

libradiohat - experimental version and tools

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introducing *libradiohat*

This is a refactored set of libraries for accessing the *RadioHat 1.0* hardware. It has many clean-ups and improvements and may now be built as a dynamic library.

There's also a primitive *make* file included that builds the library and test program but does not install it. For now, programs that use it must access things by absolute locations, or you must move the dynamic library to somewhere on the load library path.

This folder includes a rewritten version of pitrans as well, called *transceiver* that uses the new dynamic library for all *RadioHat* access.

Two other experimental programs are included that expect for now to find the libradiohat.so in `~/dvl/libradiohat`, but they can easily be modified to change this - the next revision will access them from *this* folder `~/radiohat/libradiohat` - which makes more sense!

Other Tools

In the *GRC* folder, *transceiver.grc* / *transceiver.py* is an experimental gnuradio flow graph that attempts to put all the things needed to experiment with and test *RadioHat* in one spot. It also includes some experimental PTT and VFO access from the flow graph. Unfortunately the ways needed to do this at the moment add a lot of overhead, and the program is unstable when run in the GRC environment. It seems to work OK by running the .py file, however.

Be aware, however, that the 1ms polling rate GRC uses for exporting variables as messages adds a lot of overhead and as a result this flow graph is occasional getting out of sync and losing alternate sideband rejection - usually if a lot of VFO tuning around is done at high speed. It's still fun and very useful for quick testing, but stick to the simpler flow graphs for serious measurements!

Experimental *quisk* interface

QUISK is a folder containing a hardware configuration file for Quisk. There are two copies present under different names. It's generally operating OK with the *QUISK*

version in the bullseye apt repository, but it's still very experimental. QUISK is very hard to configure and get working, but if you want to play with it, you may have some luck by moving the *radiohat* folder inside QUISK to the quisk configuration directory and setting quisk up as a radio of type "Softrock fixed" with one of these config files chosen.

All these programs are intended for use with the default Alsa device and I suggest using a usb plug-in dongle. This simplifies understanding them and eliminates problems with t/r switching the codec hardware audio paths. You can also use the built-in Pi headset sound or the HDMI sound for receiver and tone testing, since they both include dummy input devices.

We'll return to using the built-in headset jack and digital modes soon, but for now these simplifications are speeding development a great deal and ensuring a solid foundation for the work to come.