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 libusb-1.0-0-dev
sudo apt-get install wiringPi
sudo apt-get install pigpio
```

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 git
```

To download the source code enter the following commands:

```
cd git

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 wdsp
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 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.

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 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
```