# The Pebble HF and My FT8 Journey

## ABSTRACT

Imagine you could tune to a frequency on a band, whistle a happy tune and have that tune call out CQ, your call sign, and your location. Imagine there are 50 slots at that frequency, and there are untold thousands of people doing it at the same time all over the ham radio spectrum, all over the world.

## INTRODUCTION

That's FT8. More or less. Rather than dits and dots, FT8 modulates a 50 Hz wide, 15 second transmission on a well-known frequency in the available bands. Some folks call, some folks listen.

The search engine AI tells us, "FT8 is an amateur radio digital mode designed for making weak-signal, global contacts. It transmits data in highly structured 15-second cycles, allowing operators to exchange call signs, grid squares, and signal reports even when signals are well below the audible noise floor." There are six specific message formats in each exchange, making this well suited for computer operation.

Eleven ham bands are in common use, making FT8 effective for mapping out your own signal propagation.

## REQUIREMENTS

All that is needed is a rig capable of audio on upper sideband (USB), an antenna, and a commonly available computer. Android and Apple phones can even be pressed into service.

Instead of a complicated interface between the computer and radio, audio frequencies are used. A simple sound card interface is used on the audio and mic connectors and simple AUX cords make the exchange. A quick browsing of Amazon brings this gear home for under $10.

## SOFTWARE

It's always the software, right? There is a freely-available, full-featured FT8 package for Windows, Linux, and macOS. WSJT-X is available for all to use. Experience with this package may lead users on to other programs and platforms, but it is a great starting point for all.

The package is available from https://wsjtx.github.io/wsjtx/

Install on your available machine. Please note, the security obsessed macOS forces the

user to the System Settings → Privacy and Settings to ‘allow’ the installation.

Nothing extra is required for the radio. The FT8 software I have tested will make use of computer aided transceiver (CAT) control and even embedded USB sound cards, if available in the radio. FT8 also works with voice operated transmit (VOX) for a minimal setup.

## OPERATION

There are several great FT8 introductions on YouTube. There is very little to actually do on the radio side. The Pebble HF operates on 20 meters, has 3.5 mm AUX connectors, and has a VOX mode. Without CAT, the antenna is connected, the radio band is set to 20 meters, the frequency must be tuned to 14.0740, and audio from the radio goes to mic on the sound card (USB stick) and mic from the radio goes to speaker on the sound card.

Start WSJT-X. Use the ‘Preferences’ or ‘Settings’ menu to set your call sign and grid locator on the ‘General’ tab. Select the ‘Radio’ tab and be sure to select ‘None’ and ‘VOX’. Finally, select the ‘Audio’ tab and select the USB audio device for ‘Input’ and ‘Output’. There are lots of other preferences available, but we shall start here.

On the WSJT-X main page, be sure ‘20’ is selected, along with ‘Monitor’, and ‘Enable TX’. In the lower, left corner, you can see the available protocols. Be sure ‘FT8’ is selected. Again, many other options available, but this is a good start.

## MAKING A CONTACT

The activity scrolling in the left panel are decoded messages coming in. Expect to see a lot of them. No activity? Consider  disconnecting the ‘AUDIO’ AUX cable and listening to 14.0740. Trace back to your antenna as normal.

Once you start seeing ‘CQ’ calls in the left column, select one to start a conversation. The six standard messages are queued up and may be automatically exchanged.

## CAN YOU HEAR ME?

No activity? Get out to https://PSKReporter.info/. PSK Reporter is a little fiddly, so be sure to set ‘20m’, your call sign, FT8, and an appropriate time period.

Still nothing? Try whispering. Another clever thing WSJT-X can do is the WSPR protocol. Select ‘Mode’ in the top menu and ‘WSPR’ in the drop down. Be sure to select ‘20’, ‘Monitor’, and ‘Enable TX’. You can visit https://wspr.rocks/ and filter by time and your call sign. This should give you a good idea of your propagation.

# FOOTNOTES

That’s it. FT8 is really simple. It is a simple protocol that can operate with low power and way down in the noise.

We should have an army of FT8 operators on every band in time for next year’s Field Day.