J River front end to HQPlayer

April 7, 2017

Chapter 1

Introduction

This started off as a very limited solution for people who wanted to use J River Media Center as a front end application to HQPlayer. It consisted of a .BAT script with about half a dozen lines that I threw together all the way back in 2015. The only thing it could do was load an entire album into HQPlayer and start playback from the first track. Great for people who just listen to entire albums. Then earlier on this year one of the main forum contributors on Computer Audiophile, who goes by the name of Ted_B, mentioned that he was using it; but had some issues with certain albums not loading correctly and asked if I could help. As I was looking into this another user on CA who goes by the name of ShadowLight kindly converted the .BAT script to a Powershell script. Powershell opened up a whole bunch of new possibilities for me. Although I'm not an experienced Powershell scripter, for me it is obviously a far friendlier language to program in than the one used for BAT scripts. It's also far more powerful. So this has been a Powershell learning experience for me, which has allowed me to add a lot of features to it that I personally find useful. I hope you find it useful and enjoyable too, now that it's not such a limited solution as that original BAT script.

Chapter 2

Features

Here is a list of features in the current version:

- Load an album and playback begins from the track you selected to play in J River/J Remote.

- Select a different track from the same album in J River/J Remote and HQPlayer will navigate to that track without re-loading the album.

- Multi-Disc "Box Sets" are supported where the format of the file name begins with <Disc#>-<Track#>. (Disc number-Track number).

  - This format is used simply to identify that the album is a Multi-disc "Box set". The actual disc and track numbers will be determined from the tags set in J River, wherever possible.

  - In the case of these Multi-Disc sets, only the disc containing the track selected for playback will be loaded into HQPlayer, with playback beginning from that track.

- For any album which does not contain valid Track# tags (and Disc# tags where appropriate), the Track# and Disc# will be determined from the track's file name wherever possible.

- Automatic creation of temporary files for albums which are in a format not supported by HQPlayer, such as Apple Lossless.

- Ability to specify the file type of the temporary files. The default is "flac"; but any of the HQPlayer supported formats may be specified.

- Ability to selectively force creation of temporary files for albums even though they may be in a format supported by HQPlayer, with the exception of DFF/DSF (DSD) files.

- Temporary files are deleted as soon as a track from a new album in selected for playback.

- To specify where the temporary files are created, move this script and it's associated files to the location where you want them created. In this way you can create the temporary files in a Ram Disk. If you do this though, be sure to keep a back-up of this script and all its associated files in a non-volatile location.

- All tracks from an Artist may be loaded and played in HQPlayer.

  - The tracks may be played in order from each of the artists albums or shuffled.
  - Playback will begin with the track selected for playback in J River/J Remote.

- J River's playlists may be played through HQPlayer using this front end.

  - Each playlist you wish to playback through HQPlayer must first be exported in .m3u8 format to the same folder as this script and its associated files reside.
  - Remember to export "Smart Playlists" periodically to replace older versions as these playlists are updated dynamically, though only within J River itself.
  - Optionally you may Shuffle the playlist before sending it to HQPlayer. This is achieved with a custom tag which can be set in J River/J Remote.
  - Playback from the playlist loaded in HQPlayer will begin with the track selected for playback in J River/J Remote.
  - The tracks from the playlist may be played in order or shuffled.

- Albums, Artists and Playlists may all be played in repeat mode.

- Ability to change the following HQPlayer settings from within J River/J Remote:

  - Filter
  - Shaper (Ditherer or Modulator)
  - Sample Rate
  - Mode (Auto, PCM or SDM (DSD))
  - The HQPlayer settings to apply are determed from custom tags, which you first have to set up within J River.
  - The HQPlayer settings that will be applied are determined by how the tags are set in the actual track selected for playback.
  - Use of this feature is entirely optional. You are not obliged to set-up custom library fields to create these tags in J River or enter values for the tags. If the tags are not present or are empty the settings that you have in place in HQPlayer will be applied, until you change them within HQPlayer itself.

– At all times where specific HQPlayer settings are requested, a check is made to detemine if the Filter, Shaper, Sample Rate or Mode you have set in the tag is available. These settings are all context dependant and only the settings available in HQPlayer, will be applied. This depends on several factors, such as, the DAC you are using, the mode which is being applied, and the sample rate and format of the original source file. The available settings are fetched prior to determing if the settings you've requested can actually be applied. Any settings from custom tags which cannot be applied will be ignored. The Mode setting is attempted first, so the filters and shapers available for that mode can be fetched.

• Apart from Artists and Playlists, this front end to HQPlayer will always assume you want to play from an album. So only the tracks from the album containing the track selected for playback, will be loaded into HQPlayer. The implications of this are that if you start playback from any view other than "Artist" "Album" or a "Playlist", the only tracks which will be loaded are the rest of the tracks from the Album which contains the track selected for playback. To get around this, if you want to play from, say the Genre view, you should create a playlist for this genre (if it doesn't alraedy exist) in J River and export it in .m3u8 format to this scripts folder.

• There is one exception to the above rule and that is "Podcasts". Podcasts which you've downloaded to J River can be played back through HQPlayer from J River/J Remote. In that case only the episode selected for playback will be loaded and played back in HQPlayer. Each episode is a single track. A temporary file will be created for the Podcast episode as it will be in a format, such as MP3 which is not supported by HQPlayer.

Chapter 3

Limitations

Apart from the limitations already mentioned under "Features" in chapter 2 above, the only real limition is a lack of the playback controls, such as Pause/Resume, Stop.

Previous and Next aren't really a problem because you can always just select the Previous or Next track from the one that's currently playing in HQPlayer using J River/J Remote.

You could use a VNC session temporarily to access the machine running HQPlayer and Pause/Resume or Stop playback. Such VNC or RDC sessions are considered detrimental to sound quality, so you would only want to do this temporarily.

In order to end your listening session using J Remote I can only suggest you play the last track from an album and make it a short one!

The only other limitation that some people may object to is that there is no indication of what is playing or playback progress in J River/J Remote. That's because nothing is playing in J River! All playback is in HQPlayer. I actually consider this a feature, because J River is using absolutely no resources during playback as far as I can tell, and so can't be having any impact on sound quality.

Once again, if you need feedback on what's playing or playback progress, other than using your ears, a temporary VNC session to take a look at HQPlayer, is all I can suggest.

If the ability to Pause/Resume or Stop are show stoppers for you, then read no further. Otherwise continue onto the next Chapter where I'll explain how to set-up J River to make use of this front end script to HQPlayer.

Chapter 4

Installation

You will receive have received the distribution in a .zip file named, jr-hqp-album.zip.

When you extract it you will find the following files/directories in a folder named "jr-hqp-album":

- log.text

    - Used for de-bugging

- jrexp.ps1

    - The actual script

- vars.text

    - Also used for de-bugging

- arguments.txt

    - The arguments you need to paste in to J River's file association, "arguments" field

- temps.text

    - A record of the temporary files which have been created.

- album.text

    - A record of the Album currently playing

- HQPlayer Rates.txt

    - An example of the format for HQPlayer rates, so you can set them correctly in J Remote/J River (if you wish to).

- call-jr-ps.cmd

- The initial script that gets called by J River and passes the arguments to the Powershell script.

- ffmpeg

  - A distribution of ffmpeg needed to create any temporary files.

- Manual.pdf

  - This manual.

Move the extracted "jr-hqp-album" to whichever location you desire. I recommend you place it as close to the root level of your "C:" drive as possible. You will also want to place a copy in a Ram Disk, if you want any temporary files to be created on the Ram Disk.

You will need to edit the "call-jr-ps.cmd" file so it points to the main "jr-exp.ps1" in the location you have placed it in.

Here are the contents of the ""call-jr-ps.cmd" file:

set datapath=%~dp1

set filepath=%~f1

set extension=%~x1

set hqpath=C:\Program Files\Signalyst\HQPlayer Desktop 3\hqp-control.exe

powershell -executionpolicy bypass C:\Users\geoffrey\Downloads\jr-hqp-album\jrexp.ps1

Unless your username is "geoffrey" and you have placed the "jr-hqp-album" in your "Downloads' folder, you will need to change the last line to reflect where exactly the "jrexp.ps1" is located.

You will also need to edit the line above this, if you have installed "HQPlayer" in a non-standard location.

As you can see, the "set hqpath" variable is actually the path to the "hqp-control.exe". If you have "hqp-control.exe" installed in this standard location, you don't need to edit this line. Otherwise you'll need to edit the path to reflect the actual location where you have "hqp-control.exe" installed.

Save the file after making the necessary changes and you're done with the script installation part. Next we need to configure "J River Media Center" to use this script.
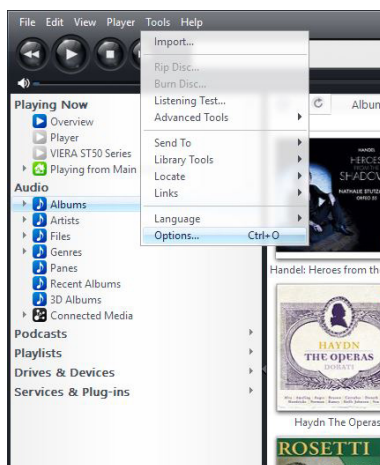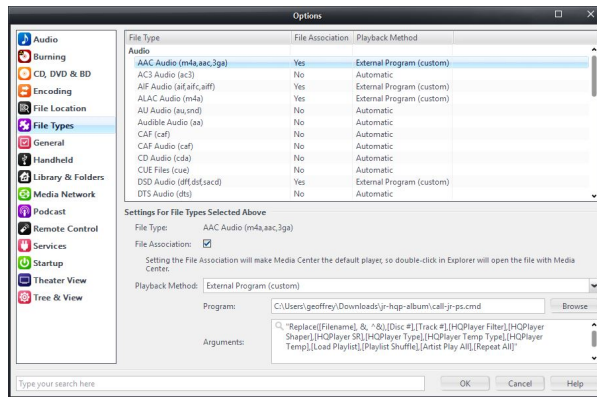
Chapter 5

Configure J River Media Center

5.1 Required

The most important steps to configuring Media Center are as follows:

1. With Media Center's main interface window open on your screen, choose "Options" from the "Tools" menu.

2. *Choose Tools->Options*

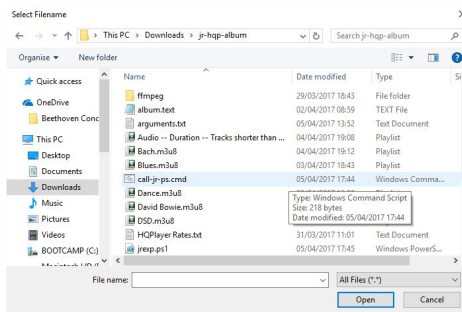3. In the left hand pane of the window that appears choose "File Types"

4. *Choose File Types*

5. For each File Type where you want the music files to be played through HQPlayer instead of Media Center, under "Audio" click to select the File Type in the main list of file types. The example here is "AAC". (Incidentally for Apple Lossless to be associated with HQPlayer you'll need to associate both AAC and ALAC file types with this script).

6. Underneath the list of file types place a check mark in the "File Association" box.

7. In the drop down meny next to "Playback Method", choose "External Program (custom).

8. The field next to "Program:" will need to hold the path to the calling command ("call-jr-ps.cmd"). Click on the Browse button next to this field to navigate to where you have this .cmd located (along with the rest of the scripts files).
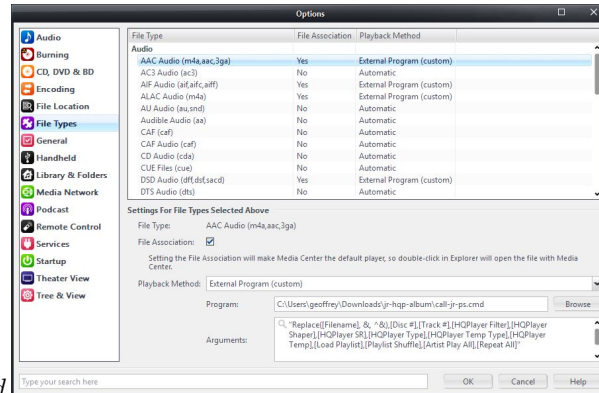
   (a) Note, you will have to ensure that "All Files (*.*)" is chosen from the drop down menu next to the "File name" field in the "Select Filename" window, as ".CMD" files do not show up by default.

9. *Navigate to the .cmd file*

10. In the "Arguments" field (which isn't labelled; but appears underneath the "Program:" field) you will need to enter the string of arguments that needs to be passed to the calling script.

(a) The easiest and safest way to do this is to copy the argument string from the "arguments.txt" file supplied alongside this script and paste the string into this field.

11. *Arguments field pasted*

12. Repeat this series of actions for each of the file types that you wish to be played through HQPlayer.

That's it! You don't need to go any further for music files in these file formats to be played through HQPlayer.

The next section will walk you through the procedures you'll need to carry out to take advantage of each of the additional features this J River Front End to HQPlayer provides.
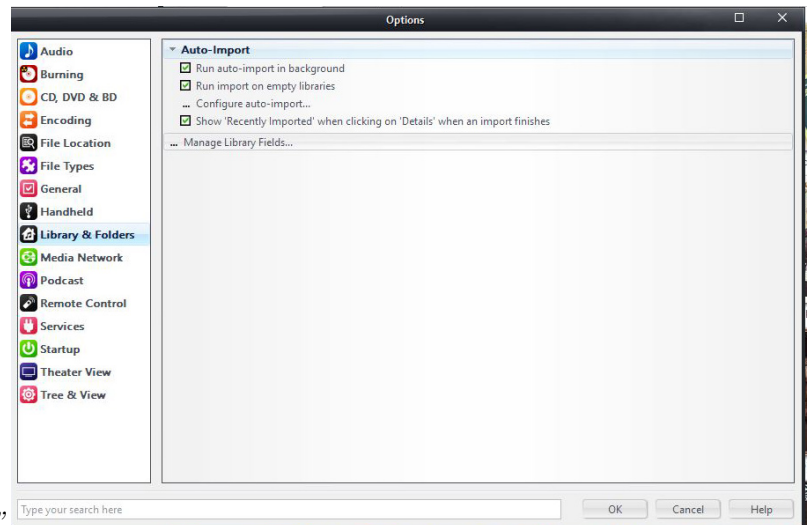
5.2 Optional

These optional features are provided by Media Center's "Custom Library Fields". These show up as tags, which can be set within Media Center or the J Remote apps on IOS or Android.
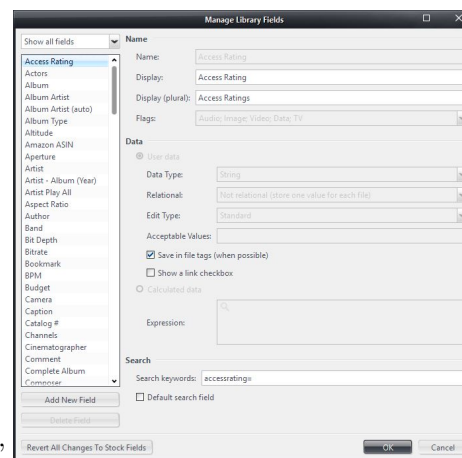
5.2.1 Repeat All feature

This feature simply causes whatever, Album, Artist, Playlist or Podcast is being played by HQPlayer to be repeated, until you choose the next item to play through HQPlayer with repeat set to "No".

1. Once again choose "Options" from the "Tools" menu. This time select "Library & Folders" from the left window pane.
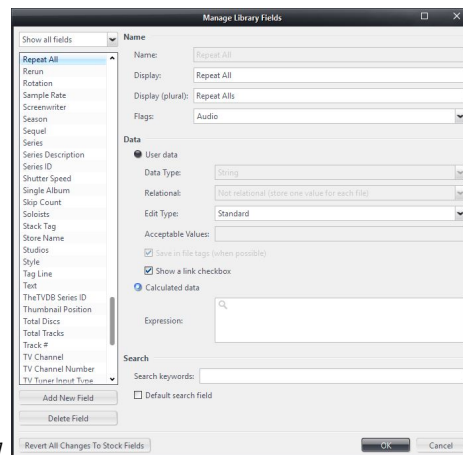
2. *Choose "Library & Folders"*

3. Click on "Manage Library Fields"

4. On the left hand side under the list of current Library Fields click on hte "Add New Field" button.
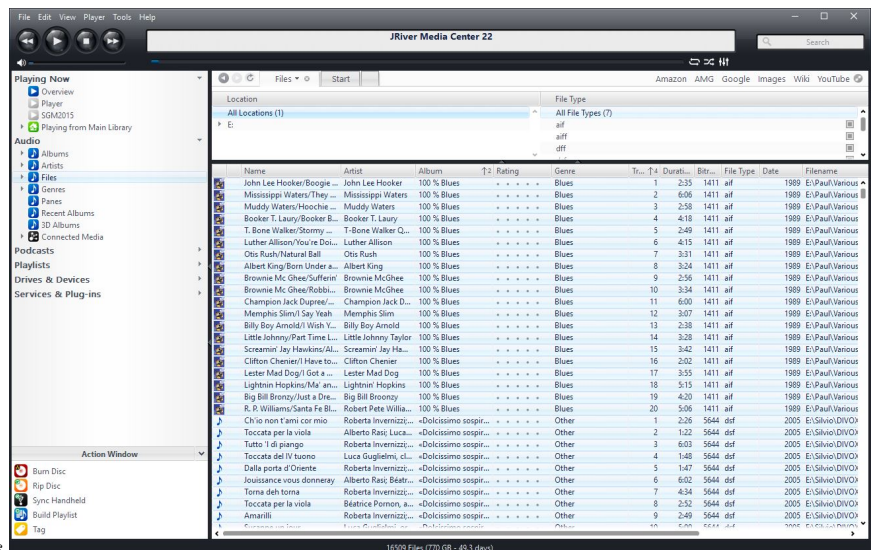
5. *Add New Field*

6. Type "Repeat All" exactly as shown and click on the "OK" button.

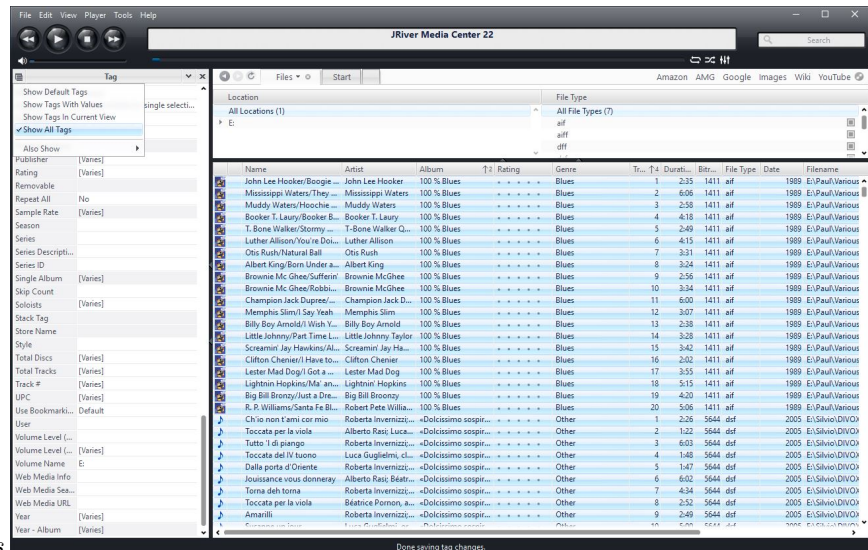7. Enter the options and parameters exactly as shown for "Repeat All" in the "Manage Library Fields" window.

8. *Complete details for Repeat All*

    (a) In the "Flags" drop down menu, uncheck all "Flags" apart from Audio.

    (b) Under "Data" Select "User Data" and ensure all the fields and check marks are as shown in the Manage Library fields image:

        i. "Data Type:" = String
        ii. "Relational:" = Not relational (store one value for each file)
        iii. "Edit Type:" = Standard

9. Once you've ensured the correct values are completed, click on the "OK" button.

10. Now our "Repeat All" custom field will show up as a Tag in all audio files. It can only have an effect on HQPlayer run via this script.
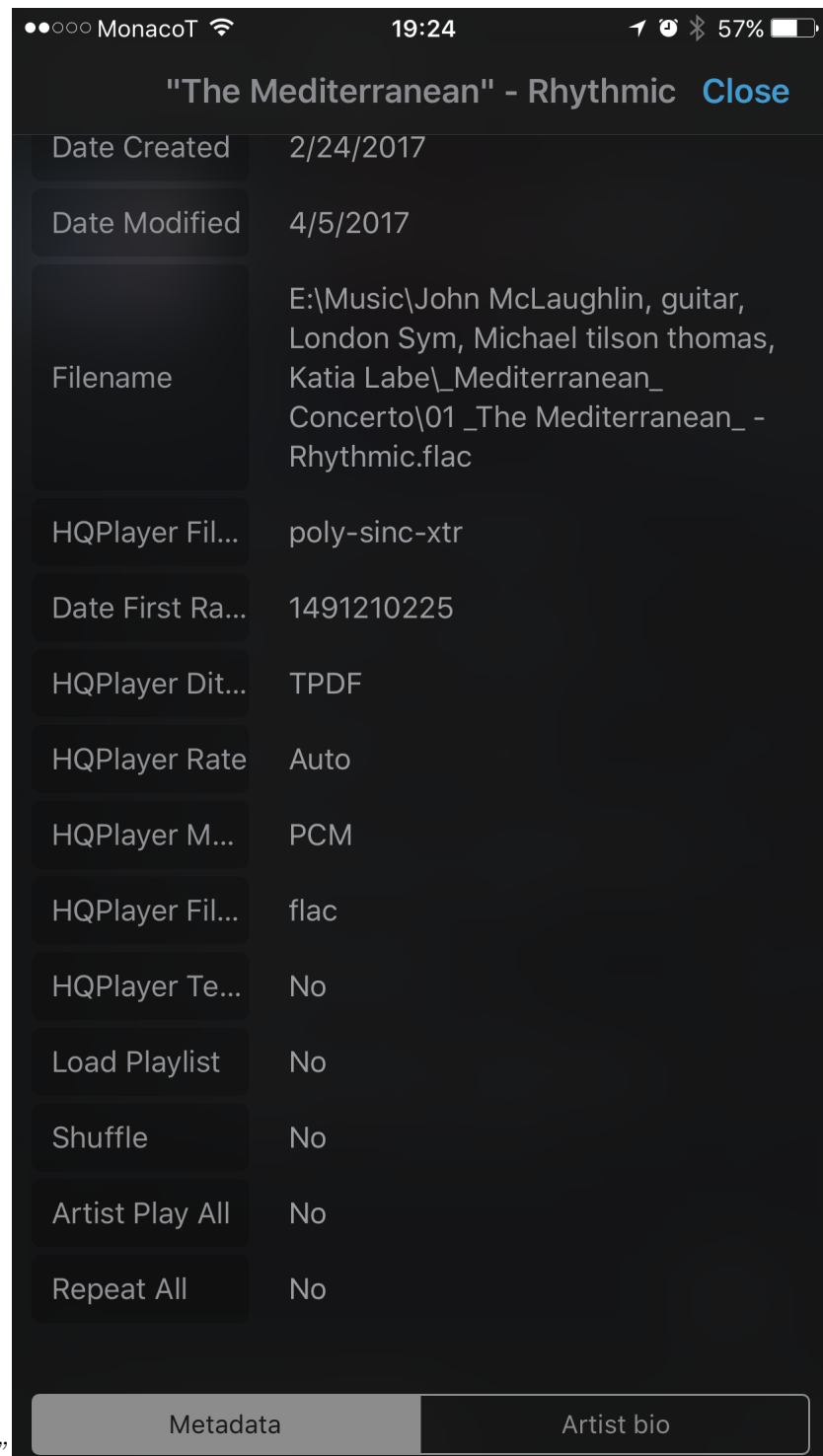
11. "Repeat All" and all the other optional tags described in this section will only show up under "Meta-Data" in the J Remote apps, if they actually hold a value. There are only two possible values for the "Repeat All" tag:

    (a) Yes

    (b) No

    Any other values entered for this tag will simply be ignored.

12. In order to ensure the "Repeat All" tag will show up in J Remote, it needs to have a value. Since we don't usually want to repeat the Albums; etc. we play, we'll set this default value to "No" for all files.

13. In Media Center's main interface, under the "Audio" view click the right pointing arrow if necessary to reveal the Audio categories.

14. Choose "Files"

15. Single click on any file and choose and hit "ctrl+A" on your keyboard or chooe "Select All" from the Edit menu, to select all the Audio files in your library.

16. *Select All audio files*

17. Right-click (or equivalent) anyhere in the selected file list and choose "Tag" from the drop down menu.

18. Make sure "Show All Tags" is selected in the small drop down menu at the top left hand corner of the Tags list.

19. *Show all tags*

20. Scroll as necessary to reveal the "Repeat All" tag you've just created.

21. Click in the value field next to it and type "No".

22. As long as you have all the files still selected in your library, the "Repeat All" tag will be updated in Media Center's library for each file. The amount of time this takes, will obviously depend on the size of your library.

23. Finally let's verify that the "Repeat All" tag does indeed show up in the J Remote app with the value "No".

24. Open the J Remote app on your device and select any Audio File. For this demonstration, I'm using the J Remote app on my iPhone.

25. You have to hold your finger down on a track until the "Meta-Data" is displayed for that track.

26. Tap on "Meta-Data" and scroll as necessary until the "Repeat All" tag shows up.

27. *J Remote showing "Repeat All"*

28. If you were to scroll up to the top of this screen and tap the "Edit" button, then change the value of "Repeat All" to "Yes", save the changes and play from this track, HQPlayer would be placed in "Rpt" mode and the entire album would be played on repeat.

29. "Repeat All" will be turned off as soon as playback is started for a track from another Album which has the "Repeat All" tag set to "No". Before you do that you might want to set it back to "No" for the track in this example, if you want to avoid the album being repeated each time you start playback from this track.

30. If, on the other hand, you want this album to be repeated when you play it, regardless of which track playback is started from, then when you edit the "Repeat All" tag for any track of the album, you will want to choose the option to save the change to all tracks of the album.

31. J Remote on iPad works a little differently in that to access the Meta-Data for the first track on an album you simply tap on the "i" button. Again you need to tap the "Edit" button if you want to edit any of the tags.

The procedure outlined here applies to all the custom tags used by this script. The tags are all set up the same way, and their names must be entered exactly as shown in the list of these tags below. The possible values are also shown below for each tag.

The tag names correspond exactly to those shown in the arguments.txt file and used in the arguments field we completed under Chapter 5, Section 5.1 Required.

5.2.2 HQPlayer Settings tags

- HQPlayer Filter

    - Sets HQPlayer's upsampling filter
    - Possible values:
        * In PCM mode:
            · none
            · IIR
            · FIR
            · asymFIR
            · minphaseFIR
            · FFT
            · poly-sinc
            · poly-sinc-mp
            · poly-sinc-short
            · poly-sinc-short-mp

- · poly-sinc-hb
- · poly-sinc-ext
- · poly-sinc-mqa
- · poly-sinc-mqa-mp
- · poly-sinc-xtr
- · poly-sinc-xtr-mp
- · sinc
- · polynomial-1
- · polynomial-2
- · minringFIR
- · minringFIR-mp
- · closed-form
- · closed-form-fast
  * In SDM (DSD) mode:
    - · poly-sinc
    - · poly-sinc-mp
    - · poly-sinc-short
    - · poly-sinc-short-mp
    - · poly-sinc-hb
    - · poly-sinc-ext
    - · poly-sinc-mqa
    - · poly-sinc-mqa-mp
    - · poly-sinc-xtr
    - · poly-sinc-xtr-mp
    - · poly-sinc-2s
    - · poly-sinc-mp-2s
    - · poly-sinc-shrt-2s
    - · poly-sinc-shrt-mp-2s
    - · poly-sinc-hb-2s
    - · poly-sinc-xtr-2s
    - · poly-sinc-xtr-mp-2s
    - · minringFIR
    - · minringFIR-mp
    - · closed-form
    - · closed-form-fast

- HQPlayer Shaper
  - In PCM mode:
    * none
    * NS1

- * NS4
  * NS5
  * NS9
  * RPDF
  * TPDF
  * Gauss1
  * shaped
  - In SDM (DSD) mode:
  - DSD5
  - DSD5v2
  - ASDM5
  - DSD7
  - ASDM7
  - DSD5v2 256+fs
  - DSD7 256+fs
  - AMSDM7 512+fs" 7
- HQPlayer SR
  - In PCM mode:
    * 0
    * 32000
    * 44100
    * 48000
    * 64000
    * 88200
    * 88200
    * 96000
    * 128000
    * 176400
    * 192000
    * 256000
    * 352800
    * 384000
    * 512000
    * 705600
    * 768000
    * 1024000
    * 1411200

* 1536000
  - In SDM (DSD) mode:
    * 0
    * 2048000
    * 2822400
    * 3072000
    * 4096000
    * 5644800
    * 6144000
    * 8192000
    * 11289600
    * 12000000
    * 12288000
    * 22579200
    * 24000000
    * 24576000
    * 45158400

- HQPlayer Type

  - Auto
  - PCM
  - SDM (DSD)

If you choose to enter one of these values into its corresponding tag, the value must be entered exactly as shown above.

5.2.3   Settings for temporary file creation

- HQPlayer Temp Type

  - flac
    * The default format used for temporary files.
  - aif
  - wav

- HQPlayer Temp

  - No
  - Yes
    * Forces creation of temp files at all times, except where the original file is in dff/dsf format (DSD files).

5.2.4   Playlist related

- Load Playlist

  - No
  - <Playlist Name>
    - * The name of a valid Media Center playlist exported from your Media Center library in ".m3u8" format, to this script's folder, e.g. "Blues" (entered without the double quotes).

- Playlist Shuffle

  - No
  - Yes

5.2.5   Artist related

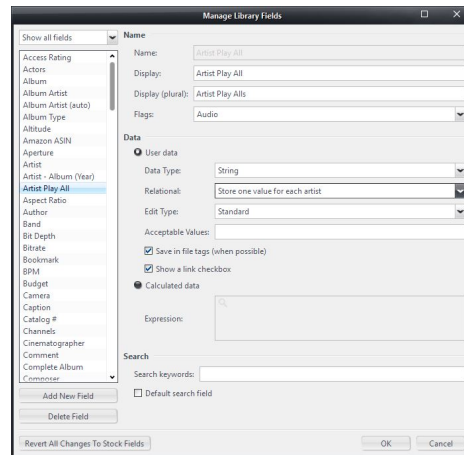- Artist Play All

  - No
  - Yes
    - * Results in all the files by the artist of the currently being loaded and played. Playback commences from the track selected for playback in J Remote/J River.

- Playlist Shuffle

  - No
  - Yes
    - * The tracks by the artist are shuffled before being loaded in HQ-Player. Playback commences from the track selected for playback in J Remote/J River.

All of these custom tags are set up in exactly the same way as the first example, which was the Repeat All tag. The tag name and the value you wish to set it to must be entered exactly as shown above.

If you wish these tags to show up in J Remote you will need to set all the tags to their default values as shown under section 5.2.1, the Repeat All feature.

There is one small exception to the way the "Artist Play All" tag is set up as a custom tag (library field).

In the drop down menu next to the relational field in the "Manage Library Fields" window, you need to select "Store one value for each artist.

For all the other tags all use "Not relational (store one value for each file)" in this field.

If you wish to make use of these optional features I suggest you separate in your mind which of these you want to set on permanent or persistent basis and which you just want to set as one-offs during a listening session.

It is easy from your armchair to try out different HQPlayer Filters and Shapers, for example. You may want to do this to determine which you think work best for specific music. Once you've determined that you'll want to leave them set that way.

For tags such as "Artist Play All", "Load Playlist", "Playlist Shuffle" and "Repeat All"; these are tags you might want to set duringa listening session, then set back to their default value at the end of the session, e.g. after playing all the tracks of an artist or listening to an entire playlist.

If you forget to set these back to their defaults it can be confusing when on the next listening session all the tracks of an artist get loaded to HQPlayer, when in fact you just wanted to play a particular album of that artist.