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Resampling QuickTime Sound Rates for Optimal Cross -Platform Movies

QuickTime™ **Development** **Team**
Apple Computer, Inc
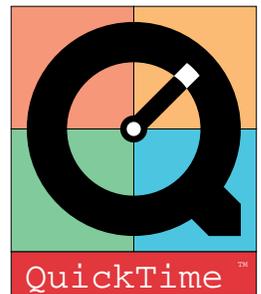
QuickTime ™

So you want to make cross platform movies that run great on both Macintosh and Windows based systems. Since QuickTime™ is the only available cross platform delivery mechanism for multimedia movies, you've come to the right place so far. In order to make an existing QuickTime movie playable on both platforms, there is really only one thing that you need to do, which is to "single fork flatten" the movie. The PC file system does not use or recognize the resource forks of Macintosh files. All PC file information is contained in the data fork of the document. A QuickTime file created on a Macintosh generally has a resource fork that segregates the different media data types form each other. The process of "flattening" a movie involves moving the information from the resource fork and interleaving it into the existing data fork. Once a movie is flattened, it will open and playback in both platforms without problem.

An addition step that should be taken to ensure movies play at maximum performance is to make sure that the sound in the movies are sampled at the native sound rate of the end user's sound card. There is an interesting reason why this is so important.

The native sound rate for most 8 and 16 bit PC cards is 22.050 kilohertz. This is the level of samples that it can play without having to re-sample the sound on the fly. Depending on the sound card, resampling can cause a severe enough performance degradation that the video will lose synch with the audio because the sound card is trying to do a lot more work than it would otherwise have to do. Interestingly, most Macintoshes with 8 bit sound cards capture sound at 22.254khz. The difference in the two numbers sounds trivial, but the resulting playback is definitely not. While older Macintoshes had a natural sound rate of 22.254khz, the 16 bit sound cards in newer Macintoshes are capable of a natural sound rate of 22.050khz and 44.100khz.

So which rate should you set your sound for? It appears that a majority of the Mac installed base has a different natural sound rate than most PCs. Fortunately, you don't have to make that choice. Macintoshes have this wonderful thing called the Sound Manager 3.0 that re-samples non native sound with minimal loss in QuickTime performance at the cost of slightly lower sound quality. The best compromise for your movies is to sample the sound at 22.050kz. If you are doing your authoring an a Mac with an 8 bit sound card, this documentation will step you through an exceptionally important modification that you will need to make to ensure the best possible performance for your PC customers. If you are authoring on a PowerMac, or some other Mac that has a true 16 bit sound card, you will only have to ensure that your content is in fact sampled at 22.050khz. Enjoy!!

Step 1

Launch MoviePlayer 2.0 and open the movie you wish to resample. You can check the sample rate of the movie in question by selecting "Get Info" in the Movie Menu. Set the left selection item to "Sound Track" and the right selection item to "Format". If the sample rate is 22.254khz, as is the accompanying example, go on to the next step
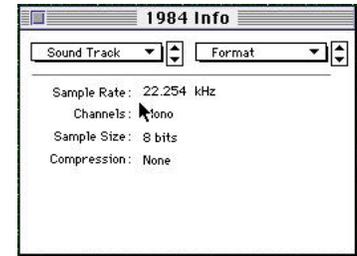
Step 2

In the File menu, select the "Export" item. The export flag should be set to export "Sound to AIFF". That's what you want it to be. The first step in the export is to set the conversion rate. This is accomplished by selecting the options button.

Step 3

Change the sample rate from 22.254khz to the 22.050 preset. The sets the rate for the resample.
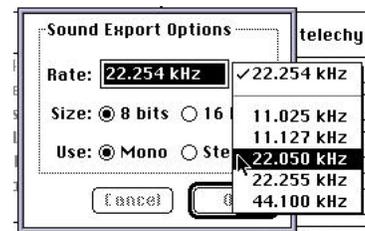
Step 4

After setting the sample rate, name and save the file in a place where you can easily find it. The File will now be in an Audio Interchange File Format (AIFF). When the file is done exporting, open it in the MoviePlayer. The MoviePlayer opens AIFF files. When the file opens, you will notice that it is in the form of a movie. From the Edit Menu, choose "Select All". When the entire file in the player slider is selected, choose "Copy" from the Edit menu. The newly re-sampled sound is now in RAM.

5 Step 5

Now what we need to to is get rid of the old sound track. This is pretty simple. Open the original movie and highlight it as the frontmost window. In the Edit menu, select "Delete Track...". You will see a modal dialogue box that will show you the tracks in the movie. Highlight and delete the existing Sound Track.

6 Step 6

Pretty painless so far, right? Well, we are now at the last step; pasting in newly sampled sound into the existing Video Track. Select the original movie and bring it foremost. You will notice that the little speaker in the lower right hand corner is missing. We are about to change that. Make sure that the slider bar is at the very beginning of the movie. With your left hand, hold down the option key, and with the mouse, select the Edit Menu. You will notice that what you would expect to be the "Paste" command is now the "Add" command. Select "Add" and the Sound that was in RAM is now a new Sound Track. That's it, you are done!! You can confirm the sound rate through the Get Info window to ensure that the new sound is the proper rate. *Make sure that you flatten the movie in order to make it cross platform.*
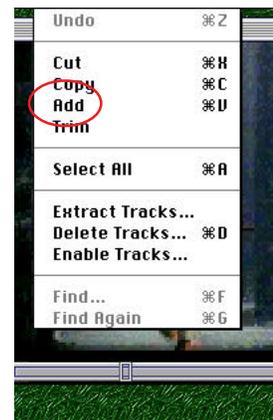
If you still have questions regarding the re-sampling of sound rates, you can contact me on line at:

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