Enjoy FT8 From Almost Anywhere

J. Robert Witmer, W3RW

Imagine hunting 6-meter DX at a restaurant while eating breakfast, or making an all-time new DX contact while waiting for a flight. I've found myself operating remotely in these types of situations, and many others, using nothing more than my smartphone. If you think this type of operating is complicated and expensive, prepare to be surprised!

My approach to remote FT8 operating combines *WSJT-X* software and a remote computer-control program called *TeamViewer*. Both *WSJT-X* and *TeamViewer* are free for personal, nonbusiness use. *WSJT-X* is available at Dr. Joe Taylor's, K1JT, website, **https://physics.princeton. edu/pulsar/k1jt/wsjtx.html**, and *TeamViewer* at **www.teamviewer. com/en-us/**. The combination works

The author relaxes outside while making contacts on 6-meter FT8 via remote control from his Fire HD tablet.

well because, for FT8, audio streaming is not required.

We'll start with a description of a single-band remote operating setup, and then add suggestions for a multiband approach.

Step 1: Install *WSJT-X* and *TeamViewer* at Your Station

Let's start with a single-band configuration. If you haven't already done so, the first step is to install and configure

WSJT-X software at your station computer. I assume your station hardware is already set up for digital operating. That is, you have a computer/transceiver interface installed, or you own a transceiver with a built-in interface that plugs directly into one of your computer's USB ports.

Follow the configuration instructions in the *WSJT-X* user guide. I recommend keeping screenshots of your *WSJT-X* settings/preference menus

Figure 1 — *TeamViewer* starting up when installed on the station computer

Use a free software application to operate FT8 and other digital modes remotely.
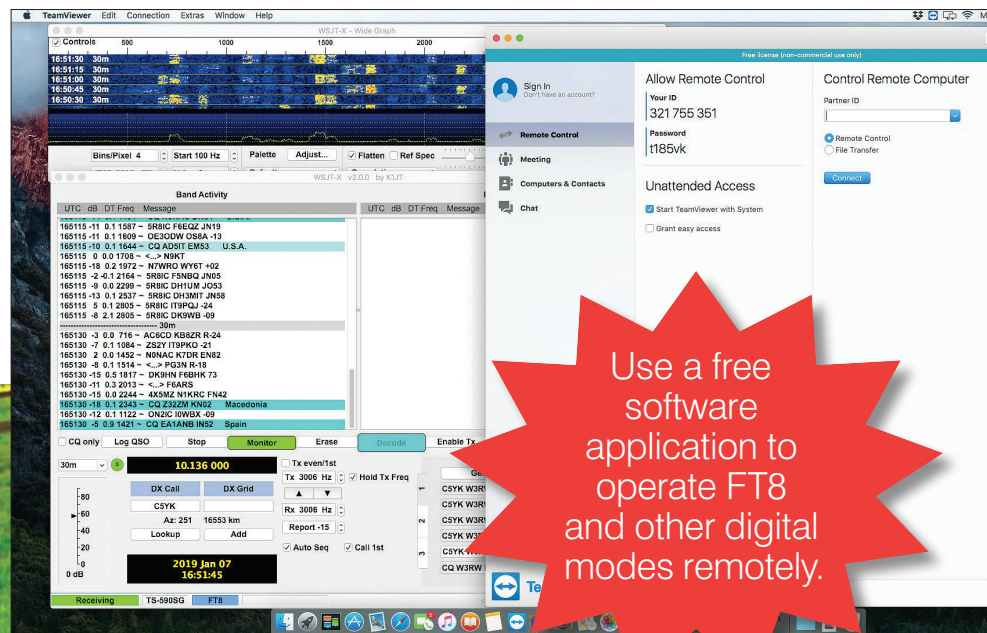
once *WSJT-X* is working well. On more than one occasion the screenshots have proved helpful in resolving issues.

For those new to FT8, I suggest spending some time operating it to become comfortable with how the mode functions and work out any kinks in the software. As soon as you feel confident that everything is running smoothly, it is time to add *TeamViewer*.

TeamViewer

Go to the *TeamViewer* website and select the *TeamViewer* software that is compatible with your station computer. Select the "Full Version" and establish your free *TeamViewer* account. Follow the download and installation instructions carefully. See the sidebar, "*TeamViewer* Preference Menu Settings," for some suggestions.

As far as the *TeamViewer* menu on your station computer is concerned, you're only interested in the information on the left side of the window

under **ALLOW REMOTE CONTROL**. Record the *TeamViewer* assigned ID number and password (see Figure 1). You will need this information when accessing your station computer remotely. Note that each time *Team Viewer* starts it generates a new access password, but the ID number does not change.

Step 2: Install *TeamViewer* on Your Smartphone, Tablet, or Laptop

Once *TeamViewer* is running on your station computer, download the appropriate *TeamViewer* app for your smartphone or tablet from the Apple iTunes app store or Google Play.

If you intend to use a laptop rather than a smartphone or tablet, install the full version software from the *TeamViewer* site. The advantage of using the full version on your laptop is that you can add your station computer to its list of remote contacts and you will never have to remember the station-computer password; it is transferred to your laptop from your *TeamViewer* account automatically.
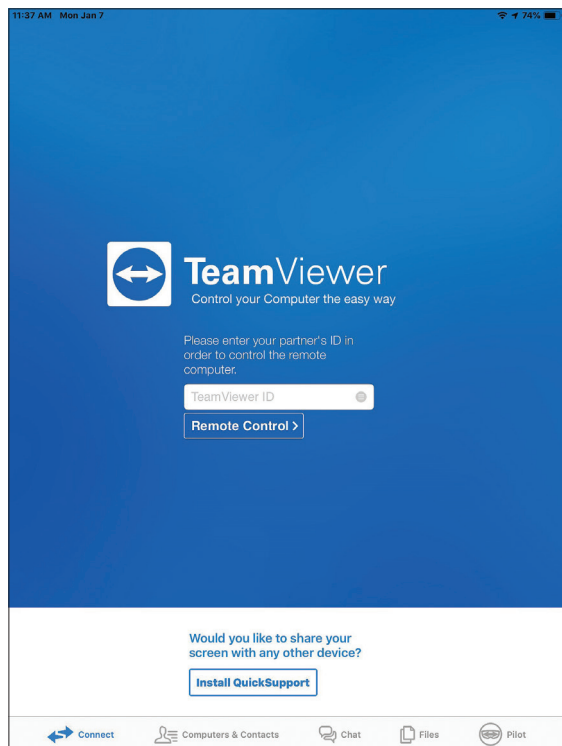
If you access the *TeamViewer* app at your remote location, you'll be prompted to enter the ID (see Figure 2). Select **REMOTE CONTROL** and, if you are not using the full version on a laptop, you'll be prompted to enter the previously referenced password. The app will remember the ID and the last entered password for that ID, simplifying the future log-in process.

Remember that if you restart your station computer for any reason, you'll be assigned a new password. Unless you leave your station computer and transceiver powered up 24/7, you'll need to jot down the assigned password each

time you fire up your station with app-based remote operating in mind.

To repeat, however, if you are running the full version on a laptop, and you've included your station computer in your "My Computers" list, all you have to do is double click your mouse cursor on the station computer's name.

Single-Band Operation

Now do some tests to see how everything is working. Running remote from the next room provides a quick way to make menu and preference changes if required (see Figure 3).

Controlling the cursor at the station computer takes some getting used to if you'll be using a smartphone or tablet, particularly when adjusting levels and scrolling. Experiment to see what works best for you. Remote operation with a laptop or desktop computer is usually smoother. With a good internet connection, it seems as though you are operating your station computer directly!

I operated on 6-meter FT8 remotely during the 2018 sporadic-E season. My Kenwood TS-590SG transceiver fed a manual tuner and balun to match the antenna. Thanks to the amazing performance of FT8, I managed to work several new DXCC entities, including VP5DR during breakfast while on vacation.

For safety's sake, enable the "watchdog timer" in the *WSJT-X* software on your station computer. That way if *WSJT-X* gets stuck in the transmit mode, the software will shut down automatically. Most modern transceivers have a similar watchdog function, so be sure to enable it as well.

In addition to running *WSJT-X* on your station computer, you can use this remote setup for other digital-mode applications because they also do not require audio streaming. You might run *DigiPan* for PSK31 (**www.digipan.net**), or *fldigi* (**www.w1hkj.com**) for many other digital modes.

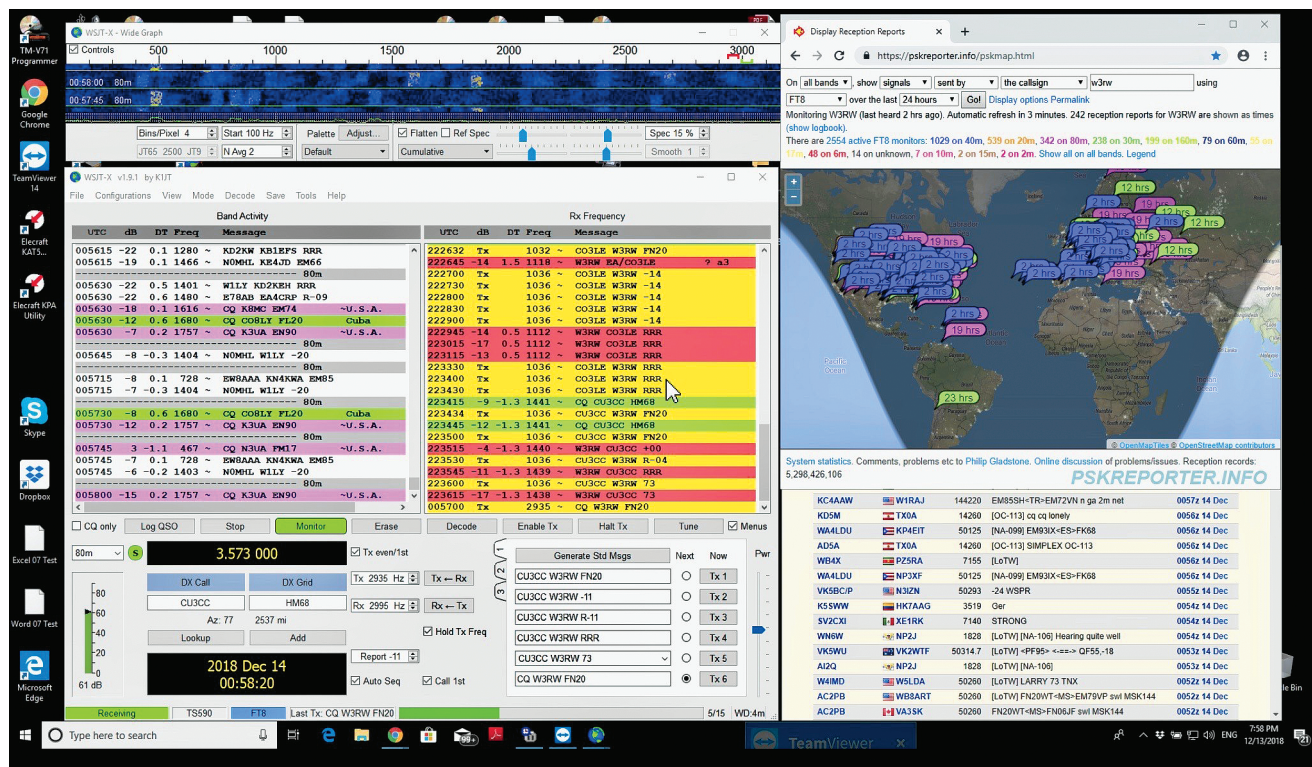Figure 2 — *TeamViewer* start-up when installed on a remote device.

Figure 3 — An example of operating FT8 by remote control. The author had enough room available on his laptop screen to open a web browser and display the *PSKReporter* and DX Watch pages as well.

Multiband Remote Operating

Operating on one band is fun, but it is even more enjoyable to be able to hop from one band to another via remote control. To achieve this, however, you'll need a multiband antenna system and computer control of your transceiver and other devices.

If you have your station configured for computer control of your transceiver (CAT), *WSJT-X* will use it to switch your radio between bands. All you have to do is click the dropdown menu on the main screen and select the band you want. Your radio will change frequency automatically.

If you have a multiband antenna with acceptable SWRs on your favorite bands, you're in luck. This is an easy step to implement and operation is essentially the same as single band. However, if you need to control your radio's internal antenna tuner to achieve a match to your antenna, or

possibly an external "smart tuner," you may need to install software that will allow you to access your transceiver and other equipment through your computer. Beware that, in some instances, the *WSJT-X* CAT control may conflict with another transceiver-control application. If so, you'll need to close *WSJT-X*, start the control software, make whatever adjustments are needed, close the control software, and then restart *WSJT-X*. Of course, this can all be done remotely.

Other Considerations

✔ Be sure your computer is not set, via some type of internal time setting, to shut down or go to sleep to the extent it cannot be awakened via *TeamViewer*. You may have to experiment to find what settings need adjustment.

✔ A related issue is automatic operating system upgrades. Try to schedule auto updates to occur when you are not operating remotely. If the computer with *WSJT-X* restarts, you will

lose access via *TeamViewer*. (When the computer and *TeamViewer* restart, *TeamViewer* assigns a new password, which unfortunately you probably won't have knowledge of when operating remotely!)

✔ Consider adding a Wi-Fi controlled power outlet for your transceiver's power supply, but be sure it is tolerant of RFI. It is always a good idea to have an alternative means to shut down your radio if necessary.

✔ Keep in mind that the *TeamViewer* software on your remote laptop or mobile device will log you out after approximately 3 minutes or less if your device goes to sleep, or if you switch to another app. If it does disconnect you, simply re-enter your station computer's ID and password (if required) to resume access. It's important that you select **KEEP CURRENT** for the random password function in the *TeamViewer* **ADVANCED** menu tab.

TeamViewer Preference Menu Settings

These are the setting/preference menu selections I have been using. Not all versions of *TeamViewer* have the same settings selections and versions change, so you may have to check the *TeamViewer* Community Knowledge Base website for the latest information.

For the station computer versions, in the Mac OS versions of *TeamViewer*, preference menus are found under the *TeamViewer* pulldown menu. For Windows *TeamViewer*, preference menus are found under the **OPTIONS** tab, under **EXTRAS**. Your results and settings may vary.

Station Computer

GENERAL TAB
Start *TeamViewer* with System — Checked
Other: No change from initial settings

REMOTE CONTROL TAB
Quality: Automatic quality selection (Optimize Quality)
Remove remote wallpaper — Checked
Show you partner's cursor — Checked

SECURITY TAB
Password strength: Selection the level of security — do *not* check **DISABLED**

ADVANCED TAB
Choose **KEEP CURRENT** for the *Random password after each session* selection. Choose **FULL ACCESS** for the **ADVANCED** settings for connections to this computer.

Remote Device

CONTROL
Quality: Automatic quality selection
Screen resolution: (Don't change)
Remote Cursor: Off — not highlighted

ACCESS CONTROL
View screen: Allowed
Remote control: Allowed
Control remote *TeamViewer*: Allowed

ADVANCED SETTINGS
Remove remote wallpaper — Checked

✔ If you're running an external monitor on your station computer, you may want to consider running "headless" (without a monitor) when operating remotely. Both my Mac and PC use external HDMI connected monitors. To save power when I'll be away for more than a day or two, I replace the actual HDMI connection with an HDMI Display Emulator plug, available for about $8 on Amazon. The plug essentially tricks your computer into behaving as though a display is still connected. This allows you to remotely screen share with greater ease and reliability. Without this plug, and when your monitor is disconnected, your computer's graphics card may shut down, which will force the shared screen image to be drawn by your CPU alone. That tends to be slow and may result in image freezing at your remote location.

✔ Finally, before you disconnect from *TeamViewer*, check to make sure you've "parked" your remote mouse cursor in a neutral area in the *WSJT-X* application. You don't want to return to remote operation and find that you've inadvertently initiated an unwanted *WSJT-X* action, such as **TUNE**. Also, check to be sure the *TeamViewer*

SESSION LIST window is moved out of the way be clicking on the arrow on the left-hand side.

Summary

By combining *WSJT-X* FT8 operation with a remote desktop control program such as *TeamViewer*, you can add an exciting new dimension to operating. Operating remotely during breaks in the action while participating in other events can be a great way to catch elusive band openings and hopefully work a new one!

If you're not a fan of FT8, the *Team-Viewer* approach described here can be used to remotely control other station computer applications.

Bob Witmer, W3RW, was first licensed as K3VAX in 1962 and upgraded to an Amateur Extra-class license in 1967. Bob has a BSEE from Drexel University and worked initially at ISC, in Lancaster, Pennsylvania. At ISC, he worked on a wide range of projects — and with Ed Clegg on Amateur Radio products for several years — before focusing on defense electronics programs. After moving to the Philadelphia area in 1988, Bob had management responsibility for multiple defense contractor electronic warfare programs. He also served 10 years as a Montgomery Township Supervisor, helping to establish the township's first stand-alone Amateur Radio station capability.

Now semi-retired, his interests include working DX and improving his 160-meter station capabilities — though available time is limited by grandkid activities. Bob can be contacted at **w3rw@arrl.net**.

For updates to this article, see the *QST* Feedback page at www.arrl.org/feedback.

VOTE
If you enjoyed this article, cast your vote at www.arrl.org/cover-plaque-poll

Strays

Bill Bailey, K4BUY, is looking for hams or clubs interested in conservancy to participate in a "conservancy to conservancy" on-air communication program. For more information, contact Bill at **bailey4141@comcast.net**.