

Tips for FT8 Fox Operation

by Uwe, DG2YCB



German Amateur Radio Station

DG2YCB

FM, AM, SSB, ATV, SSTV, Digital Modes



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Tips for FT8 Fox Operation

- 1. Experience!**
- 2. Which Program?**
- 3. Time synchronization of your PCs**
- 4. Fox Operation**
- 5. Logbook**
- 6. What else?**

Tips for FT8 Fox Operation

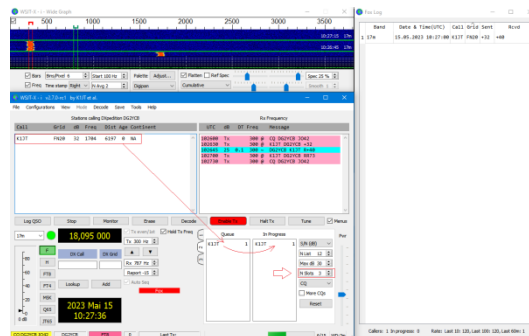
1. Experience!

- If someone has never worked with WSJT-X or similar programs and thinks he can/should become active as a Fox operator, I say: Forget it!
- First gain **at least 3 months of intensive experience with FT8**, etc.
- Check out the WSJT-X User Guide and the various other publications on F/H mode, also check out some of the various "FT8 tutorials" you can find on YouTube, and then just try it out intensively yourself.
- "Learning by doing" is essential here. As I said, in my opinion at least 3 months intensive, better 1-2 years.
- And then ask questions, even to me.

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2. Which Program?

- I recommend [WSJT-X](#) or for you specifically the extended [wsjt-x improved for Fox operators](#) variant.
- Why? Because the WSJT-X program family is technically superior to all others.
- Also, the F/H mode is technically better than MSHV Multi-streaming.
- More details are available verbally, it would take us too far here.



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3. Time synchronization of your PCs

- For FT8, etc. a very precise synchronization of the PC time is essential. This must be accurate to ± 0.5 seconds (better $-0.1+0.25s$)!
- **Windows unfortunately cannot natively ensure such a tight tolerance.**
- Many Fox stations completely underestimate this point!
- We even had a DXpedition that did not notice for days that they were transmitting in the wrong time slot because their PC clock was wrong for more than 15 seconds (!).
- Solutions for this are as follows:

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3. Time synchronization of your PCs , Solutions:

- If you have local internet, use the **Meinberg NTP** program. It keeps your PC clock in sync and you don't need to do anything else. You can check the current time deviation of your PC very quickly via <https://time.is/>.
- If you don't have an internet connection on site, **use a GPS module** (available from 10 €) **as your first choice**. With it you can easily keep your PC clock synchronized. This works almost anywhere in the world.
- If you don't have a GPS module either, use a pre-set quartz wristwatch plus the program [JTsync](#). JTsync evaluates the time deviation of the incoming FT8 messages, and you can use it to keep your PC clock in the uncritical range even in remote locations.
- The only condition: You must know roughly (i.e. +/- 2 to max. 10 s) what the correct time is (for this purpose the said quartz wristwatch).

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4. Fox Operation

- Open WSJT-X oder wsjt-x_improved und switch to the Fox Mode.
- **Fox Operation is not allowed on the standard FT8 working frequencies, distance at least 3 kHz!**
- The maximum number of slots depends on your transmitting power. At 100 W typically 2 (max. 3), from 500 W max. 5.
- Click on Enable Tx and you will call as Fox CQ.
- Click on the received stations in the left window. This will put them in the Queue and they will be processed automatically as soon as possible (In Progress).
- Done and on to the next F/H QSO!

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WSJT-X - i - Wide Graph

500 1000 1500 2000 2500 3000 3500

10:27:15 17m
10:26:45 17m

☒ Bars Bins/Pixel 6 Start 100 Hz Palette Adjust... ☒ Flatten ☐ Ref Spec Spec 25 %
☒ Freq Time stamp Right N Avg 2 Digipan Cumulative Smooth 1

WSJT-X - i v2.7.0-rc1 by K1JT et al.

File Configurations View Mode Decode Save Tools Help

Stations calling DXpedition DG2YCB

Call	Grid	dB	Freq	Dist	Age	Continent
K1JT	FN20	32	1704	6197	0	NA

Rx Frequency

UTC	dB	DT	Freq	Message
102600	Tx	300	@	CQ DG2YCB JO42
102630	Tx	300	@	K1JT DG2YCB +32
102645	25	0.1	300	~ DG2YCB K1JT R+40
102700	Tx	300	@	K1JT DG2YCB RR73
102730	Tx	300	@	CQ DG2YCB JO42

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

17m 18,095 000 ☒ Tx even/1st ☒ Hold Tx Freq

Tx 300 Hz Rx 787 Hz Report -15 ☒ Auto Seq

FT8 FT4 MSK Q65 JT65

2023 Mai 15 10:27:36

Queue In Progress

Queue	In Progress
K1JT 1	K1JT 1

S/N (dB) N List 12 Max dB 30 N Slots 3 CQ ☐ More CQs Reset

Fox Log

Band	Date & Time(UTC)	Call	Grid	Sent	Rcvd
17m	15.05.2023 10:27:00	K1JT	FN20	+32	+40

Callers: 1 In progress: 0 Rate: Last 10: 120, Last 100: 120, Last 60m: 1

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5. Logbook

- WSJT-X or wsjt-x_improved has a built-in logbook and also generates a special Fox logbook during Fox operation.
- This should actually already be completely sufficient.
- Of course, everyone is free to use an additional logbook of his choice. These are connected to WSJT-X via UDP and then take over the QSOs fully automatically.

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6. What else?

Anyone who has ever done a DXpedition, fieldday, or general portable operation in remote locations knows that you do well to think about a few essentials beforehand. These include:

- Secure power supply. As PC best a **battery-buffered notebook/laptop**.
- **Protection against RFI (e.g. from the operator next door)**. Very easily RF gets into USB cables and the connection between radio and computer then "suddenly" breaks down again and again unexpectedly. Very important this point. Please test intensively before!
- Enough sleep and a good mood, hi!

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6. What else?

My strong recommendation **before** a DXpedition:

- Download and install WSJT-X or wsjt-x_improved.
- Go to a less used frequency and test everything between you “live” on the air before your DXpedition.
- One goes into Fox mode, the others use Hound mode.
- Then switch roles until everyone is really familiar with the F/H functions.
- Gladly then also ask questions in between!

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Good Luck !

In case of questions or technical issues:

<https://groups.io/g/wsjtgroup/> or
wsjt-devel@lists.sourceforge.net

73 de Uwe, DG2YCB



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