

## **Building pihpsdr (version 1.2)**

Either open a terminal window or ssh into the computer.

Install the required packages:

```
sudo apt-get install libfftw3-dev
sudo apt-get install libgtk-3-dev
sudo apt-get install libasound2-dev
sudo apt-get install libusb-1.0-0-dev
sudo apt-get install wiringPi
```

If you do not have git already installed then enter the following command:

```
sudo apt-get install git
```

Create a directory for cloning the source into:

```
mkdir github
```

To download the source code enter the following commands:

```
cd github

git clone https://github.com/g0orx/wdsp
git clone https://github.com/g0orx/pihpsdr
```

If you get an error saying “server certificate verification failed” you need to install the CA Certificates using the following command and then repeat the above commands:

```
sudo apt-get install ca-certificates
```

You should now have a `wdsp` and `pihpsdr` directory in the `git` directory.

cd into the `wdsp` directory and run the `make` command:

```
cd wsdp
make
```

If it compiles OK then run the commands:

```
sudo make install
sudo ldconfig
```

This will copy `libwdsp.so` to `/usr/local/lib` and `wdsp.h` to `/usr/local/include`

Now cd into the pihpsdr directory:

```
cd ..  
cd pihpsdr
```

The Makefile is setup to compile the current release version of pihpsdr for the Raspberry Pi. See below for building on other platforms.

To build pihpsdr run the make command:

```
make
```

If all is OK you should have pihpsdr built in the current directory. Run the following command:

```
make release
```

This will copy pihpsdr into the release/pihpsdr directory and create the pihpsdr.tar and pihpsdr-v1.2.tar release files for installing pihpsdr.

To install the release, copy the release tar file (pihpsdr.tar) to you home directory:

```
cp release/pihpsdr.tar ~
```

Change directory to your home directory and extract the tar file (this will create a pihpsdr directory in your home directory):

```
cd ~  
tar xvf pihpsdr.tar
```

Install pihpsdr. This will copy the shared libraries to /usr/local/lib and pihpsdr to /usr/local/bin:

```
cd pihpsdr  
./install.sh
```

To run the application enter the following commands:

```
cd ~/pihpsdr  
sudo pihpsdr
```

It should start up and the first time will create the wisdom file for FFTW3. Once completed it will then try to discover HPSDR devices on the network. Click on Start next to the one required and it should start running.

To build piHPSDR on other platforms all that should be required is to comment out the GPIO define:

```
#GPIO_INCLUDE=GPIO
```

The Makefile now contains the build options to include FreeDV as a built in mode.

To build piHPSDR with the FreeDV option you will have to download, build and install the codec2 library and headers.

Look at <https://freedv.org/tiki-index.php> under Source Code and download the Codec 2 source archive. Follow the instructions in the README file.

To include FreeDV in the piHPSDR build uncomment the line in the Makefile:

```
# uncomment the line to below include support for FreeDV codec2  
#FREEDV_INCLUDE=FREEDV
```

Change to:

```
# uncomment the line to below include support for FreeDV codec2  
FREEDV_INCLUDE=FREEDV
```

Then run the commands:

```
make clean  
make  
make install
```

The Makefile now contains the build options to include psk31 as a built in mode.

To build piHPSDR with the psk31 option you will have to download, build and install the psk library and headers.

The source code can be downloaded using git:

```
git clone https://github.com/ahopper/PSKCoreSDR
```

To build:

```
cd PSKCoreSDR/PSKCoreSDR
make
sudo make install
```

To include psk31 in the piHPSDR build uncomment the line in the Makefile:

```
# uncomment the line below to include support for psk31
#PSK_INCLUDE=PSK
```

Change to:

```
# uncomment the line below to include support for psk31
PSK_INCLUDE=PSK
```

Then run the commands:

```
make clean
make
make install
```