Raspberry Pi Server/Streamer Set Up (Revision 1, Oct. 8, 2020)

A *WallofSound.ca*, No Soldering Required, DIY Project

By Steve Graham

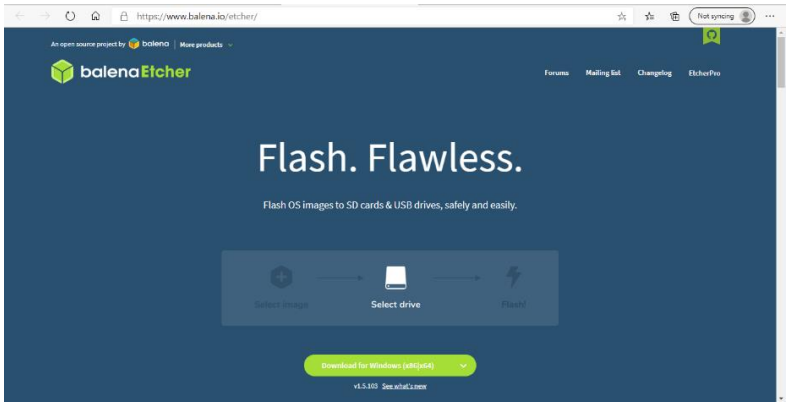
As mentioned in the main body of the article I've discovered that the PiCorePlayer software doesn't play nice with Western Digital USB drives causing it (the software) to stall during setup. I don't know a way around this and I'm loathe to even attempt a dive into coding. Several Seagate drives and one Verbatim drive I tried worked without glitches. Apologies to anyone who has had a hiccup with a WD drive and is now cursing me. I've added a screen shot below of what might happen if a drive doesn't "play nice."

-Connect the Ethernet cable from your router, switch or modem to the RPi. The RPi 4B has built-in Wi-Fi. Once programmed and set up, the Ethernet connection may be disconnected and the RPi may be controlled via Wi-Fi. I've provided a link later in this instruction that details the Ethernet to Wi-Fi transition.

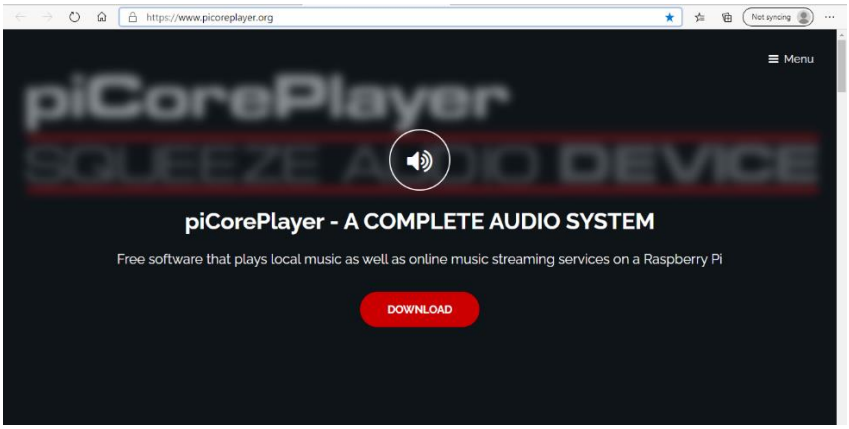
-Connect the USB drive containing music to the RPi. Connect a digital cable from the RPi to your DAC. If you a using a DAC HAT connect it to an analog input on your amp.

-Connect the power connector from the wall wart supply to the RPi but **DON'T** plug it into the AC supply yet.

-Download a small program that will enable you to flash the PiCorePlayer (PCP) Operating System (OS) to the Micro SD card (uSD) on to your laptop/desktop. I used Balena Etcher. https://www.balena.io/etcher/

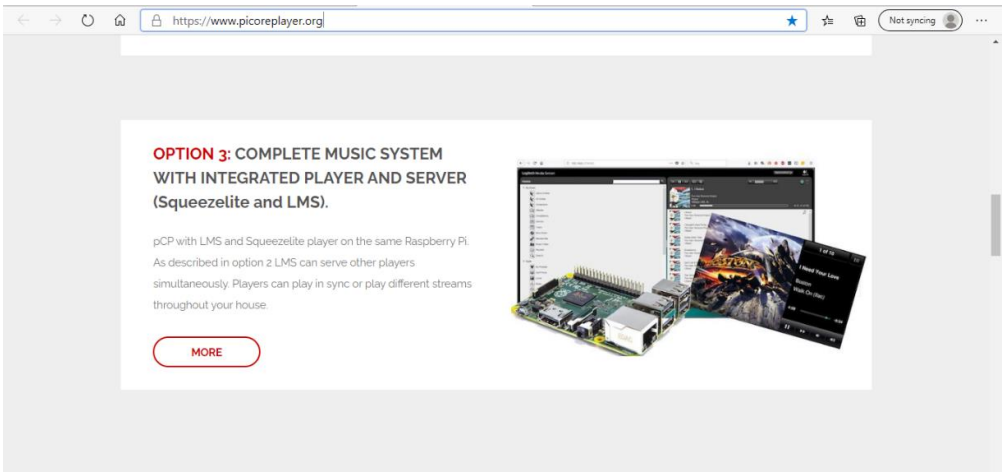


-Download the PiCorePlayer operating system. https://www.picoreplayer.org/



-The file is compressed. It might need to be decompressed before it can be written (flashed) to the uSD card or the flashing program might do that for you. Balena Etcher will decompress it automatically. (I'm depending on the more computer-savvy types to cut me a little slack on what must be some wrong or at the very least, awkward, terminology.)

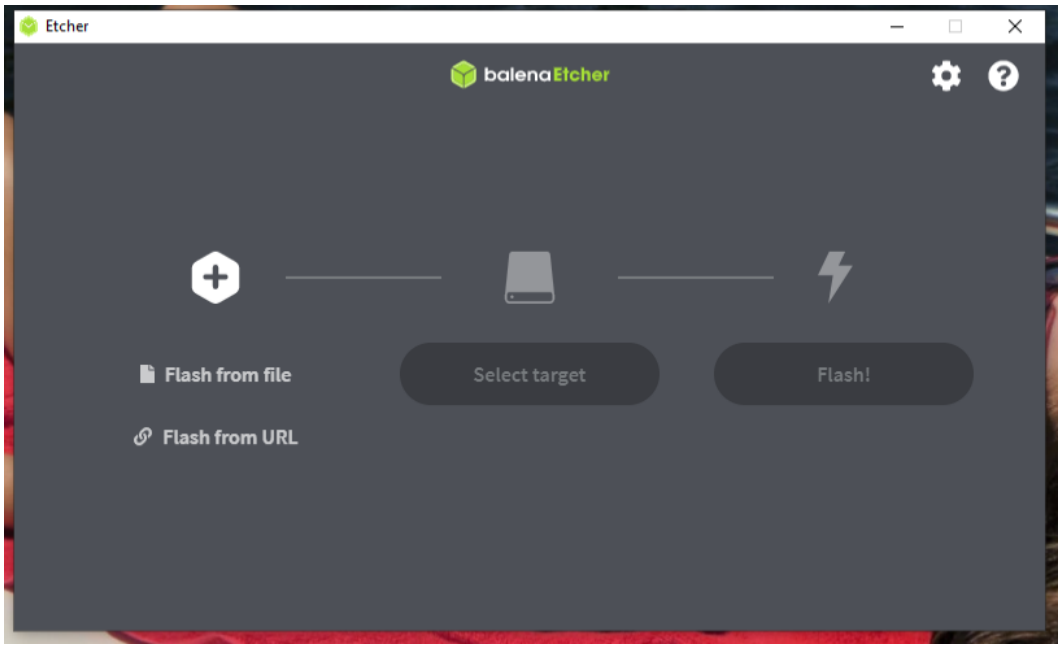
-Scroll down the PCP main page as shown below. You will be installing Option 3 to serve and stream from the same RPi. These are in essence the instructions you will need. I found them a bit confusing - easily done in my case - and I suspect they might be slightly out of date with the latest revision of the PCP software. If you haven't done so yet, read the article and watch the video that was the inspiration for this piece. https://darko.audio/2020/07/a-short-film-about-the-raspberry-pi-as-music-streamer-and-server/ A big tip of the hat to John Darko the author of this piece. John states outright that the video won't guide you through every detail, you'll have to do some work yourself. That's where I step in.



-Just a note: The "LMS" referred to is Logitech Media Server (no longer available) and Squeezelite is the program that ran on the Squeezebox LMS device. (I hope I've gotten the history right. Check it out on Wikipedia if you wish.) Both have been developed (transitioned?) as open source software that we shall use on the RPi.

Insert the uSD card into your computer. **If your laptop/desktop prompts you to or asks if you wish to format the uSD card say NO or DECLINE!!!!!**

-Start the Balena Etcher program. (Other programs for flashing the OS are available if you wish. I found this one easy to use.)



-It will prompt you to:

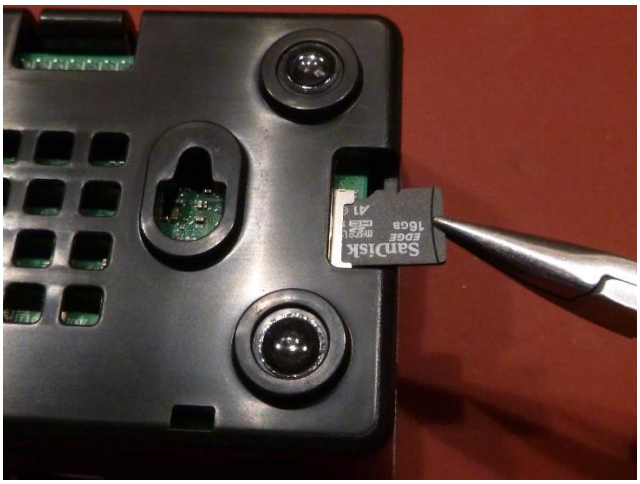
-Flash from file, the PCP program stored on your computer, likely in your Downloads folder.

-Select a target, the uSD card you've inserted into your computer.

-Then Flash the uSD card. It will only take maybe a minute max.

-Once flashing is done remove the uSD card from your computer.

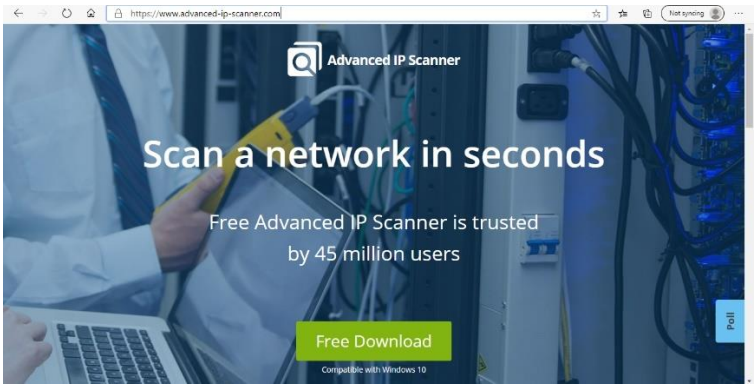
-Insert the card into the RPi as shown below.



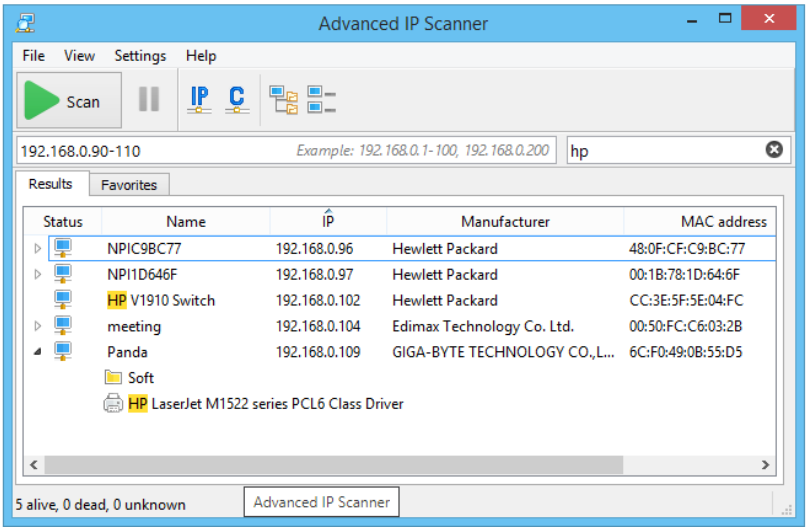
-Plug the RPi wall wart into an AC outlet.

-Give the RPi a minute or so to start up and run the PCP OS.

-You will need to find the RPi's IP address on your network. Download an IP scanner program if you wish. I used: https://www.advanced-ip-scanner.com/

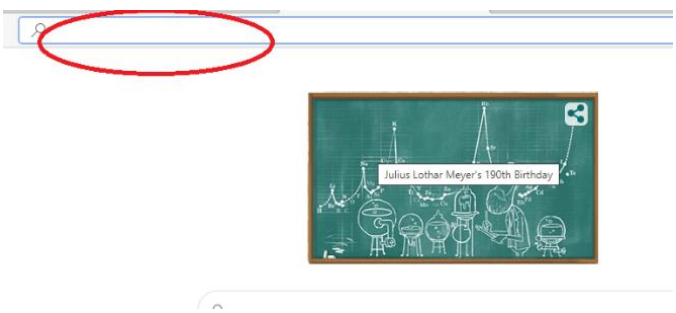


-Start the scan program, press the scan button and you'll see something like this:

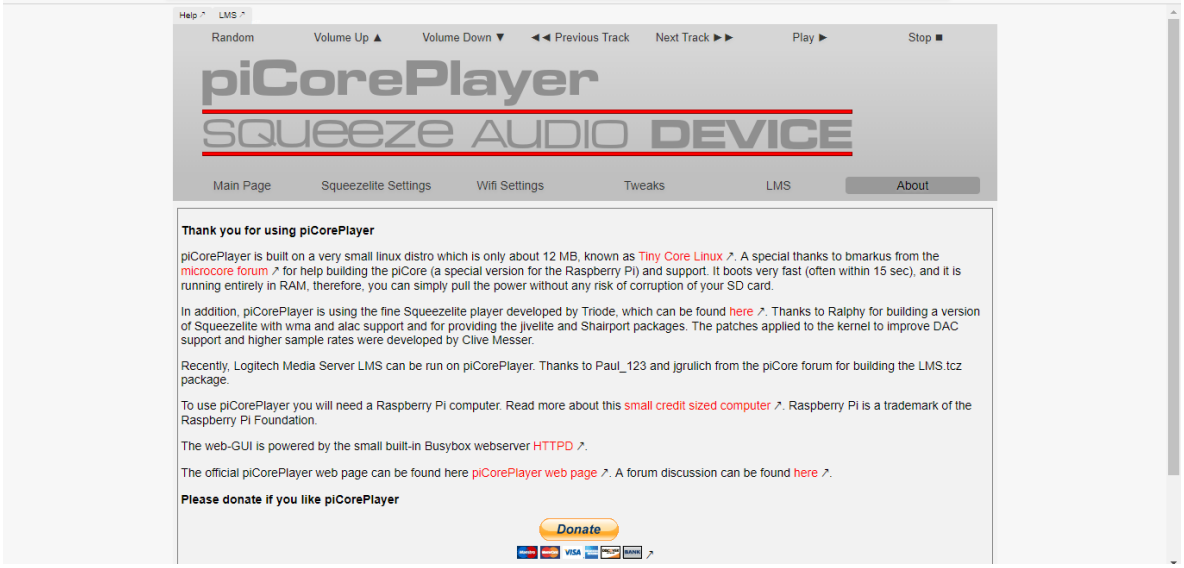


-Look down the list for piCorePlayer and its IP number. It might be something like: 192.168.0.1

-Open a web browser and enter the IP address number.



Hit return and the PiCorePlayer page should pop up (see next page).

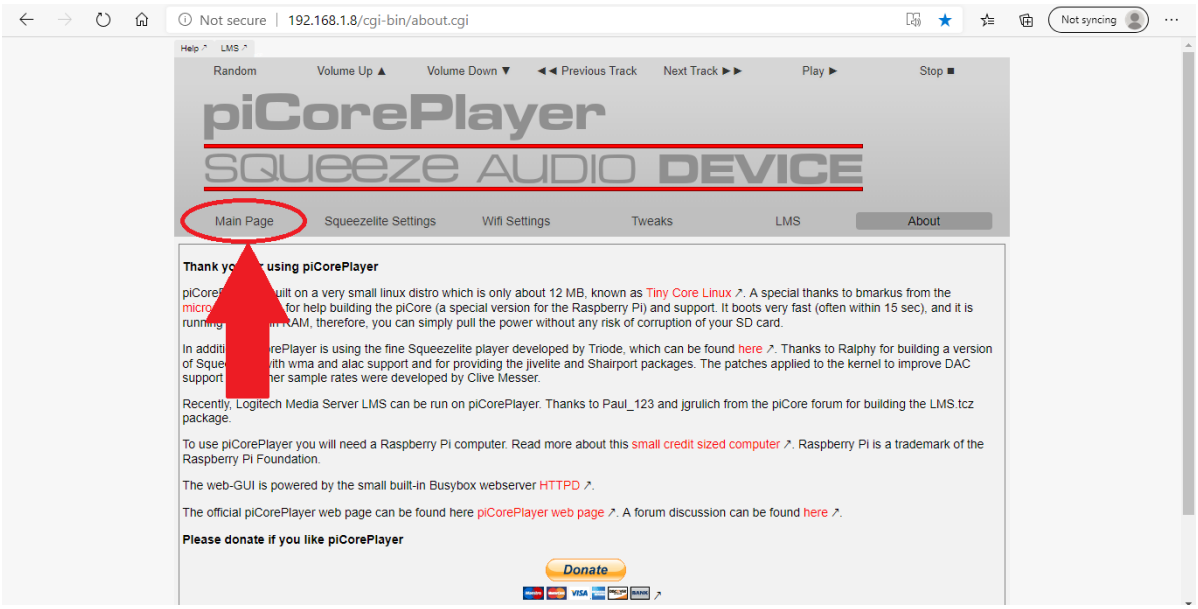


-You are now a voyeur looking at the goings-on inside your RPi.

-Once you start "talking" to your RPi with the PiCorePlayer app running, you might notice there are several pages of setup of options. DON'T FREAK OUT. Most of these won't be changed. I'll lead you through it. **Don't skip any steps or get them out of order.** I don't need any more people cursing me.

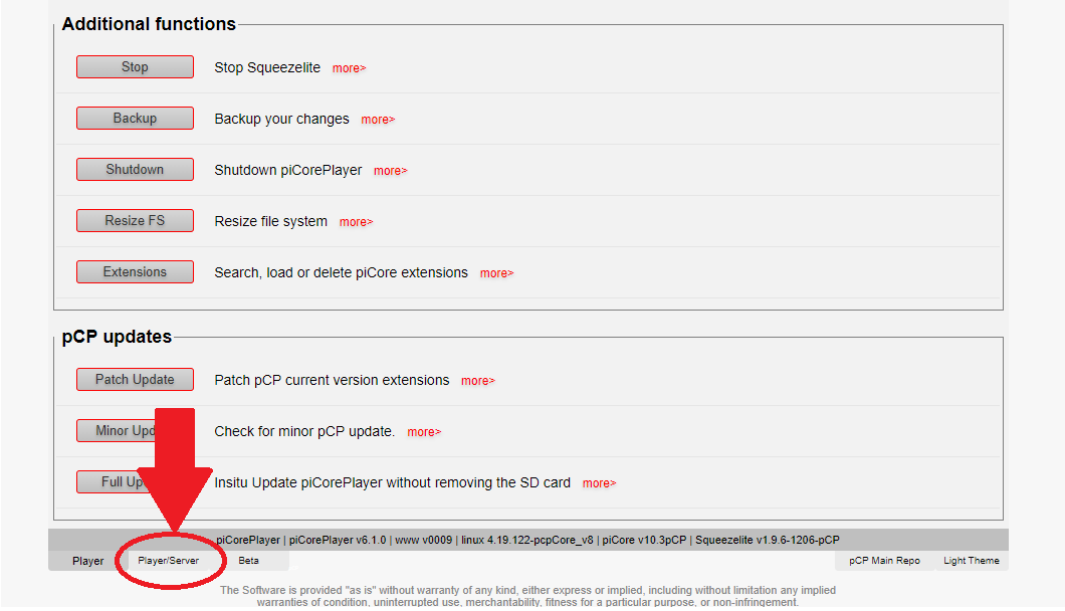
-There are several more pages of instructions below but there are lots of pictures and not much text. Hang in there, you'll soon be playing music.

-Click on: **Main Page** (see below).



If you wish, add the PCP **Main Page** to your browser favourites. It'll save time on future power-ups.

-Scroll to the bottom of the Main Page and click on: **Player/Server** (see below).



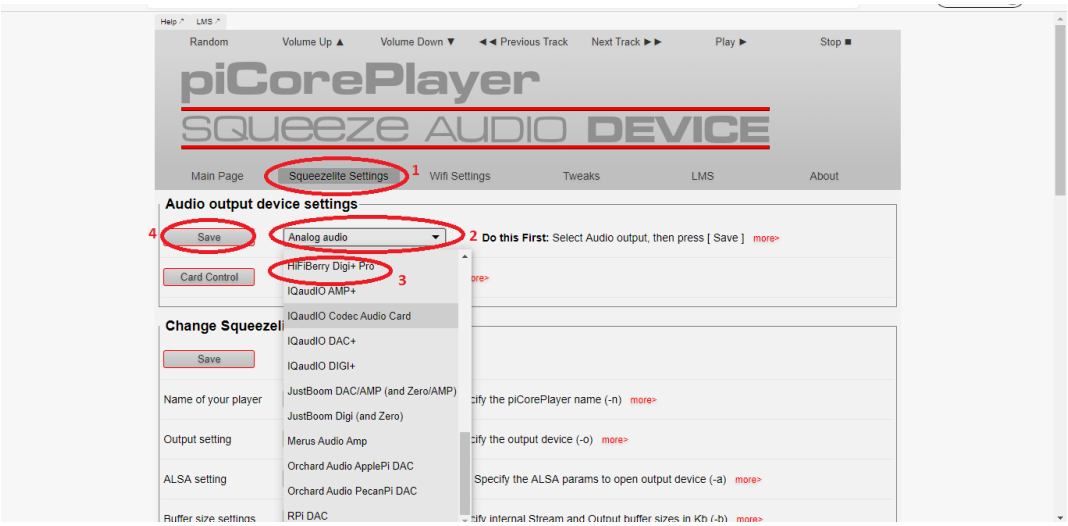
-Click on the: **Squeezelite Settings** tab (see below). (1)

-Click the down arrow of the: **Audio output device settings**. (2)

-Click on the HAT you are using (in my case the HiFiBerry Digi+ Pro). (3)

-Click on: **Save**. (4)

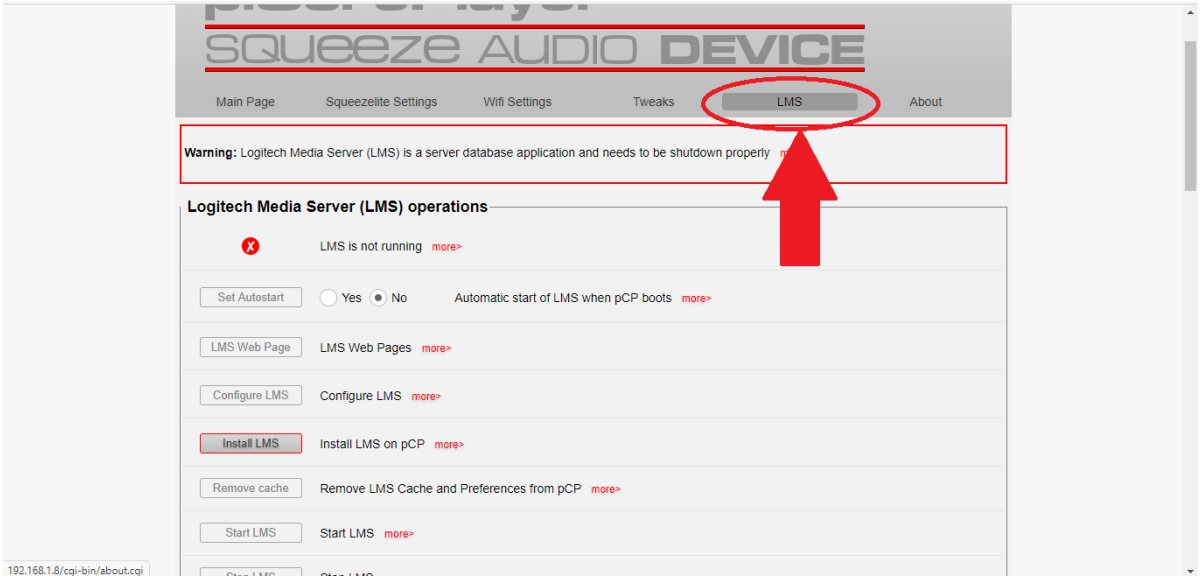
If you are using a DAC HAT or any other HAT scroll down the list and select yours.



-A small text script will run briefly.

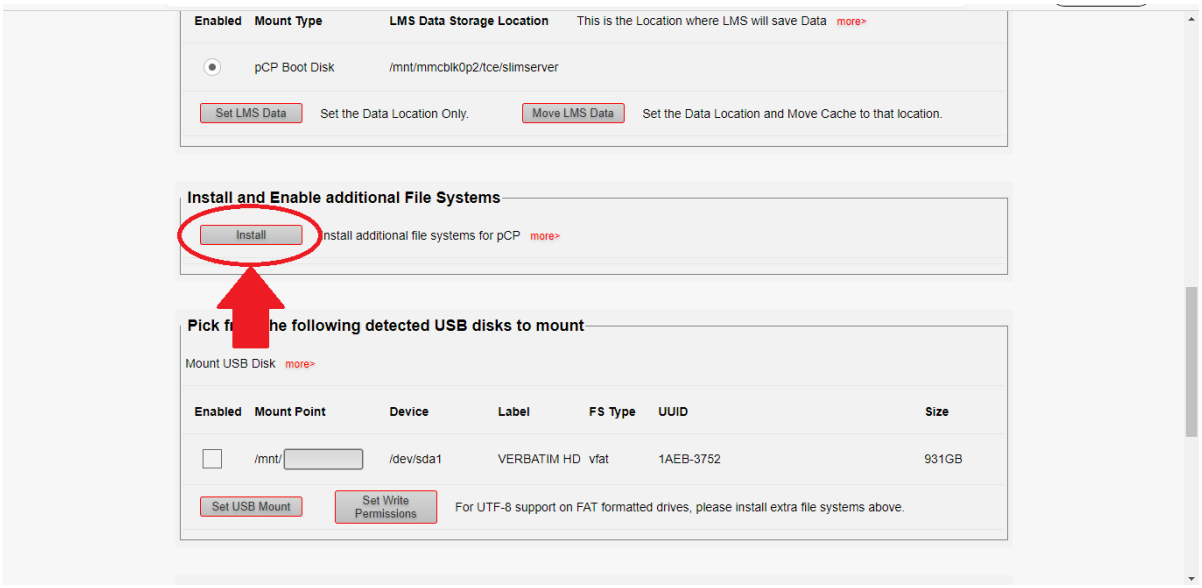
-You'll be prompted to **Reboot**. Do it and a few seconds later you will be back to the PCP main page. You can return to the MAIN page when prompted but I prefer to wait for PCP to redirect me.

-Click on the: **LMS** button (see below).



-Scroll down to: **Install and Enable Additional File Systems**

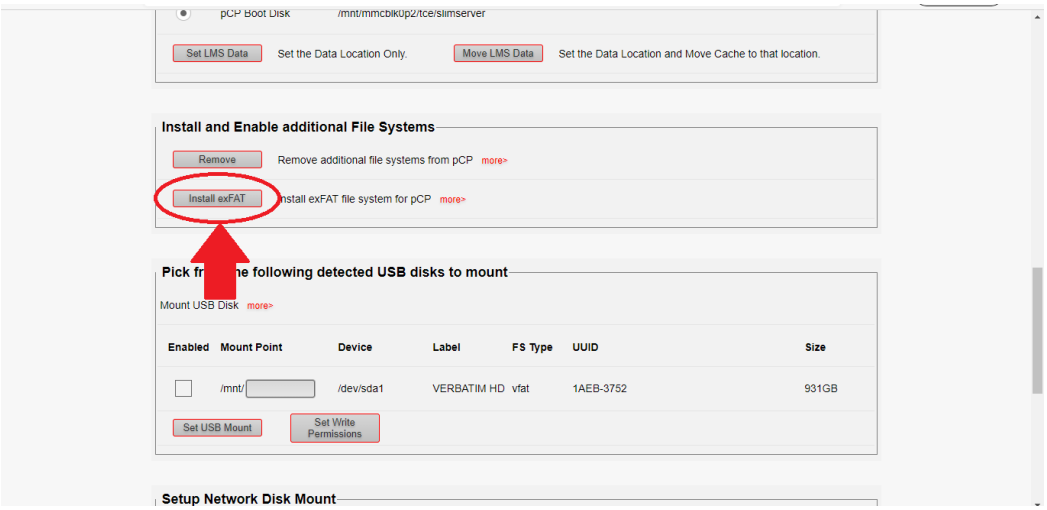
-Click on: **Install**



A script will run in a small text box. It will only take a few seconds.

-When the script is finished running, scroll down to **Install and Enable additional File Systems**

-Click on: **Install exFAT**.

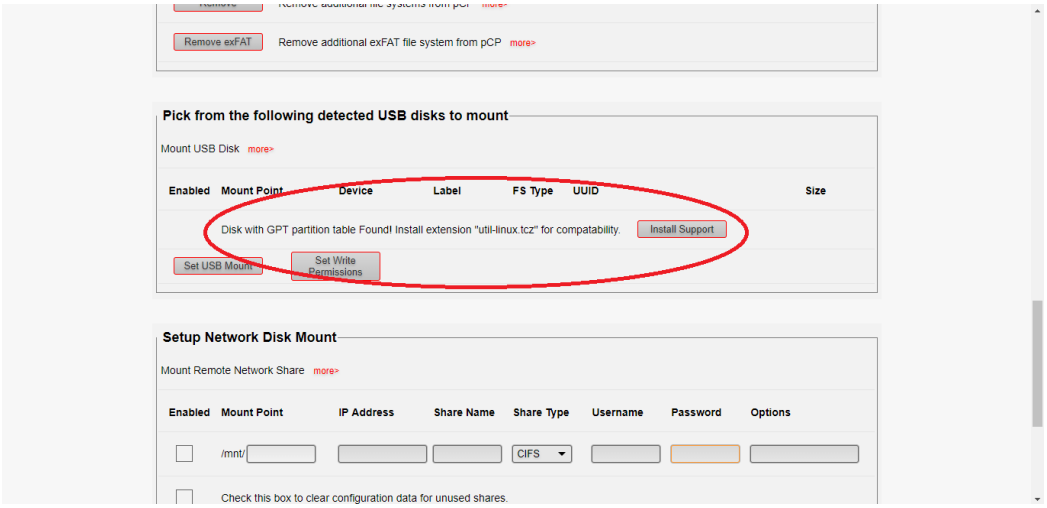


A script will run in a small text box. It will only take a few seconds.

-Scroll down to: **Pick from the following USB disks to mount** (see below). PCP should have already found your USB drive.

Note: You may have to unplug your USB drive then plug it back in again and/or refresh your browser for PCP to recognize (see) your hard drive connected to the RPi.

-The message shown below was displayed when I had Western Digital drives connected. I clicked on <u>Install Support</u> and it appeared to install though I couldn't perform any of the subsequent setup steps successfully. When I changed to a Seagate or Verbatim drive this message did not appear and setup proceeded successfully.

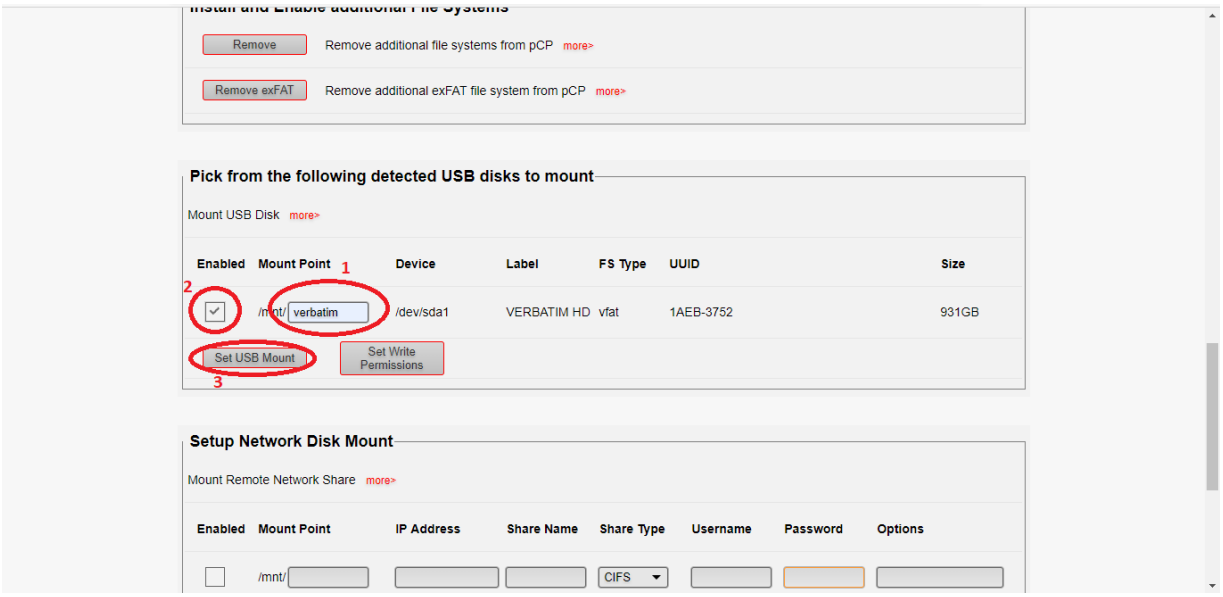


-Setup should proceed as shown below.

-Give the drive a name, anything will do. (1)

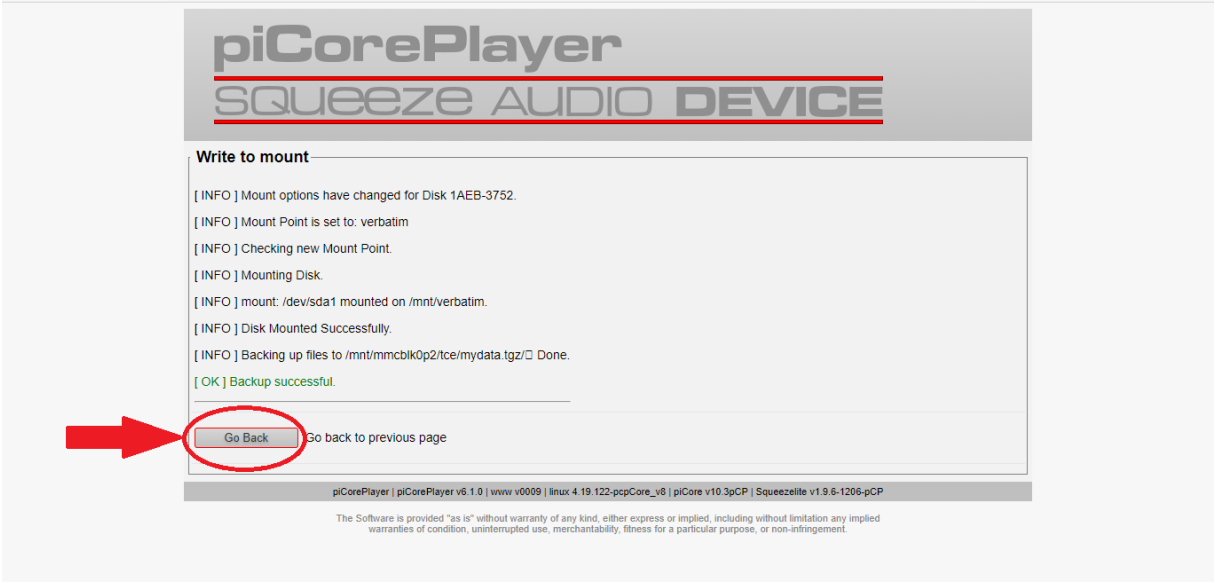
-Tick the **Enabled** box. (2)

-Click: **Set USB Mount** (3)



-When the disk mount is successful the screen shown below will be displayed.

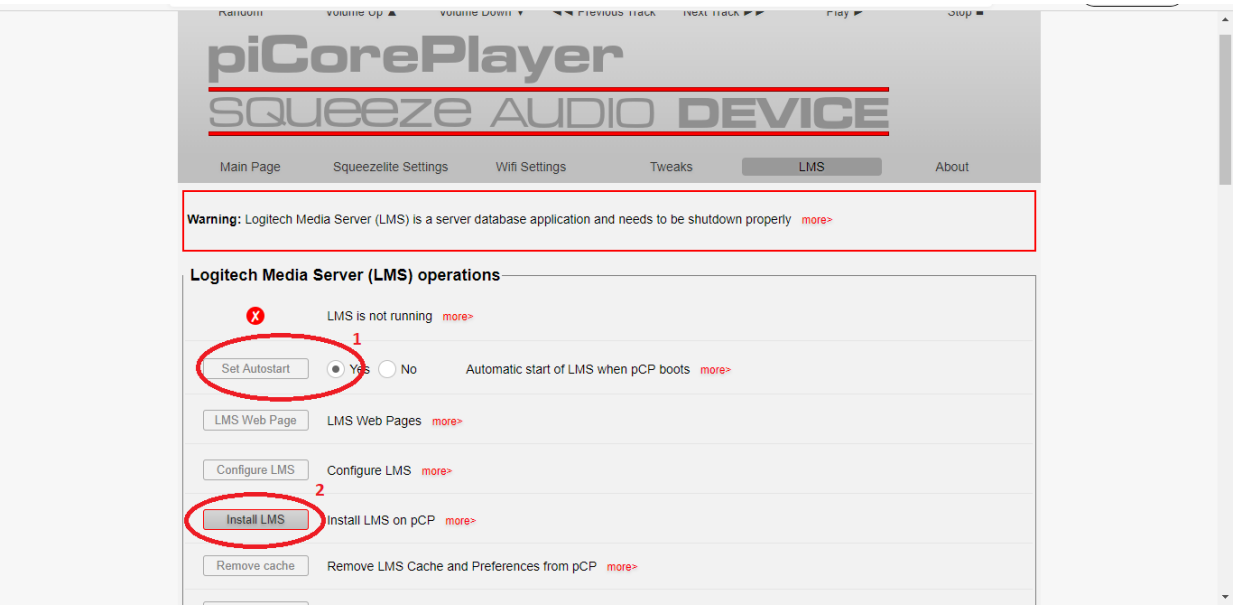
-Click on: **Go Back**.



The LMS screen shown below will be displayed

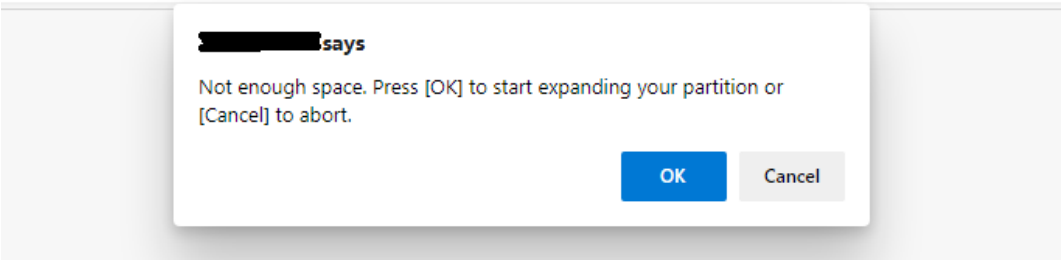
-Tick the **Set Autostart** to **YES**. (1)

-Click on **Install LMS**. (2)

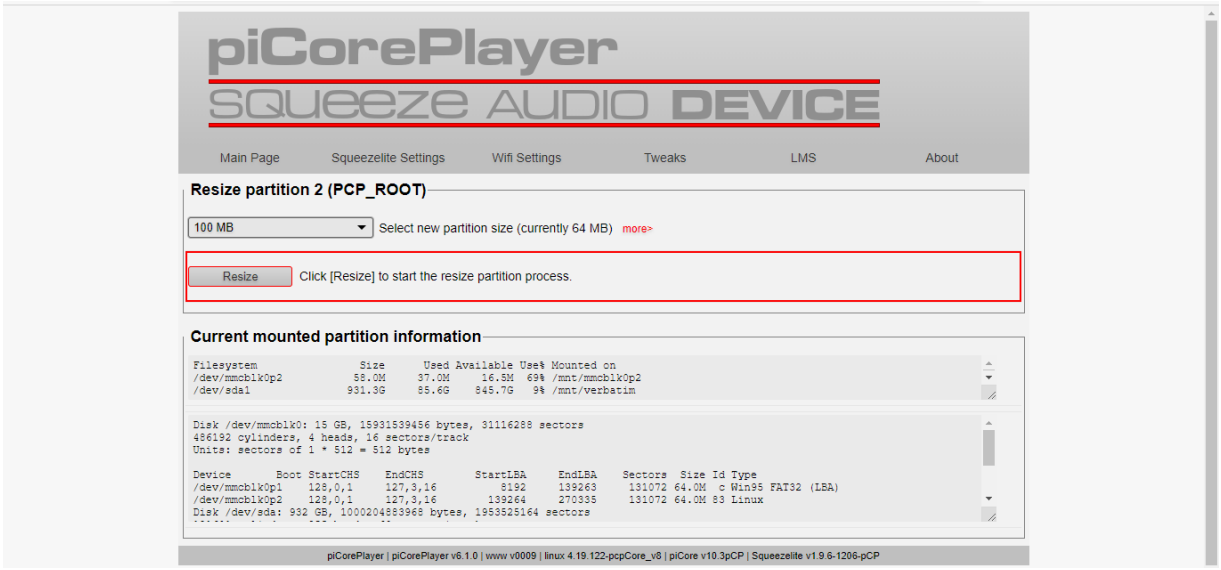


You might get a notification from the RPi stating (see below):

-Click on **OK**.

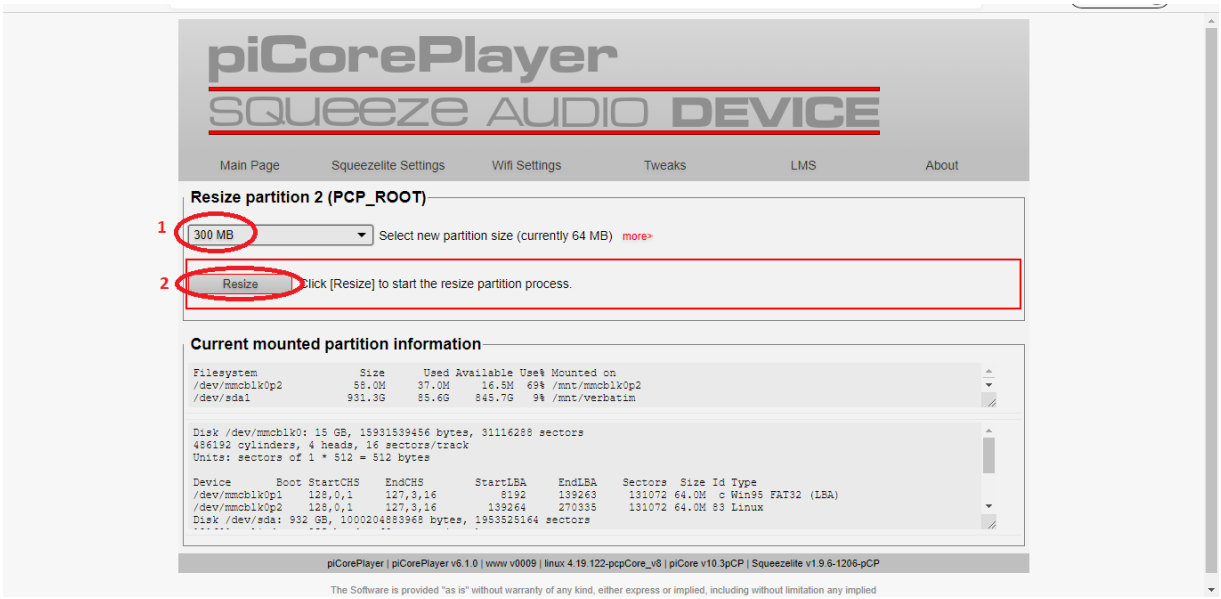


This screen will appear:



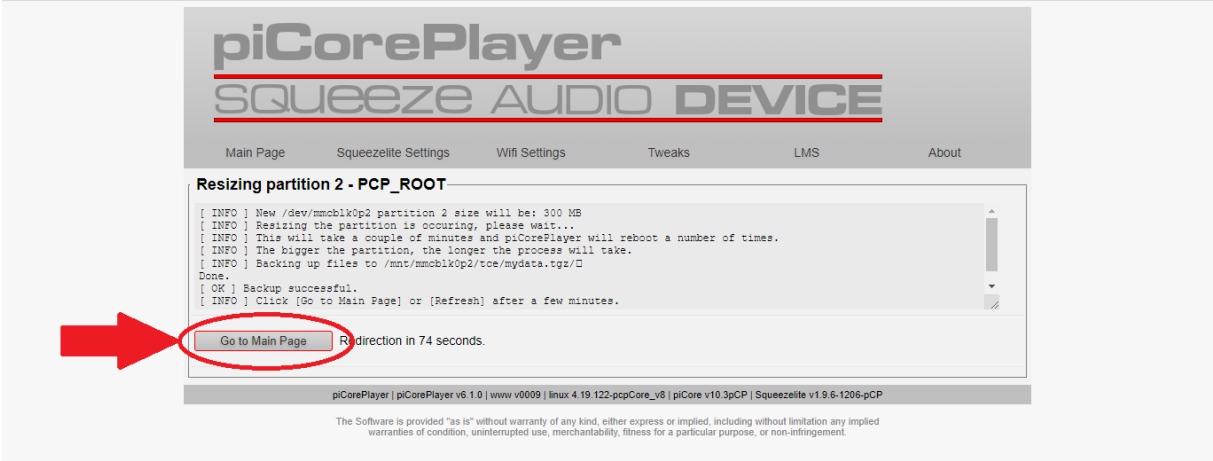
-Change the Partition Size to: **300MB** (see below). (1)

-Click on: **Resize**. (2)

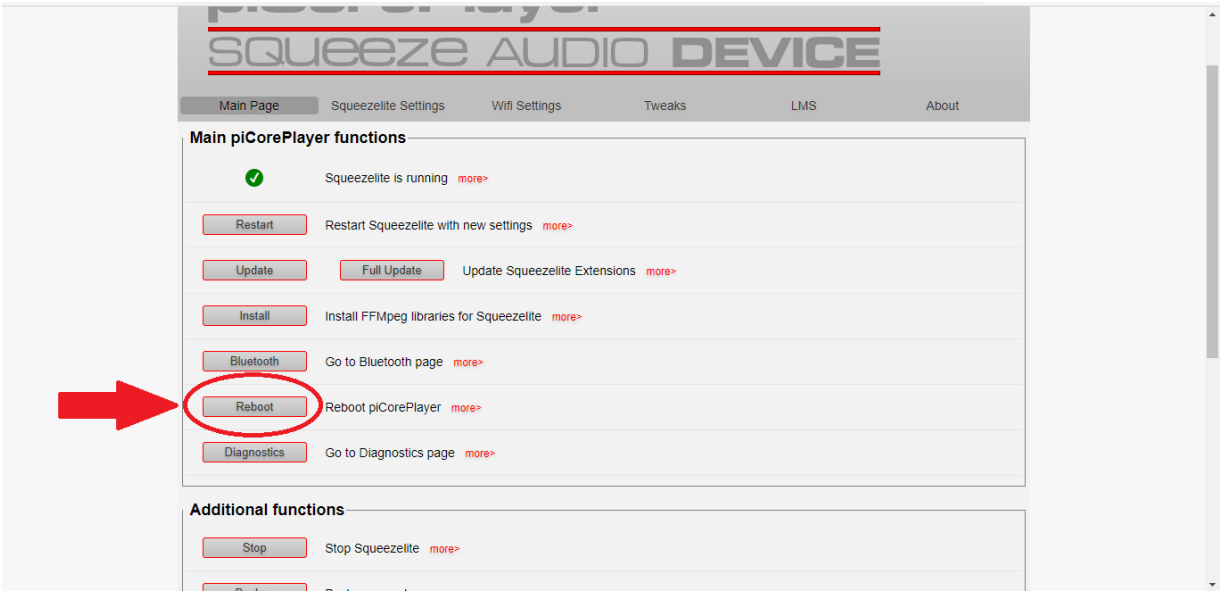


When the resizing is complete (it only takes a few seconds) the screen below will appear.

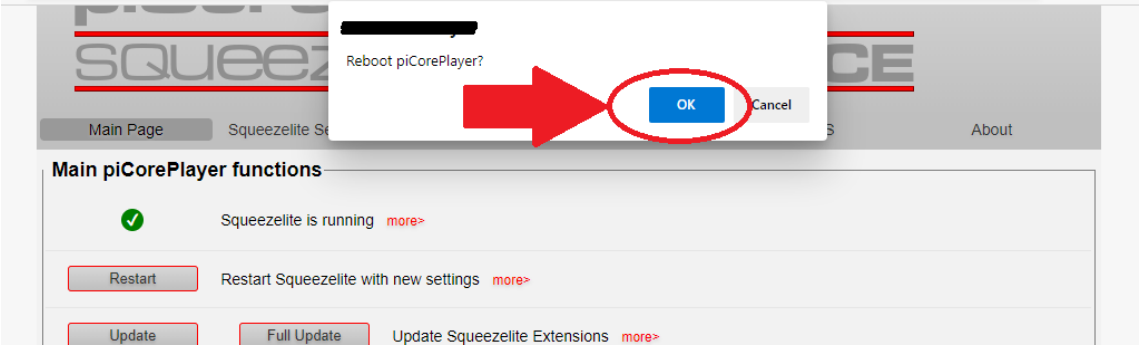
-Click on: **Go to Main Page** or wait until the MAIN page appears on its own.



When the main page is displayed Click on: **Reboot**.



The notification shown below will pop up, click on: **OK**.

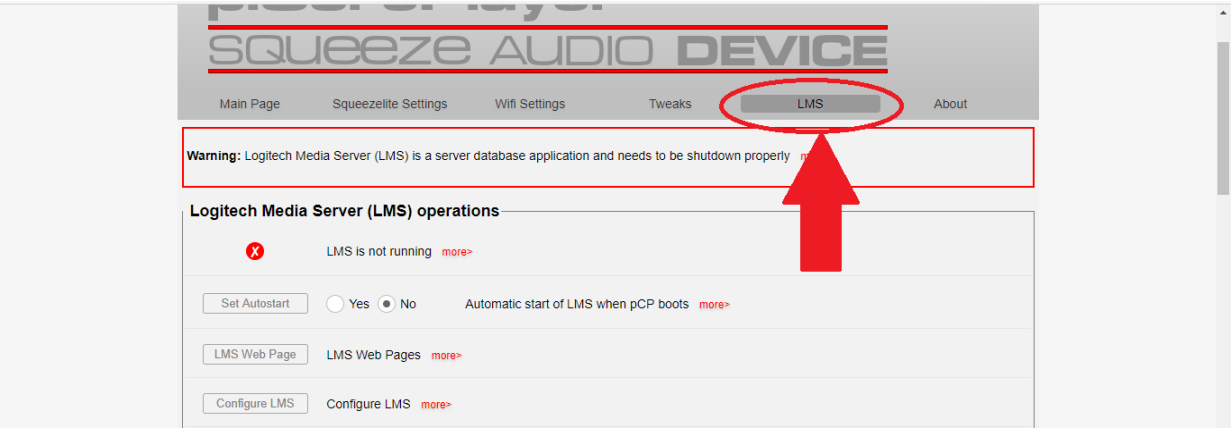


When the Reboot is complete PCP will return to the main page.

HERE IS THE TRICKY THING THAT MESSED ME UP A FEW TIMES:

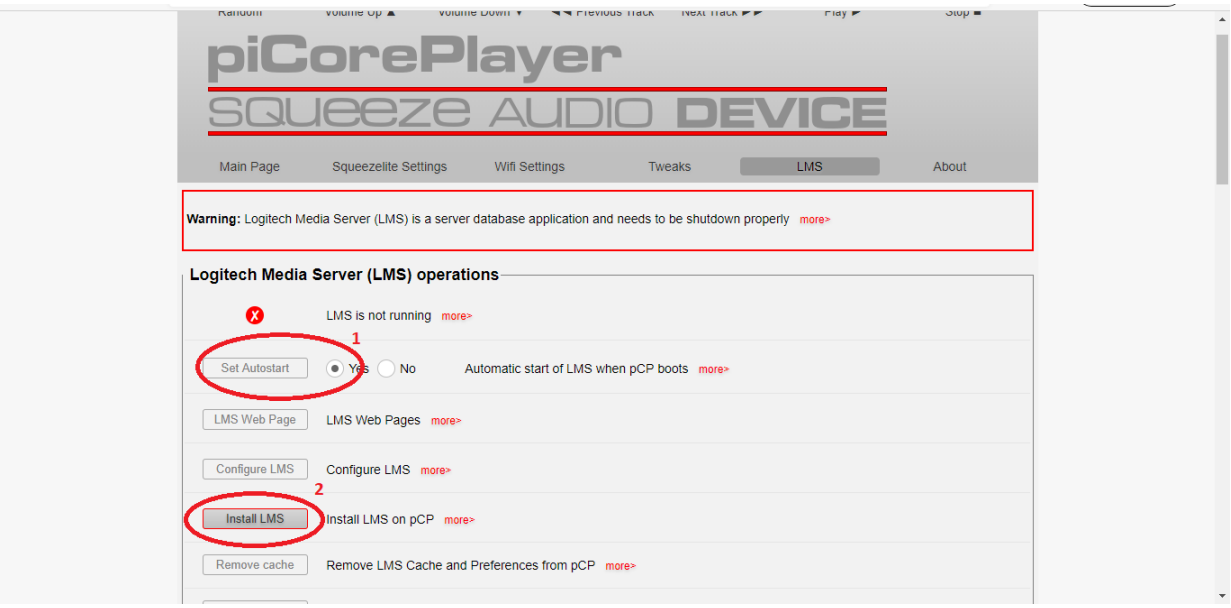
LMS will not necessarily be installed after you resize.

-Click the LMS button in the main menu (see below).



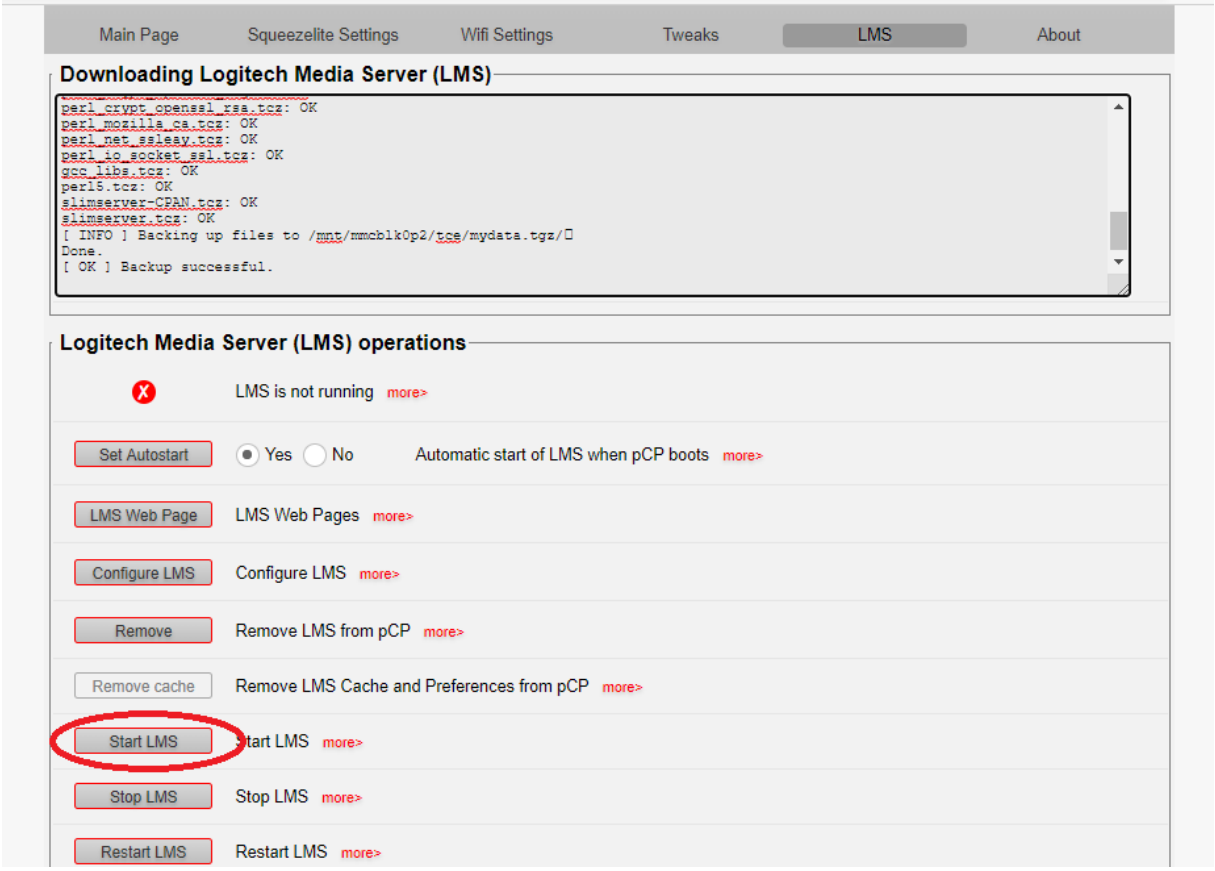
-Tick the **Set Autostart** to **YES**. (1)

-Click on **Install LMS**. (2)



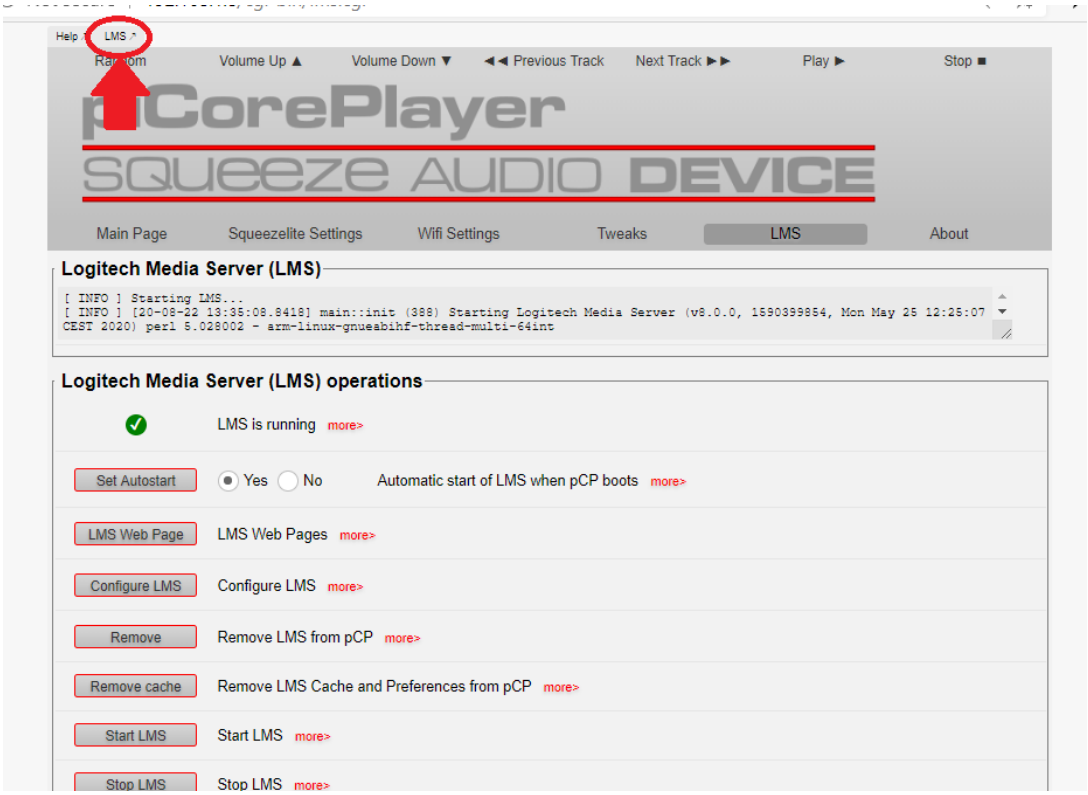
A text window will open. In about 30 seconds the LMS menu will be seen again.

Click on: **Start LMS.**



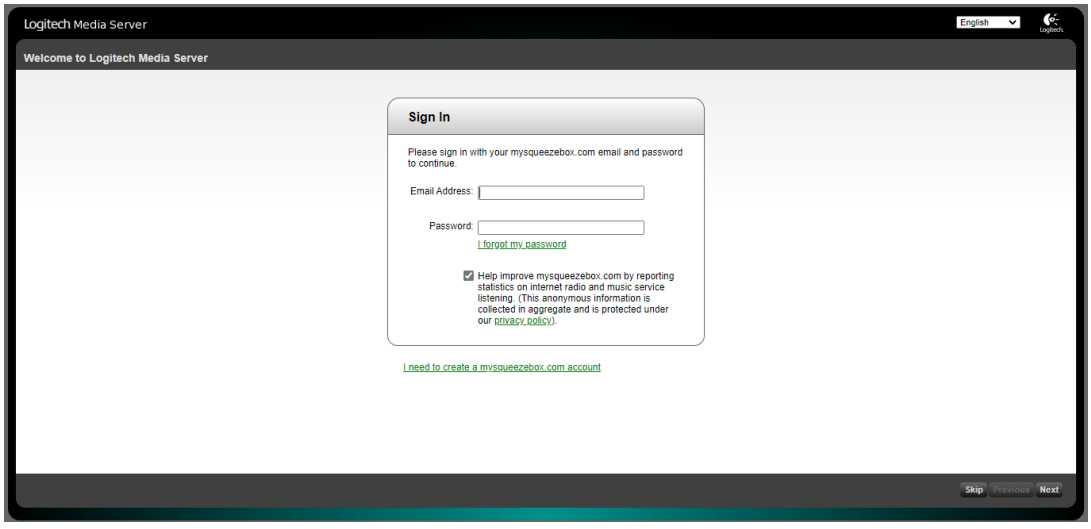
The screen shown below will be appear.

To run the LMS Player app in your browser, click on the **LMS** tab in the upper left corner.



The LMS Player will open in a new tab in your browser, see below.

The first time you open the LMS Player app you will be requested to create a **mysqueezebox.com** account. There is no charge for this. It is for collecting web radio data. No personal data is collected.

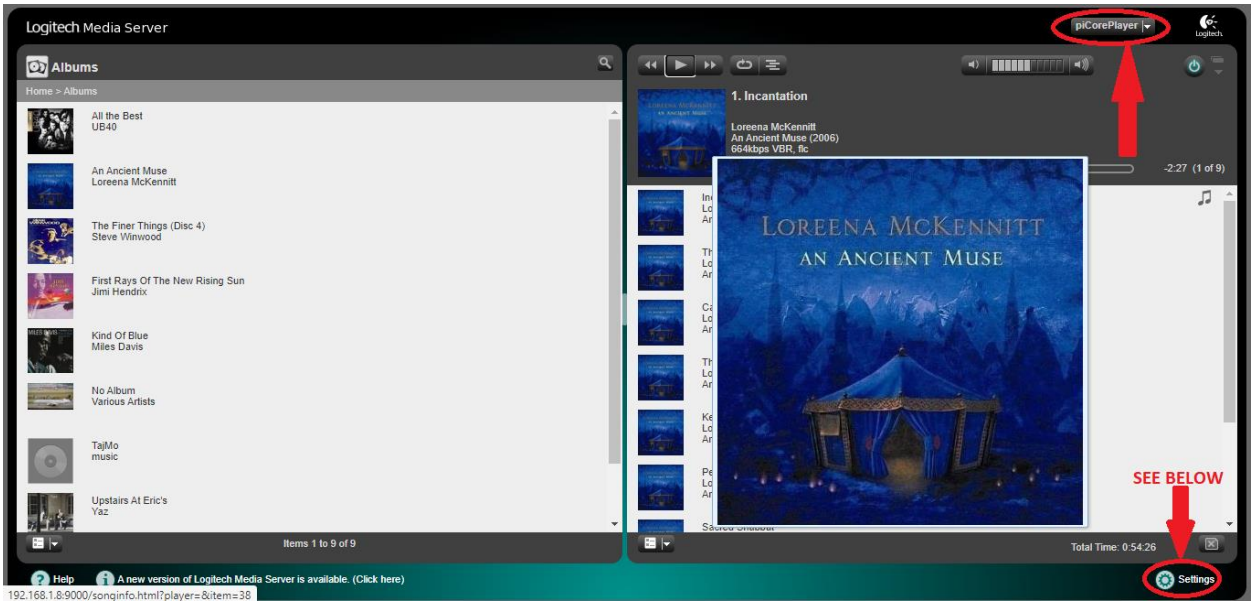


Create an account, click through **Next** a couple of times at the bottom right corner of the LMS window then click **Finish**.

The app will then be active as shown below.

It might take a few minutes for LMS to read all of the album metadata from your USB drive so be patient. You might be prompted to **Re-Scan** your drive. Albums might be seen but take a while to load the album art for all of them. Be patient.

PiCorePlayer should come up as your device as shown below. If not select it.



It's possible to adjust volume from the LMS app but for best sound quality it should be set to maximum and the volume adjusted at your amplifier.

<u>If the album information doesn't show up there is a gotcha that bit me on the… you know.</u>

A big thanks to **garym** on the slimdevices.com forum who helped save the remainder of my thinning hair with the following tip. See next page.

If the album information isn't displayed but the USB drive has been successfully mounted on the PCP LMS page:

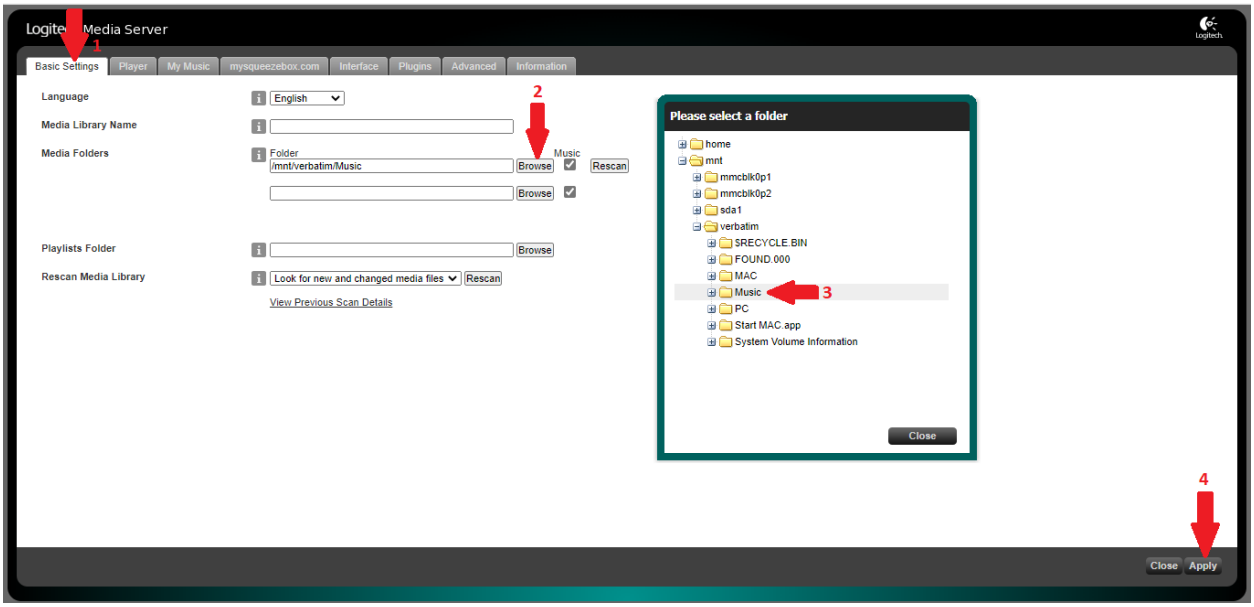
-Click on the **Settings** button in the bottom right corner, see picture previous page. This will open the LMS settings in a new tab.

-Click on the **Basic Settings** tab, see below. (1)

-Click on the **Media Folders**, **Browse** button. (2)

-Find the folder where the **Music** is stored and highlight it. (3)

-Click on **Apply** and close the tab. (4)



A box might pop up stating a **Re-Scan** of your library is necessary, click **OK**.

The album data should now be visible in the LMS window. Even if you are using a different app to select and play music files this still needs to be set up.

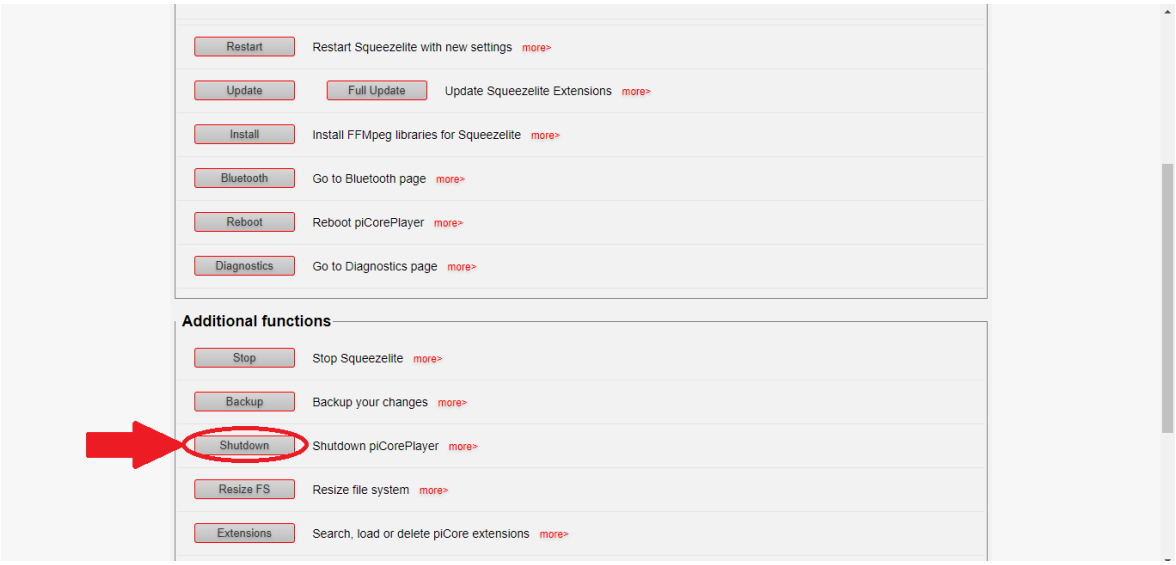
I won't do any LMS coaching. Fiddle around with it, it's pretty straight forward.

As you will very quickly notice LMS is pretty old-fashioned. I tried to install a "material skin" program to improve the look and make it run faster but my PC was lacking a Java something-or-other. Most users won't want to be tethered to a laptop or desktop to play music anyway.

I usually leave my streamer/servers running all the time. If you want to shut down your RPi **DON'T** just unplug it.

-Go to the PCP Main page, scroll down to: **Shutdown piCorePlayer,** see below.

-Click on: **Shutdown** and after 30 seconds or so unplug the RPi wall wart.



Note: To restart your RPi you must unplug the wall wart power supply and plug it back in again.

So, here's the test to see if you've done everything properly.

-Power down your RPi as described above.

-Give it a minute or so then plug the wall wart back in.

-Give the RPi 30 seconds or so to boot.

-Go to your browser and select PCP from your favourites.

-Click the LMS player tab at the top left of the page **or** start the app on your mobile device and you should be ready to play music.

-Once you have the player app running you can close PCP if you wish.

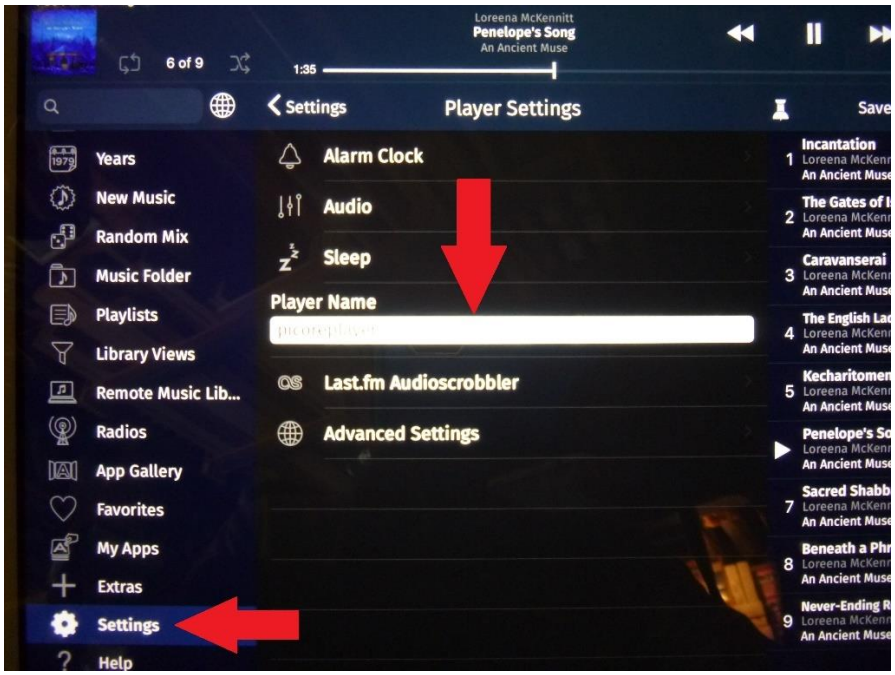
Once setup is complete and connection to your system without running an Ethernet cable is desired you can switch the RPi over to Wi-Fi. Follow the instructions in the link below.

https://docs.picoreplayer.org/how-to/setup_wifi/

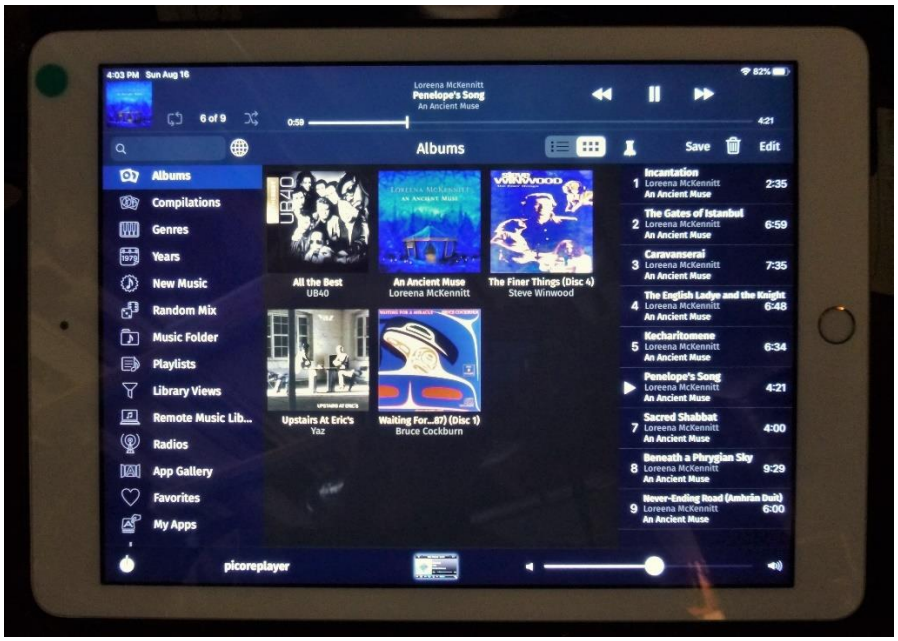
I understand it's possible to run LMS from the browser on a mobile device but inexpensive apps are available. I paid $13.55 CDN (~$10 US) for the **iPeng** app for my iPad.

http://penguinlovesmusic.de/

You'll likely need to go to **Settings** in the app and select **picoreplayer**, see below.



After that you should be good to go. Browse music on your hard drive or stream other music services. In my limited experience, streaming music from web radio stations and other services is much easier in iPeng than it is in LMS player.



If you have an Android device the **Orange Squeeze** app is reported to work well.

https://play.google.com/store/apps/details?id=com.orangebikelabs.orangesqueeze&hl=en

ENJOY, and tell your friends about WallofSound.ca!