

Pg1

**Teach your Old Radio New
Tricks: Shortwave Radio**
by Kim Andrew Elliott

Pg 3

FT8 Operating Guide
by Gary Hinson ZL2iFB

Pg 5

Product Spotlight: ISOpwr+

Pg 6

Digital Mode Happenings
by Sholto Fisher

Pg 6

Upcoming Events

Introducing the **ISOpwr+**



See Page 5 for details!

Teach your old radio new tricks: **SHORTWAVE RADIO**
Text and images via analog radio



Original Flyer created by: Kim Andrew Elliott KD9XB

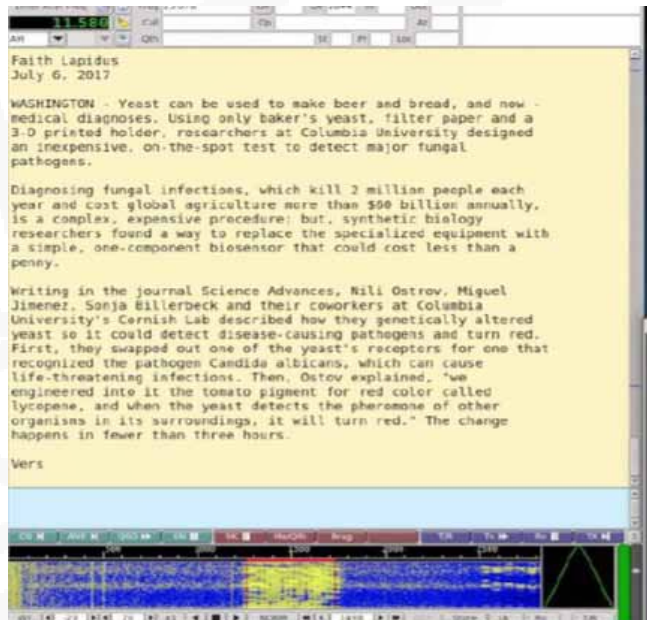


- Can be received on any shortwave radio, including inexpensive portables with no SSB capability
- Patch audio to a PC or Android device.
- Or place the radio's speaker near the mic (see below)
- To decode on PCs, use Fldigi from w1hkj.com or MultiPSK from f6cte.free.fr
- On Android devices, use the TIVAR or AndFmsg apps

*For schedule updates and other details visit <http://swradiogram.net>
See or submit results at @SWRadiogram or <https://twitter.com/swradiogram>
Email for reception reports and other correspondence: radiogram@verizon.net

Schedule	UTC	kHz	Via
Saturday	1600-1630	9400	Bulgaria
Sunday	2030-2100	7780	WRMI Florida
Sunday	2330-2400	7780	WRMI Florida
Monday	0800-0830	5850 7730	WRMI Florida

Frequencies may change, especially after 25 March*



What's New

USB GPS Module

Sku #58141-1681



USB GPS dongle with magnetic base and 6' cord. Use with the West Mountain Radio diagnostic software for accurate timekeeping without the need of an internet connection. The software also calculates your Maidenhead Grid locator automatically. Ideal companion for your RIGblaster when working JT-65 and FT8 modes.

See page 4 to understand how this helps with JT65/FT8



1 Introduction

1.1 I have been steadily compiling these “Hinson tips” over the past few months, in the course of making thousands of FT8 QSOs on the HF bands and teaching myself how to drive the software.

Some tips were inspired by suggestions from other FT8 users and by the WSJT-X developers. Many address Frequently Asked Questions on the WSJT-X reflector which I recommend joining. All of them draw on my 30 years of HF DXing.

That said, these are just tips, pragmatic suggestions aimed at making FT8 easier and more effective to use on the HF bands. They are not rules or laws! The digital modes, protocols and programs are being actively developed, while the operating conventions or habits on-air are still evolving. Other approaches may be even better than those I suggest here.

1.2 In particular, I must point out that I am a keen HF DXer with zero experience on meteor scatter, EME, rain scatter, topband and VLF, 6m and up etc. I have only used FT8 on 80 through 10 metres. Hopefully much of the advice here is useful in other contexts (e.g. topband DXing) but different techniques may well be appropriate and necessary, in which case I urge you to contact me. Maybe together we can add further advice for other applications of FT8?

2 Start here

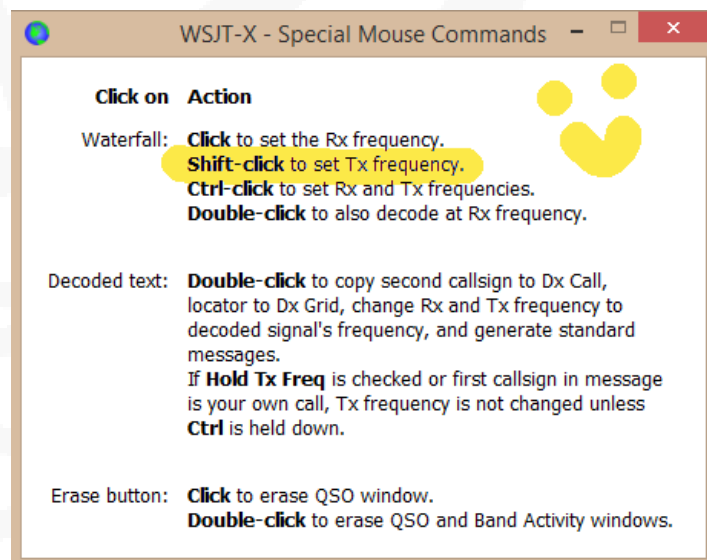
2.1 Use the latest available release of the FT8 software. You have a few choices, starting with WSJT-X written by the team that invented the mode (the original and best, you might say!). WSJT-X v1.9.0 Release Candidate 2 is out now for beta testing.

In the best tradition of amateur radio, WSJT-X is open-source, hence others are developing variants of the program, changing the user interface and in some cases meddling with the decoding and encoding under the covers. Software updates are frequent with the more actively developed variants, as bugs and flaws are discovered and

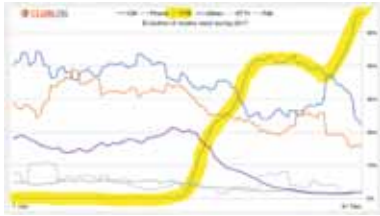
fixed, and new functions are released for alpha or beta testing.

2.2 With WSJT-X running, press F1 and read the help file/manual. It’s quite well written, if I say so myself¹. You’ll discover, for instance, that the confusing combinations of shift/alt/control keys and clicks are handily explained on the screen by pressing F5 to “Display special mouse commands”². By far the most useful combination is to shift-click on the waterfall to put your Tx signal there (think of it as ‘shift my Tx’). If nothing else sticks from these Hinson tips, at least remember to shift-click.

Although not yet shown on the pop-up help, we can also right-click on the waterfall and then click the only option to set both Rx and Tx frequencies right there¹.



2.3 From time to time, check for updates to the digimode software, as you should for all the other software on your system. Most applications, operating systems and drivers are updated or patched occasionally, addressing bugs and flaws or adding new facilities (potentially including changes to the FT8 protocol itself). WSJT-X does not automate this for us but it’s not hard to check the website. New releases are announced on the WSJT-X reflector and the news soon percolates through other ham radio forums, plus on-air of course.



3.1 Check your computer's clock. Accurate timing is quite important for FT8: if your computer clock is wrong by more than a second or so, you will probably experience problems e.g. few responses to your CQs, or seemingly being ignored whenever you call others.

If your computer is Internet-connected, it's easy to check the clock by browsing the Time.is website. If your clock is accurate, you should see something like this:

3.3 Provided you have Internet access, the free Meinberg NTP software maintains millisecond accuracy continually initially by synchronising your PC time to atomic clocks on the Internet using the Network Time Protocol, designed for that purpose, and then micro-adjusting the clock speed (rather than just periodically resetting it, which is the more common but crude approach). Install, configure, check, forget: it's that easy with Meinberg NTP.

If Meinberg is beyond you, there are simpler programs such as BktTimeSynch by IZ2BKT, Dimension 4 or TimeSynchTool. You can even 'nudge' your clock forward or backward 50 milliseconds at a time using the Time Fudge utility by W9MDB.

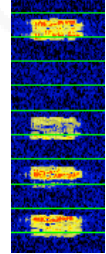
The computer clock Internet time synchroniser built-in to Windows is a crude option provided you get it to update more often than weekly, which means meddling in the registry. Using regedit, find HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W32Time\TimeProviders\NtpClient and reduce the SpecialPollInterval from 604800 (decimal) to something more sensible.

3.2 Resetting the computer clock manually soon becomes annoying, trust me. There are better ways. For starters, pop the lid and check/replace the battery for the real time clock.

3.4 When trying to contact someone whose clock is wrong, it may help to advance or retard your system clock temporarily to reduce the discrepancy. You may notice their blobs don't line up with the horizontal timing lines on the waterfall. In this example YD3BGM's CQ calls were decoded OK by WSJT-X v1.9.0 RC2 with a dT of -2.4 seconds (i.e. 2.4 seconds earlier than my system clock). On the headphones, I heard his tones starting well before others in the same timeslots. First I called him several times without success, despite the path being open between us. Guessing that he might be using an older version of WSJT-X with less tolerance on timing, I clicked to open the Windows system clock, opened the change date and time settings function, clicked the Change date and time button, put the cursor on the seconds part of the digital clock, clicked the up arrow 2 or 3 times to advance my clock by about 2 or 3 seconds, then clicked OK to set the clock. After checking the decodes to see that his dT was now much less, I responded to his CQ call again and this time we completed a QSO easily. I closed with a free-text message "CHK UR CLOCK" ... which he evidently did a few minutes later. Meanwhile I had reset my own system clock until the time.is website showed it was within a second of the correct time: Meinberg NTP (which I simply left running throughout the process) adjusts the clock rate to correct it gradually from there and maintains millisecond accuracy until the next time I run into the same situation.



013880	2	0.3	1387	~	CQ	YD3BGM	OI61
013815	Tx		1324	~	YD3BGM	ZL2IFB	-01
013845	Tx		1324	~	YD3BGM	ZL2IFB	01
013900	5	0.2	1387	~	CQ	YD3BGM	OI61
013915	Tx		1324	~	YD3BGM	ZL2IFB	-01
013930	2	0.2	1387	~	ZL2IFB	YD3BGM	R-07
013945	Tx		1324	~	YD3BGM	ZL2IFB	RRR
014000	4	0.2	1387	~	ZL2IFB	YD3BGM	73
014015	Tx		1324	~	CHK UR	CLOCK	
014045	Tx		1324	~	2.4S	OFF	HI
014115	Tx		1324	~	GL	73	ZL2IFB
014130	1	0.1	1387	~	CQ	YD3BGM	OI61



012730	0	-2.3	1395	~	CQ	YD3BGM	OI61
012745	Tx		1281	~	YD3BGM	ZL2IFB	-01
012800	1	-2.3	1395	~	CQ	YD3BGM	OI61
012815	Tx		1281	~	YD3BGM	ZL2IFB	-01
012830	-1	-2.3	1394	~	CQ	YD3BGM	OI61
012845	Tx		1281	~	YD3BGM	ZL2IFB	-01
012900	4	-2.4	1393	~	CQ	YD3BGM	OI61

Product Spotlight



ISOpwr+

SKU #58401-1041
\$119.95

*** NEW *
MODEL**



ISOpwr+ is a high powered solid state switch designed for automotive applications with or without an auxiliary battery. ISOpwr+ prevents radio equipment from draining the vehicle battery and charges the auxiliary battery while the vehicle is running. Equipment is powered from both auxiliary battery and alternator while vehicle is running.

New Features

- PWRguard shut-off when voltage is out of range
- USB port for setting operating thresholds
- New smaller and light-weight enclosure

Order a Custom Power Cable!

Need help to wire up a DC power system for your ham shack? Want a custom wire harness for your CBA IV computerized battery analyzer or PWRcheck DC power monitor?

Use the online tool

www.westmountainradio.com/custom_cable.php

Available now!

Digital Mode Happenings by Sholto Fisher



WSJT-X

As of this writing (early May 2018) Joe Taylor (K1JT) and Steven Franke's (K9AN) FT8 dominates HF digital mode activity. Take a listen to 14.074MHz or 7.074MHz (both usb) and you'll hear wall-to-wall FT8 signals at most times of the day or night.

Considering our poor (terrible!) conditions on HF, it's no surprise the weak signal modes are very attractive.

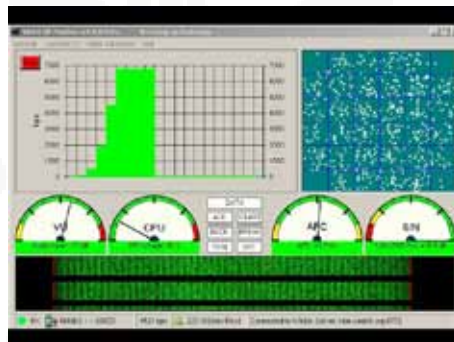
The newest version of WSJT-X is 1.9.0-rc4 "release candidate 4" which is a beta version to allow testing the new "FT8 DXpedition Mode" features. Joe says this version is not yet ready for real pileups but if you're interested in testing the "Fox & Hound" feature download it and give it a go!

Download location: <http://physics.princeton.edu/pulsar/K1JT/ws-jtx.html>

VARA

VARA is a high speed OFDM modem for HF. Written by

EA5HVK Jose Alberto Nieto Ros, it provides 11 speed levels (similar to a Pactor-3/4 modem) ranging from a robust 29 bps to a speedy 5629 bps (uncompressed data rate). The OFDM waveform is designed to fit within a SSB bandwidth of 2400Hz. The software is free to download and try but a paid license is required to obtain the higher speed levels.



The program is not intended to be used stand-alone but interfaces with Winlink Express (for Winlink 2000 E-mail operation) or with a packet switch such as BPQ32.

Actual on-air experience suggests it works very well and is capable

of moving data quickly on typical HF radio channels.

It's perhaps not as robust as Pactor 3/4 when conditions deteriorate but the cost of a license at \$69 compared to \$1650 for an SCS Dragon what's not to like?

Download location: <https://ros-modem.wordpress.com>

There is also a version for VHF/UHF FM operation.

2018 US Armed Forces Day Crossband Test - May 12 2018

MARS will host the crossband test on May 12 2018. This annual event is open to all radio operators and designed to test two-way communication between military communicators and radio stations in the Amateur Radio Service (ARS).

Military stations will transmit on selected military frequencies and will announce specific ARS frequencies monitored.

This year Steve Hajducek (N2CKH) has made v2.00 of his MS-DMT software freely available for non licensed users which is able to

If you would like to submit an article for consideration in future newsletters please contact marketing@westmountainradio.com



WEST MOUNTAIN RADIO



decode the MIL-STD-188-110A broadcasts during the test.

The software and a schedule of stations, times & frequencies is available from the following location:

http://www.n2ckh.com/MARS_ALE_FORUM/MSDMT.html

SIM31

If FT8 isn't quite your cup of tea you could always try SIM31 "Structured Integrated Message." Based on PSK31 it is a robust digimode especially suited to poor conditions on HF.

According to the author signals as low as -18dB SNR can be "decoded with relative ease." The latest version of the software (V6985) was released on May 1 and can be downloaded from: <http://www.sim.on2vhf.be>

Most operate this mode just below the usual PSK31 HF frequencies e.g. 14.067MHz (usb).

The screenshot shows the SIM31 software interface. At the top, there's a menu bar with options like Mode, Setup, Log, Font, View, SIM, Aletter, Psk-R, Link's, Clear, and Help. Below the menu is a table with columns for UTC, Hz, dB, and a message log. The log shows several entries for 'CQ-Auto DE CT1CKP CT1CKP CT1CKP' with timestamps like 19:57:05z, 19:57:36z, and 19:58:12z. On the right side, there are control panels for CALL (CT1CKP), NAME (EDGAR), QTH (QUELUZ), RSQ, LOC (IM581S), and frequency (14067.0). There are also buttons for 'Answer CQ', 'Info 1', 'Info 2', 'Chat', and '73 Bye'. At the bottom, there's a spectrum display showing a signal peak around 14.067 MHz.

UTC	Hz	dB	Message
19:56:01	1929	-03	CQ-Auto CT1CKP 40W PORTUGAL 37/14 EU
19:56:07	1929	+00	CQ-Auto CT1CKP 40W PORTUGAL 37/14 EU
19:56:12	1929	-04	CQ-Auto CT1CKP 40W PORTUGAL 37/14 EU
19:57:18	1929	+00	CQ-Auto CT1CKP 40W PORTUGAL 37/14 EU

Upcoming Events



Visit Our Booth

Dayton Hamvention
May 18-20, 2018

Plano HAM-COM
June 8-10, 2018

Huntsville Hamfest
August 18-19, 2018

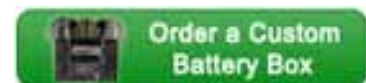
HRO Superfest - Milwaukee
September 28-29, 2018
In-store demonstrations!

Order a customized
DC-to-Go Box
for **Lithium** too!

Use the online tool to configure size,
power products, connectors,
and accessories:

www.westmountainradio.com/custom-go-boxes

or look for the button



Available now!

INTERESTED IN MICROCONTROLLERS?

Click here for more info:

www.westmountainradio.com/pic_resources

Want to Learn C programming for microcon-
trollers?

Click here for details of
a **NEW** book that includes a **FREE** compiler:
www.ccsinfo.com/e3book



West Mountain Radio
1020 Spring City Dr. Waukesha, WI 53186
www.westmountainradio.com