RigPi Audio Update Instructions

July 10, 2019

This update changes a file called a "device tree overlay" to a new one that is better suited for the RigPi Audio board. The new overlay provides significant improvements for FT8 decoding in WSJT-X, and Mumble audio quality for weak (noisy) signals.

Because this change requires elevated file access permissions it will be done manually. The change is made from the Raspberry Pi Desktop.

Please read the following instructions before proceeding. If you have any questions be sure to ask for help on the forum. It may be possible for a volunteer to log into your desktop to make the changes if you prefer to not do them yourself.

Open the Raspberry Pi Desktop by:

1. Attaching an HDMI Monitor, USB mouse and USB keyboard to RigPi, or….
2. Using VNC Viewer from another computer to open the Raspberry Pi Desktop in a virtual desktop window.

Start Terminal by single-clicking the black icon in the Desktop toolbar. Enter the following commands:

```
cd /boot<Enter>
sudo nano config.txt<Enter>
```

Scroll to the end of the file opened in nano using the down arrow key.

Replace the second to last line (containing audioinjector-wm8731-audio) with this:

```
dtoverlay=rpi-proto
```

Save (Ctrl+o<Enter>) and exit (Ctrl+x).

Reboot using

```
sudo reboot now<Enter>
```

to have the change recognized.

After rebooting, close Mumble client, if it is open, for the following steps.

RigPi Audio settings and options

Right-click the Speaker icon at the top right corner of the Desktop and confirm that snd_rpi_proto is in the list.

Select snd_rpi_proto.

Click the Raspberry Applications Menu icon in the top left corner of the Raspberry Pi Desktop, then select Preferences>Audio Device Settings.

- Confirm that Card: snd_rpi_proto (Alsa mixer) is the selected card.
- Use the settings below to select and configure Mic or Line Input and Line Output.

Audio Device Settings, Selections for RigPi Audio

Click the Select Controls... button at the bottom. Put checks in the following options:

1. Master
2. Line In
3. Microphone
4. Mic Boost
5. Capture
6. Input MUX
7. Output Mixer HiFi

Click the Close button to close the Select Controls window.

- Once you are testing with your radio, if the receive audio levels are too low, use the Mic selection in the Input Mux list in the Options tab to boost the capture levels. The Mic Boost slider n the Payback tab can be used to further increase or decrease the Mic levels.

Audio Device Settings, Levels and options for RigPi Audio

Control	Starting Value	Notes
Playback (click Playback tab)		
Master	2/3 maximum	Change to suit
Mic Boost	Maximum	Change to suit

Control	Starting Value	Notes
Capture (click Capture tab)		
Capture	2/3 maximum	Change to suit
Switches (click Switches tab)		
Line-in	Checked	
Microphone	Checked	
Output Mixer HiFi	Checked	
Options (click Options tab)		
Input Mux	Line In	Select Mic for low level audio input

Finally, click the Make Default button at the bottom and close the Audio Devices Settings window.

After testing with your transceiver you may find it necessary to change some of the Audio Device Settings window options and levels.

USB Audio CODEC settings and options

Right-click the Speaker icon at the top right-hand end of the Desktop and confirm that USB Audio CODEC is in the list.

Select USB Audio CODEC

Click USB Device Settings… to open the Audio Device Settings window.

If the PCM slider is not shown, click Select Controls and put a check in the PCM checkbox.

Adjust the PCM sliders to suit. The PCM sliders control the Playback level which is sent to your radio's mic input. The PCM sliders control transmit audio level.

Click Make Default and then OK to close the Audio Device Settings window.

Any program that uses audio from RigPi Audio, a radio CODEC, or an external USB sound card should be set to default for input and output devices. The default is set by using the Speaker right-click menu.

Other Programs

If you wish to use a digital mode program (Fldigi, JS8Call, WSJT-X) use [default] in those programs for all audio input and output devices.

In Mumble client, use default for audio in and audio out devices if you are using a CODEC. If you are using RigPi Audio, use [sysdefault:CARD=sndrpiproto] snd_rpi_proto, Default Audio Device. If you make any changes to Mumble, close the Mumble client and restart to have the settings stick.