

# DV Dongle D-STAR Adapter

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Some hams just can't get enough D-STAR.

Do I have to say "D-STAR, the digital voice and data system for VHF/UHF"? At this point I probably do. D-STAR is growing fast, but it's not everywhere. And I'm pretty sure it's still a niche interest, even in the cities that have a D-STAR repeater or two.

In that niche are some pretty enthusiastic hams. Hams who want more D-STAR than they can get from their local repeater. Or maybe they don't even have a local repeater. Or if they do, maybe it doesn't have a gateway that opens the repeater up to worldwide connections. So if you're going a little nuts for D-STAR, but can't get enough over the air, what do you do?

Enter the DV Dongle, created by Robin Cutshaw, AA4RC, and Moe Wheatley, AE4JY.

## D-STAR From Your Computer

The DV Dongle is a blue slab of plastic, smaller than a deck of cards that plugs into your computer's USB 2.0 port (Figure 6). Inside is an AMBE 2000 vocoder (voice encoder) that converts your voice into a D-STAR compatible data stream that lets you talk through D-STAR repeaters worldwide via the Internet — without using a radio. You'll need a modern computer, 2 GHz or faster with *Windows*, *Linux* or *Mac OS*, and a high speed Internet connection. The Dongle is powered from the USB connection so you don't need another wall wart. More on the software later.

The obvious comparison is to EchoLink, the software program and networking system that links analog repeaters together via the Internet using VoIP (Voice over Internet Protocol). EchoLink also lets individual hams connect to repeaters, and to each other, using their computers and the Internet. The big difference is that EchoLink requires no new hardware on the user end, assuming you already have a computer with a sound card and headset or a speaker and mic. The DV Dongle will cost you about \$200. It's selling well at that price. Some hams just can't get enough D-STAR. When *QST*'s Product Review editor offered to send me one, I said I already had one.

There are no controls, knobs, buttons or switches on the Dongle itself. All operation is via the *DVTool* software. There are some status lights in the box, so you might want to position it where you can see it.

Dongle operation has a lot in common with EchoLink. *DVTool* gives you a list of

available repeaters. Select one, connect to it, and you can monitor activity. To transmit, use your mouse to click the on-screen PTT button. The stations you hear sound D-STARish. They have that slightly "robotic" sound of carefully encoded low data rate audio. To hams listening on their radios, you sound like just another station, although the variety of cheap mics for computers and your ability to (mal) adjust the audio level give you the opportunity to have poor audio. On the other hand, I've gotten compliments and requests to know what mic I'm using on my computer. (It's a Telex M-60. On my laptop, pictured here, I use a USB headset.)

The *DVTool* interface shown in Figure 7 emulates the functions of a D-STAR radio to some extent, though it doesn't try to look like a radio control panel. While you are monitoring, *DVTool* shows the call sign of the station you're listening to, along with the call signs that the other station has programmed in the YOUR, RPT1 and RPT2 fields. (If you suddenly find that I've shifted from English to Klingon and nothing is making sense, go back and read my article "Operating D-STAR."<sup>4</sup>)

Recent beta versions of the *Tool* added the ability to send and receive the additional text that users can program into their radios for display by those receiving them, and a history list of stations you've monitored (see Figure 8). To other users, I appear as KN4AQ/DNGL, then GARY - RALEIGH. A long wish list of new features is in the works for future software updates. Robin's goal is to have the Dongle imitate everything a radio can do on D-STAR, and do things a radio can't do.

There are some stations you won't hear,

<sup>4</sup>G. Pearce, KN4AQ, "Operating D-STAR," *QST*, Sep 2007, pp 30-33.



and sometimes you'll hear what sounds like a one-sided conversation. Dongle users can only hear stations who have their repeater's Gateway programmed into their RPT2 field (more Klingon... sorry). For that reason, the default recommendation for radio users is to *always* have the Gateway in RPT2.

ICOM's manuals tell you to have NOT USED programmed there if you're not using the Gateway. And there may be some repeaters you can't reach,

even though they have a Gateway. The repeater's administrator has to turn that function on. None of the Japanese repeaters can be reached with a Dongle.

## Setting it Up

Getting the DV Dongle hardware and *DVTool* software going is generally simple. The instructions, along with the latest release software, are online at [www.dvdongle.com](http://www.dvdongle.com). *DVTool* is a Java application that runs on *Windows XP* and *Vista*, *Mac OS X Leopard*, and "many flavors of *Linux*." I'm running it on *XP*.

The Dongle installs like most USB devices, with a "found new hardware" dialog series in *Windows* that runs the first time you plug it in. The *DVTool* software doesn't "install" the way most programs do. After downloading and unzipping it, the *Tool* just sits in a folder, waiting to be launched. The file you launch is named *DVTool.jar*. A "dot jar" file is a Java archive file — many programs stuffed in one box. This was the first time I'd encountered such a file.

The instructions said to put the downloaded folder on my desktop. If I did that, I'd never find it again, so I put it with the rest of my applications in C:\Programs\DVTool (file placement seems to be more critical for Macs). Then I put a shortcut to the *DVTool.jar* file in my START menu. Everything worked fine.

Most of the complications hams have reported while getting the Dongle to work come from not having the latest versions of Java and some drivers on their computer. The instructions guide you through updating them. There can be some port problems if you're inside a firewall. I had no such issues, and did nothing special to make it work through my D-Link router. And it's worked for me at several hotels, but not at

## Bottom Line

The DV Dongle allows licensed and registered radio amateurs to access and participate in the D-STAR digital voice network over the Internet (without a radio). It doesn't yet offer all of the functions of a D-STAR capable radio, but it does allow you to monitor and talk through distant D-STAR repeaters.

