# SharkRF openSPOT2 Multimode Digital Hotspot

Reviewed by
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I've been using the original SharkRF openSPOT digital hotspot since August 2016, and I love it. (A hotspot is an internet gateway for digital-mode amateur transceivers, such as DMR, D-STAR, and System Fusion, so that they can connect to various amateur networks.) In the October 2017 issue of *QST*, I reviewed the original openSPOT, and in my conclusion, I mentioned my desire for a Wi-Fi interface. SharkRF heard user requests, and the new openSPOT2 includes Wi-Fi.

The openSPOT2 builds on the success of the original version. This standalone hotspot works on the 70-centimeter band, is simple to operate and small in size, has low consumption, and is reliable. The web interface is very well done and works on any platform — even on my iPhone. Figure 9 shows how it appears on a mobile device.

The original openSPOT and the openSPOT2 are similar in many ways, so in this review, I will cover only the main differences between the two versions. Please refer to the October 2017 review for more information on the features they have in common. Also, the SharkRF website has a lot of detailed information about the device, including an online manual and video tutorials.

## Overview

The first thing I noticed about the openSPOT2 is that there is no ethernet port and no external antenna jack, and the power connector is now a USB-C type. This unit is very light and surprisingly compact. It's thin enough that a photo on the SharkRF website shows someone carrying it in the small watch pocket in a pair of jeans.

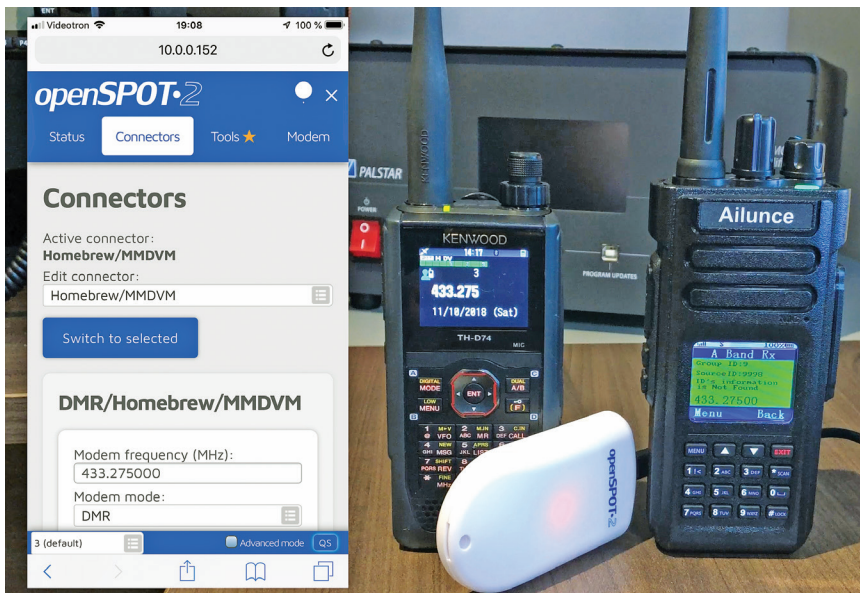On the outside, there's only one control button. When you press and hold it for more than 3 seconds, it switches the openSPOT2 into Wi-Fi AP (access point) mode (more on this later). If you hold the button for more than 30 seconds, it will reset the unit to its factory default.

The LED status indicator is hidden inside the white plastic enclosure. When you connect power, the LED glows and is visible through the case. Different colors are used to indicate the current status, and I found it intuitive. For example, when the device receives a signal, it turns green. When it transmits, it turns red. Other status indicators are well described in the manual.

Like the original model, the openSPOT2 supports multiple digital modes: DMR, D-STAR, and Yaesu System Fusion/C4FM. Two new modes were added: NXDN (a digital voice mode), POCSAG/DAPNET (a paging system), and P25 (another VHF/UHF digital wireless standard). They also added a special background connector for APRS, which can be



Figure 9 — The small SharkRF openSPOT2 in between two digital handhelds with the web interface running on my iPhone. The device is in DMR mode.

> **Bottom Line**
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> Smaller and lighter than the original version, the SharkRF openSPOT2 multimode digital hotspot moves the antenna inside the case, adds a Wi-Fi interface, and simplifies operation.
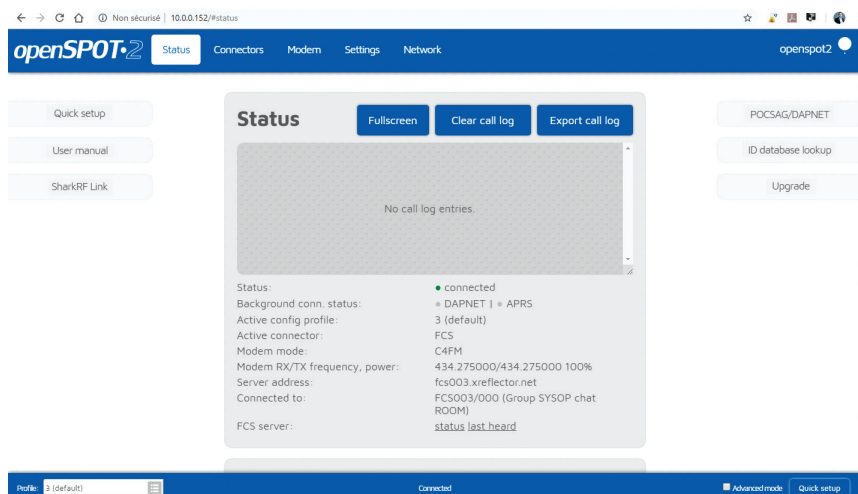
**Figure 10** — The openSPOT2 web interface screen.

used for setting up a connection to the APRS network. This enables device location broadcasting, forwarding GPS data from transceivers, and messaging (APRS chat).

The new version still supports cross-mode contacts between DMR and C4FM, so you can talk from a 70-centimeter C4FM radio to a DMR reflector or the other way around (a reflector is the equivalent of a repeater in the IP world). This unit does not convert analog FM signals to any digital mode, so you need at least one digital radio to use it. Also, you can still create your own radio network using their open-source server application.

## Setting Up the Device
When you receive the openSPOT2, by default, it will be in AP mode for Wi-Fi, and this is the only way you can access the web interface and do the initial configuration. You can use any internet device for the setup, such as a tablet, phone, or PC.

After connecting power to the openSPOT2, you set it up just like you would normally do with new Wi-Fi devices. Scan for a new Wi-Fi network and you will see **openSPOT2 AP** listed. After connecting to the unit, the first thing you have to do is connect the device to the internet via your home Wi-Fi router. Remember, without

internet access, the openSPOT2 is useless.

When connected to the internet, log in to your home router and look for the IP address assigned to the openSPOT2. I strongly suggest reserving this address for the hotspot, so it will never change. Then reconnect to the web interface using that address. It's also a good idea to upgrade the device the first time you connect to the internet.

## Managing Multiple Wi-Fi Networks
After the initial setup, if you move out of reach of your initial Wi-Fi network, you simply use the button to switch the openSPOT2 back into AP mode, connect to the web interface directly with your phone or tablet, and select a new Wi-Fi network. Doing this does not affect your hotspot configurations, and you won't lose the other Wi-Fi setup as long as you do not hold the button more than 30 seconds (which resets the device).

You can also use the openSPOT2 as a mobile or portable hotspot with your cell phone Wi-Fi as an internet connection. You will need to press the openSPOT2's external button to switch the unit back in Wi-Fi AP mode, and then you can connect your cell phone directly to it and select the new Wi-Fi network.

You only need to go through the setup procedure the first time you connect to a new Wi-Fi network. After the first time, it will connect to the best available registered network automatically. You can store up to five Wi-Fi SSIDs (network names).

## Web Interface
The main screen of the web interface, shown in Figure 10, is very similar to the original openSPOT, except for the left and right menus. All you need to use it is your favorite browser on any desktop or mobile device. Windows, macOS, iOS, or Android all work. This interface is used to configure the openSPOT2 for use with your transceiver and set up a connection to your digital network.

The menu at the left has buttons for **QUICK SETUP**, **USER MANUAL** (a link to the online manual), and **SHARKRF LINK**, for setting up access to the openSPOT2 via the web interface.

**QUICK SETUP** offers the simplest way to configure the openSPOT2 for your transceiver and connect to a network. You select your type of radio (such as DMR, D-STAR, or C4FM) and fill in some basic settings that vary with the mode of operation. Then you select a digital network and enter some settings, such as your call sign or network ID. Then click **CONNECT**, and you're ready to start using the network with your radio. Advanced users can select the **ADVANCED MODE** and have more configuration options.

On the right menu, you have **POCSAG/ DAPNET** setup, DMR **ID DATABASE LOOKUP,** and an **UPGRADE** button for loading the latest firmware. Upgrading this device is easy. Just click **UPGRADE**, and it's all automatic. With the original version, you had to download a file and switch to bootloader mode.

Along the top, we have the same tabs — **STATUS**, **CONNECTORS**, **MODEM**, **SETTINGS**, and **NETWORK**.

### STATUS Page

After you are logged in, this page is shown by default. You will find the latest activities, the hardware and software versions, and some other useful information, such as the uptime and network performance.

### CONNECTORS Page

This is the page where you select the mode, local frequency, and reflector or gateway to connect. You have to enter your call sign, your DMR ID, and a frequency for each mode.

### MODEM Page

This page is normally used to set up a sub mode to be used in cross-mode operations. There are more settings when the **ADVANCED MODE** is selected.

### SETTINGS Page

This section is used for more advanced and specific configuration of profiles, location, radio network settings, and other parameters.

### NETWORK Page

Information about the Wi-Fi and internet connections, a traffic monitor, IP settings, and other parameters.

Every time you modify or select an option, click on the **SAVE** button. Then the web page will refresh to reflect the new configuration.

## Conclusion

I really like the openSPOT2 and I think it is an ideal portable/mobile hotspot. You do not have to worry about damaging a microSD card because you didn't shut down properly — it doesn't have any. There's nothing to break outside the enclosure, as there's only one small button and a USB-C power connector, which is sturdier than a Micro USB port. The original openSPOT offered a wired ethernet port (RJ-45) and an external antenna connector, but the new version is smaller, has Wi-Fi, and boots up very fast.

If you're looking for a simple and reliable mobile digital hotspot, this one is a great option, as it doesn't require any special skills to operate, uses a simple and easy-to-use web interface, and works with any device that has a web browser.

For more about digital voice operation and a detailed video showing the openSPOT2 during setup and operation, check out my YouTube channel, **Laboenligne.ca** (or search for VA2PV).

*Manufacturer*: SharkRF, Tallinn, Estonia; **www.sharkrf.com**. Available from the online shop, **shop.sharkrf.com**. Price: $230.