Building pihpsdr

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 wiringPi
```

Run the following commands to download and install the PIGPIO package:

```
wget abyz.co.uk/rpi/pigpio/pigpio.zip
unzip pigpio.zip
cd PIGPIO
make
sudo make install
```

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

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

To download the source code enter the following commands:

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

If you get an error with 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.src directory.

cd into the wdsp directory and run the command:

```
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.src directory

The Makefile has a definition of the hardware platform (default raspberrypi) it is running on that needs to be set before running make. Uncomment the required define:

```
UNAME_N=raspberrypi
#UNAME_N=odroid
#UNAME_N=up
#UNAME_N=x86
```

run the following command:

```
make
```

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

```
make install
```

This will copy pihpsdr into the release/pihpsdr directory
To run the application enter the following commands:

```
cd release/pihpsdr
./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.

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 instuctions 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
```