

Qobuz through HQPlayer

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Chapter 1

Introduction

This document concentrates on the ability to play streams from the Qobuz streaming service through HQPlayer using my “Supersonic” add-on for Kodi. “Supersonic” may also be used for playing “Tidal” streams through HQPlayer. So most of what is written here will be equally applicable for Tidal, except for a few exceptions which I will point out.

Qobuz is the longest running streaming service I am aware of that has been capable of streaming in lossless (flac) format. The lowest quality flac streams available from Qobuz are the same as standard CD quality. This is also known as “Redbook” and refers to 44.1khz/16bit streams. Qobuz later added it’s “Sublime” subscription which permits streaming of high-rez material at 44.1khz, 48, 88.2, 96, 176.4 and 192 khz all at 24bit, providing you had previously purchased the files themselves from Qobuz. (Qobuz is an online store for purchasing and downloading music, as well as a streaming service). In may of 2017, Qobuz introduced it’s “Sublime plus” subscription, which allows streaming of these high resolution files, regardless of whether you had previously purchased them. Obviously the price of the subscription rises in line with the streaming capability. Qobuz are officially launching their services in the US this year. Until this official launch, the only way to obtain Qobuz in the US, has been by using a VPN service.

In order for Qobuz URLs to be passed to HQPlayer for playback, there must first be a way of obtaining those URLs. “Supersonic” does not obtain the URLs from Qobuz. Instead it relies on two distinctly different methods of obtaining the URLs and passing them to Kodi. Once Kodi has received a Qobuz URL, Supersonic can take over and pass the URL to HQPlayer. The two methods of obtaining the Qobuz URLs are described below.

Chapter 2

Installing Supersonic

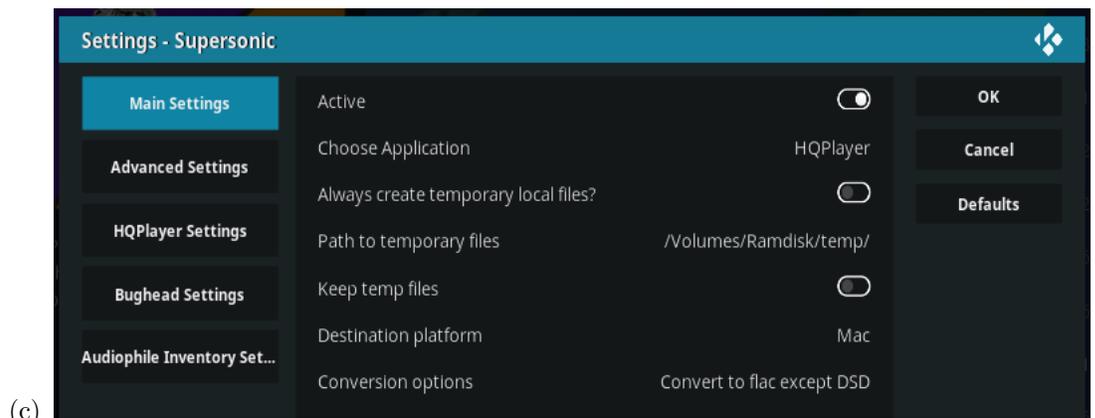
Chapter 3

Supersonic's settings

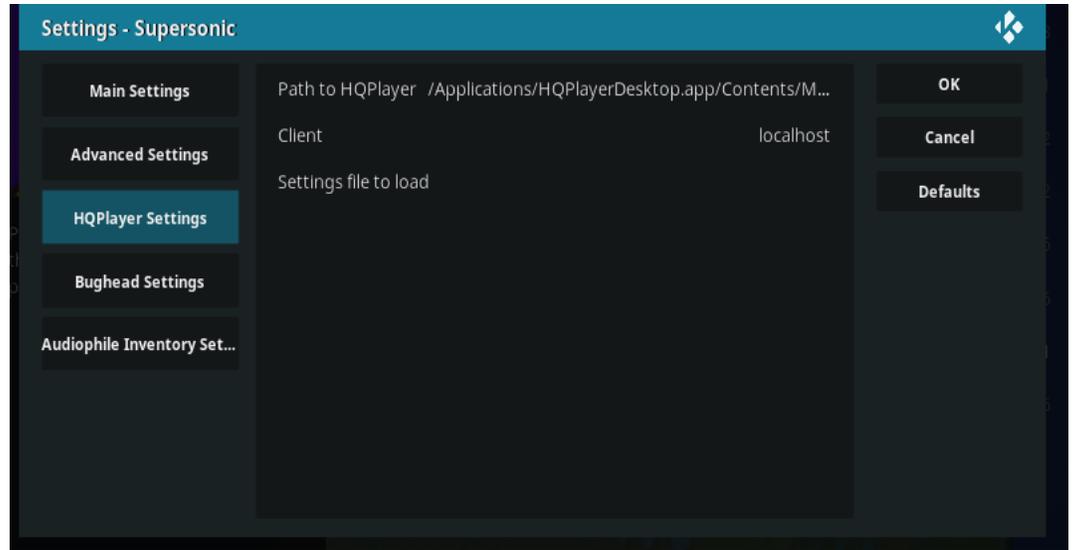
With my “Supersonic” add-on correctly installed in Kodi, you now need to make sure “Supersonic’s” settings are correct for playing Qobuz streams through HQPlayer.

Right click (or equivalent) on the “Supersonic” add-on and choose “Settings”.

1. With “Main settings” chosen on the left hand side, make sure “Active” is enabled so that Supersonic is activated.
2. Set “Choose player” to “HQPlayer” if it is not already the selected player.
3. Make sure destination platform corresponds to the platform HQPlayer is running on.
 - (a) If both Kodi and HQPlayer are running on the same machine this will be the platform (Mac, Windows or Linux) of that machine.
 - (b) If Kodi is running on one machine and HQPlayer on another. the platform of the machine which HQPlayer is running on will be the destination platform that needs to be chosen here.



4. Finally verify that HQPlayer specific settings in “Supersonic” are correct. In this example Kodi and HQPlayer are both running on the same Mac.
 - (a) The “Path to HQPlayer” is the default path where you would normally install HQPlayer on a Mac.
 - (b) “Client” is set to “localhost”.



- (c)
5. You needn't bother about any of the other “Supersonic” settings at this stage. The settings can be accepted by clicking on “OK”.

Chapter 4

Using a UPnP server

There are several UPnP servers which support the Qobuz (and Tidal) streaming services.

The two which I've tested with "Supersonic" and found to work well, both run on mobile devices. These are as follows:

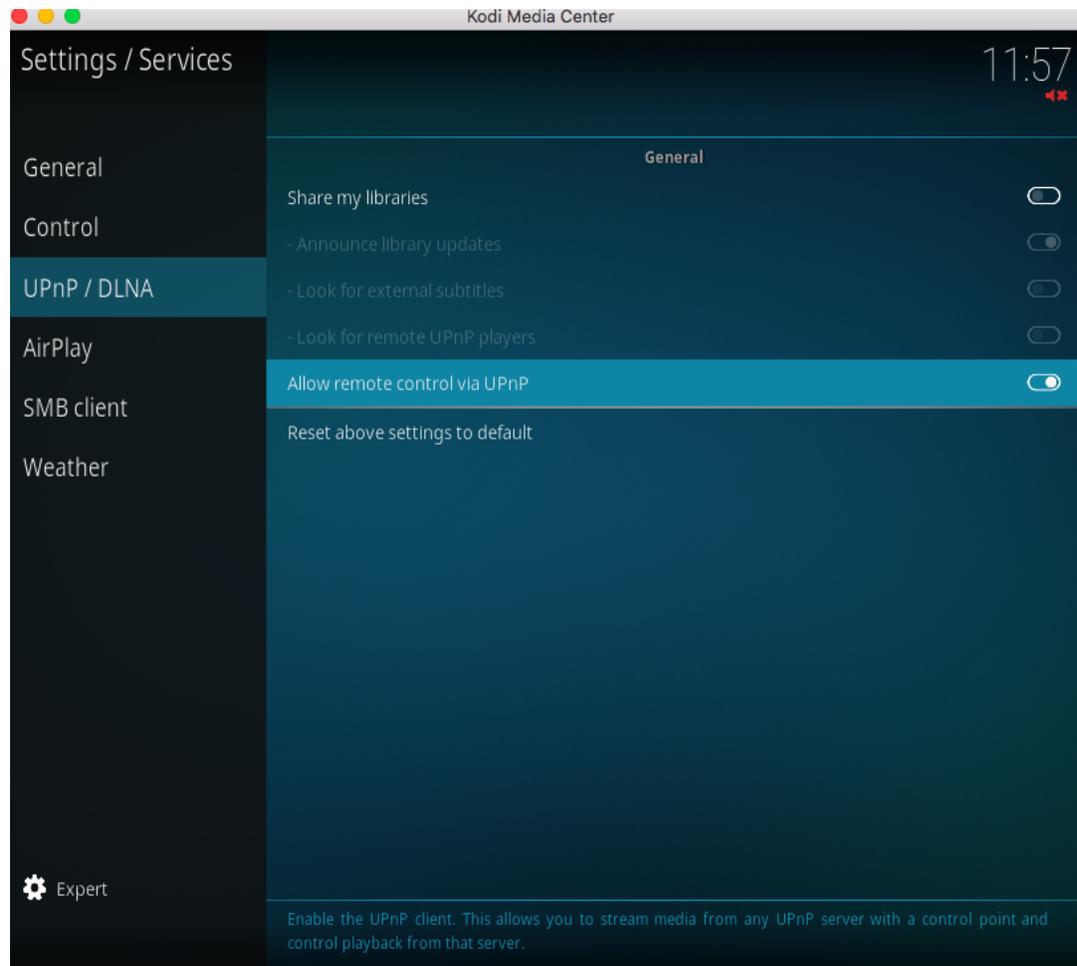
1. BubbleUPnP (running on an Android Samsung Tablet)
2. mconnect (Running on Apple iPhone and iPad)

The advantage of using one of these UPnP servers on a mobile device, is simplicity. The only add-on required for Kodi is my "Supersonic" add-on itself. There will probably be UPnP servers of this kind running on one platform or another, which can support Qobuz, way into the foreseeable future.

4.1 Kodi settings

In order to use one of these UPnP servers with Qobuz support you will first need to enable UPnP control within Kodi.

Within Kodi go to Settings (cog wheel icon) -> Service Settings -> Click or Tap on "UPnP/DLNA" on the left hand pane and ensure "Allow remote control via UPnP" is enabled.



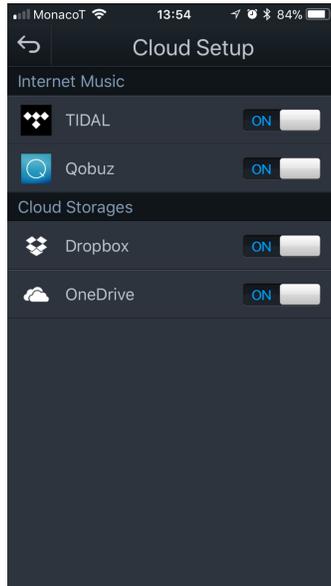
4.2 mconnect

For my UPnP server example, I've chosen "mconnect". There is an mconnect app for iPhone and iPad as well as "mconnect HD" for iPad, which has some additional features. For our purposes though the set-up for Qobuz streaming is the same.

4.2.1 Cloud Setup

1. Launch the "mconnect" app on your IOS device. Tap on the cog wheel icon at top far left corner and choose/tap on "Cloud Set-up".
2. Qobuz should be listed under "Internet Music".

3. Tap on Qobuz and you will be prompted to enter your Qobuz credentials (Username and Password).
4. Make sure Qobuz is set to “ON”.



4.2.2 Maximum resolution for Wi-Fi streaming

The next step within “mconnect” will be to set up the maximum resolution streams that you’re entitled to, and able to stream, over your wifi connection.

As previously explained you will need a Qobuz “Sublime” subscription to be able to stream high resolution music that you’ve already purchased from Qobuz or a “Sublime plus” subscription to be able to stream all high resolution Qobuz content, regardless of whether you previously purchased it from Qobuz.

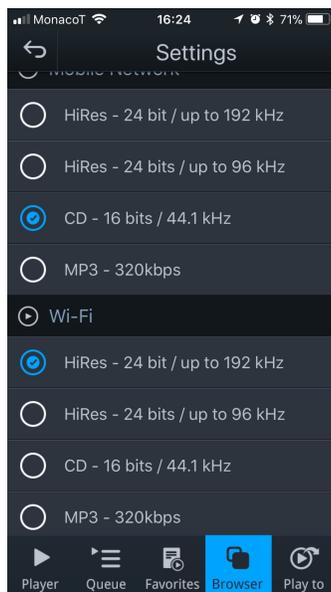
Note: The terms “Sublime” and “Sublime Plus” are used as names for these subscriptions on the French Qobuz site. These are likely to be changed to something like, “Audiophile” and “Audiophile plus” for English speakers.

Obviously both your internet connection and WiFi connection will need to be capable of handling these High Resolution streams. Otherwise you will be forced to drop back to 44.1khz/16bit within mconnect settings.

To set the streaming resolution according to the above in mconnect, you’ll need to do the following:

1. Tap on Browser
2. Tap on Qobuz
 - (a) Now you should see selections from Qobuz

3. Tap on the “Hamburger” menu (3 horizontal lines) at the top of the screen.
4. Tap on “Settings”
 - (a) Now you’ll be able to set the maximum resolution to stream via both the Mobile Network and Wi-Fi. We are obviously interested in Wi-Fi here.
 - (b) Select the appropriate resolution by tapping on the text describing that resolution (not the button to the left of it; to save you frustration).



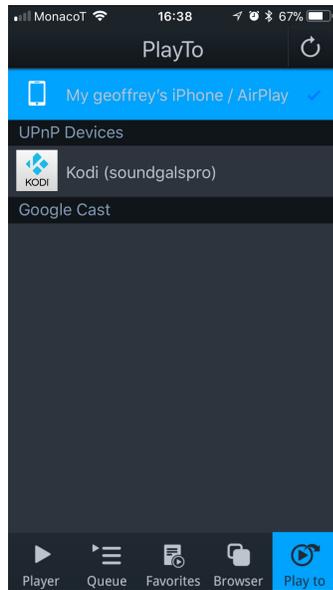
4.2.3 Play to Kodi renderer

Once you’ve set the maximum resolution to stream over wi-fi, tap on the “Play to” button.

You need to make sure the Kodi desktop app with Supersonic is running and that HQPlayer is also launched.

The “Play to” button in “mconnect” will allow you to select Kodi as the renderer to send the Qobuz urls to.

As long as Kod is running and UPnP control is enabled in Kodi, as previously instructed, Kodi should show up here.



If your instance of Kodi renderer doesn't show up here, and you're sure it's running with UPnP control enabled, tap the refresh button at the top right hand corner in "mconnect" and see if this causes it to appear.

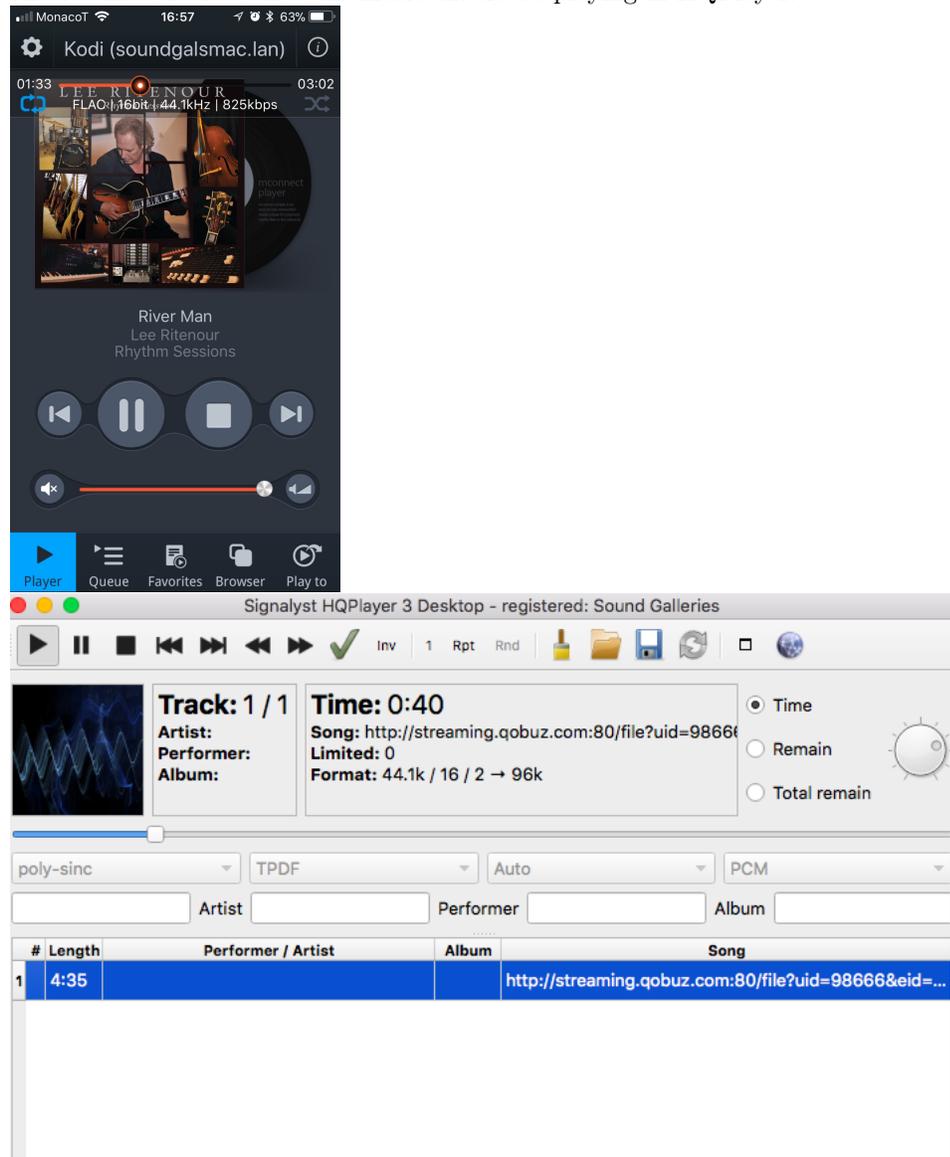
All that remains is to play some music from Qobuz.

4.2.4 Choose and play music

1. Tap on "Browser" in mconnect
2. Tap on "Qobuz"
3. Tap on the "Hamburger" icon to select how you want to access music within Qobuz. The choices are as follows:
 - (a) Search
 - (b) Discover
 - i. To access Qobuz's own selections of music
 - (c) Playlists
 - i. To access your own playlists which you've already set up in Qobuz
 - (d) Favourites
 - i. To access your favourite Albums, Tracks and Artists which you've already set up in Qobuz
 - (e) Purchases
 - i. To access the albums you've purchased from the Qobuz online music store.

Once you've selected the music you wish to play, tap on the play button or one of the tracks you wish to play.

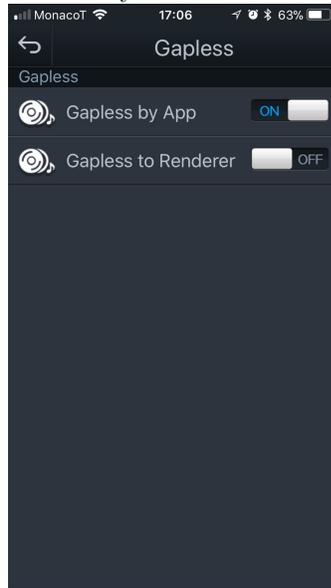
After a matter of seconds the music should be playing in HQPlayer.



The playback in “mconnect” will have advanced a little ahead of HQPlayer. This is to ensure as close to “gapless” play back as possible. “mconnect” is advanced by approximately the amount of seconds it took to load the track into HQPlayer, after it's set back to the beginning to bring it in line with HQPlayer's track progress.

Within mconnect in the settings for “Gapless” you should have “Gapless to

Renderer” set to “OFF”; otherwise I cannot guarantee Kodi and Supersonic will work correctly with mconnect.



4.2.5 Navigation

If you want to change tracks within an Album or playlist, simply choose the track you wish to switch to in “mconnect”.

Playback will stop in both Kodi and HQPlayer momentarily. If the track you’re switching to is already in HQPlayer’s playlist that track will begin to play after a few seconds.

If the track you’re switching to is not already in HQPlayer’s playlist, it will be added as the next item and playback will start for that track once it is loaded.

This includes use of the previous and next buttons to go to the previous or next track in “mconnect’s” queue.

Note: “mconnect’s” queue is looped so that tapping next when you’re at the last track in the queue will take you to the first track in the queue. Tapping previous when you’re at the first track in the queue will take you to the last track.

4.3 Pause, resume, stop . . . and clear.

Pausing playback in “mconnect” causes playback to pause in HQPlayer as you would expect. Tapping play again in “mconnect” causes play to resume in HQPlayer from where it was left, when pause was tapped, again as you would expect. There will be a slight delay between tapping an action in mconnect and the corresponding action taking place in HQPlayer.

Tapping the stop button in mconnect results in a delay of 20 seconds before playback is stopped in HQPlayer. This is necessary, because when there's a delay between mconnect sending a new track to Kodi and Kodi receiving that track, Kodi will treat playback as having stopped. So Supersonic adds this delay to distinguish a user initiated, genuine request to stop playback, from a stop caused by a delay in fetching the next track.

Furthermore, when you tap stop in "mconnect" (or any similar UPnP server), Supersonic will not only cause playback to stop in HQPlayer; but will also clear HQPlayer's playlist. This is by design, since there's no specific way of issuing a clear playlist command from the UPnP server to HQPlayer. It's one small drawback of using the UPnP server method to send Qobuz streams to HQPlayer. Hopefully you won't find this too inconvenient.

Chapter 5

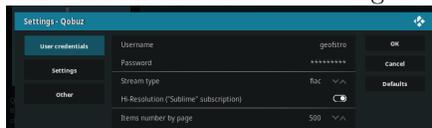
Using the Qobuz add-on for Kodi

This method relies on the Qobuz add-on for Kodi instead of a UPnP server. The Qobuz add-on must be installed within Kodi alongside Supersonic for this to work. The Qobuz add-on was written by a separate developer(s) and I have had no hand in its development. There is also an add-on for Tidal (named Tidal 2) which performs a similar function. These add-ons perform the task of fetching the URLs from the streaming service for playback via Kodi.

Supersonic picks up these urls and sends them to HQPlayer for playback.

5.1 Qobuz add-on's Settings

Once you've installed the Qobuz add-on, you will need to enter your Qobuz credentials in the Qobuz add-on's settings. Right click (or equivalent on the "Qobuz" add-on and choose "Settings".



Perform the following:

1. Enter your Qobuz username followed by the password.
2. Ensure "Stream type" is set to "flac".
3. If you have a Hi-Resolution subscription to Qobuz (either "Sublime" or "Sublime plus" in France) make sure the corresponding setting is turned on.

5.2 Remote control of Kodi

That's it!. Providing you have the Supersonic settings set-up as shown in Chapter 2 above, you are ready to stream music from Qobuz and it will play through HQPlayer.

Now you need to decide how you would like to control Kodi. There are several options for this and I'm listing only the methods I've tried below.

1. Kodi desktop application itself. (An Apple Silver Stick Remote can be used, for those of you who don't like WiFi).
2. The default remote App on IOS or Android.
3. The app named "Kodi Music Remote Pro" on IOS.
4. The Kodi web interface.

Out of these options my favourite is the "Kodi Music Pro" app for IOS. It is a paid for app in its "pro" incarnation. The main reasons I like it are because, 1) It is concentrated on just music and not video playback and 2) It makes it very easy to send a playlist in shuffle mode before playback begins.

Since there are so many options for controlling Kodi and this is my preferred method, I will include examples from "Kodi Music Remote Pro" later in this chapter.

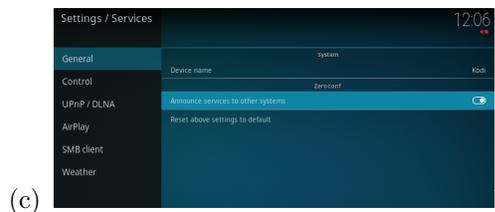
Note: In the example of using the UPnP server; "mconnect" on IOS, "mconnect" is both the UPnP server which fetches the Qobuz urls as well as the means by which Kodi is controlled. In both cases, Supersonic, takes over to further forward the urls to HQPlayer, as necessary.

5.2.1 Enabling remote control within Kodi

For any remote app to be able to control Kodi you will first need to ensure Kodi is set-up correctly to accept commands from external apps running on other systems.

Please take the following steps:

1. Make sure "Zeroconf" is turned on.
 - (a) Go to Settings -> Services -> General
 - (b) Under Zeroconf, make sure *Announce services to other systems* is turned on.

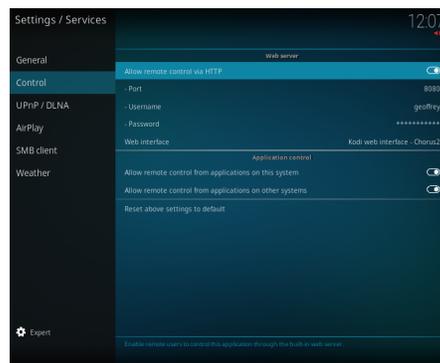


(c)

“Zeroconf” will allow the remote app on the other system to automatically discover this instance of Kodi, *provided you have the necessary service installed on the system running Kodi, to support this*. MacOSX uses the Apple Bonjour service for this, which is installed by default. Windows may also use the Bonjour service if you have it installed as part of Apple Bonjour Print Services or if you have iTunes for Windows installed. On Linux you will need a service such as mDNS or Avahi.

2. Allow remote control via HTTP

- (a) Go to Settings -> Services -> Control



- (b)
- (c) Make sure *Allow remote control via HTTP* is set to turned on.
- (d) By default the port will be “8080”.
- (e) Optionally set your own username.
- (f) Optionally set a password.
- (g) If you want to use the Kodi web interface, select your preferred interface. (Chorus2 is my choice).
- (h) Under “*Application control*” ensure “Allow remote control from applications on this system” is turned on if you wish to control Kodi from other applications running on the same system as Kodi, such as a web browser. This is not really essential for our purposes as we are going to be running Kodi Music Remote App on IOS.
- (i) Ensure “*Allow remote control from applications on other systems*” is turned on.

5.2.2 Enabling Kodi Music Remote Pro to talk to Kodi

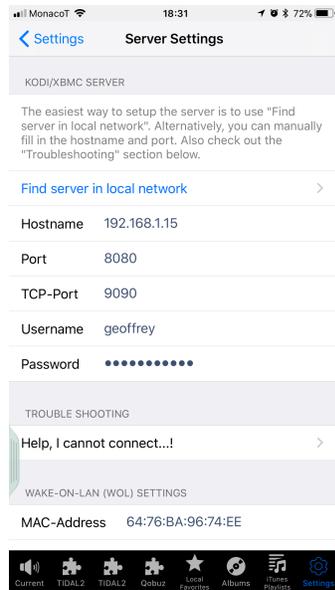
Now you’ve done everything necessary on the Kodi side to allow an external app to control Kodi. Next we need to set up the external remote app itself to talk to this instance of Kodi.

The steps for Kodi Music Remote Pro are as follows:

1. With Kodi Music Remote Pro running on IOS, tap the “Settings” icon (cog wheel at bottom right of the screen).

2. Next tap “Server Settings”.
3. If you set-up “Zeroconf” within Kodi as previously instructed and it’s working, you may now tap on “Find server in local network”.
 - (a) If this works, Kodi Music Remote pro will find your instance of Kodi automatically.
 - (b) If not you will have to know the IP address of the machine Kodi is running on and that you wish to connect to and enter that IP address under “Hostname.
 - (c) The standard HTTP port is: 8080 and TCP-Port is: 9090
 - i. If for any reason you set up non-standard ports within Kodi for HTTP and TCP, you will need to enter those in the appropriate field here instead.
 - (d) If you set up your Username and Password for remote access in Kodi, enter the same username and password here. Otherwise the default is just a Username of “Kodi”.



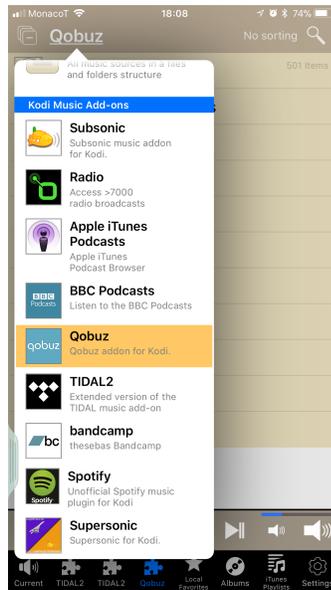


5.2.3 Using Kodi Music Remote Pro

Assuming we've now successfully connected Kodi Music Remote to the instance of Kodi running both "Supersonic" and the Qobuz add-on, we can start to look for music to play in Qobuz:

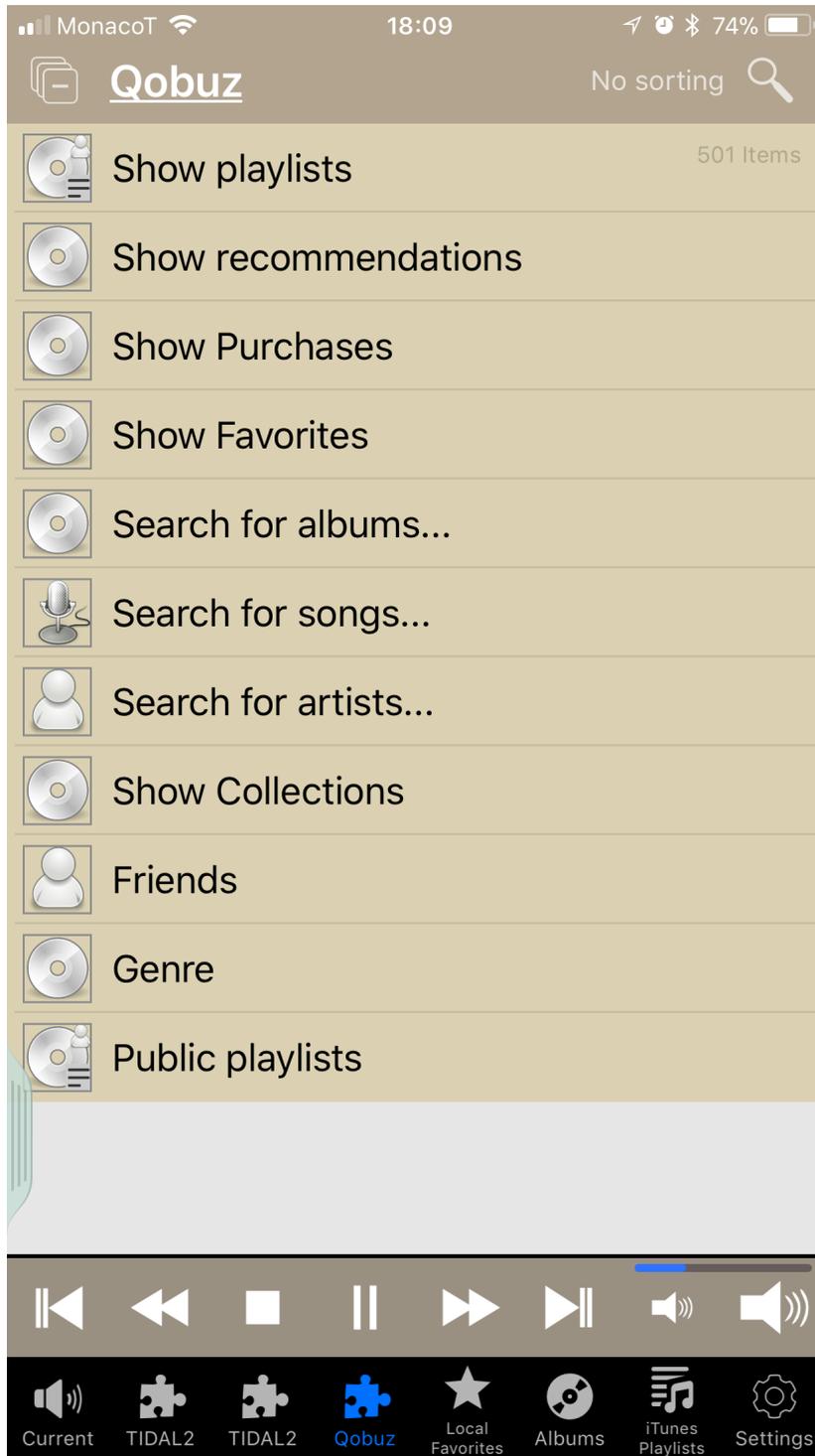
Kodi Music Remote allows you access to any local music files which Kodi has access to as well as all the Music add-ons you may have installed within Kodi.

Out of these choices we want to, obviously, select the "Qobuz" add-on.



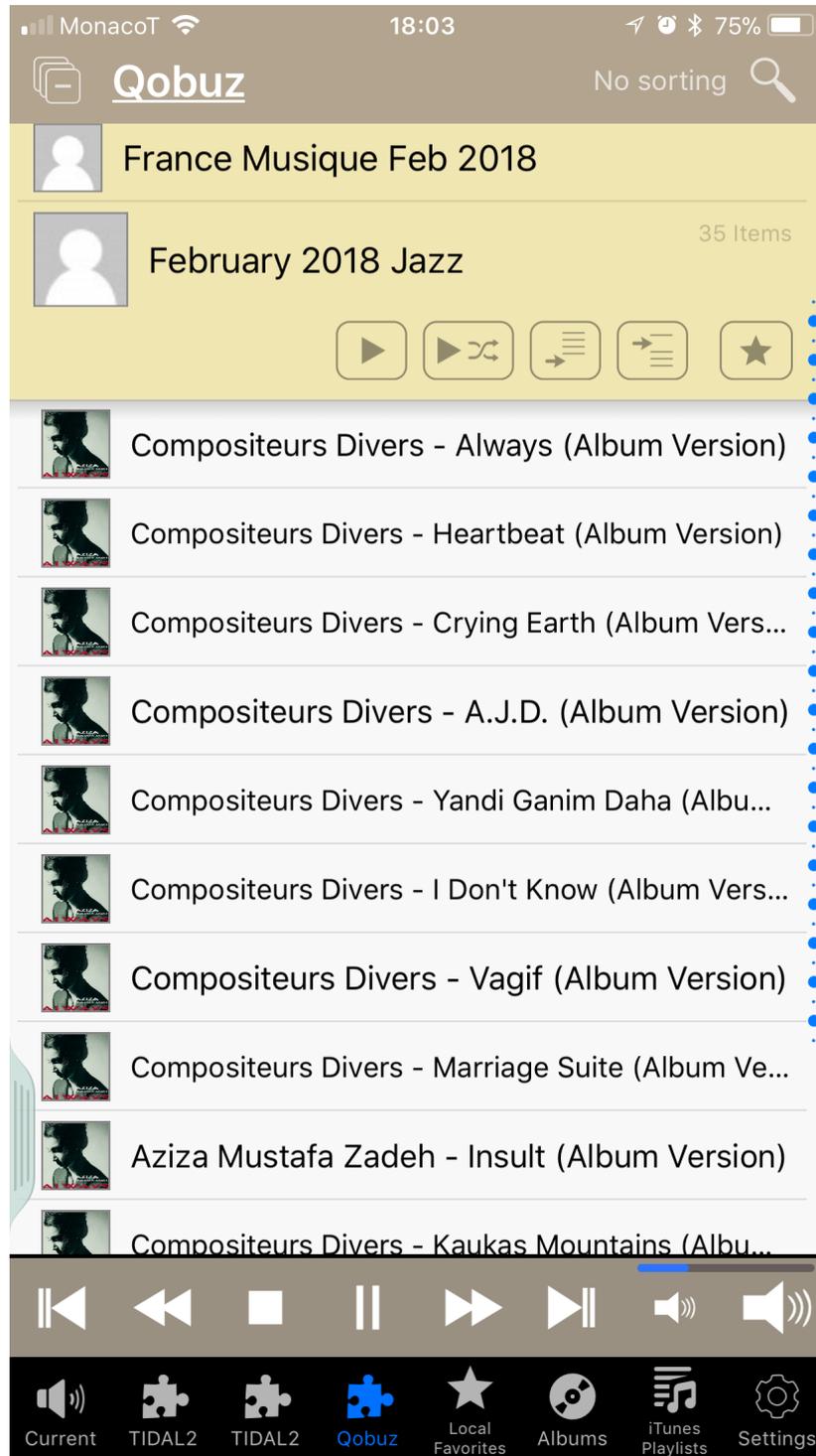
The second item from the top left of the Kodi Music Remote app is the name of the currently selected music source. Tapping on this name causes a drop down menu to appear showing all the music sources you have available from Kodi:

1. Select “Qobuz”.



2.

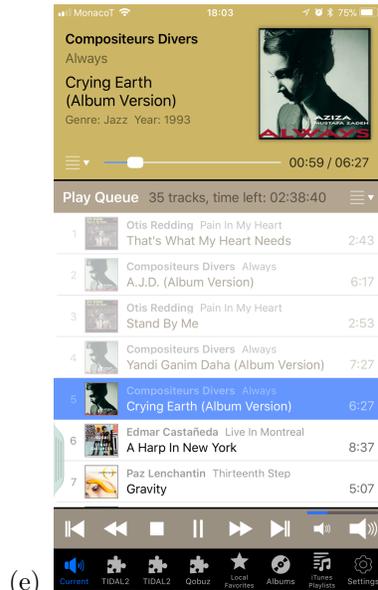
3. As you can see there are a number of choices for ways of accessing music within Qobuz.
 - (a) These include search options:
 - i. Albums
 - ii. Songs
 - iii. Artists
 - (b) Tapping on one of these should cause a field to pop-up in Kodi Music Remote for you to tap the desired search query using your IOS keyboard.
4. In this example I'm going to choose "Show Playlists" which shows all the playlists I've set-up within Qobuz.
 - (a) As with the other options, apart from the search options, you can choose to sort your Playlists (or other category) in various ways. For my Playlists, I generally prefer "Unsorted" as this will show me my most recently added playlists first. This is usually what I want.



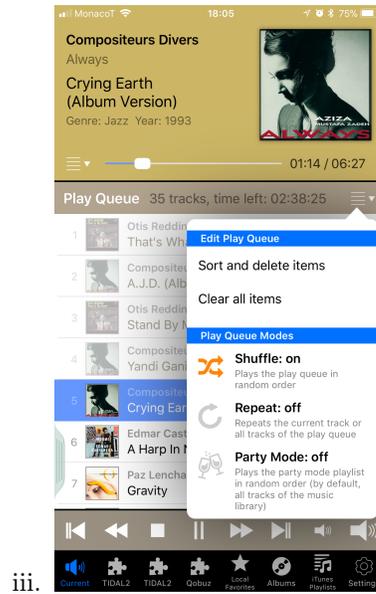
(b)

- (c) The image shows my “February 2018 Jazz” playlist.
- i. Note that at the top of the playlist, underneath the playlist title are several buttons. These buttons appear throughout Kodi Music Remote, whether you’ve selected an album or a particular track from a playlist or album. They effect the way tracks from the Playlist or Album will be added to Kodi’s current queue and it’s important to understand how they work:
 - A. The first right pointing arrow “Play” button will first clear anything currently in Kodi’s queue replace them with all the items from this point onwards in the Playlist or Album, in the Playlist or Album’s order, as shown.
 - B. The second button is a combination of a “Play” button and “Shuffle” icon. As it suggests, it will also clear all items from Kodi’s current queue and replace them with items from this point onwards; but in a shuffled order.
 - C. Supersonic will follow suite and clear any items currently in HQPlayer’s playlist. Then each track will be loaded into HQPlayer and played following the order the tracks appear in Kodi’s queue.
 - D. Tapping either of these buttons will cause playback in Kodi to commence immediately. Supersonic will load the first URL into HQPlayer and playback will commence after a short delay.
 - E. Kodi is always a little ahead of HQPlayer and this is to ensure as far as possible that playback will remain gapless.
 - F. The next button simply adds all the tracks from this point onwards to the end of Kodi’s current queue. Those items will be played through both Kodi and HQPlayer as Kodi reaches them.
 - G. The button following that, instead adds the tracks from this points onwards in the Playlist or Album before the start of Kodi’s current Queue. To play those tracks, instead of the track’s that is currently playing, you will need to tap on one of those tracks in Kodi’s queue. This will navigate to that track and it will be added to HQPlayer’s playlist as the next item and HQPlayer will jump to that track, once its URL has been loaded.
 - H. The last “Star” button is to add this Playlist or Album as a Favorite within the Kodi Music Remote app on this device.. (Not to be confused with Kodi’s own Favourites or Qobuz or any other add-ons Favourites).
- (d) Now we’re going to jump to Kodi’s current queue by tapping on the first item at the bottom left of the screen named “Current”.

- i. Notice that the strip of buttons at the bottom of the screen provides access to your most commonly used music sources. I have no idea why “Tidal2” is shown here twice. There is only once instance of it running under Kodi.



- (e)
- (f) Now we can see what is currently playing in both Kodi and HQPlayer. From here we can navigate to any track within Kodi’s queue and navigate to that track for playback in both Kodi and HQPlayer, if we wish.
 - i. Although the playback controls are shown on all the screens which allow us to move to the next or previous track, pause playback, stop playback; etc. only the “Current” view of Kodi’s queue will allow as full navigation.
- (g) If we wish to stop playback in Kodi and HQPlayer and clear both Kodi and HQPlayer’s playlist, we need to do the following:
 - i. Tap the “Stop” button in Kodi Music Remote.
 - ii. Tap on the “Hamburger” menu at the top right side of the Play Queue and choose “Clear All Items”.



This is not meant to be an exhaustive user guide for Kodi Music Remote Pro. Hopefully though it will have been enough to get you up and running with this app for controlling Kodi and via “Supersonic”, HQPlayer as well.

Before leaving the subject of this IOS app, I will just add that you may need to refresh information from time to time. For example, if you performed a search for an album from Qobuz and subsequently want to search for another album, you may need to clear Kodi Music Remote app’s cache in between those searches. You do this by swiping down on the screen until you see a prompt asking if you wish to clear the app’s cache.

Chapter 6

Differences between UPnP and Kodi Qobuz add-on

The main difference between these two methods of fetching URLs from Qobuz is that in the case of an external UPnP server, Kodi's queue is not used. Instead Kodi merely acts as a renderer. It's a "surrogate renderer" though, because, thanks to "Supersonic", the actual playback will take place in HQPlayer.

As already noted, this means that the only way of clearing HQPlayer's queue when using the UPnP solution is by tapping the "Stop" button in the UPnP server app and waiting for 20 seconds.

Other than that all other features including navigation, Play, Pause, Resume; etc. Are the same. In the case of the UPnP solution you carry out all of these functions using the UPnP server app itself. There is no need to set up Kodi remote control as described under the previous chapter or to use a separate Kodi remote app. All control is via the UPnP server app.

Using the UPnP solution; it's the UPnP server apps own queue which will determine what plays in HQPlayer and the order it plays in. If you wish to use shuffle or repeat functions, you enable these within the UPnP Server App.

The UPnP example I have shown is an IOS app. The only other UPnP server which supports Qobuz that I've tested and found to work well is BubbleUPnP.

Of course, a UPnP server doesn't have to run on a mobile device, such as IOS or Android, though this certainly appears to me to be the simplest solution.

I encourage you to try both the Kodi Qobuz add-on and a UPnP Server app, and determine which you prefer.

Next we'll go onto discuss one control function that hasn't been mentioned up to now, which is also equally applicable to the UPnP or Kodi add-on solution and that is Volume control.

Chapter 7

Volume considerations

HQPlayer has its own volume control which is implemented in DSP (digital signal processing). This has a potential advantage of avoiding the use of a pre-amplifier if your only source is your music server/DAC. Of course, if your DAC also has a built in volume control, you may prefer to use that and avoid the use of a pre-amplifier, that way.

There is plenty of discussion as to whether a traditional analogue volume control is the better solution or whether a digital volume control is superior. I certainly don't wish to delve into that controversy here. If your DAC has a volume control it may be either analogue or digital. Check with the user manual that came with your DAC or with the DAC's manufacturer, if you don't know which it is and wish to find out.

A volume control such as HQPlayer's, implemented in software can, of course, only be digital.

You could have a scenario whereby HQPlayer's volume control is implemented in its preferences, and your DAC is hooked up directly to your power amp(s) driving your speakers. You've decided to rely solely on HQPlayer's volume control. Even if your DAC is equipped with volume control, you've decided to defeat it. If this is the case, "Supersonic" allows you to control HQPlayer's volume from any of the Kodi control options previously described or from a UPnP server app. This is obviously convenient, since you'll be able to control volume from the same app as you use to control Kodi or from the UPnP server app, if you use that.

At this stage I will just add one caution and that is to please adjust the volume one step at a time (single tap on the volume control in the app) and wait for the volume to change before tapping again. Especially if you are increasing the volume. The reason for this is that it's impossible to avoid some delay between you tapping the volume control and HQPlayer responding. The way Supersonic's volume control implementation works, is that first the control app sends the request for a volume change to Kodi, Supersonic is constantly monitoring for these changes, which it then passes on to HQPlayer. So some delay is inevitable and the extent of the delay will differ from one system to

another. Depending on the machine(s) you're running Kodi and HQPlayer on, your network efficiency and so on. I will add another caution to this before the end of this chapter.

Here is a summary of the different scenarios for controlling volume:

1. Traditional Analogue volume control implemented in a pre-amplifier, integrated amplifier or DAC.
 - (a) HQPlayer's DSP volume control would be defeated, see below.
2. Digital volume control performed in your DAC.
 - (a) Same as above in the sense that HQPlayer's volume control would again be defeated.
3. All volume control is carried out using HQPlayer's volume control.
 - (a) HQPlayer's DSP volume control will need to be enabled. There are some variants as to how this should be set. See examples below.
4. A mixture of HQPlayer's volume control and either option 1 or 2 above.
 - (a) HQPlayer's DSP volume control will need to be enabled. There are some variants as to how this should be set. See examples below.

That last option (4) is the method I find myself using increasingly these days. It has a number of advantages. I approach it as follows:

1. Using a traditional analogue pre-amplifier, I set the volume to a healthy level for realistic serious listening.
2. HQPlayer's volume is controlled by one of the remote apps via Kodi and Supersonic to just apply a judicious amount of attenuation when needed, when a slightly lower listening level is required.

This last option works out well for me in all sorts of situations. We all know that recordings vary significantly in levels and attempts to normalise volume across different recordings have proven less than satisfactory. The ability to just shave off a few decibels from a louder than average recording, using the convenience of the same app for selecting music, makes sense to me. Of course, if the recording is at a lower level than satisfies with my pre-amp setting, I'll have no choice other than to increase the level on the pre-amp.

Of course you might say why not just control the volume at all times from the pre-amp? Most pre-amps; etc. have remote volume control these days. I might be in a situation where I'm out of range though and need to reduce volume from wherever I am. Like most people these days, I usually have my phone with me or an iPad. By this means I can control everything from the one device. It's true that increasingly pre-amps; etc. have implemented their own apps for controlling volume as well. That still requires going to a different app though.

7.1 HQPlayer's volume control settings

Let's take a look at HQPlayer's volume control from the applications main interface. This is the result of HQPlayer set to maximum volume (zero attenuation).



With the latest versions of HQPlayer, the app helpfully tells us that with the output device (DAC) selected, maximum volume will result in signal clipping. The volume control is Red.

What happens if I back off one db? I can do this by using the back arrow key on my keyboard.



Now the volume control is yellow, which means we're not out of the woods yet. Signal clipping may still result from time to time.

Let's back off by another db for -2db attenuation.

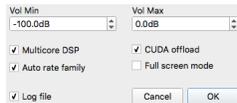


Great! At -2db we're safe.

7.1.1 Relying entirely on HQPlayer's volume control

If we want to rely completely on HQPlayer's volume control our minimum volume will need to be something very low. Out of the box HQPlayer's default minimum volume is set at -60db attenuation. This certainly should be enough for safety in most situations.

Kodi though has a minimum setting of 0 and maximum of 100. So there are 100 points between minimum and maximum attenuation. Supersonic reverses this to be in line with HQPlayer's method of maximum volume being at 0db attenuation. HQPlayer permits us to set the minimum volume to -100db. Since this will be in line with Kodi's volume points, we'll do this.



There's just one thing wrong though. Remember we already discovered that a maximum volume of 0db would cause the signal to clip? We seemed safe at -2db maximum volume. Just to be sure though, we'll set the maximum volume to -3db.



7.1.2 Relying entirely on our Pre-amp, Integrated amp or DAC for controlling volume.

In this case we want to defeat HQPlayer's volume control altogether. When we do this whatever volume adjustments we make in the controlling software app, will make absolutely no difference as we will always be sending maximum volume (or close) from HQPlayer. Attenuation will be applied by our pre-amp or similar. Again though, we don't want to send a clipped signal to our DAC. So in this case both values will be set at -3db.



7.1.3 Relying mainly on our Pre-amp (or similar) but allowing some adjustment in HQPlayer

In this case the preferences will be exactly the same as section 6.1.1 (Relying entirely on HQPlayer's volume control) above. To allow any amount of volume control from the control app, via Kodi/Supersonic to HQPlayer, we need HQPlayer to have the same number of volume points as Kodi. Except we won't allow to go over -3db, for the reasons previously explained.

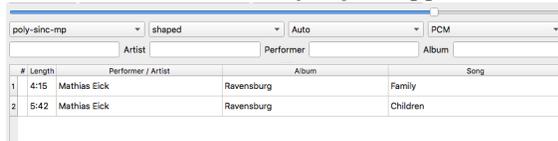
Chapter 8

HQPlayer settings files

HQPlayer's main interface allows you to experiment with different up-sampling filters, ditherers/modulators, sample rates to up-sample to and whether you want the final signal to be PCM or DSD.

You are encouraged to experiment with all of these settings to arrive at your preferred 'regular' settings before deciding on what your default settings should be. Obviously the DSD (SDM) settings options will only be applicable if you are using a DSD capable DAC.

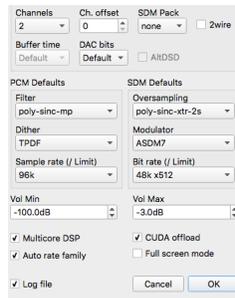
I find the best way to experiment with different HQPlayer settings on a temporary basis, this way, is to simply drag local music files onto HQPlayer's playlist/transport area and play them with different settings. Obviously the music files must be in an HQPlayer supported format.



#	Length	Performer / Artist	Album	Song
1	4:16	Mathias Eick	Ravensburg	Family
2	5:42	Mathias Eick	Ravensburg	Children

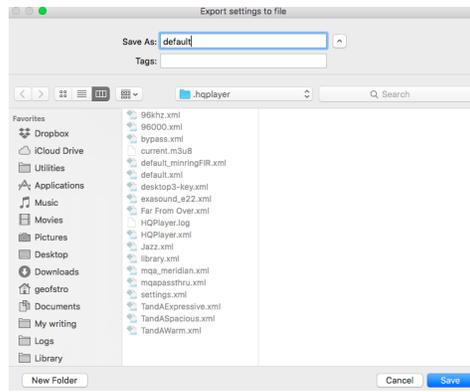
It makes sense to Export and save HQPlayer settings files in case you ever want to apply different HQPlayer settings at different times, in different situations.

So I advise to carry out your experimentation with temporary settings changes in HQPlayer's main interface, with repeated listening to the same files using different settings first. Then once you've arrived at the settings you're happy with, in the majority of cases, apply those settings in HQPlayer's preferences, for example:



8.0.1 Exporting your default HQPlayer settings file

1. Choose 'Export settings. . .' from HQPlayer's 'File' menu.
 - (a) On Mac and Linux settings files should always be kept in '~/.hq-player'
 - (b) On Windows the location is 'C:\Users\<USER>\AppData\Local\HQ-Player'. Where '<USER>' must be substituted with your user account name.
 - (c) If HQPlayer doesn't automatically take you to this location for saving the settings file, you will need to navigate to it.
2. Enter a name for the file; I'm calling it default and click on 'Save'



- (a)
- (b) As you can see, I've already exported quite a few different settings files to this location

8.0.2 By-passing all HQPlayer's DSP

There are some, admittedly, fairly unusual scenarios where you might want to by-pass all of HQPlayer's DSP features. You might ask, 'well why use HQPlayer at all then?' HQPlayer is obviously all about various forms of DSP, such as up-sampling and conversion to DSD. . . . and HQPlayer's volume control is one of them.

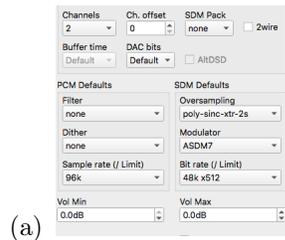
If you find yourself wanting to by-pass HQPlayer’s DSP on occasions my advice is that you *should never rely entirely on HQPlayer’s volume control as described under section 6.1.1.*

If you’re going to completely bypass HQPlayer’s DSP, that means bypassing it’s volume control entirely. The volume settings in HQPlayer’s preferences would have to be Vol Min 0db, Vol Max 0db.



In fact this isn’t all you’ll need to do to make sure all DSP processing is turned off. The following steps will also need to be taken:

1. In HQPlayer’s preferences also make sure the PCM up-sampling filter and Ditherer are both set to ‘None’.



(a)

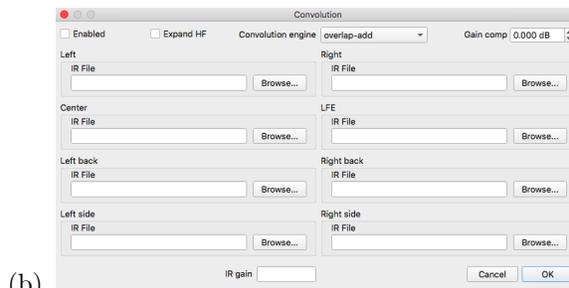
2. After clicking OK, HQPlayer’s main interface should show the following:



(a)

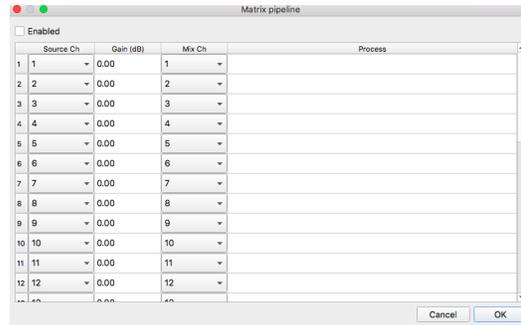
3. Now go to the ‘Matrix’ menu and choose ‘Convolution setup...’

- (a) Make sure the ‘Enabled’ check box is *not selected*



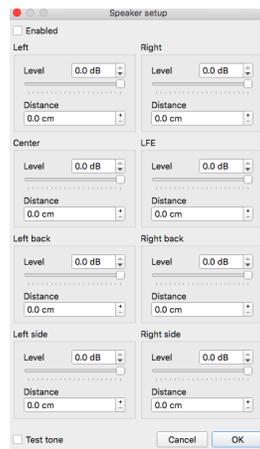
(b)

4. Again from the ‘Matrix’ menu choose ‘Pipeline setup...’ and again make sure it’s not enabled.



(a)

5. Now go to the 'Tools' menu and select 'Speaker setup...'

(a) Make sure it is also *not enabled*

(b)

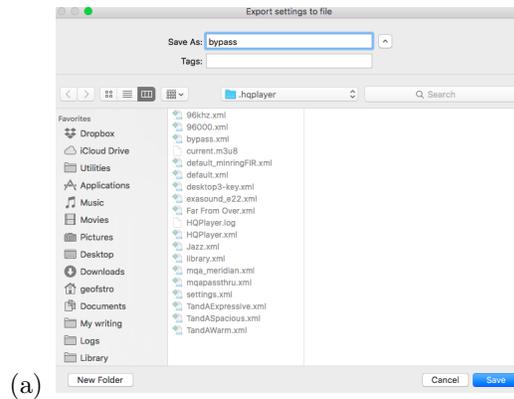
That should ensure all of HQPlayer's DSP is disabled.

These are the settings you will want to apply at any time you wish to completely bypass HQPlayer's DSP.

It's probably a good idea to export these as a settings file.

8.0.3 Exporting a bypass DSP settings file

1. Choose 'Export settings...' from HQPlayer's 'File' menu.
2. Enter a name for the file; I'm calling it 'bypass' and click on 'Save'



It should be clear why I stated earlier that you should not rely on HQPlayer's volume control entirely, *if you are ever likely to bypass HQPlayer's DSP*, as that would mean HQPlayer's volume control would be bypassed. Switching from HQPlayer settings which allow for volume control, such as Vol Min -100db, Vol Max -3db to a settings file with Vol Min 0db, Vol Max 0db would mean you could go immediately from an attenuated volume to maximum volume through your system. This could be disastrous for both your ears and your system. So please be warned, *never do it!*

As long as you've got a pre-amplifier or similar in your system which allows you to attenuate volume, you're safe when you keep the pre-amp's volume control at a suitably attenuated level. In that case you could use HQPlayer's volume from time to time to attenuate volume from your software control app, when you need to. There should be no danger in going from settings where Vol Min is -100 and Vol Max is -3db or 0db, to a 'bypass' settings file where Vol Min is 0db and Vol Max is 0db, because the main volume attenuation is being applied by your pre-amplifier or similar.

Chapter 9

Why would you want to apply different HQPlayer settings files?

9.1 HQPlayer DSP versus bypassing all DSP for 'bit perfect'.

So far we have created a 'default' settings file for our regular settings and a 'bypass' settings file which turns off all of HQPlayer's DSP, including volume control.

Here are a couple of reasons why you might want to switch between these two settings files:

1. You want to compare the results of so called "bit perfect" playback (sending the native file/stream) to your DAC without any up-sampling, conversion or any other forms of DSP, to the results with up-sampling, conversion or other forms of DSP applied by HQPlayer.
2. You may be streaming MQA files to an MQA DAC and want to bypass HQPlayer's DSP so the MQA DAC will receive the unadulterated MQA signal and the magic Green or Blue lights will come on at the DAC to show it's an MQA file "unfolded" to its full resolution and, in the case of the blue light "studio approved".

Supersonic allows you to specify which settings file you'd like to use for your next listening session. This is found under "Supersonic Settings -> HQPlayer Settings -> Settings file to load". It takes care of the first case. Following along with the examples up to now of a 'default' settings file and a 'bypass' file, you can enter whichever of these two file names you wish to be applied. Those HQPlayer settings will be then be applied until you change the name to a different settings

file. Those settings file names need not be 'default' or 'bypass'. The settings file name you enter here can be whatever you wish as long as it corresponds to a valid settings file exported from HQPlayer.

9.1.0.1 MQA considerations

The second case which concerns MQA streams only, is taken care of by another setting called "MQA Settings" found in the same place. These settings are applied automatically whenever an MQA stream is encountered.

MQA streams are only applicable to the Tidal streaming service at the time of this writing. Those streams are in '.flac' format as with Qobuz streams. The Tidal streams which are in MQA format contain information which identifies them as MQA streams. Supersonic probes each stream to determine if it is an MQA stream. If it is an MQA stream it looks at this setting to see if you have specified a settings file to be used for MQA streams. If you have, those settings are automatically applied. For all other non-MQA streams, the settings will be switched to the settings in the file in the previous setting, "Settings file to load".

So if you use the Tidal 'HiFi' streaming service and the 'Tidal 2' add-on within Kodi, Supersonic can automatically switch between your regular settings for non-MQA streams and your MQA settings for MQA streams.

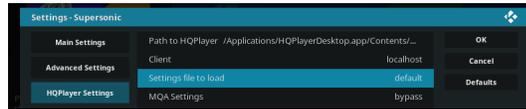
Note: Not all MQA DACs are created equal. Some are what I would call "full MQA" DACs, others are referred to as "MQA Renderers". An "MQA" renderer requires the first "unfold" to be performed in software, before it can perform the rest of the MQA magic, which is the second unfold (if there is further 'unfolding' to be done to get to a higher resolution), followed by specific filtering applicable to that DAC. At the time of this writing the only software which can perform the first unfold is the Tidal Desktop app running on Mac or Windows and Audirvana + running on Mac. Roon are said to be implementing the first unfold in the near future and a version of Audirvana + for Windows should also be coming soon.

The first unfold consists of taking the base 24 bit 44.1 or 48khz file and 'unfolding' it to 88.2 or 96khz. No further unfolding beyond 96khz is foreseen to be available in software at the time of this writing. So you will need either a "full" MQA DAC or an MQA renderer to perform any additional 'unfolding'. In the case of some MQA streams, this could take you as far as 384khz, though 176.4 or 192 khz are far more common.

The question of who may perform the first 'unfold' and which software it becomes available for is tightly controlled by MQA and subject to agreements between MQA and the software developer concerned. So it is highly unlikely that the first unfold will become available in open source software such as the Tidal 2 add-on in Kodi or available to Supersonic/HQPlayer.

So where does that leave us?

If you have a "full MQA" DAC, in order to get the "full on" MQA experience you will have to bypass all HQPlayer's DSP. Following our previous examples you could then enter 'default' in the 'Settings file to load' settings and 'bypass' in the 'MQA Settings' field.



What if you don't have a "full MQA" DAC? In that case there is no way to perform any MQA processing such as 'unfolding' or DAC specific filtering. You're stuck with the 24bit/44.1 or 48khz file as streamed from Tidal 2.

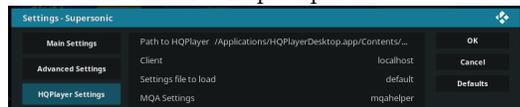
MQA detractors argue that this is actually a lossy stream and therefore lower quality than standard 16bit/44.1khz 'Redbook' CD standard streams. I don't wish to get into that controversy here. There are some things we can do to, perhaps, improve on the quality of this stream with HQPlayer's help. Using yes, HQPlayer's DSP. In fact HQPlayer has some specific up-sampling filters designed specifically for MQA files. At the time of this writing are as follows:

- poly-sinc-mqa
- poly-sinc-mqa-mp

These will not perform any kind of MQA processing such as 'unfolding'. You may want to try them though, for MQA files only, in combination with different ditherers from the wide choice HQPlayer offers, to determine if they provide an improved result over the basic MQA stream to your ears.

Having come up with a new set of HQPlayer preferences for MQA streams with your non-"full MQA" DAC, you would instead use this file in the "MQA Settings" field within Supersonic's settings.

We'll call this file "mqahelper":



9.2 Other reasons you may want to apply different settings files

There are so many situations where you might want to apply different settings to your default settings apart from those already covered above, that they're too numerous to mention. It really depends on your own tastes. Most people may just settle on one bunch of settings and stick with those for all the music they play. There are some very good reasons, some technical, others subjective that may cause you to want to use different settings files for different music streams.

Thanks to a change made to the latest versions of HQPlayer, at the time of this writing (3.19 onwards) it is fairly easy for a developer whose software interacts with HQPlayer, to apply different settings files, in different situations.

When it comes to internet streams from Qobuz or Tidal, we can use information within the streams themselves. In addition to determining if the stream is in MQA or non-MQA format as described above, we can also determine the following:

1. Album
2. Sample Rate
3. Artist
4. Genre

The information we can obtain is not limited to the above. I've found these criteria to be useful though, as possible triggers for when we *may* want to automatically apply a different settings file.

I've placed the emphasis on 'may' because I don't for the moment wish to suggest you would want to create a separate settings file for every album you may want to stream.

There may be the occasional Album though, where specific settings yield better results for you than you would generally apply.

The list is intended to be hierarchical from the most specific to the most general. The most specific category; Album, I would expect you to use only rarely, if at all. If you do wish to apply a certain settings file for a specific Album you will need to name the settings file exactly as the correct album title. As long as it is correctly named the settings file will be applied whenever you stream that particular album.

9.2.1 Sample rates

The next category Sample Rate is likely to be more useful for most people.

To apply a particular settings file to a specific sample rate, you will need to name these settings files exactly as follows:

Sample Rate = '44100': Settings file = '44khz'

Sample Rate = '48000':Settings file = '48khz'

Sample Rate == '88100: Settings file = '88khz'

Sample Rate = '96000': Settings file = '96khz'

Sample Rate = '176400': Settings file = '176khz'

Sample Rate = '192000': Settings file = '192khz'

Sample Rate = '352800': Settings file = '352khz'

Sample Rate = '384000': Settings file = '384khz'

Note: I've omitted the '.xml' extension from each settings file name as this will be added automatically when you export the file from HQPlayer.

9.2.1.1 Settings file for all sample rates above a certain limit

Let's say you have a DSD capable DAC which can go all the way up to DSD512 and you like to up-sample all Qobuz streams to the maximum DSD512. Unfortunately you find that although 44.1khz/16bit streams up-sample/convert just fine to DSD512, with your preferred settings, 88.2khz and above streams cannot cope with your settings and you get drop-outs.

If you're using one of the poly-sinc family of filters for 44.1khz to DSD512, you may find you need to apply the -2s equivalent, which is less demanding for anything from 88.2khz and above. So it's a bit of a trade-off, because all though you're starting with a higher-resolution stream, you have to drop down to a slightly less than optimal up-sampling filter to get it to play reliably. The only other solution would be to acquire a more powerful machine.

Note: Other things you can try to achieve reliable playback of the higher resolution streams, are to increase HQPlayer's 'buffer time' in its preferences and/or trying a different, less demanding, modulator or ditherer.

In this case the naming scheme for the settings file to be applied when the sample rate is above a certain limit is the same as above; but with the word 'from' added to the beginning, as follows;

Sample Rate = '44100': Settings file = 'from44khz'

Sample Rate = '48000': Settings file = 'from48khz'

Sample Rate == '88100': Settings file = 'from88khz'

Sample Rate = '96000': Settings file = 'from96khz'

Sample Rate = '176400': Settings file = 'from176khz'

Sample Rate = '192000': Settings file = 'from192khz'

Sample Rate = '352800': Settings file = 'from352khz'

Sample Rate = '384000': Settings file = 'from384khz'

This is obviously less specific than having a settings file for a particular sample rate. So if you have a settings file named '88khz' streams which correspond to that sample rate will have that settings file applied. That's true even if you also have a settings file named 'from88khz'. In that case the 'from88khz' settings file will only be applied to streams from 96khz onwards. If the '88khz' settings file didn't exist the 'from88khz' settings file would instead be applied to stream from 88.1khz onwards.

9.3 Artist

As with the Album example, you need to name the settings file exactly the same as the Artist is named. For Qobuz streams this should be how the Artist appears within the Qobuz add-on in Kodi and in any remote app you are using to control

Kodi. So for example, to cover all of Keith Jarrett's work, you would need a settings file named 'Keith Jarret', 'Keith Jarret Trio', 'Keith Jarret Quartet' and so on. These are all likely to have the same settings in each file. You'd have to repeat them though, if you wanted to make sure you covered all Keith Jarrett's streams. Of course the is more likely to be influenced by the record producer/record label than anything else. Unfortunately we don't have that information at our disposal. Possibly all Keith Jarrett's work on the ECM label has a particular sound, that could differ significantly from his work on another label.

9.4 Genre

Finally the least specific category is 'Genre'. Classical, Jazz; etc. Of course though there are also many sub-genres, such as Jazz Vocal or Classical Chambre music. Again you will need to make sure the name of the settings file corresponds to the exact name of the 'Genre' identified with the stream. For Qobuz many of the genres are likely to be named in French. So that's something to watch out for.

9.5 No settings file matches

If no settings file is found which corresponds with any of the above then, either one of the following will be applied:

1. If there is a settings file named in 'Supersonic -> Settings -> HQPlayer settings -> Settings file to load'; that settings file will be applied.
2. In the absence of the above HQPlayer will just use whatever was the last settings file loaded. So if you do apply specific settings files to any of the above criteria, it's a good idea to make sure you do specify a default settings file in 'Supersonic -> Settings -> HQPlayer settings -> Settings file to load'.

Finally I will just mention that it is your responsibility to ensure any settings file you create and save is valid for the streams you intend to be playing and your audio output device/DAC. Supersonic will simply load whatever HQPlayer settings you've asked it to, as described above.

Chapter 10

Using two machines

Thanks to HQPlayer's ability to receive instructions over a network, you are not obliged to run Kodi on the same machine as HQPlayer. Additionally, since both Kodi and HQPlayer are 'cross platform' the platform/operating system which Kodi runs under, doesn't have to be the same platform as HQPlayer.

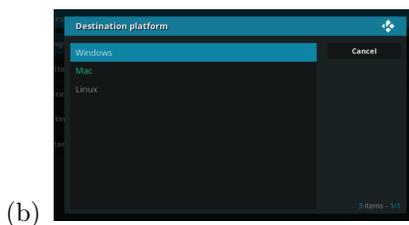
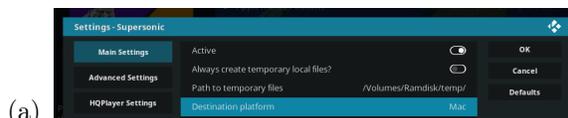
You will want to make sure that HQPlayer is running on the most capable machine you have available on your network as it is the most demanding application, if you want to run it's most sophisticated DSP features, and I'm sure you will.

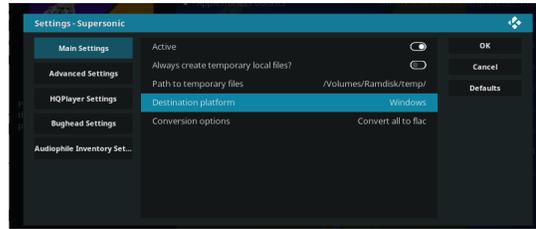
Dividing duties between two machines might yield better results for you, since the only application the machine running HQPlayer needs to run is HQPlayer itself.

We'll take the example of Kodi running on a Mac and HQPlayer running on a Windows machine.

In this case you'll need to go to Supersonic's settings on your Mac and set Supersonic up as follows:

1. In the main settings pane, set the 'Destination Platform' to Windows from the drop down menu that appears when you click on 'Destination Platform'.

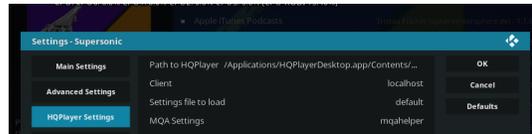




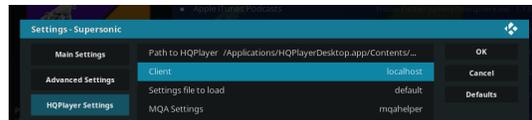
(c)

(d) The 'Destination Platform' is always the one which HQPlayer is running on.

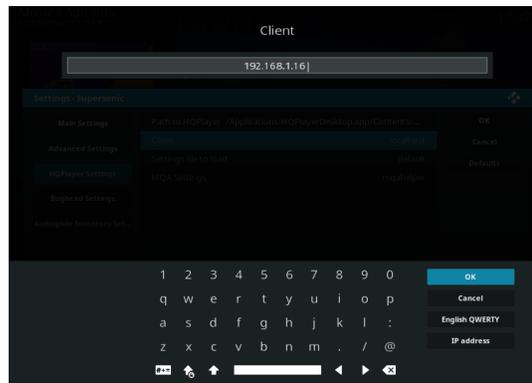
2. In the HQPlayer settings pane set the client to either the host name or IP address of the Windows machine which is running HQPlayer.



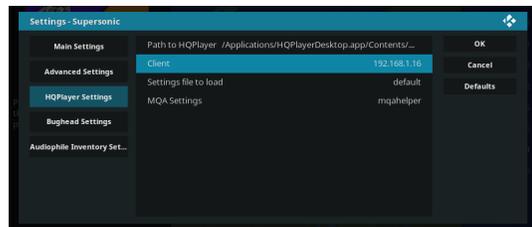
(a)



(b)



(c)



(d)

Finally in HQPlayer's main interface on the Windows machine you will need to enable the Network button.





That's all there is to it! You can now play music from Qobuz running on Kodi on your Mac and the streams will be played by HQPlayer on the Windows machine.

In fact there is also a possible scenario involving three machines:

1. One machine running Kodi
2. Another running HQPlayer Desktop
3. A third machine running HPlayer's NAA (Network Audio Adapter).

This changes nothing as far as Supersonic's set-up is concerned. Again you will want to make sure that HQPlayer Desktop is running on your most capable machine. The machine running the NAA is acting as a renderer which is far less demanding.

HQPlayer's NAA is provided with every licensed copy of HQPlayer.

Chapter 11

Kodi's audio output

When playing Qobuz streams Kodi needs to play along. This is how Supersonic knows when it's time to load and play the next stream from an album or playlist, for example. It's also needed for pausing, resuming and stopping playback. It also allows you to follow the track process from whichever app you're using to control Kodi.

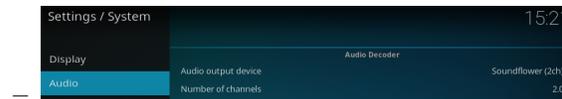
So having Kodi play along is obviously necessary for Qobuz (and Tidal) streams.

You may be concerned that Kodi must be using up some resources when playing to an audio device and this is understandable. However there are steps we can take to ensure any penalties will be absolutely minimal.

Of course, the first thing you need to be sure of is that Kodi will not try to output audio to the same audio output device that you want HQPlayer to be send it's output to. This would create a clash and simply wouldn't work.

Here are examples of steps you can take:

- Make sure Kodi's output will be sent to a different device than HQPlayer's.
- Mute the output of the Kodi audio output device or better still send to a software virtual audio device such as "Soundflower" on Mac or Virtual Audio Cable for Windows.



- Another possibility for Windows machines, which is what I do, is to send Kodi's output to the default windows audio device and disable Windows Audio and Windows Audio Endpoint Builder services.
 - This is only possible for DACs which have ASIO drivers, otherwise those services will need to be enabled.



Obviously if you use a two machine set-up as described under chapter 9, Kodi's audio output can have no bearing on the other machine which HQPlayer is running on.