTY-R, PSK, and PSK-R

The Icom CI-V commands do not have the concept of Bands like 20m etc. Therefore, any settings that were in the radio for a particular band such as mode, filter, and data mode are not kept when you change frequencies. So if you are in 40m and using CW, with filter 3 and you issue a FA14200000; the mode will stay at CW and filter 3. Therefore whenever you use a macro to change to another band segment you should always issue the frequency, mode, data mode, and filter for the VFO of interest.

Example: VFOA;FA14200000;MDUSB;DT00;FW01;

If you then wish to also set VFO B to the same settings you can issue a A>B; or

FB14200000;VFOB;MDUSB;DT00;FW01;VFOA;

**Notes:** Macros cannot contain spaces. All commands must be terminated with a semicolon ;.

CI-V commands are not supported at this time. Supporting them to insure trouble free operation would require a dictionary of all commands for all radios to ensure that there would be no errors or read commands. However, Win4Icom is updated frequently so please feel free to request additional commands as needed.

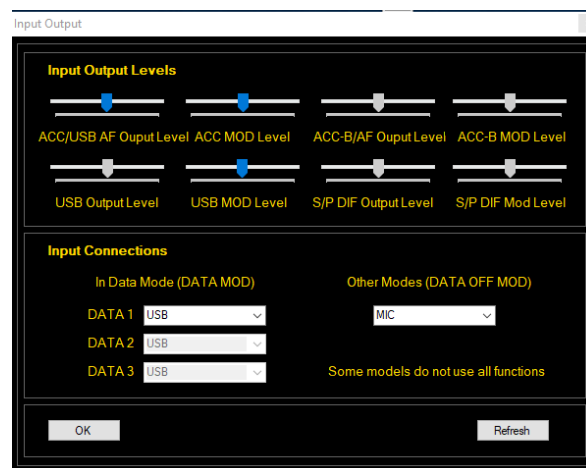
**AGC:** There is no command to turn off AGC in the CI-V programming language. However, you can turn it off by supplying the value zero for the time constant. The unfortunate effect is to set fast, medium or slow agc values to zero, so that the next time you select fast medium or slow that agc value will be zero. Thus you have to set it back manually to the appropriate value. Values are from 0 to 13. Please look in the CIV manual for the actual time constant. Thus if you want to turn off AGC, the best macro to send would be to pick AGC fast medium or slow first and then issue the command again to set it to zero or off.

**VA and VB:** On radios with dual receivers, you should always select the VFO before changing the volume level. For example, for VFO B, you would issue VFOB;VB128;. The first command selects the VFO and the second command changes the volume.

## Input Output Menu

Starting in version 1.176, Win4IcomSuite provides access to frequently used menu items in the "Set Connectors" section of the radios menu. These controls are useful when operating remotely and allow you to adjust the audio and modulation levels to and from your radio. They also allow you to change the inputs to the radio depending on mode.

To open this menu select Tools, Input Output Menu. You will see the following (Please note that depending on the radio not all items will be enabled):

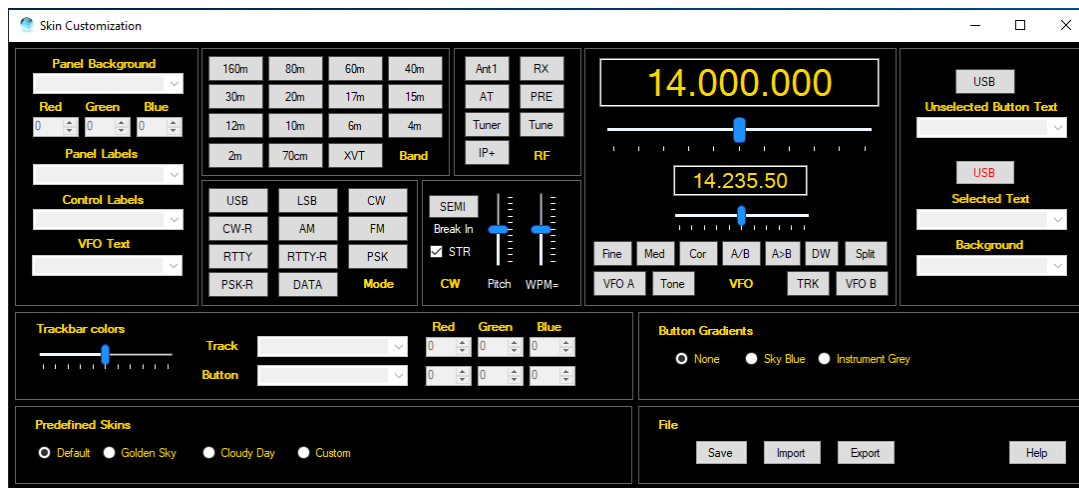


In the Input connections, Icom provides two menu items that depend on the mode you are using. If you are in one of the data modes, you can select which input on your radio will be used for incoming signals that modulate the transmitted signal (In Data Mode(DATA MOD)). This is typically the USB connection using the built in sound device on your radio. If you are in a mode such as SSB, then you can pick a different input. Typically you will use the Mic on the radio, however if you are using a computer which has a microphone, you may want to use the USB input instead.

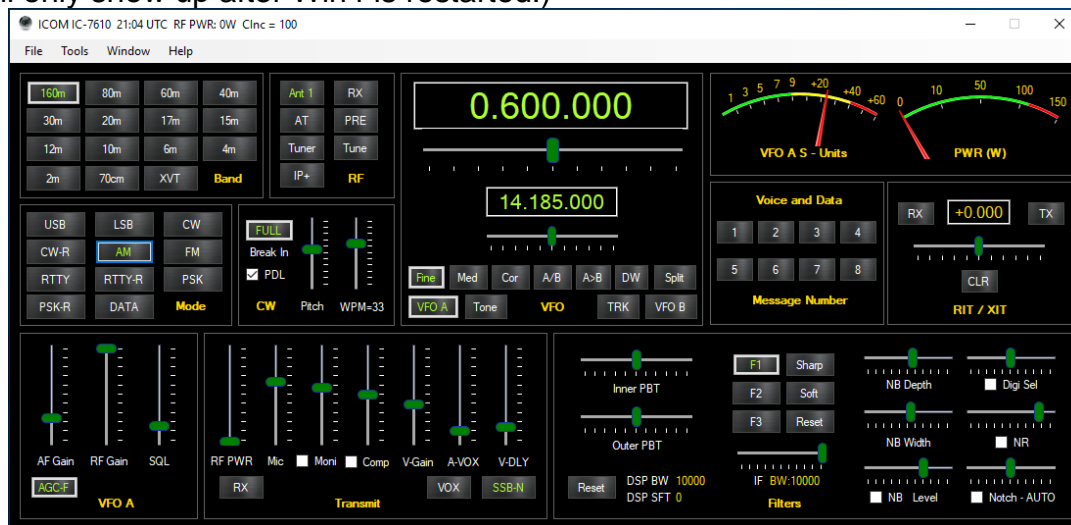
The Input Output levels are typically used to set the necessary levels for any software such as WSJT-X. The defaults usually work fine.

## Customizing the Appearance

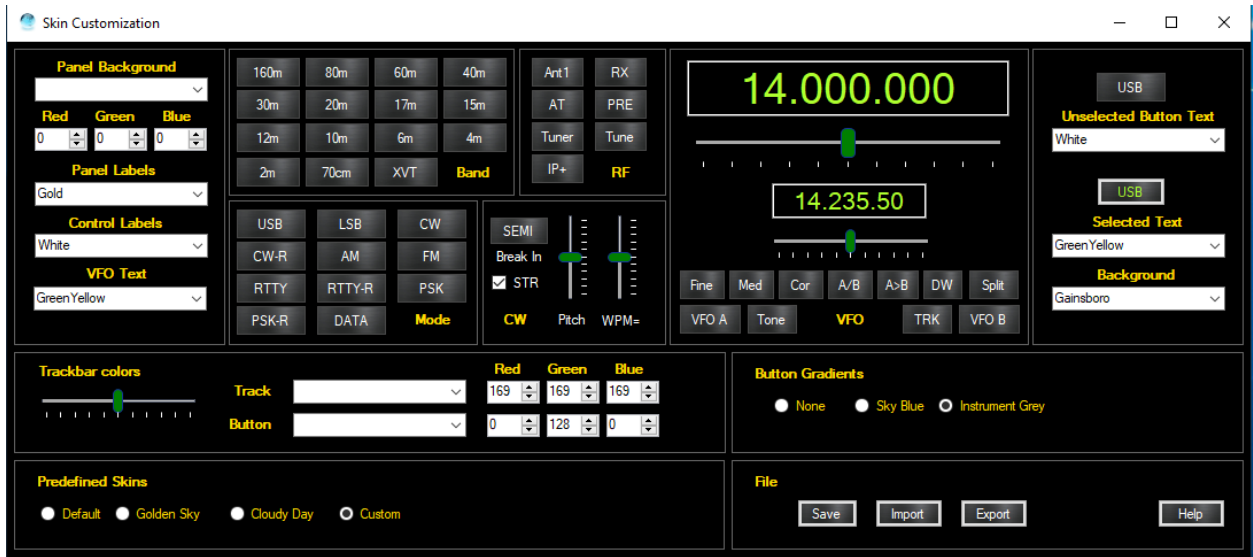
New in version 1.210, it is now possible to modify the appearance of Win4Icom. If you select Tools, Settings, you will see a button called Modify Skins and Colors in the User Preference section. Pressing this will result in the appearance of the following screen:



The central section of this screen provides a typical view of a control window in “Win4” products (i.e. Win4K3, Win4Icom, and Win4Yaesu). Along the sides and the bottom are options that you can change that will affect how the product looks. A good starting point is to select one of the predefined skins such as Golden Sky or Cloudy Day. This will give you an idea of how the product can be changed. The following picture shows the Cloudy Day skin: (Please note that any changes will only show up after Win4 is restarted.)



As you can see from this screen shot there are a number of changes. The buttons themselves now use a gradient called Instrument Grey and the colors of the selected and unselected button text have been changed to Green and Black. In most cases starting from a predefined skin is a good starting point. If you wish to change any element of this, if you now click on “Custom” in the lower predefined skins box you will see the following:



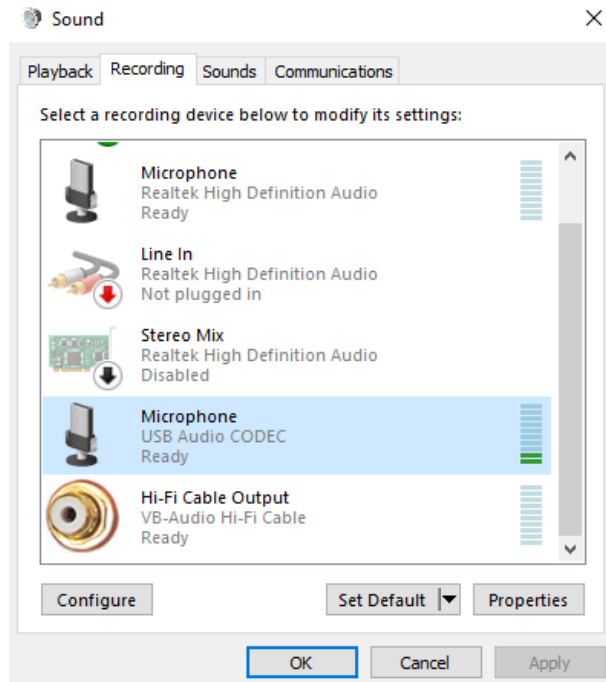
Notice how some of the combo boxes are now populated with the colors. Any of these can now be changed to reflect your preference. For the Panel background and the trackbar colors however, the Red Green and Blue values will be populated. This allows a much finer degree of customization. For example, in the above picture the Trackbar Button is set at a value of 128 for the green channel. Increasing this value will result in a brighter green. Decreasing it a lower intensity green. You can apply the same idea to a Panel Background. If you find a color you like, you can make it brighter or dimmer by adding or removing values to each of the Red Green and Blue values equally. Note that the R, G, B values ultimately override any color names that you may select from the Combo Boxes. The names are just starting points.

Once you are complete, you can then save the custom skin or export it or import one. Please remember that changes will only occur when Win4 is restarted.

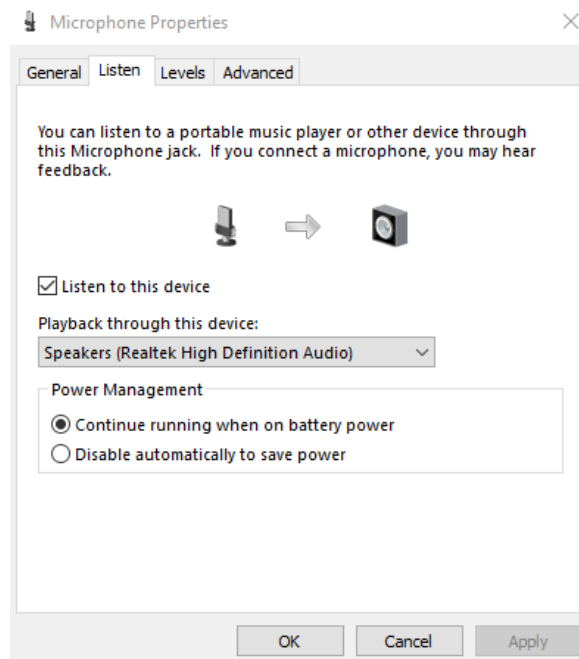
## Working with the Radio's Built in Sound Card

It is possible to hear the sound output on your radio for the radios that have built in sound devices on their USB ports.

Open the Windows Control panel and select Sound, Recording. You will see something similar to the following:



Select the USB Audio Codec that corresponds to your radio and click “Properties”. Next click on the “Listen” tab and check “Listen to this device” and then select where you want the playback directed as in the following:



Click apply and the OK and you sound will come out through you computer speakers.



## Troubleshooting

If you are having issues the first place to look is in the FAQ section on the website:

<http://icom.va2fsq.com/frequently-asked-questions/>

Next, if the issue concerns the spectrum scope for the SDRPlay or third party connectivity please check out the video tutorials at:

<http://icom.va2fsq.com/video-tutorials/>

If you are having difficulty with perceived stability, in all cases this can be traced down to RFI or the USB ports being put into a low power state which can occur after a period of time when you have not interacted with the computer. Please see the section on RFI on page 8 of this manual. I cannot emphasize this enough that you need an FT240-31 on your USB cable.

### Use with a MAC computer

It is possible to use a MAC computer running Bootcamp, Parallels or VMWare. For Bootcamp, things are the same as a pure Windows computer.

For Parallels and VMWare, the Com Ports derive from the MAC OS, so you need to enable them or install them there first. You then connect to them in the virtual Windows machine. COM0COM however, does not work in the MAC session. It can be installed in the Windows session.

However, if you want to connect using COM0COM to a MAC program it can be done. It is quite tricky though and you need to have a firm understanding of serial ports etc. Basically what you need to do is install 2 additional physical serial ports on the MAC. You connect to one of these using Win4Icoms 3<sup>rd</sup> party connectivity AUX CAT port and then on the MAC side, you connect to the other serial port with your MAC logging program. However, you then need a null mode cable between the two serial ports on the MAC. Get it?

