

Configuring linHPSDR to work with WSJT-X.

LinHPSDR uses PulseAudio as its audio infrastructure. WSJT-X also has an option to use PulseAudio. PulseAudio allows the connection of the audio input and output streams between the applications without using physical cables.

So as not to use the sound card(s) in the computer you can configure pseudo devices that allow you to connect the audio out and microphone input of linHPSDR to WSJT-X.

Adding the pseudo devices.

To add the pseudo devices the file `~/.config/pulse/default.pa` must be edited or created if it does not exist.

Add the following lines and then save the file:

```
.include /etc/pulse/default.pa
### linHPSDR
load-module module-null-sink sink_name=linHPSDR sink_properties="device.description='RX0 Audio'"
load-module module-null-sink sink_name=linHPSDR sink_properties="device.description='TX Audio'"
```

Note that you could add multiple receiver sinks for RX0 to RX6.

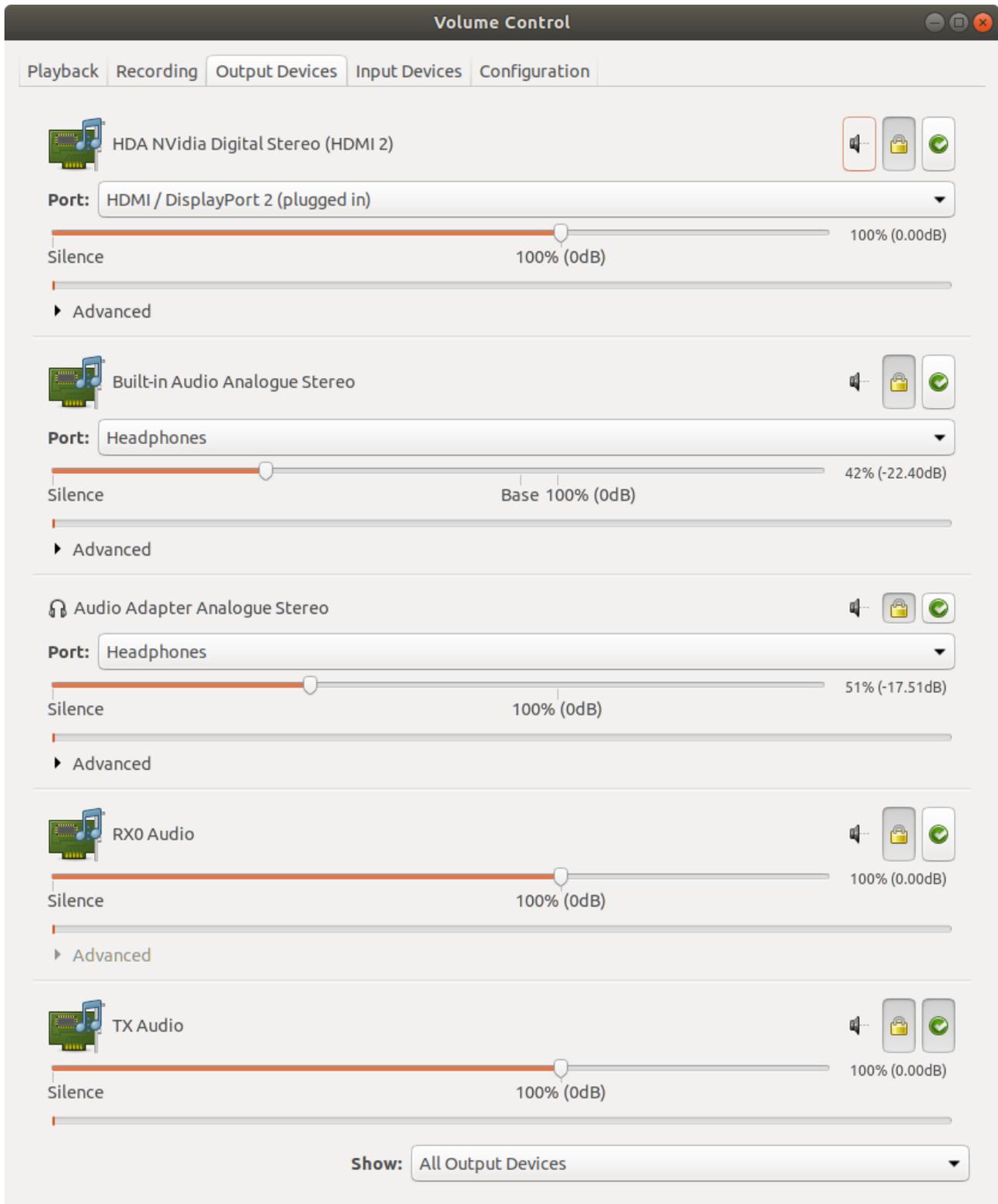
PulseAudio must to be restarted to load the pseudo devices using the following command:

```
pulseaudio -k
```

PulseAudio volume control.

Start the PulseAudio volume control **pavucontrol**.

If you look in the **Output Devices** tab you should now see **RX0 Audio** and **TX Audio**.



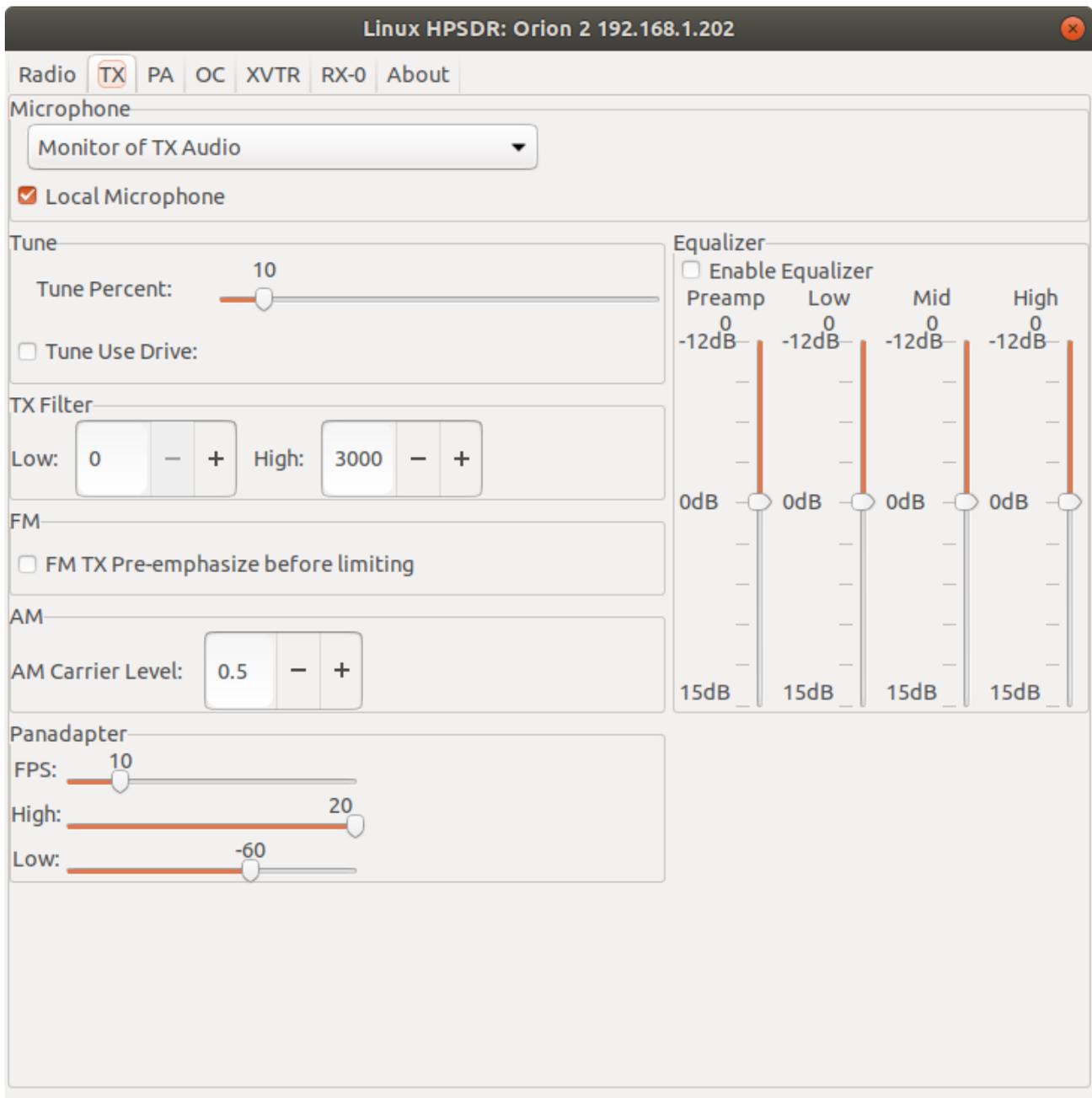
Configure linHPSDR.

To configure the audio output, right click on the receiver and the receiver dialog will be displayed. In the **Audio** frame select **RX0 Audio** and enable **Local Audio**.

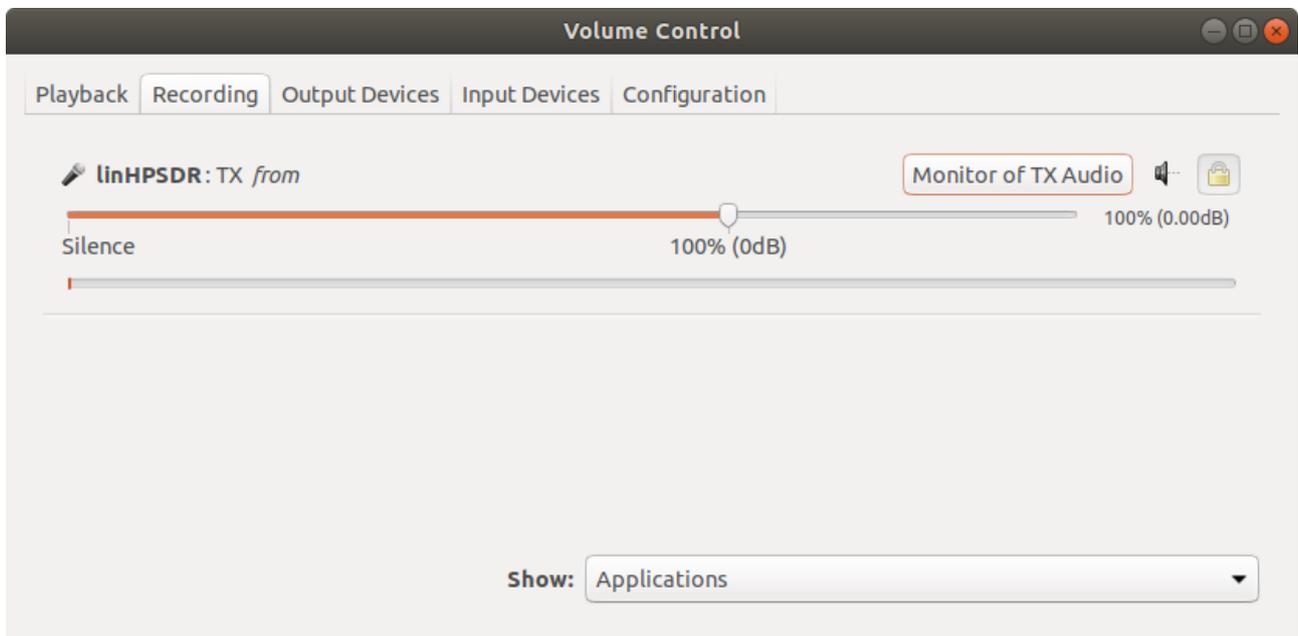
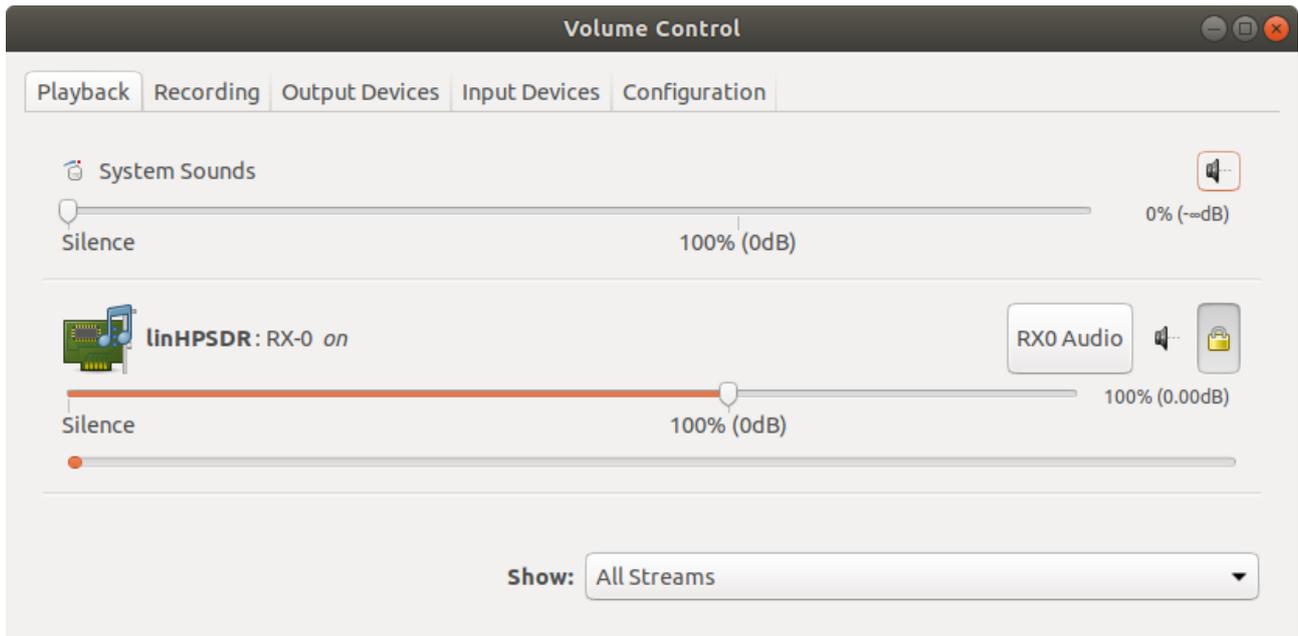
The screenshot shows the Linux HPSDR software interface for the Orion 2 receiver. The window title is "Linux HPSDR: Orion 2 192.168.1.202". The "RX-0" tab is selected in the top navigation bar. The interface is divided into several sections:

- ADC:** Radio buttons for "ADC-0" (selected) and "ADC-1".
- Band:** A grid of buttons for various bands: 2200, 630, 160, 80, 60, 40, 30, 20 (highlighted in orange), 17, 15, 12, 10, 6, GEN, and WWV.
- Mode:** A grid of buttons for different modes: LSB, USB, DSB, CWL, CWU, FMN, AM, DIGU (highlighted in orange), SPEC, DIGL, SAM, and DRM.
- Filter:** Buttons for filter bandwidths: 5.0k, 4.4k, 3.8k, 3.3k, 2.9k, 2.7k, 2.4k, 2.1k, 1.8k, 1.0k, and two variable filter sections (Var1 and Var2) with numerical values and +/- controls.
- TX Frequency:** A checkbox "Use This Receivers Frequency" which is checked.
- Panadapter:** Three sliders for "FPS" (set to 10), "High" (set to -60), and "Low" (set to -140).
- Waterfall:** Two sliders for "High" (set to -64) and "Low" (set to -114), with a checked "Waterfall Automatic" checkbox.
- Equalizer:** A checkbox "Enable Equalizer" which is unchecked. Below it are four vertical sliders for "Preamp", "Low", "Mid", and "High" frequencies, each with a scale from -12dB to 15dB and a 0dB marker.
- Audio:** A checked "Local Audio" checkbox and a dropdown menu currently showing "RX0 Audio".

To configure the transmit audio for linHPSDR click on the **Configure** button on the radio window and in the **Microphone** frame select **Monitor of TX Audio** and enable **Local Microphone**.

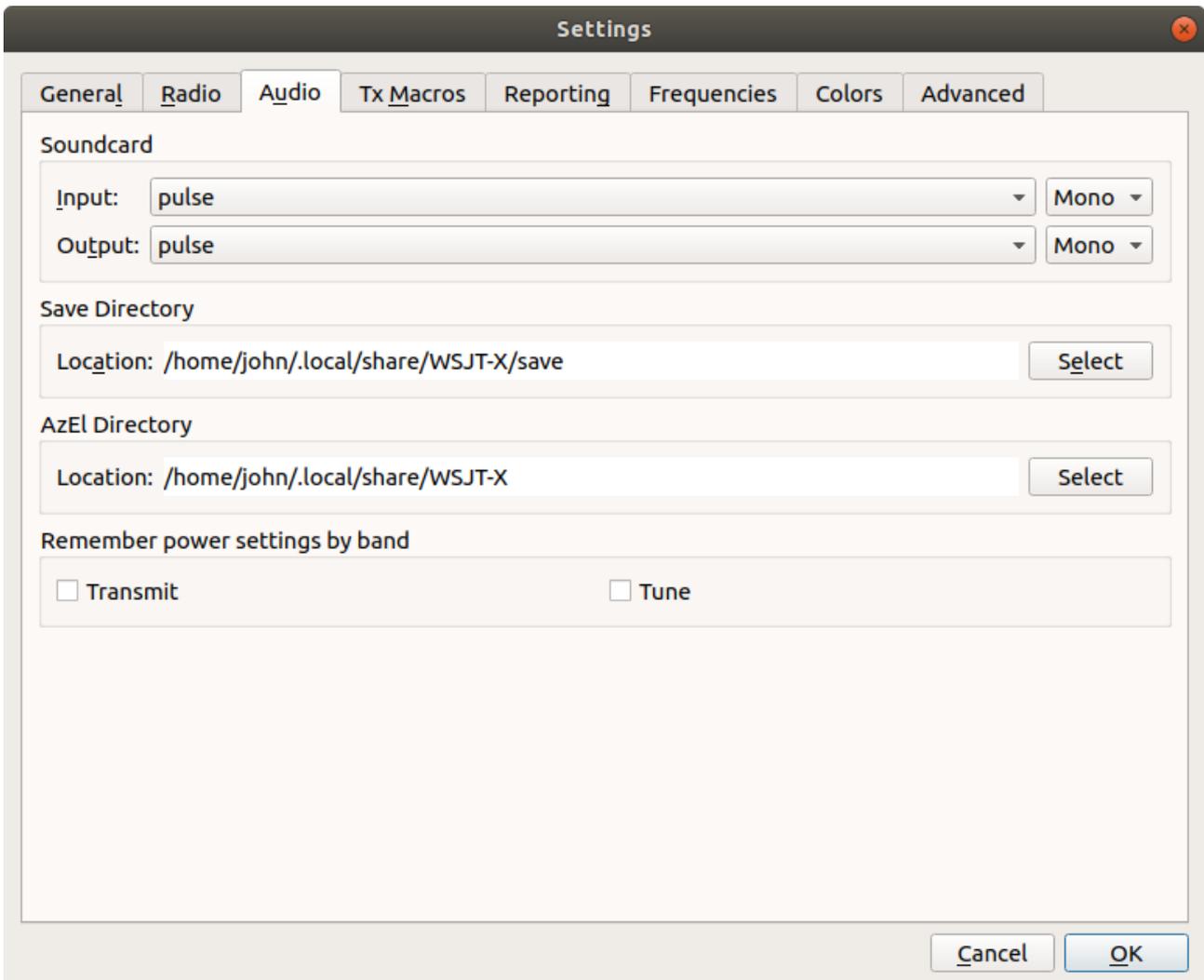


If you look in the Playback and Recording tabs of pavucontrol you will now see the linHPSDR connections.



Configure WSJT-X.

Click on **File** → **Settings** menu and the Settings dialog will be displayed. Select the **Audio** tab and in the **Soundcard** frame select **Input** and **Output** to be **pulse**.



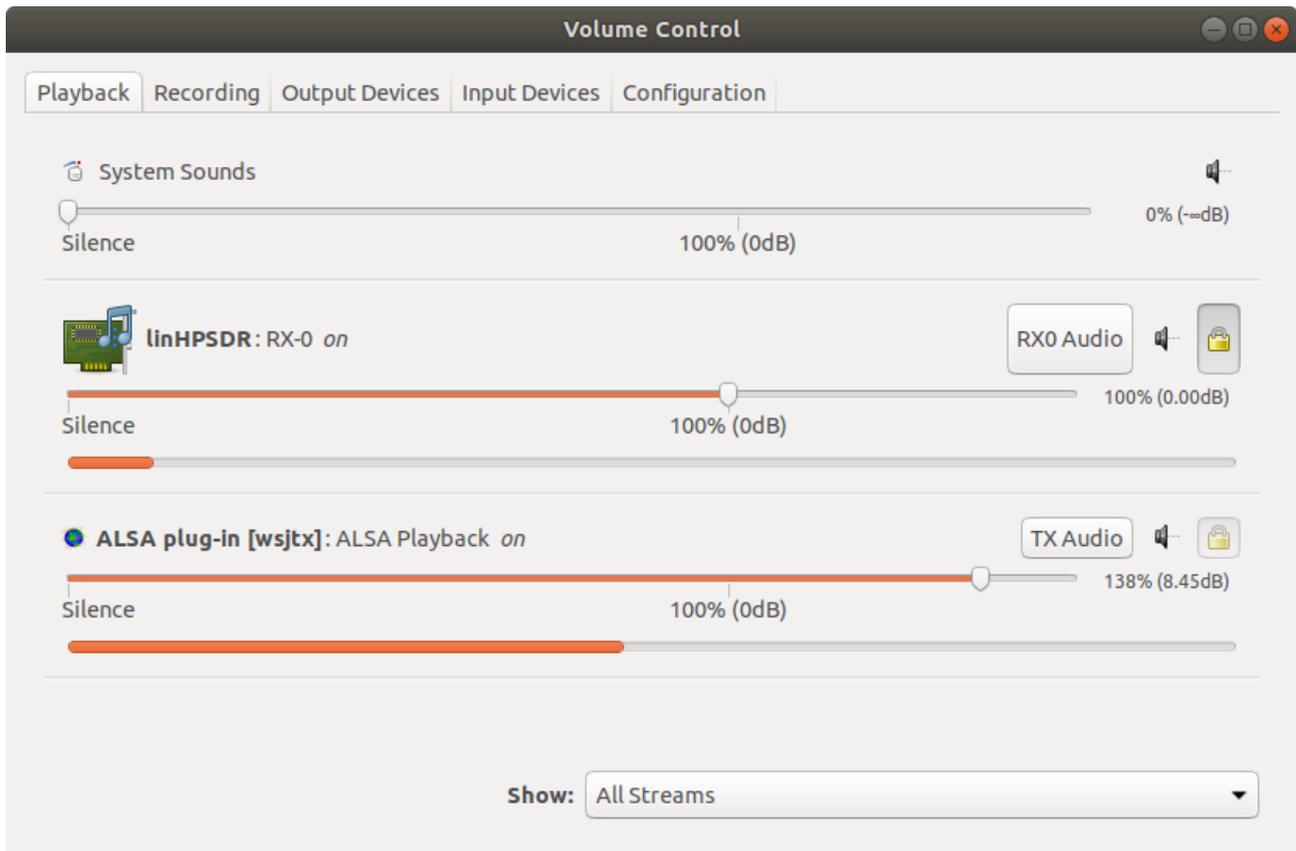
In pavucontrol in the **Recording** tab you should now see the wsjt-x stream to capture audio. Select **Monitor of RX0 Audio**. You should now see data in the the WSJT-X Wide Graph.

The screenshot shows the 'Volume Control' window with the 'Recording' tab selected. It displays two audio streams:

- linHPSDR: TX from**: Includes the openHPSDR logo and a volume slider set to 148% (10.13dB). A 'Monitor of TX Audio' button is visible.
- ALSA plug-in [wsjtx]: ALSA Capture from**: Includes a volume slider set to 100% (0dB) and a 'Monitor of RX0 Audio' button.

At the bottom, there is a 'Show:' dropdown menu currently set to 'Applications'.

The **Playback** tab will not show the stream for the transmit audio from WSJT-X unless it is transmitting. Press the Tune button on the WSJT-X window and the wsjt-x Playback stream will appear. Select **TX Audio**.

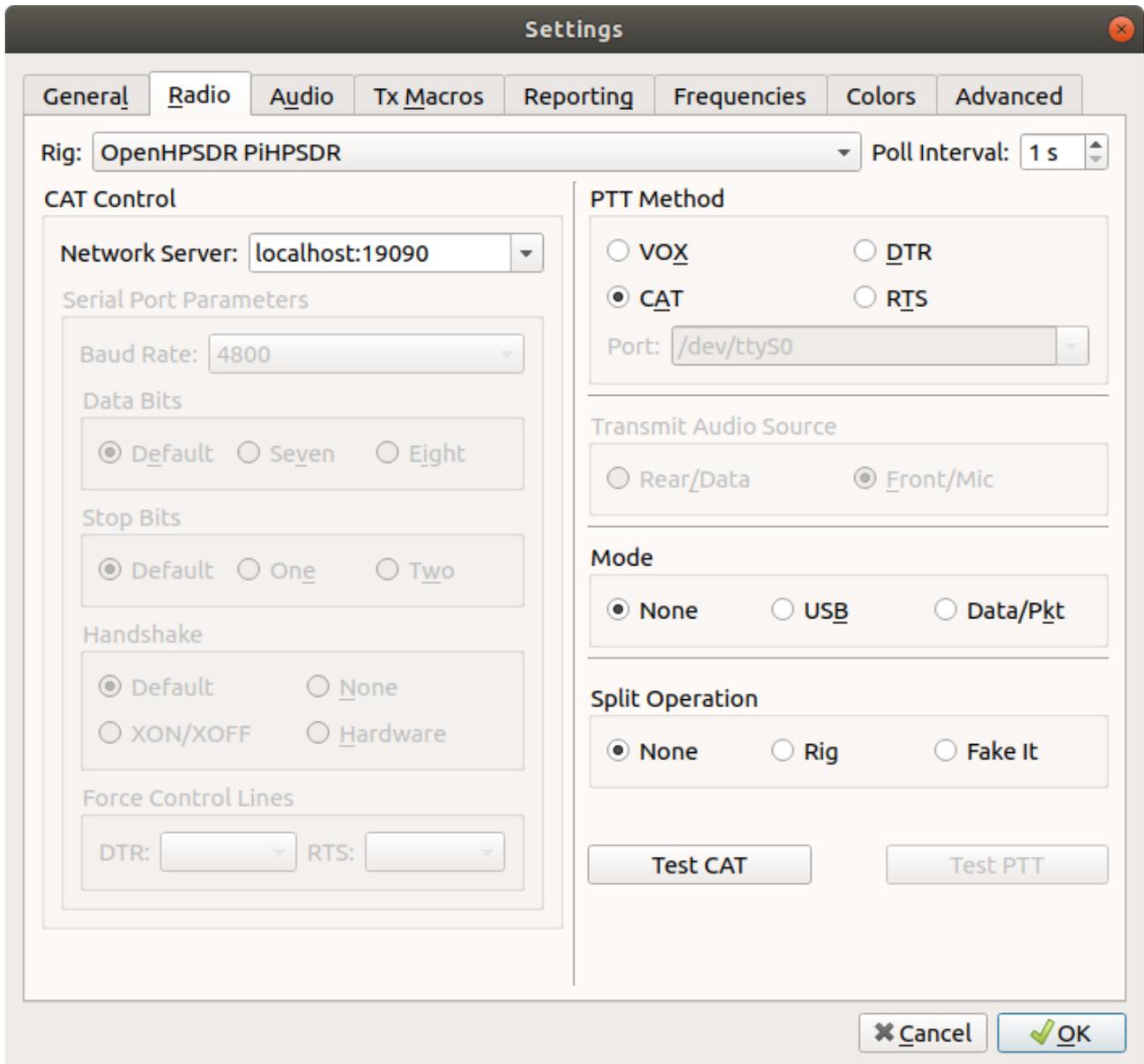


These settings will be remembered so it is only necessary to perform this configuration once unless something changes.

CAT interface;

Currently linHPSDR has sufficient CAT commands implemented to allow WSJT-X to interface to it. It only works with RX-0 currently.

To configure WSJT-X to use the CAT interface select the Radio tab in the File → Settings dialog. Select OpenHPSDR PiHPSDR as the Rig and set the Network Server to localhost:19090 and set the PTT Method to CAT.



When connected the CAT logo should be illuminated in RX-0.

