

## FIELD DAY CONTACT SUGGESTIONS: FT8/FT4

### Alachua County ARES(R) / NFARC

REVISED: 5/31/2022 for 2022 Field Day Rules

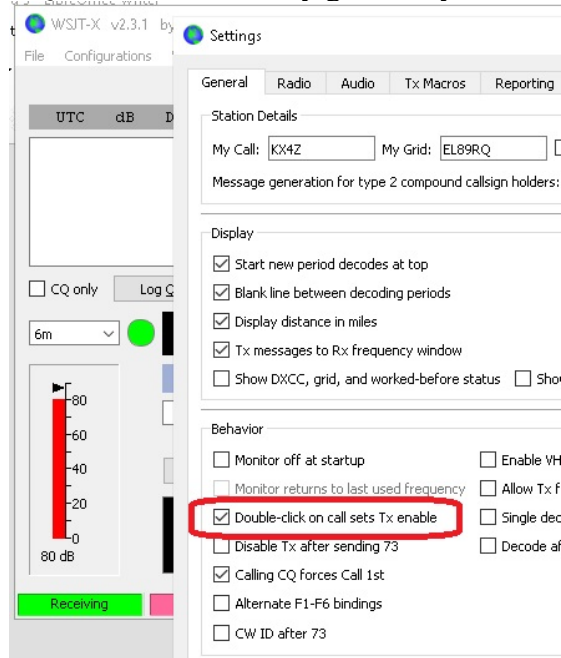
## CONTEST SAVVY OVERVIEW: Two Operating Methods

WSJT-X decodes the entire receiver bandpass at once. Every station listening to a particular 3kHz space can see and decode all of the other stations. You do not have to be on the same exact frequency within the bandpass for the other station to contact you! So generally there is an advantage to putting your own signal in a relatively "clear" portion of the bandpass. The RED bracket shows where you are transmitting, and the GREEN bracket shows the frequency of a station you're conversing with (if you are).

#1. **Hold a frequency and keep calling CQ.** Put your transmitted tone (RED Bracket) in a clear spot.

- in the canned messages, click on the last one, the CQ
- Click "Enable TX" -- it will call CQ continuously.
- Immediately after each completed QSO, re-click to re-enable TX. -- or else UNCLICK the setting "Disable TX after sending 73" -- (FILE | Settings | General ) thus it will keep transmitting a new CQ for you automatically.
- You will probably want **Tx Even/1st** selected so that your CQ is on even time periods.

#2 **Hunt and pounce** on other people calling CQ. Spot CQ's in the (Left) Received pane and double click them to answer. You'll want the program set so that when you double click on their CQline, it automatically gets ready to call them at next available interval:



For Hunt & Pounce you may still wish to keep your transmitted frequency constant in a relatively "clear" spot.

Experience has suggested that if the station calling CQ doesn't reply after a couple of tries, you should MOVE ON to another -- they can't hear you or you are too low in the reply list.

Most stations calling CQ will have "Call 1st" selected to the computer automatically picks the one for them to answer....

**TIME SLOTS** (Odd and Even): There are essentially two time slots in FT8 -- "odd" and "even" based on the last digit of the time stamp. Most people calling CQ will have Tx 1st/Even checked. This is inconsequential if you are hunting and pouncing -- WSJT-X will automatically have your response timed correctly.

### **Deeper Reading**

This is a highlight guide to operating FT8/FT4 in Field day. For more tips:

[https://www.physics.princeton.edu/pulsar/K1JT/FT8\\_Operating\\_Tips.pdf](https://www.physics.princeton.edu/pulsar/K1JT/FT8_Operating_Tips.pdf)

<https://physics.princeton.edu/pulsar/k1jt/wsjt-x-doc/wsjt-x-main-2.2.1.html>

## NITTY GRITTY OPERATING DETAILS

**MOUSE SPEED:** Due to RF interference to touchpads, you are likely going to want to use an external mouse (either wired or wireless to a little dongle). You may need to adjust the POINTER SPEED to your preferences. Click the Windows icon lower left edge of screen, then the starburst SETTINGS icon; type in the search window "mouse speed" and it will take you to dialog boxes where you can set the pointer speed, size etc.

**WHEN YOU TAKE OVER:** Enter yourself as the operator into the Logging System -- click "Operator" and enter call and initials:

www.n3fjp.com

Operator

Class	Sec	Date / Time	End	Mode	Country	Initials
1D	SF	06/28 17:01	40	DIG	USA	LG
3D	NC	06/28 17:00	40	DIG	USA	LG
1E	AL	06/28 16:59	40	DIG	USA	LG
1E	GA	06/28 16:53	40	DIG	USA	LG
1D	TN	06/28 16:47	40	DIG	USA	LG
1D	NC	06/28 16:44	40	DIG	USA	LG
1D	NFL	06/28 16:40	40	DIG	USA	LG
1E	NC	06/28 16:38	40	DIG	USA	LG
1D	NC	06/28 16:36	40	DIG	USA	LG

Operator: W4UFL  
Initials: JC  
Done

Warning! Please select your band and mode from the menu!  
Warning waiver rule enabled (from Settings).

**Set your BAND and MODE** -- Click on BAND to pick the band, and click on MODE to select DIGITAL. THIS IS IMPORTANT to correct avoid DUPLICATES.

**All digital contacts (FT8/FT4/RTTY/PSK31 etc) are equivalent.** Only CW and SSB are different modes. Once you contact a station on FT8 on a particular band, you can't also contact that station on PSK31 or RTTY

We use TWO pieces of software to allow semi-automated logging which makes it very, very easy.

1. Get **N3FJP Field Day Contest Log** started on your computer. (It should have already been properly configured so you don't have to configure anything.) If you click on NETWORK you can see all the stations listed and what bands/modes they are currently using, as a check on your connection.

2. Get **WSJT-X** (provides FT8/FT4 coding/decoding) started on your computer. Click to select your BAND -- the computer will automatically put your radio on the correct starting frequency. (You can wander a bit as discussed below if the bands are completely chock full)

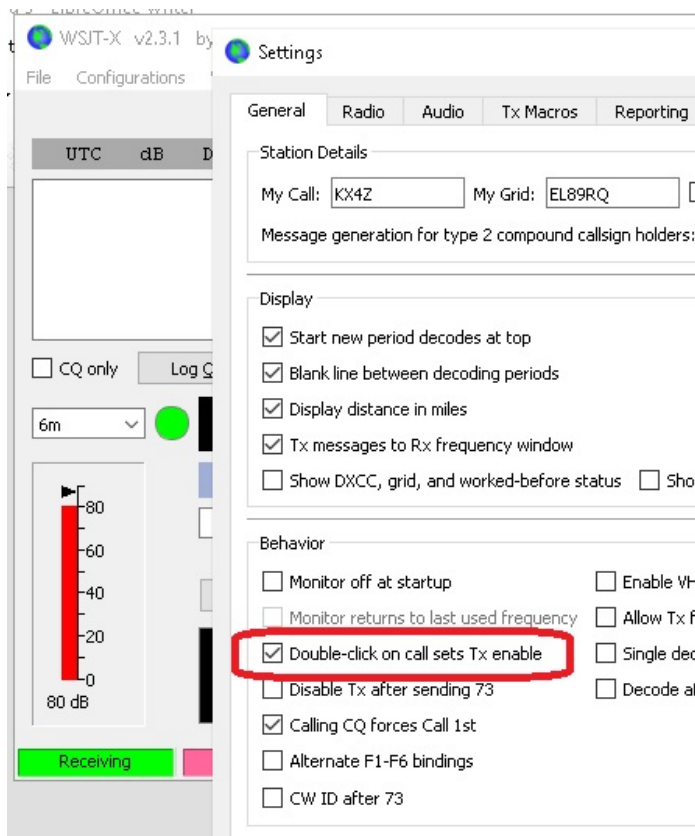
**Bring WSJT-x to the front, you'll be using it for almost everything.**

Select your mode, generally FT8 or FT4. During Field Day 2020 we saw much more usage of slower FT8 instead of faster FT4, and generally "spilling out" of their normal 3kHz widths a bit.

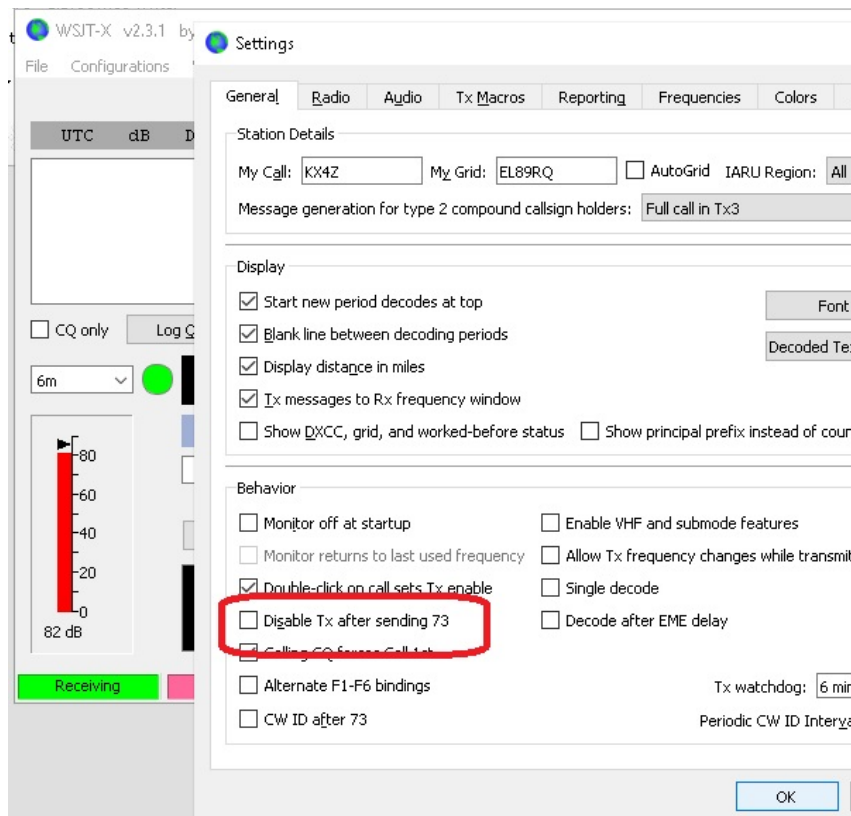
**PUT YOUR TRANSMITTER ON A CLEAR SPOT SOMEWHERE:** Where in the bandpass you will transmit is shown by the RED bracket. SHIFT-LEFT CLICK to set the RED (transmit) bracket on a clear spot. If the entire band is full, you may have to move the transmitter dial 500Hz lower or maybe a kHz or 2 higher to get more room.

## Basic WSJT-X Application Settings That Will Help You

- **TX even/1st** -- of benefit if you are calling CQ. Irrelevant if you are hunting and pouncing. 1 generally click to select HOLD TX FREQUENCY. Everyone decodes their entire passband, so if you are in their passband, they will decode you. **More important to keep your transmitter at a CLEAR SPOT.**
- **Hold Tx Frequency** -- a good idea to find a CLEAR TX (red bracket, SHIFT-leftclick) FREQUENCY and stay there.
- **Auto Seq** -- generally you want it autosequencing the contact info for you
- **Call 1st** -- if you are calling CQ this chooses the first-decoded to respond to.
  
- **"Double Click on a Station Enables TX":** will make hunting and pouncing a lot easier: Setting so that if you double click on a station calling CQ, it automatically enables TRANSMIT to answer them: FILE | Settings | General



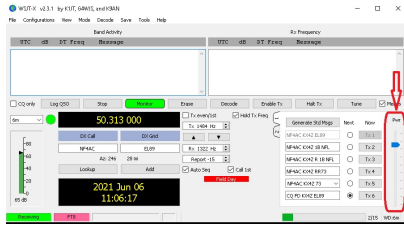
- **Allow Immediate Retransmit** -- UNCLICK the Disable TX after sending 73 will likely be your plan if you are calling CQ.



Setting up the Transmitter:

ICOM SETTINGS FOR FT8/FT4 WSJT-X		
ITEM	CHOICE	COMMENT
<b>MODE</b>	Select USB-D. Touch the current mode (USB LSB, whatever it is) on the screen and you'll get the options	Software should do this for you if set for RIG = ICOM 7300. CATControl: Serial Port chosen correctly. (CHECK USING DEVICE MANAGER IF NOT WORKING) Baud rate 9600 and defaults work, (The 7300 auto-bauds, so some will be set for 115200) <b>Polling interval 2 seconds for 9600, 1 sec for faster.</b> PTT Method CAT MODE: Data/Pkt Split Operation: Fake It
To get a solid tone:	Use TUNE button on WSJT-X	

2022 Field Day limit is 100 watts -- you want to set the radio for 100 and adjust your modulation for slightly less than that digitally, to ensure LINEAR operation. Normally there shouldn't be any or only a slight bit of "ALC" indicated.

TYPICAL POWER SETTINGS		
<p><b>Total Output Power</b></p>	<p>2022 Field Day limit is 100 watts.</p> <p>Our inexpensive power meters are only accurate when the antenna tuner is TUNED and presents a reasonably 50 ohm load. .</p>	<p>This is the power class we are using for our operation.</p> <p>Our power measurements are inexact and only accurate when the TUNER is tuned to present 50 ohms to the station.</p>
<p>Amplifier? We will not normally need one.</p> <p>In that case, set the 7300 for 100 watts output, adjust your modulation for about 80% of that and occasionally watch the temperature display of the power amplifier..</p>		<p>ASSUMING WSJT-X PWR SLIDER (right hand side of software) = 0 dB</p>  <p>ASSUMING ICOM 7300 USB MOD Level = 50%</p>

## TYPICAL TUNE UP SEQUENCE

This is much easier in 2022 because we usually don't need an amplifier so all we have to do is get the antenna tuner adjusted, set the modulation and power levels, and we're good.

(Try to do this with your transmitted signal in a clear spot so you don't QRM other users)

❑ **Tune the Antenna Tuner** using the Icom 7300 alone. (Press "TUNER" button on Icom 7300.) Now the station sees 50 ohms looking into the antenna tuner, and power measurements will be reasonably accurate. .

❑ **Check for Linear Operation:** Generate a steady signal from the transceiver by using the TUNE button on your WSJT-X application:



❑ With the 7300 set for 100 watts nominal output, **Adjust the modulation level so that the 7300 output power level = approx 80 watts, or 80% shown on the 7300 output power measurement. .** (You can adjust the 7300 output power in real time while sending a tone.) *In FT8/FT4 from then on your power will remain pretty constant. The ALC display should show little to no ALC in use with these adjustments.*

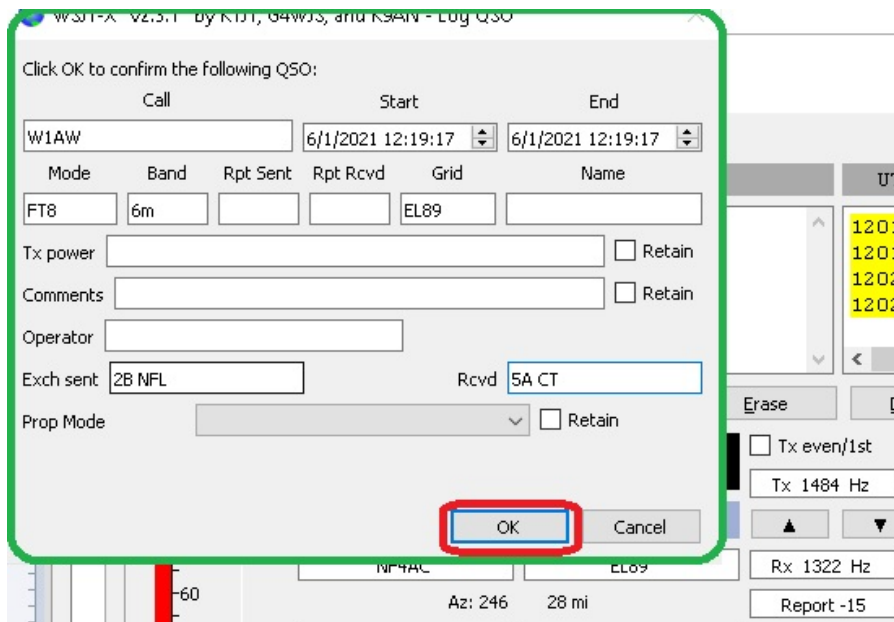
❑ Proceed to make FT8/FT4 contacts normally.



## Logging

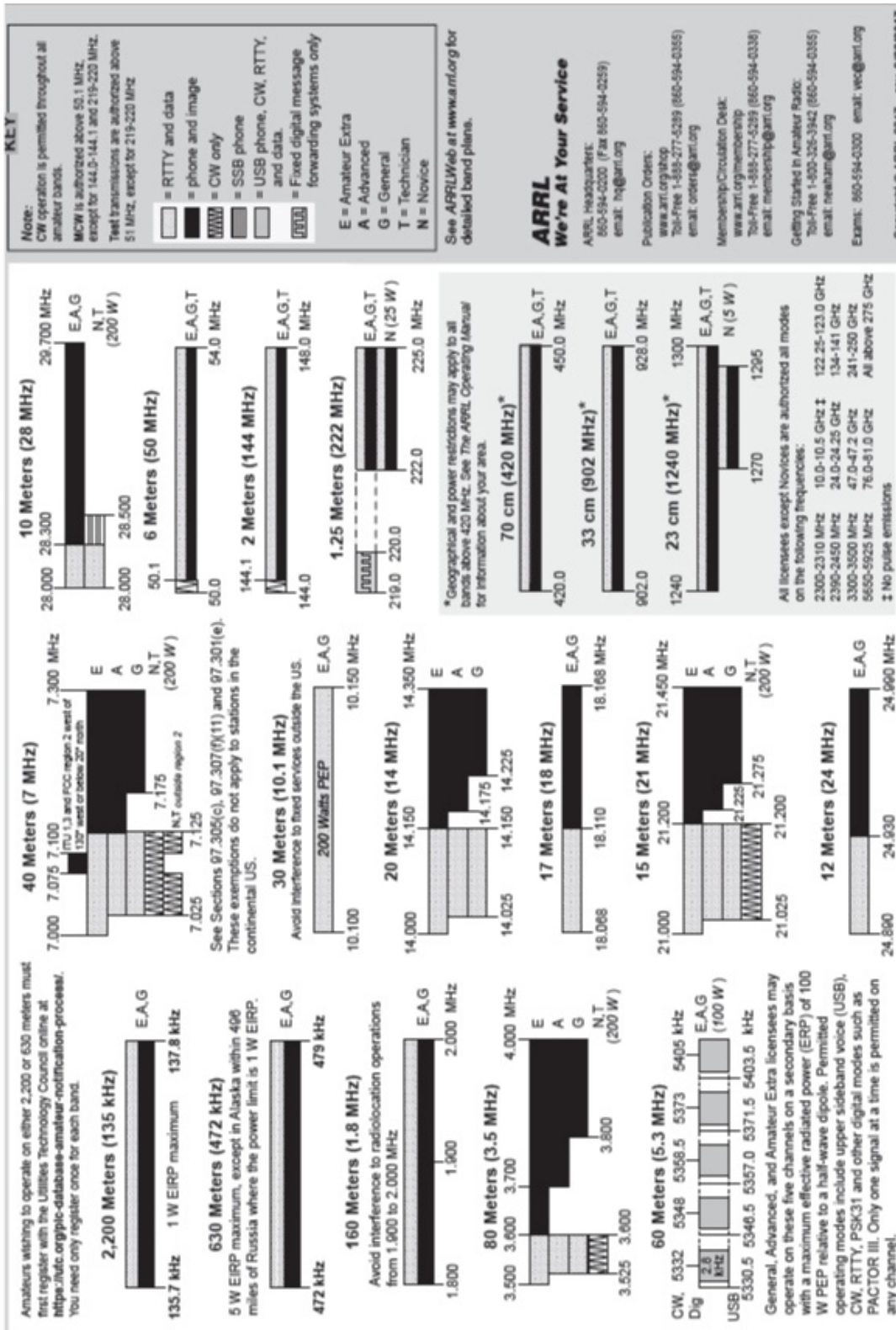
We have the WSJT-X software connected via a tcp/ip "port" to the N3FJP software so that it will automatically log each completed contact. (This can be changed to require you to confirm, but experience showed it was not necessary.) You can arrange your views to allow you to see the logging software on the same or a 2nd screen and watch them get added.

Back when we used the confirmation system, it looked like this:



Click OK if the call and exchange look properly filled in. You should quickly get a confirmation that the contact has been logged in our system. It will also be maintained in WSJT-X's internal contest log.

# FCC SUBBANDS



**KEY**

Note: CW operation is permitted throughout all amateur bands.  
 MCW is authorized above 50.1 MHz, except for 144.0-144.1 and 219-220 MHz.  
 Test transmissions are authorized above 51 MHz, except for 219-220 MHz.

□ = RTTY and data  
 ▨ = phone and image  
 ▩ = CW only  
 ▪ = SSB phone  
 ▫ = USB phone, CW, RTTY, and data.  
 ▬ = Fixed digital message forwarding systems only

E = Amateur Extra  
 A = Advanced  
 G = General  
 T = Technician  
 N = Novice

See ARRLWeb at [www.arrl.org](http://www.arrl.org) for detailed band plans.

**ARRL We're At Your Service**  
 ARRL Headquarters:  
 660-594-0000 (Fax 660-594-0259)  
 email: [hq@arrl.org](mailto:hq@arrl.org)

Publication Orders:  
[www.arrl.org/shop](http://www.arrl.org/shop)  
 Toll-Free 1-888-277-5259 (660-594-0355)  
 email: [orders@arrl.org](mailto:orders@arrl.org)

Membership/Circulation Dept:  
[www.arrl.org/membership](http://www.arrl.org/membership)  
 Toll-Free 1-888-277-5259 (660-594-0338)  
 email: [membership@arrl.org](mailto:membership@arrl.org)

Getting Started in Amateur Radio:  
 Toll-Free 1-800-326-3942 (660-594-0355)  
 email: [news@arrl.org](mailto:news@arrl.org)

Exam: 660-594-0300 email: [vec@arrl.org](mailto:vec@arrl.org)

Copyright © ARRL 2017 rev. 9/22/2017