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http://thenewtech.tv/community/dongular-deviation

HDSDR ?fro Windows ? ???????(Software Defined Radio (SDR)) ???
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http://www.hdsdr.de/

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First off, grab a copy of HDSDR (or WinRad, but I'll be using HDSDR), install it somewhere and keep a note of where you've installed it. Don't run it yet though, it won't do anything until we've installed another piece. To make it talk to your tuner, you'll need to pick up a copy of

Balint Seeber's libusb and ExtIO dll ????. I

Selecting either option will lead you to the next window, Zadig itself, it should look like the image below. This part of the installation process is the installation or replacement of the tuner driver with the libusb driver so the radio applications can receive data directly from the tuner without the Realtek chip trying to demodulate it and turn it into a TV picture. Chances are if you've already installed your tuner's driver, two things will differ from this picture, and they're both normal; the current driver won't be WinUSB and the dropdown device box won't include any devices, or won't include your tuner. The first isn't a problem, the second can be remedied by opening the Options menu and choosing to show all devices. On doing that, you should get a list of all USB devices which can have their drivers replaced by libusb. Choose your tuner, mine's listed simply as "RTL2832U", and click Install Driver. It may take a little while depending on your system, on my eeePC it takes a couple of minutes, on my desktop it's nearly immediate, but it'll get there in the end eventually. Oh, and it works just fine on 64bit machines.

Once you've installed the driver, complete the installer, it's all pretty standard stuff, I won't bore you with the details. Uncheck both of the options at the end and finish up. Now you're ready to run HDSDR.

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This is where we get to finally play with the thing and see what's out there on the airwaves. On firing up HDSDR, you'll see something that looks like the image below, you can click to embiggen for a closer look.

 You might get another window too, and a dialogue telling you that something failed to create a USRP connection, that's normal, click OK to get rid of it. On the window that says ExtIO in the titlebar, there's a field called "Device hint", which you'll need to type "RTL" into, sans quotes. Click "Create" next to it, and it

should, hopefully, find your tuner. Don't worry about anything else on this window yet, everything is fine as it is.

If you didn't get any windows, try clicking the ExtIO button somewhere in the middle of HDSDR's main window. If it's not clickable, something went wrong installing the plugin, you should try again and make sure you've got everything in the same folder.

If it's all gone to plan, you should have a functioning setup. To find out, tune HDSDR to a frequency, let's say a local radio station. HDSDR can't actually demodulate broadcast stereo FM (though other applications can, such as [WRPlus](#), requires [WinRad](#) to install on top of), but we'll use it to verify we can see signals, it's the easiest thing to find because we all know a radio station's frequency. First of all, let's tell HDSDR we want to use FM, because that's the kind of transmission we're looking for, choose the FM radio button above the tuning numbers in the middle. To tune, click the numbers next to "LO", this is the local oscillator frequency, it tells the tuner which chunk of spectrum you want to receive. Left click increases each digit, right click decreases. Once you've chosen a frequency, click Start in the lower left, and unmute too if it's muted. You should start to see and hear things happening. To fine tune, you can use the "Tune" frequency. Because we're getting a lot more RF in through the tuner than we need, the entire width of the received RF in the picture below is 3.2MHz, we can take a look at that entire 3.2MHz block and see where multiple signals exist. That's a lot easier than tuning up and down the dial blindly, we can tell in advance where stations are within that range. This is especially useful where the signals are close together so many of them appear in the same area, we can jump to them without having to retune the dongle to find them.

If you've tuned correctly, you'll see orange lines moving up the top window, this is a waterfall display. It shows you, over a range of frequencies, what's going on. If it's dark or blue, there's nothing of note there, it's probably just noise. If it's green or orange, it's probably a signal. In our case, a green and orange line means that there's a radio station there. If there's several, click around on the display and see what's there. the brighter it is, the stronger the signal. Since we're listening to something HDSDR isn't really built to demodulate, it'll try its best given the settings you've chosen, in this case it'll try and demodulate it as a narrow-band FM signal. It isn't one, so it'll sound garbled or weak, this is because it's only demodulating a small chunk of the signal which occupies a much larger bandwidth than it's using to decode it as listenable audio. It's a clue that we're heading in the right direction though, it means we can see signals and we can work with them.

So that's FM broadcast, what else can we do? Well, there are numerous ham radio bands around the world, to find out where you might want to look you should search for radio spectrum allocations in your area. Let's say for example you find a ham radio frequency or band which is allocated for use for "CW". This is "constant wave" (morse code) and to use it you would select the "CW" button on HDSDR, likewise for AM signals, choose the AM button and so on. There are many applications which I've yet to discover that are designed to demodulate and decode all manner of signals, and a great many of them are free, written by and for the ham radio community. There's so much out there to receive that I don't even know where to begin suggesting potential areas of exploration, being quite new to this myself, but with a radio tuner this versatile you can be sure that if it's out there (and within the huge tuning range of the kit), you can take a look at it.

References, greets and thanks:

Osmocom wiki and Osmocom IRC, Freenode #osmocom, especially steve|m and Hoernchen

Balint Seeber and his excellent work on the ExtIO dll

Antti Palosaari for discovering the RTL2832?s I/Q mode

The RTL-SDR subreddit for being awesome and pooling experiences and info