TECHNICAL ARTICLE
Turn that old USB TV Dongle into a wideband receiver.
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(Peter provides Windows users with a step by step guide to the wonderful world of Software Defined Radio Receivers - this will work with any DigitalTV dongle based on the Realtek RTL2831U demodulator chip and its variants.)

There is now available, open source software that will turn that old USB TV Dongle into a wideband receiver, the software we will use for this installation is SDR# (known as SDRSHARP).

the DTV Dongle - Peter's was a AV-Labs one - however there are a multitude of brands available in shops and online if you don't have one kicking about the shack

There are five pieces of software needed to use and install the USB TV Dongle as a wideband receiver, they are as follows.

1. 7ZIP, this software is an unzipping program similar to windows zip; it will be used to unzip the next piece of software needed for the install called Zadig. 7Zip can be found at http://7-zip.org/download . Or just Google 7zip and chose your download preference, make sure you get the correct version that is compatible with your version of windows , 32 or 64 bit, Win 7 or Win 8 for example. Once downloaded install it.

2. The next piece of software is Zadig; this is used to change the USB driver of the port that you have the USB TV dongle plugged into. This software is a compressed file that we will use 7zip to extract the files. Zadig software can be found at, http://sourceforge.net/projects/libwdi/files/zadig/ . Or just Google Zadig and choose your download preference, again make sure you have the right version of Zadig that is compatible with your version of windows Win XP, Win 7 or Win8 for example.

3. The next three pieces of software are three pieces of the SDR# program, two of these can be found on the SDR# home page which is, http://sdrsharp.com/index.php/downloads .

Download the following two files, SDR# Dev and SDR# RTLSDR Plugin, these two files are zipped and can be unzipped using the normal windows unzip program in Windows Explorer.

Create an new SDR folder on you disk drive and extract the two downloaded files to it, you will notice that there will be a new folder created called SDR-nightly, this folder holds the SDR# program files. Notice there is now a Config folder also under the SDR-nightly folder, in this folder is a file called "SDRsharp.exe.config"; this file needs to be dragged into the SDR-nightly folder with the rest of the program files.

One more file we need is RTLSDR.dll this can be found at, http://sdr.osmocom.org/trac/attachment/wiki/rtl-sdr/RelWithDebInfo.zip (all one word without line break). This file can be unzipped using the normal windows unzip program in Windows Explorer

Once this file is downloaded extract the contents to the SDR-nightly folder that holds the rest of the program files. This concludes the file download and housekeeping, "*getting all the files into the right folders etc*".

Now we have all the files required to install the USB TV Dongle as a wideband receiver, let's get started by installing the TV Dongle and change the USB port driver.

Plug the USB TV dongle into a USB port; **STOP**, remember we are changing the driver of this port so it will only read the TV dongle from herein; so choose an un-used port. Once the TV Dongle is plugged into the USB port windows will install a driver for this, that's OK let it go, because once this is finished we will run the Zadig program and change the port driver.

To change the driver open Zadig, choose options from the menu items available, select 'list all devices', once this is done select the down arrow on the device button and select the USB TV dongle, there will be other devices shown if you have other devices plugged into any USB port, printer for example. Once you have selected the USB TV dongle device press the reinstall driver button, this will change the driver of the port and it will no longer be a windows driver.

Righto that done you could check the driver by opening control panel , select devices, USB and the USB TV dongle device , select properties and view the driver, it will be something like RTLSDR.2838UHIDR and the driver provider will be libusbx.org. Now if all of the program file unzipping and folder structure has gone well, all that is required to do now is to run the SDR# program, now I found it better to use the install program from the SDR# website so let's go back there and run the program link on the download page, http://sdrsharp.com/downloads/sdr-install.zip . When this file is downloaded unzip it and run it, this install program will run the install program in a dos window on your PC and install the components properly.

To run the program open the folder SDR-nightly that you created and run the SDR Sharp.exe file, (double click it), the program will fire up, you need to select the down arrow on the tab that has 'other sound card on' it and select RTL-SDR/USB. You can now open the config tab and you should see your USB TV dongle parameters there, if that is all good then press play and dial up a frequency, choose an local FM broadcast station frequency to start with, 0.102.300.000 FM for example and see if that works, don't forget change the mode to WBFM.

Happy tuning, now you can go about discovering the limits of your receiver.

Notes:
If your SDR tuner does not look the same as the one in the picture, specifically the Frequency readout along the top of the receiver; if you don not see this then something has gone wrong with the installation, I found this the be the dos window part of the installation so try that step again.
(After the third installation I got Lucky!!)

To create an SDR# shortcut on your desktop, open windows explorer and go to the SDR-nightly folder, right click SDR Sharp.exe and drag and drop it onto the desktop.

You can change the USB port driver again in the future if the USB port is needed to drive other devices; just search on Windows USB Driver installation and follow the instructions.
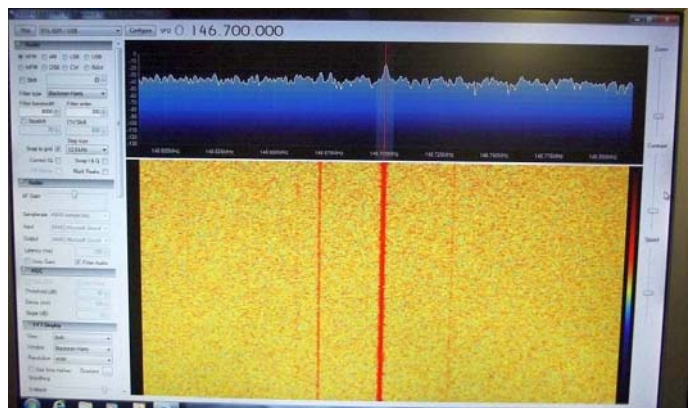
the SDRSharp control screen showing spectrum display and waterfall, along with different controls and settings.

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