

Multipple Pi2pi VoIP solutions

<https://www.raspberrypi.org/forums/viewtopic.php?t=85066>

VOIP pi to pi / Opusenc big latency, why ?

*** Quote ***

Thu Aug 21, 2014 10:07 am
Hello all,

I want to do Voip (Fulle duplex coms) from a pi to an another pi, it works but not correctly when i'm using opus in my line command. I hope you're better than me and you can help me on it.

I'm using raspbian / wolfson audio card / Logitech headset usb C390

With Netcat

It is easy to do fullduplex, with 2 pi's.

On pi 1 : arecord -D hw:0,0 -f dat | nc -q -1 -u <ip rpi 2> 7000 & nc -q -1 -u -l 7001 | aplay -D hw:0,0 -f cd
On pi 2 : nc -q -1 -u -l 7000 | aplay -D hw:0,0 -f cd & arecord -D hw:0,0 -f cd | nc -q -1 -u <ip rpi 1> 7001

it works !

As you can imagine, you can add other pi and transmit or listen easy to add other pi with adding the correct line.

With Socat

Easy to do multicast like, 1 pi transmitting to many pis.

On pi 1 : arecord -f cd | socat - udp-datagram:192.168.1.255:7000,broadcast
On pi 2 and others want to listen pi 1 : socat - udp-recv:7000,reuseaddr | aplay -D hw:0,0 -f cd

it works too ! Launch always first the receivers and after the transmitter.

With Opus

When i'm using Opus, i got a big latency (due to the encoding ?), why ? it's a low latency codec and the format of the sound in arecord is "-f dat" like a non compressed signal !

To make it just do a half duplex communication between the pis :

On pi 1 : arecord -D plughw:1 -f dat | nc -q -1 <ip of pi 2> 7001
On pi 2 : nc -u -q -1 k -l 7001 | aplay -d hw:0,0

Ok it works, (i think 25ms of delay).

Now with opus inside the line command :

On pi 1 : arecord -D plughw:1 -f dat | opusenc --bitrate 96 - - | nc -q -1 <ip of pi 2> 7001
On pi 2 : nc -u -q -1 k -l 7001 | opusdec --bitrate 96 - - | aplay -d hw:0,0

It works good but with a latency like 3sec !!!!!!! why ??

Is it possible to push directly the input audio signal in opus, stream it and decode it with opus with an other pi ?
Have you some ideas to solve this problem ?

Thanks to all

*** End Quote ***