John's Musings

Yeah, Me Neither

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Adalm-Pluto SDR - Or - Good God They Make It So Hard

Saturday, August 26, 2017 by

The latest "darling" in the SDR world is the ADALM-PLUTO SDR which is a $99 receiver and transmitter and is quite hackable. It has a weird range of tuning which is 300 MHz to 3.8 GHz. What most SDR geeks won't tell you though is when they aren't actively signal hacking they are listening to FM Stereo. Trust me. Of course FM stereo is about 88-107 MHz so this simply won't do.
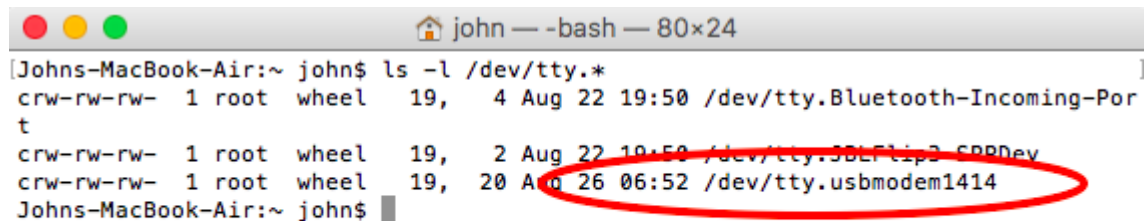
You can hack the Pluto SDR though to reach 70 MHz to 6 GHz. THAT'S HUGE! Then you could add an UpConverter to tune to the HF frequencies. So lets get to hacking. I'm doing this hack from a Mac. It can be done via Windows with a program called Putty very easily as well.

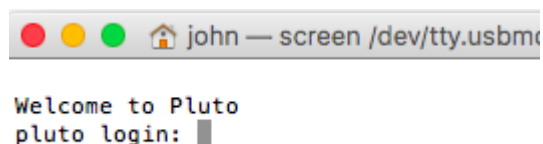Plug in the Pluto and go to a terminal and type:

```
ls -l /dev/tty.*
```


Then type this making sure that you use the device that was discovered on your computer.

```
screen /dev/tty.usbmodem1414 96000
```

Should see this:

User name is: root

Password is: analog

Should see this:

```
 john — screen /dev/tty.usbmodem1414 96000 ▸ SCREEN — 80×24

Welcome to Pluto
pluto login: root
Password:
Welcome to:

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|  __ \| |   | |   / ____|  __ \ \
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v0.22
http://wiki.analog.com/university/tools/pluto
# █
```

Now type the following commands: (the # should already be there, just the text).

```
# fw_setenv attr_name compatible
# fw_setenv attr_val ad9364
# pluto_reboot reset
```

That's it! Your Pluto is hacked! You can now listen to FM Stereo you lucky devils.

Now sadly the PlutoSDR doesn't play nice with any software except MATLAB (which is EXPENSIVE) and GNURadio (which is HARD). So someone has developed a way to get the PlutoSDR working with GQRX which is a great front end program. Here's the deal though, THEY LEAVE OUT IMPORTANT STEPS AND IT WILL NEVER WORK. Then the steps are too geeky. They have you building GNURadio from PyBOMBS (don't ask). And then building the drivers where they LEAVE OUT IMPORTANT STEPS, and then have you install GQRX from source.

TOO HARD!

This is done from a fresh install of Ubuntu that is updated with sudo apt-get update and sudo apt-get upgrade. First lets do a little preparatory work from the terminal.

```
sudo apt-get install git cmake rtl-sdr librtlsdr0 librtlsdr-dev miri-sdr libmirisdr0 libmiris
```

Without that stuff above it just won't work. I found several guides on the internet and NONE OF THEM mention that stuff at all. While I appreciate the technical knowledge the geeks always assume we are as smart as they are

and know all this stuff already. Or probably more accurately all this stuff was already installed on their system when they started working these hacks. Either way......I love 'em. Just saying.

Now get GQRX. Again I am starting with a fresh install of Ubuntu which has never had GQRX on it before. If you have GQRX you should remove it. Follow the directions here.
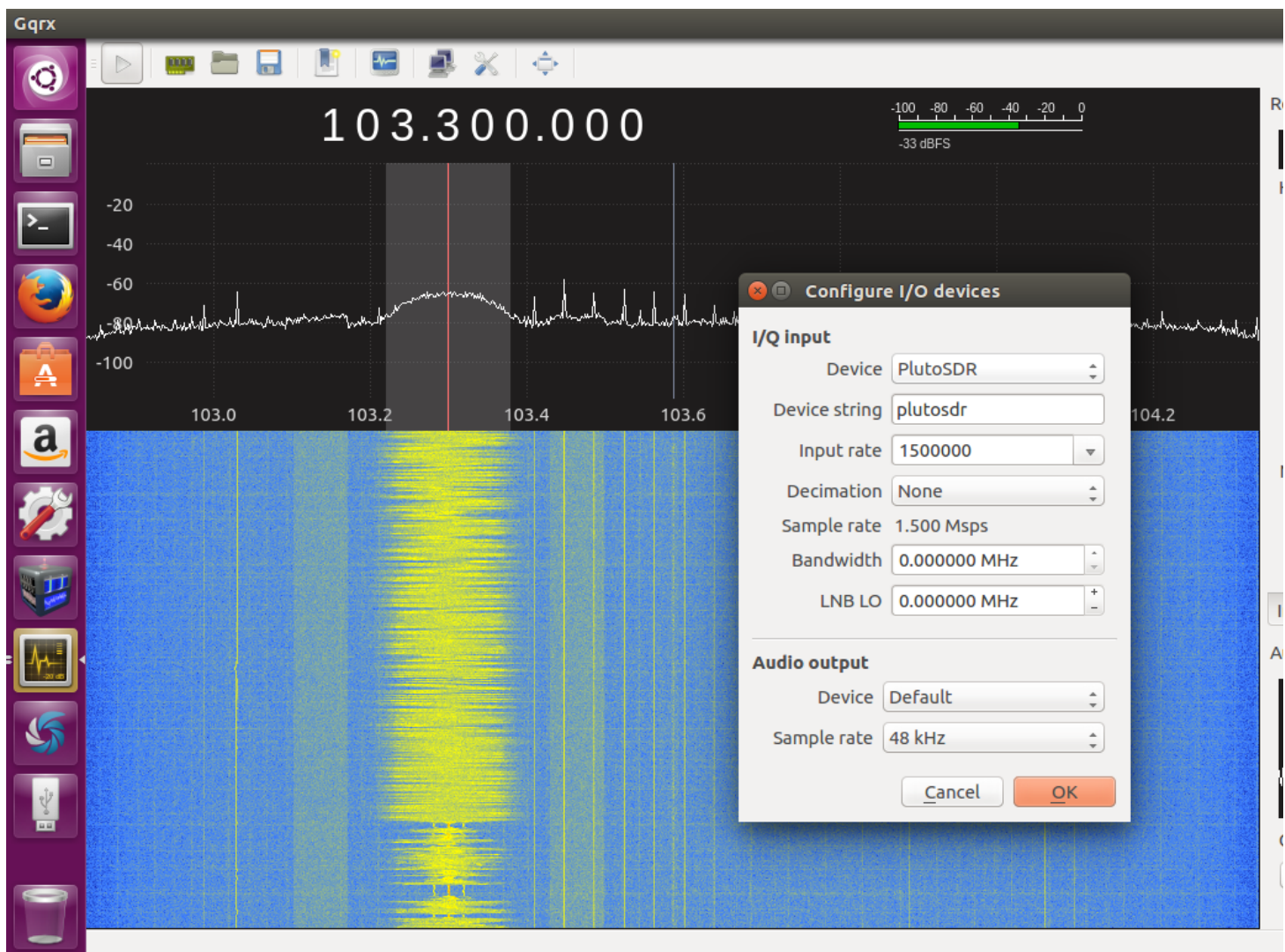
Now for GQRX

```
sudo add-apt-repository -y ppa:bladerf/bladerf
sudo add-apt-repository -y ppa:ettusresearch/uhd
sudo add-apt-repository -y ppa:myriadrf/drivers
sudo add-apt-repository -y ppa:myriadrf/gnuradio
sudo add-apt-repository -y ppa:gqrx/gqrx-sdr
sudo apt-get update
sudo apt-get install gqrx-sdr gr-iio
```

Now that is done. Lets install the upstream driver for gr-osmosdr which has PlutoSDR included.

```
git clone https://github.com/csete/gr-osmosdr-gqrx
cd gr-osmosdr-gqrx/
git checkout plutosdr
mkdir build
cd build/
cmake ../
make
sudo make install
sudo ldconfig
```

Now when you open GQRX and have your PlutoSDR plugged in it should show up. You Done Did It.

This way is SOOOO much easier than the other ways I found of doing this on the internet. Hope it helps someone. If you like it give it a share with my social media buttons. I don't think anyone has ever done that before. Just want to see if it works!

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Name

Alex M • 7 months ago
Thank you so much!!!!! I can't even describe how much this helped me. I'm a college student and I must have spend a solid 6 hours on this (and 2 fresh ubuntu installs), which wasn't a very good decision! Thanks for finally helping me get this working

∧ | ∨ • Reply • Share ›

> **John Hagensieker** Mod ↗ Alex M • 7 months ago
> You are welcome but bear in mind I only gathered all the junk and details and put it in order in one place. And made it a little easier, I think :)
>
> ∧ | ∨ • Reply • Share ›

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