

Streaming audio server for your home.

This project sets up a streaming audio server for your home using a lightweight server, either a raspberry pi or junk pc. It's very lightweight and, as tested, will handle a catalog of over 28,000 audio files (flac and mp3), streaming at least 3 different playlists to 3 different devices at the same time, without issue.

This is for a "headless" server, no monitor or keyboard. It assumes you have a very modest knowledge of linux...but not much. If you know the difference between '/share' and 'share' you're probably ok.

Note that none of this is original. I used lots of links online that are shown below and have added caveats, tips and suggestions when I did something extra or different.

Raspberry Pi, initial setup

1) If you're doing this on a Raspberry Pi, then get one, set it up. The most thorough and complete link I found for this was from Robert Atwood. He made it drop dead simple.

(<http://www.robertawood.com/blog/raspberry-pi/raspberry-pi-initial-setup-headless-no-monitor-or-keyboard-needed/raspberry-pi-initial-setup-no-monitor-headless-from-ubuntu-linux-part-1-introduction.html>)

be sure to change the root password: `sudo passwd root`

be sure to update / upgrade: `sudo apt-get update, sudo apt-get upgrade.`

2) move the operating system off the card onto an attached usb hdd (cards are notorious for going bad with constant writing....so this is a safety precaution, as well as making the backup scheme (see below)) easier. Pay VERY close attention to this or you have to go back and start from the beginning.

(<http://www.raspberrypi.org/forums/viewtopic.php?f=29&t=44177>)

Raspberry Pi or Debian

From here on, the setup is for Debian (on any pc or laptop) or Raspbian on the Raspberry Pi....running wheezy.

1) give it a static ip just to make future operations easier.

(<https://www.modmypi.com/blog/tutorial-how-to-give-your-raspberry-pi-a-static-ip-address>).

2) add a user for general audio use. This will, ultimately, be the owner of the music files, the signon to use from the phones and client devices, etc.

```
sudo adduser music
```

3) allow music to issue commands via sudo

```
sudo adduser music sudo
```

4) install samba for the usb hdd...just to make it easy to put additional shows on from anywhere in the house. After lots of samba installs, I think making the shared folder hang off the root is best. It's just simpler. So make it /share.

(<http://theurbanpenguin.com/wp/?p=2415>)

5) your mileage may vary, but the house firewall is pretty tight and the streaming is via a password secured wireless device, so I'm comfortable with minimal security on the actual audio files themselves. I have music:music as the owner and 777 as the permissions.

Note that I rerun these commands when I move music to the server, etc. They'll make /share and all lower folders completely open and useable and make everything in /share and below belong to music:music

```
chmod -R 777 /share
chown -R music:music /share
```

6) install minidlna.

(<http://tech.theswamp.in/post/2013/02/16/setting-up-a-raspberry-pi-powered-headless-media-server-and-nas/>)

any time you have troubles with minidlna, I start with
cat /var/log/minidlna
to see the actual log

Additional, possibly useful, information:

a) I don't add music that often....when I do, I simply ssh into the machine from somewhere else in the house:

ssh music@192.168.5.97	(the address of the raspberry pi)
sudo service minidlna stop	(stop minidlna)
sudo chmod -R 777 /share	(make sure all music has 777 permissions)
sudo chown -R music:music /share	(make sure music owns all music)
sudo minidlna -R	(tell minidlna to rescan / rebuild the database)
sudo service minidlna start	(start minidlna)
cat /var/log/minidlna.log	(check the log for any problems)

b) If you have any troubles with the database, etc, i've found the easiest thing to do is just to simply stop minidlina, kill the database file, restart minidlina (happens sometimes with power failures, etc)

c) look over minidlina.conf most of the explanations are pretty self explanatory.

I decided to split my audio into stuff i've recorded, other live shows and commercial cds/downloads, so

```
media_dir=/share/lw-recorded
media_dir=/share/tagged
media_dir=/share/commercial
```

this is the actual sqlite database that keeps everything.

```
db_dir=/var/lib/minidlina
```

as mentioned, sometimes I just delete it and let it rebuild.

I like logging at the lowest level.

```
log_level=info
```

You can set the browser of your player to <http://xx.xx.xx.xx:8200> (where xx.xx.xx.xx is the ip of the server)...if you want another port, change 8200 to something else.

```
port=8200
```

this is the name your phone/player is going to see

```
friendly_name=musicStream
```

d) Electricity at our house is \$0.11/kilowatt hour. Testing the draw for this, running 24 x 7 x 365 costs approximately \$3.38 / year.

e) I like AdaFruit and so I purchase from them, for the Raspberry Pi, here's a parts list:

the board itself. <http://www.adafruit.com/products/998>

the card. <http://www.adafruit.com/products/1121>

power cable <http://www.adafruit.com/products/592>

wall wart <http://www.adafruit.com/products/501>

standoffs <http://www.adafruit.com/products/1116>

Next up, driving it on solar! Stay tuned.