

Working DX With FT8

Some Tips and Best Practices

DX Without Spending a Fortune

- Good Success with 100 watts or less
- Success with basic antennas, dipoles, OCF, verticals
- Less need for highly rated receiver performance
- Less pileup frustration
- A Boon for little pistols
- Good option for non-CW ops



Set Goals

- Simple, Huge Motivator to get on the air
- DXCC - 100 Countries
- DXCC - Digital Only
- DXCC - Single Band
- 5 Band DXCC

Setting goals sets a purpose for getting on the air and making contacts



Requirements

- HF Transceiver
- Any Working HF Antenna
- A PC, and Radio Interface
 - Beyond the scope of this presentation
 - Covered in previous presentations
- WSJT-X Software loaded on PC
- A desire to work DX
 - DXCC
 - 5BDXCC
 - Contests



Assumptions

- This is not an in-depth How to Use WSJT-X tutorial
- Familiar with using and making contacts on FT8
- PC for WSJT-X Meets their minimum requirements
- This probably isn't new info for everyone



Use WSJT-X Features to Your Advantage

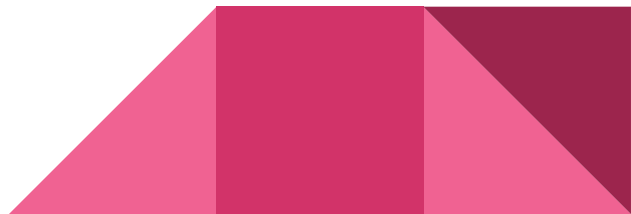
- Color Coding
- Automatic Logging
- Linked to PSK Reporter (a big one)
- Fox/Hound Mode (and now Super Fox/Hound)
- Using the waterfall for choosing transmit frequency



Color Coding

WSJT-X has color coding capabilities built-in. Basic default color coding is good, but can be customized to your liking (or adapted for color blindness).

- Stations Calling CQ Green
- Stations calling YOU are Red
- New Countries and Continents on current band are pink and dark pink
- New Countries are Dark Violet
 - Determined by WSJT-X internal log. It doesn't know what countries you've already worked on other modes. For most people, this is OK.



Color-Coding con't

Add on programs can use this internal WSJT-X info

- HRD Alert
- JT Alert (problematic for me, not sure why)

Additional features like alarms, audio alerts, email alerts, etc



Logging

WSJT-X has internal logging, and it can also be setup to communicate with many [logging programs](#) to make logging effortless.



PSK Reporter

WSJT-X can be setup to automatically report signals heard to [PSK Reporter](#), which is very helpful for working DX

- Can see what stations are also reporting
- Can see what stations are receiving your signal (and reporting to PSK Reporter)
- Excellent way for judging propagation
- Live Grey line map



General Radio Audio Tx Macros Reporting Frequencies Colors Advanced

Logging

 Prompt me to log QSOOp Call: Log automatically (contesting only) Convert mode to RTTY dB reports to comments Clear DX call and grid after logging

Network Services

 Enable PSK Reporter Spotting Use TCP/IP connection

UDP Server

UDP Server: Accept UDP requestsUDP Server port number: Notify on accepted UDP requestOutgoing interfaces: Accepted UDP request restores windowMulticast TTL:

Secondary UDP Server (deprecated)

 Enable logged contact ADIF broadcastServer name or IP address: Server port number:

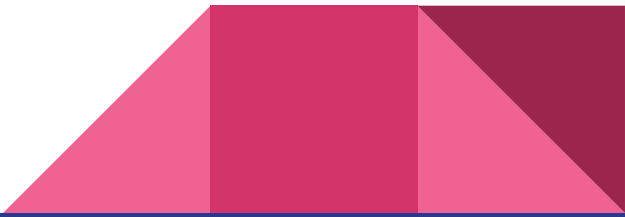
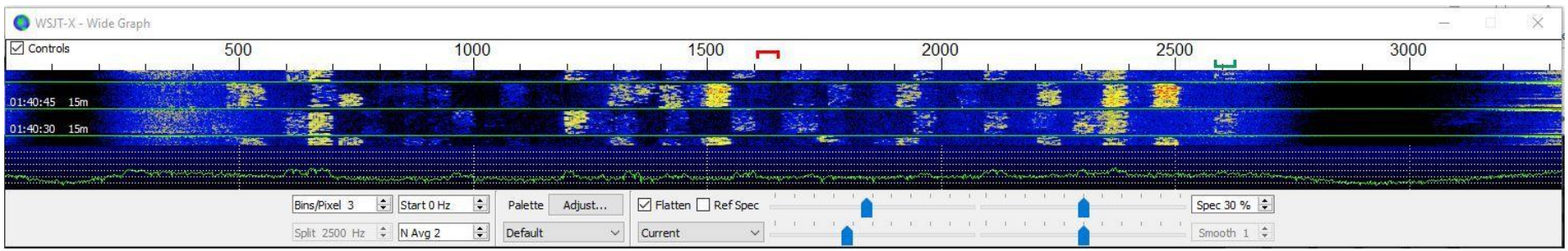
OK

Cancel


Choosing Transmit Frequency

- Despite many who think FT8 is completely automated, operator must constantly observe the waterfall and look for open slots. If not, your signal is likely QRMIing with another, and DX station probably won't decode your signal
- Generally, don't transmit on same frequency as station you are calling. In some cases, it may be helpful.





Traditional DX Tips that still work for FT8

- Monitor / listen for stations see/heard in WSJT-X interface - hour to hour, day to day, month to month. It changes and you can see it.
 - Grey line propagation becomes intuitively obvious
 - Time of day - right bands for parts of the world you want to work
 - Angle of grey line changing with seasons
 - Use DX clusters / DX spots. FT8 stations are listed
 - DX News, DX Peditions - pay attention!
 - QST, CQ Mag, Etc
 - ARRL DX Bulletins
 - DX Websites
 - ClubLog
- 

Special Operating Modes for FT8

- Some DX Stations, and especially DXPeditions use special operating modes, like Fox/Hound (AKA DXPedition Mode) or MSHV (Multi Stream HV??)
 - Similar, but different
 - Allows DX station to work multiple stations at once / FT8 pileup
 - MSHV requires no changes in operating for stations calling the DX
 - Fox/Hound mode does require change (more ahead)
- They should always operate on something other than standard FT8 frequencies
 - If you have a waterfall on rig, look for signals near the standard FT8 freqs, and watching for the 13/15 second periods that are identical.
 - Look up DXPedition website/info for operating plans

New - Super Fox/Hound Mode

- Currently Available as a release candidate version of WSJT-X
- Expect official release soon
- For DXpeditions
 - Higher QSO rate
 - Verification system to deter pirates
- No Need to XMIT above 1000Hz
- WSJT-X looks mostly the same
- Fox station transmits around 750 Hz on waterfall
- Series of short tones that change frequency
- Can switch between Super Hound and regular hound mode
 - Right click on the H



Band Activity				Rx Frequency			
UTC	dB	DT Freq	Message	UTC	dB	DT Freq	Message
193830	-6	0.1 798 ~	WD0FAA TX5S -05	192045	16	-1.3 824 ~	DK5IR W8ZBR -11
193830	-7	0.1 858 ~	KN6HIP TX5S -18	192115	16	-1.3 823 ~	DK5IR W8ZBR -11
193830	-16	0.1 2339 ~	CQ W9RTB EN51 U.S.A.	192145	20	-1.3 823 ~	DK5IR W8ZBR RR73
----- 10m				192315	24	-1.3 823 ~	CQ W8ZBR EM97 U.S.A.
193900	-4	0.1 738 ~	N2US RR73; K6ZP <TX5S> -10	192345	19	-1.3 823 ~	CQ W8ZBR EM97 U.S.A.
193900	-4	0.1 678 ~	KN6HIP RR73; K2VPX <TX5S> -10	192415	22	-1.3 822 ~	F4GUK W8ZBR -17
193900	-3	0.1 618 ~	KI7N RR73; W1FJ <TX5S> +00	192445	18	-1.3 822 ~	F4GUK W8ZBR -17
193900	-5	0.1 798 ~	WD0FAA RR73; PY5HOT <TX5S> -16	192515	23	-1.3 822 ~	F4GUK W8ZBR RR73
193900	-5	0.1 858 ~	K2KN TX5S -24	192630	-18	0.1 823 ~	CQ EA5JKX IM99 Spain
----- 10m				192645	-2	1.1 824 ~	3W3B W7GEM -23
193930	-2	0.1 678 ~	K2KN RR73; PY5HOT <TX5S> -16	192700	-20	0.2 823 ~	CQ EA5JKX IM99 Spain
193930	-3	0.1 738 ~	K2VPX RR73; N8OL <TX5S> -24	192715	-4	1.1 824 ~	3W3B W7GEM -23
193930	-2	0.1 618 ~	HC3RJ RR73; K6ZP <TX5S> -10	192815	19	-1.2 823 ~	XV9T W8ZBR EM97
193930	-3	0.1 798 ~	W1FJ RR73; W4PF <TX5S> -12	192845	19	-1.2 823 ~	XV9T W8ZBR EM97
193930	-3	0.1 858 ~	KE6TT TX5S +00	192915	18	-1.2 823 ~	XV9T W8ZBR EM97
----- 10m				192945	18	-1.2 823 ~	XV9T W8ZBR R-12
194000	-2	0.1 678 ~	KE6TT RR73; W6MSB <TX5S> -08	193015	19	-1.2 823 ~	XV9T W8ZBR R-12
194000	-1	0.1 618 ~	K6ZP RR73; PY5HOT <TX5S> -16	193045	14	-1.2 822 ~	XV9T W8ZBR R-12
194000	-3	0.1 739 ~	N8OL RR73; K6VVK <TX5S> +12	193345	15	-1.3 822 ~	XV9T W8ZBR R-12
194000	-4	0.1 798 ~	W4PF TX5S RR73	193815	Tx	2329 ~	G8IXM K2AS FN13
----- 10m				193849	Tx	2329 ~	TX5S K2AS FN13
194030	4	0.1 738 ~	W6MSB TX5S RR73	193915	Tx	2329 ~	TX5S K2AS FN13
194030	5	0.1 678 ~	PY5HOT TX5S RR73	193945	Tx	2329 ~	TX5S K2AS FN13
194030	4	0.1 798 ~	W4PF TX5S RR73	194015	Tx	2329 ~	TX5S K2AS FN13
194030	6	0.1 618 ~	K6VVK TX5S RR73	194045	Tx	2329 ~	TX5S K2AS FN13

Log QSO Stop Monitor Erase Decode Enable Tx Halt Tx Tune Menus

10m S 28.091 000 Tx even/1st

Tx 2329 Hz

FT8 TX5S Rx 819 Hz

FT4 Report -21

MSK

Q65 2024 Jan 23
19:41:02 Rx All Freqs

JT65 Auto Seq Hound

Generate Std Msgs

Next	Now	Pwr
<input checked="" type="radio"/>	<input type="radio"/>	
<input type="radio"/>	<input type="radio"/>	
<input type="radio"/>	<input type="radio"/>	
<input type="radio"/>	<input type="radio"/>	
<input type="radio"/>	<input type="radio"/>	
<input type="radio"/>	<input type="radio"/>	
<input type="radio"/>	<input type="radio"/>	

Operating as Hound in Fox/Hound Mode

- Hard way - go to [File > Settings > Advanced Tab > Select Special Operating Activity > then select Hound](#)
- Easy way - [click the small H near the receiving signal bar graph](#)
- Find a transmit slot above 1000Hz on the waterfall (not needed in Super Hound)
- Ensure you can hear/decode the DX station first
- You must transmit when the DX station is listening - should be by default, but I've seen people calling the DX station while the DX station is also transmitting.
- Answer DX station CQ as normal (double-click), or enter DX call in the DX Call field and then click Generate Std msgs
- Typically, only two messages are used
- When DX station answers, QSO will commence. Your transmit frequency will automatically move to a spot below 1000Hz on waterfall. Pay no attention to it. This is normal. Wait for 73 from DX station

Settings

General Radio Audio Tx Macros Reporting Frequencies Colors Advanced

JT65 VHF/UHF/Microwave decoding parameters

Random erasure patterns: 6

Aggressive decoding level: 0

Two-pass decoding

Miscellaneous

Degrade S/N of .wav file: 0.0 dB

Receiver bandwidth: 3000 Hz

Tx delay: 0.2 s

Tone spacing

x 2 x 4

Waterfall spectra

Low sidelobes Most sensitive

Special operating activity

Fox Hound

NA VHF ARRL Field Day FD Exch: 1D WNY

EU VHF Contest FT Roundup FT RU Exch:

WW Digi Contest ARRL Digi Contest

CQ with individual contest name Contest name: PACC

OK Cancel

Band Activity					Rx Frequency				
UTC	dB	DT	Freq	Message	UTC	dB	DT	Freq	Message
193645	-12	0.1	1784	~ TX5S W9WF EML0	191845	-1	0.3	826	~ VK9DX W6KR CM97
193645	-9	0.2	2009	<TX5S> LW2EDM/D	191915	-6	0.3	825	~ VK9DX W6KR R-15
193645	-15	0.1	618	~ TX5S W4MAL EM64	191945	-5	0.4	825	~ VK9DX W6KR 73
193645	-21	0.1	2738	~ TX5S AJ4F EL29	191945	-5	-1.3	823	~ CQ W8ZBR EM97 U.S.A.
193645	1	0.1	2205	~ TX5S FY9QW GG54	192000	-10	0.1	822	~ W8ZBR WU4ING EN16
193645	-6	0.8	2052	~ TX5S LU2NI FG72	192015	14	-1.3	823	~ CQ W8ZBR EM97 U.S.A.
193645	-15	0.2	1349	~ TX5S LU8DRH FF81	192045	16	-1.3	824	~ DK5IR W8ZBR -11
193645	-9	0.1	1425	~ TX5S W5UQ EM20	192115	16	-1.3	823	~ DK5IR W8ZBR -11
193645	5	0.1	1705	~ TX5S K5PA DM93	192145	20	-1.3	823	~ DK5IR W8ZBR RR73
193645	-12	0.0	1940	~ TX5S KN6HIP CM97	192315	24	-1.3	823	~ CQ W8ZBR EM97 U.S.A.
193645	-19	0.1	2464	~ TX5S K6EV DM14	192345	19	-1.3	823	~ CQ W8ZBR EM97 U.S.A.
193645	-16	0.1	2339	~ CQ W9RTB EN51 U.S.A.	192415	22	-1.3	822	~ F4GUK W8ZBR -17
193645	-7	0.0	1134	~ TX5S PY2RPL GG66	192445	18	-1.3	822	~ F4GUK W8ZBR -17
193645	-6	0.6	1514	~ TX5S PY2DMZ GG56	192515	23	-1.3	822	~ F4GUK W8ZBR RR73
193645	-8	-0.9	1516	<TX5S> KH6/WOZT	192630	-18	0.1	823	~ CQ EA5JKX IM99 Spain
193645	-16	0.1	1502	~ TX5S KF7NP DM33	192645	-2	1.1	824	~ 3W3B W7GEM -23
193645	-21	0.2	678	~ TX5S AD8J R+08	192700	-20	0.2	823	~ CQ EA5JKX IM99 Spain
193645	-23	0.1	2358	~ TX5S N9PGG FM05	192715	-4	1.1	824	~ 3W3B W7GEM -23
----- 10m -----					192815	19	-1.2	823	~ XV9T W8ZBR EM97
193700	1	0.1	678	~ K4XP RR73; K1NY <TX5S> -08	192845	19	-1.2	823	~ XV9T W8ZBR EM97
193700	2	0.1	618	~ AD8J RR73; YV1SW <TX5S> -24	192915	18	-1.2	823	~ XV9T W8ZBR EM97
193700	0	0.1	738	~ N1EEK RR73; N3DLL <TX5S> -24	192945	18	-1.2	823	~ XV9T W8ZBR R-12
193700	-1	0.1	858	~ AI7CR TX5S -22	193015	19	-1.2	823	~ XV9T W8ZBR R-12
193700	-1	0.1	798	~ K3QB TX5S -22	193045	14	-1.2	822	~ XV9T W8ZBR R-12
193700	-16	0.1	1397	~ TX5S YS1GMV EK53	193345	15	-1.3	822	~ XV9T W8ZBR R-12

Log QSO Stop Monitor Erase Decode Enable Tx Halt Tx Tune Menus

10m S 28.091 000 Tx even/1st
 Tx 2641 Hz
 ▲ ▼
 Rx 819 Hz
 Report -21
 Rx All Freqs
 Auto Seq
Hound

H DX Call DX Grid
 FT8 G8IXM JO02
 FT4 Az: 50 3516 mi
 MSK Lookup Add
 Q65
 JT65

2024 Jan 23
19:37:13

Generate Std Msgs Next Now Pwr

G8IXM K2AS FN13	<input checked="" type="radio"/>	Tx 1
G8IXM K2AS -21	<input type="radio"/>	Tx 2
G8IXM K2AS R-21	<input type="radio"/>	Tx 3
G8IXM K2AS RR73	<input type="radio"/>	Tx 4
G8IXM K2AS 73	<input type="radio"/>	Tx 5
CQ TEST K2AS FN13	<input type="radio"/>	Tx 6

F/H or MSHV?? How Do I know?

- Monitor QSOs on DXPedition frequency. If multiple calls listed on a line, they are using one of these two modes.
- Go to DXPedition QRZ page or webpage (most have them). Look up their operating plan. They will usually indicate if they are using one or the other
- If not finding their mode, operate as Hound. It will still work with DX station in MSHV mode.



QSLing/Confirming

- Logbook of the World
 - A bit of a pain to get signed up and using, but 60-75% of your DX QSOs will be confirmed with little effort
- ClubLog OQRS
 - Signup and Use OQRS
 - Need PayPal
 - They will usually send QSL and upload to LoTW for \$4.00 - 6.00
- Go to DX station QRZ.com page
 - Their QSL info often is there
 - Maybe a QSL manager
 - Direct PayPal payment to cover QSL cost/mailing
- Worst case scenario - Direct mail QSL with SAE and cash



Other Tips

- Watch PSK Reporter, look for stations reporting. They may just have radio on and automatically sending info, but, one time I saw a station reporting from a south pacific island that was a new one for me. He wasn't active on the frequency, calling CQ or anyone. I put his call in WSJT-X and started calling him. Sure enough, he came back to me in a couple minutes. He must have been by his radio, saw the RED color code of me calling him, and responded.
- Uncheck Show Only Stations CQing. Many DX call CQ once and get responses continuously for quite a while. Seeing all stations on the rcvd display helps see any DX on freq
- Watch the daylight/night areas on PSK Reporter. I had recently seen both Laos and Vietnam on 15 meters around 7PM to 9PM EST, which was morning over there. They weren't on very long and I missed them. On subsequent days, around the same time, I watched the daylight line on PSK Reporter and checked to see if any stations were reporting from either of those two countries. Sure enough, the Laos station started reporting a little after sunrise there, and came on the air a short time later. I haven't worked him yet, as propagation isn't always there, but I am seeing his routine!

Create a Pileup?

Recently, I was on 40 meters FT8 around 0430 UTC. I called a couple of stations who were calling CQ. Suddenly, I started getting calls out of nowhere.

In 25 minutes, I made about 23 contacts with mostly European stations who just kept calling me. I never called CQ. I wanted to go to bed, but they wouldn't leave me alone!!

Here is a short video of my FT8 screen



