

Using Blackmagic Davinci Resolve Lite to Sync via Linear Timecode

The purpose of this document is to demonstrate how to use the Free Version of Blackmagic's "Davinci Resolve Lite" to sync Video Clips with Linear Timecode Embedded in the Clip to Audio recorder on a Timecode Capable Recorder. For this example I used the Sound Devices 702t two track recorder and the Mozegear TIG sync box. The TIG is a highly accurate timecode sync device with unique features that allow anyone with a non-timecode capable camera to enjoy the same frame accurate sync found on more expensive equipment. Specifically, the TIG's diminutive size, rugged build and exclusive "Flow Through Audio" make it a perfect companion to your DSLR kit.

Devices used for this tutorial. I use a Sennheiser G2 wireless hot shoe mount with velcro to mount the TIG to the top of the Canon 5D mkII. A simple 3.5mm male to male cable is used to connect the Audio out of the TIG to the Microphone in on the 5D.



Prelim Setup:

1. Make sure the timecode frame rate on your Timecode Recorder and Camera match. In my case, I used 23.976.
2. On the Sound Devices 702t, I set the timecode start time to 01:00:00:00. I did this to clearly demonstrate that I wasn't cheating with Time Of Day.
3. On the Mozegear Tig, make sure the device is also running 23.976.
4. Jamsync the Tig to the Recorder. The TIG's front LED will start to blink at one second intervals to alert you to proper sync.
5. Mount the TIG to the camera. I use a spare Sennheiser G2 receiver hot shoe mount with a piece of Velcro to secure the TIG.
6. A 3.5mm male to male cable is run from the Audio out of the TIG to the Microphone input of the Camera. Use the TIG's blue volume knob to adjust levels into the camera.
7. In this example I did not feed audio from the 702t to the camera. I wanted only the audio timecode to be recorded.

Run and Gun Shows....

On many reality shows I've worked, non-timecode equipped cameras are used in a "RUN AND GUN" shooting situation. In many cases, the sound department is responsible for sending "Reference" audio to the camera. This is done for many reasons, usually for sync and or quick editing. The sound mixer usually records to a Multitrack recorder and delivers ISO tracks of individual talent to allow post production for further audio sweetening. Programs are available that analyze the audio embedded in the video to the production mixers audio and then sync the two into a single clip. When an Audio Hop is not used the old "Clap for sync" is used where you point the camera and mic towards someone who then claps for a sync reference..

There are many issues with these methods of sync. Wireless hops can experience RF issues, camera departments are asked to add bulk to their already heavy rigs and worse, you get a scene done and everyone forgot to Clap....

Timecode is the way...

Using the TIG, sending timecode into the camera is a breeze. With timecode being recorded, the production no longer has to worry about bulky wireless hops and missed Clap slates. The TIG's highly accurate clock assures you frame accurate sync throughout the day...

Linear Timecode...

With this setup, a timecode signal will be recorded to the audio track of your video clip. If you listen to this signal it will sound like an old modem trying to connect.. This data includes all the information needed to allow frame accurate sync between audio and video. At present, the only Avid' Media Composer has the ability to read the LTC track in a video clip and use this information to sync to production audio. If your not on an Avid system, you can still take advantage of timecode.. Enter.

Blackmagic Resolve Lite

Blackmagic Resolve Lite is free program used in postproduction primarily for Color Correction. Version after 9.x gained the ability to decode Linear timecode tracks and use this information to sync quickly to production tracks. Please visit Blackmagic's website to download the latest version of Resolve Lite and install it on your computer..

Here are the basic steps I use to sync audio/video.

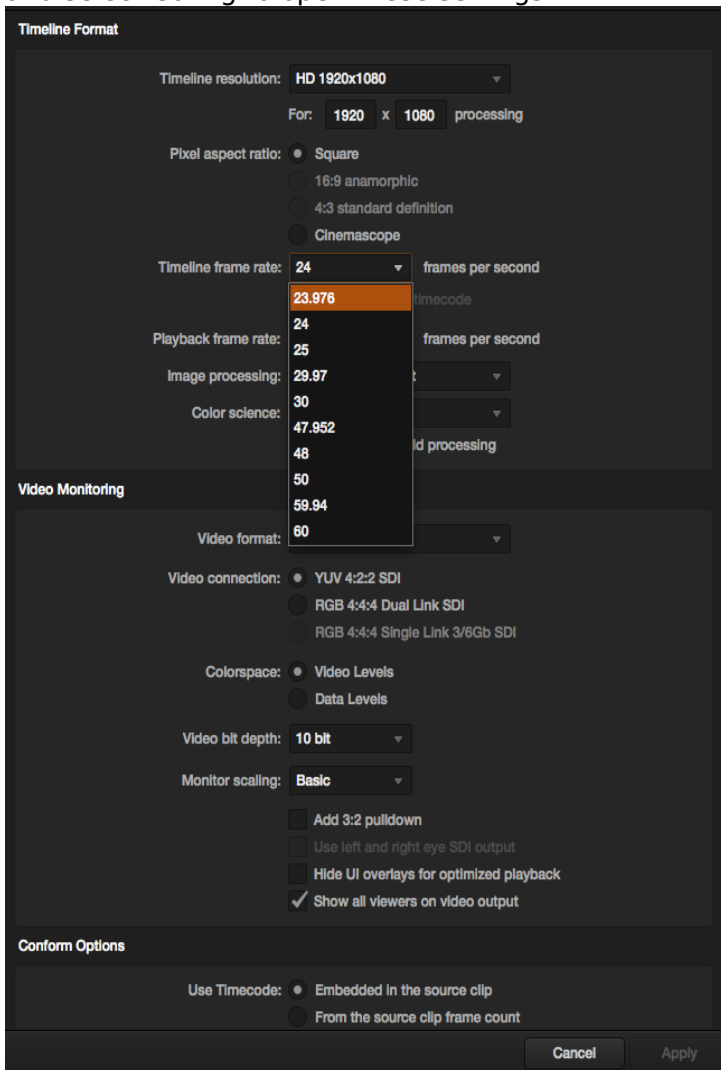
1. Here are the three clips I'm going to use to demonstrate sync using Blackmagic Resolve Lite version 10



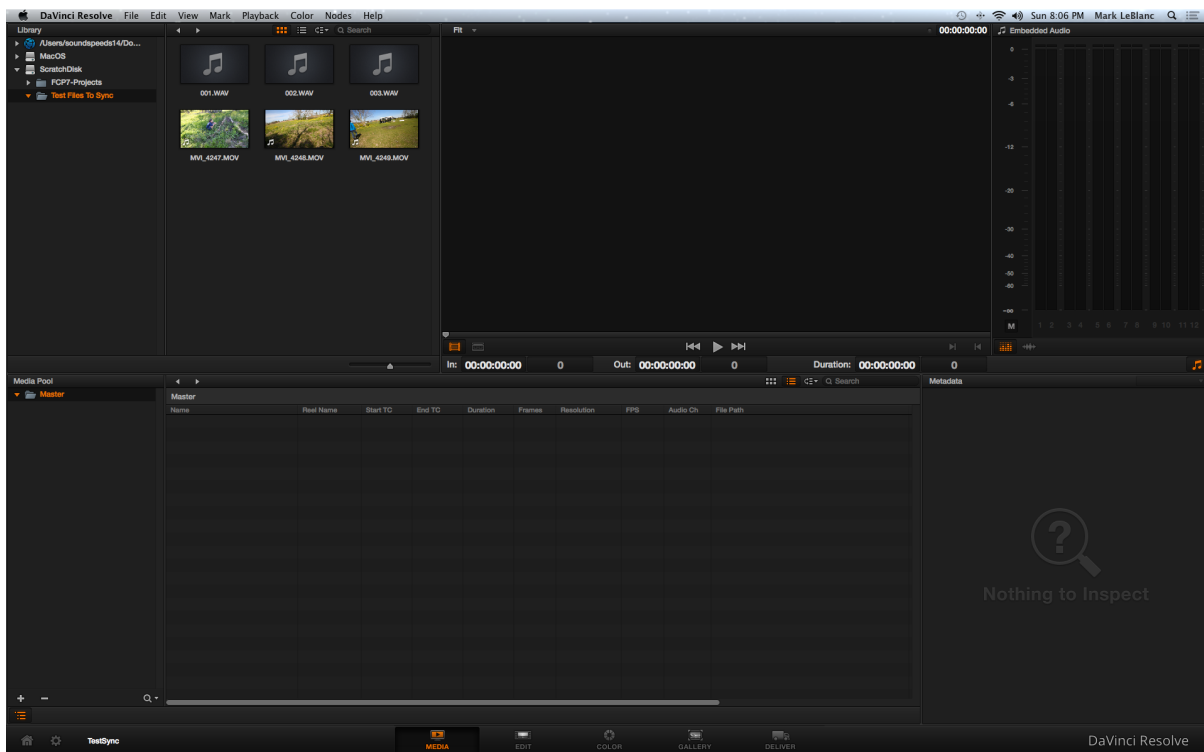
2. Launch Resolve Lite



3. Create a new Project and name it whatever you like. Be sure to configure the project to match the Timecode value set out on the Sound Recorder. Right mouse click on the newly created project and select Config to open these settings..



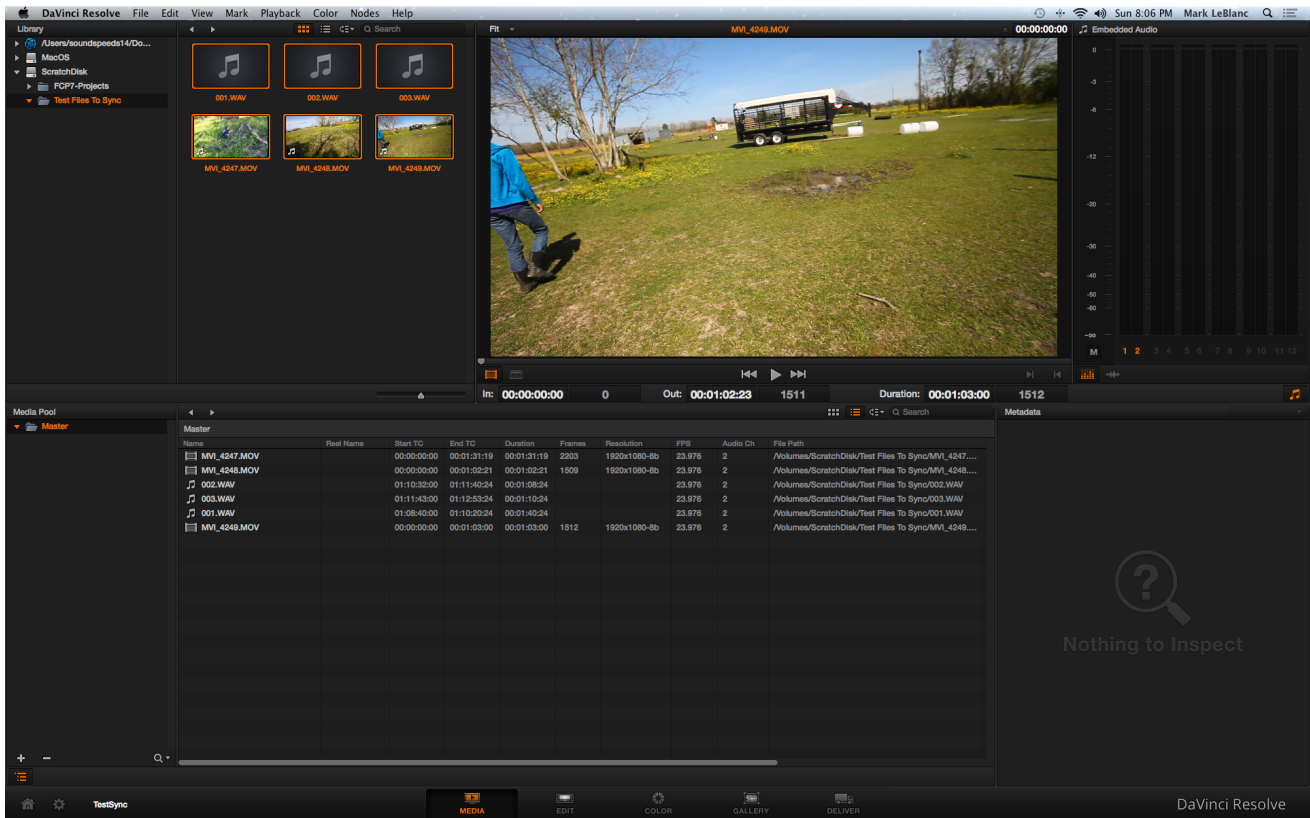
4. When the project opens. Use the Library area located on the left side to navigate to your files. In my case the files live on my "ScratchDisk" in a folder called "Test Files to Sync. Clicking on this folder will cause the clips to display to the right of the library. Shown are the 3 audio and 3 video clips I recorded.



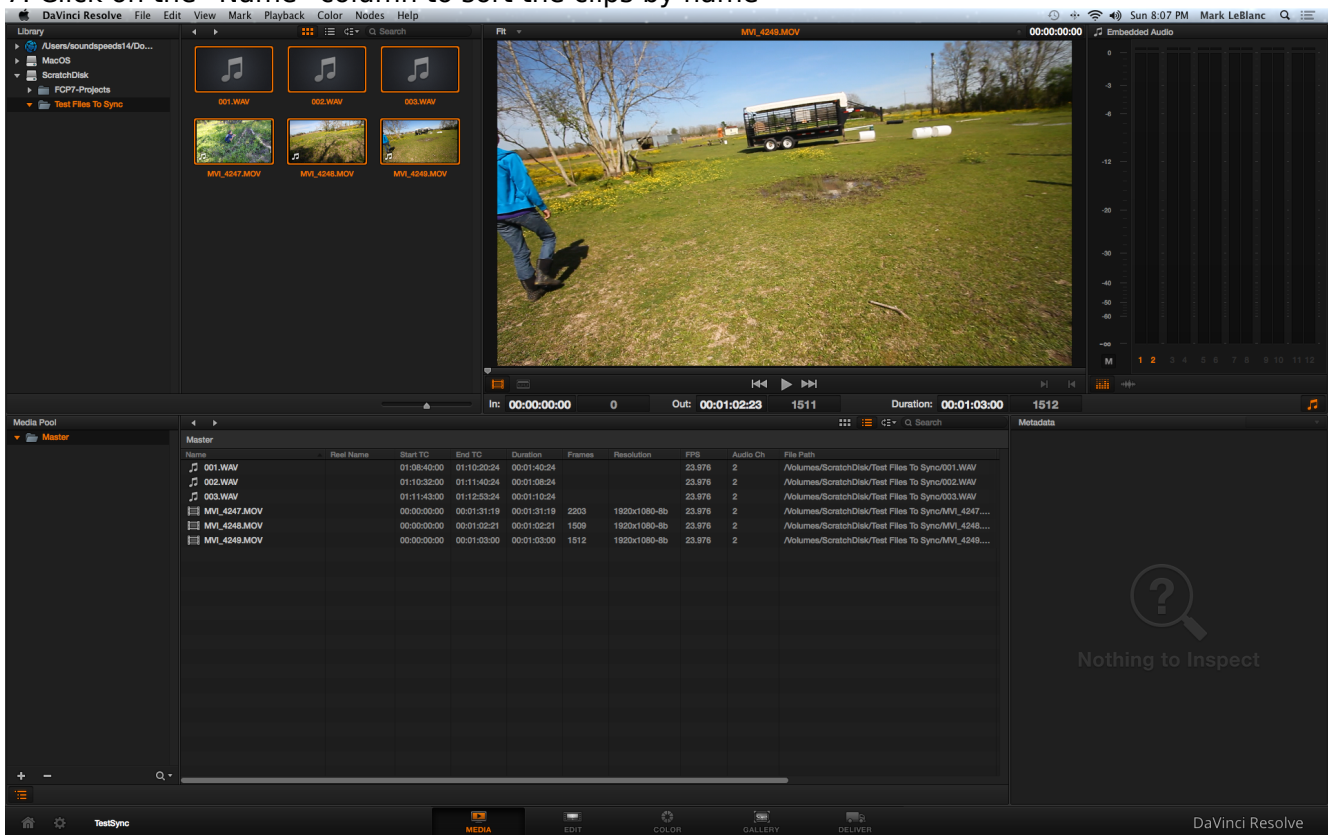
5. Select all the clips and right mouse click. When the popup comes up select "Add to Media Pool"



6. Both the Audio and Video clips will appear in the Media Pool.



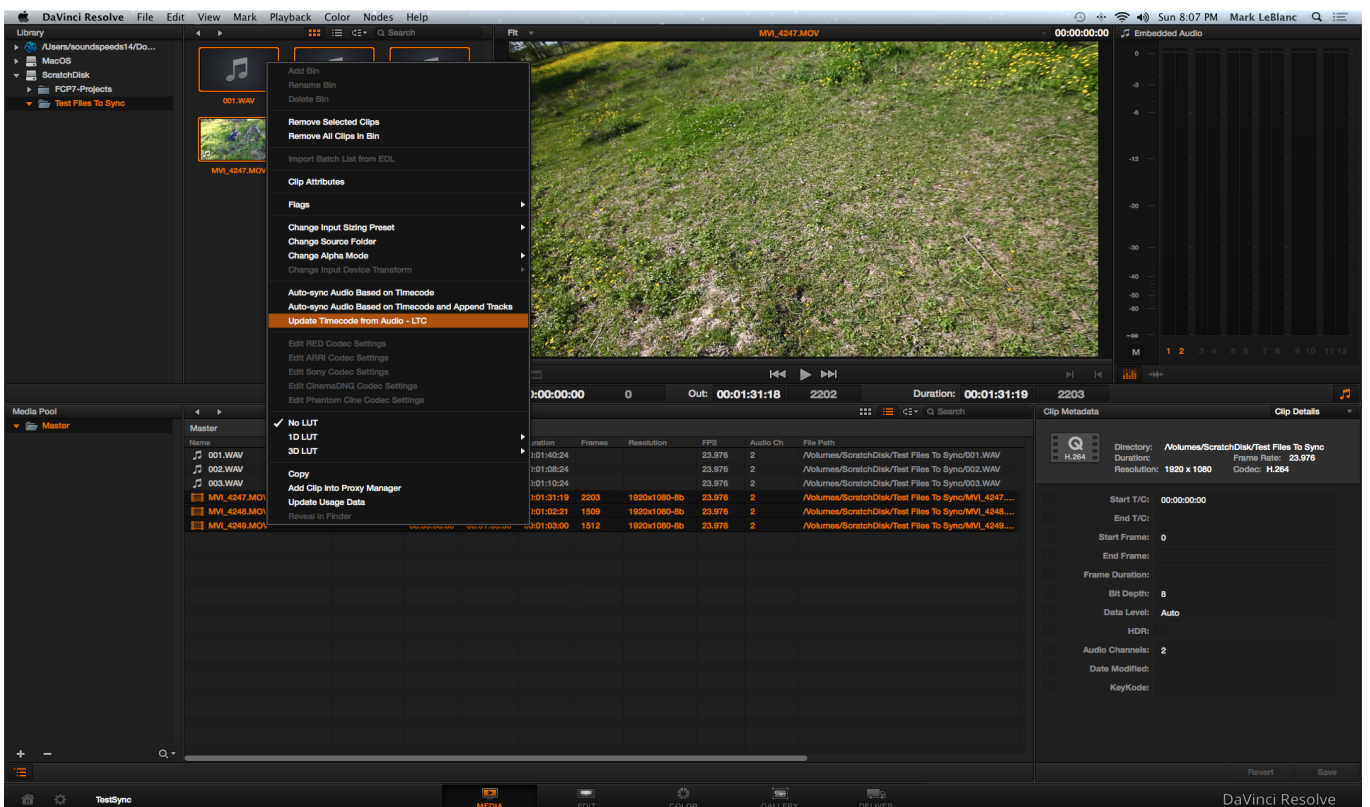
7. Click on the "Name" column to sort the clips by name



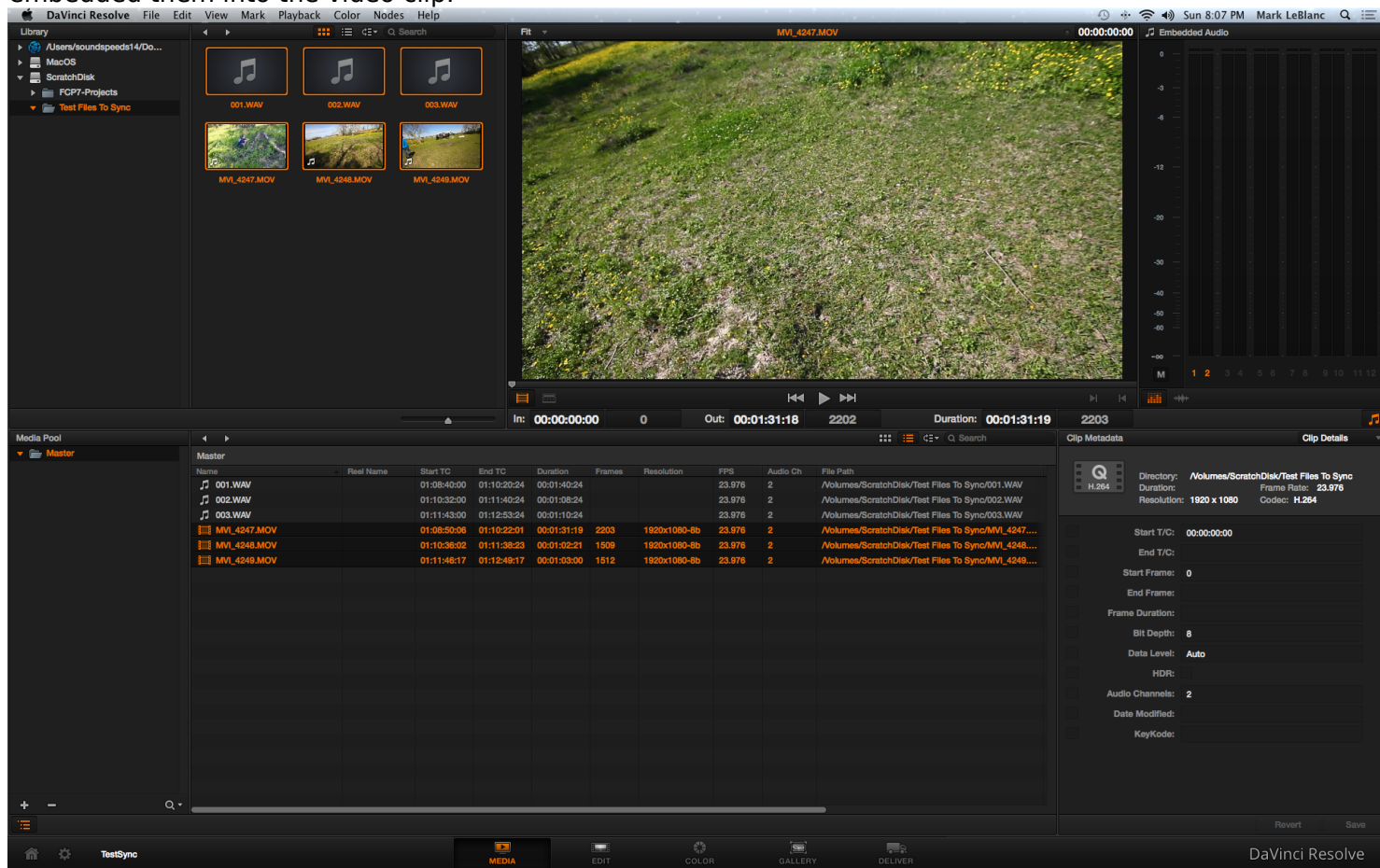
8. In this screenshot I've highlighted the Video clips. Note the values in the Start TC column. The audio clips are a few minutes after the 01:00:00:00 time I started with on the 702t recorder. The video clips show start times of 00. This is expected as the footage has not been converted yet.



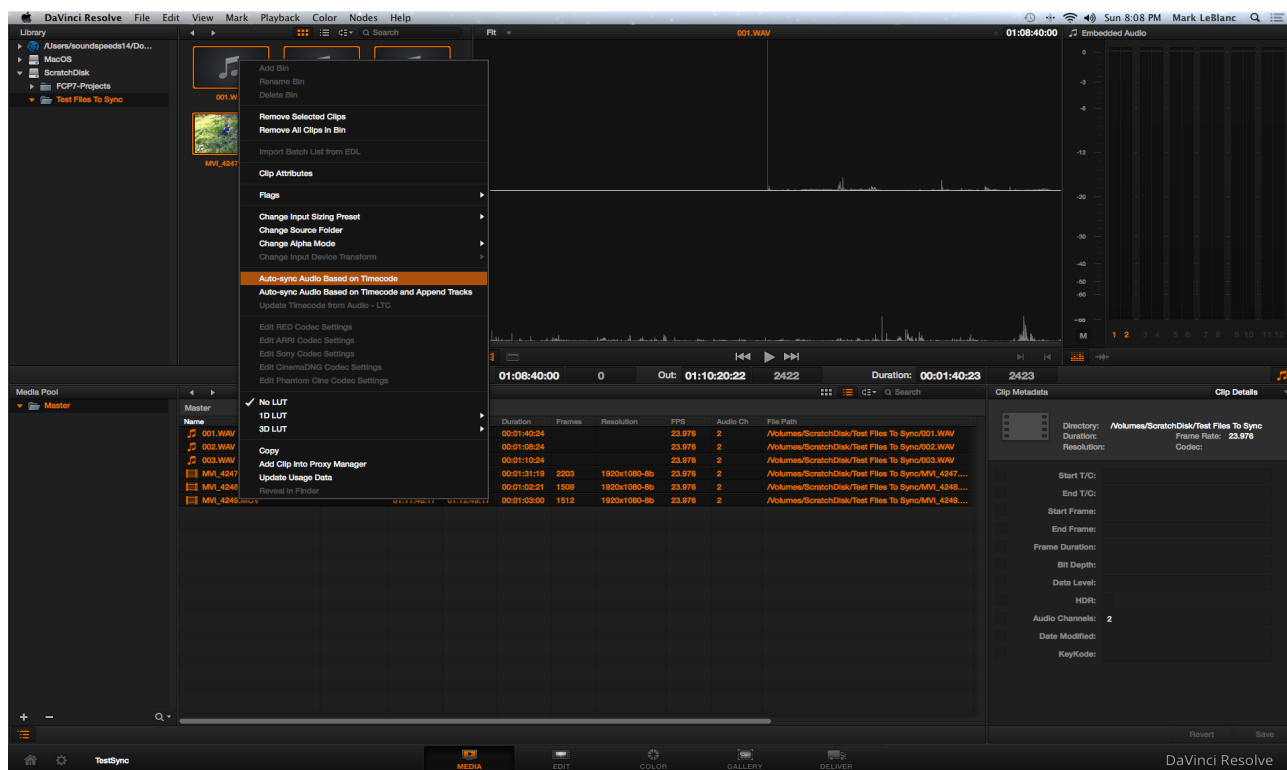
9. With the video clips still highlighted, right mouse click and select “Update Timecode From Audio - LTC”



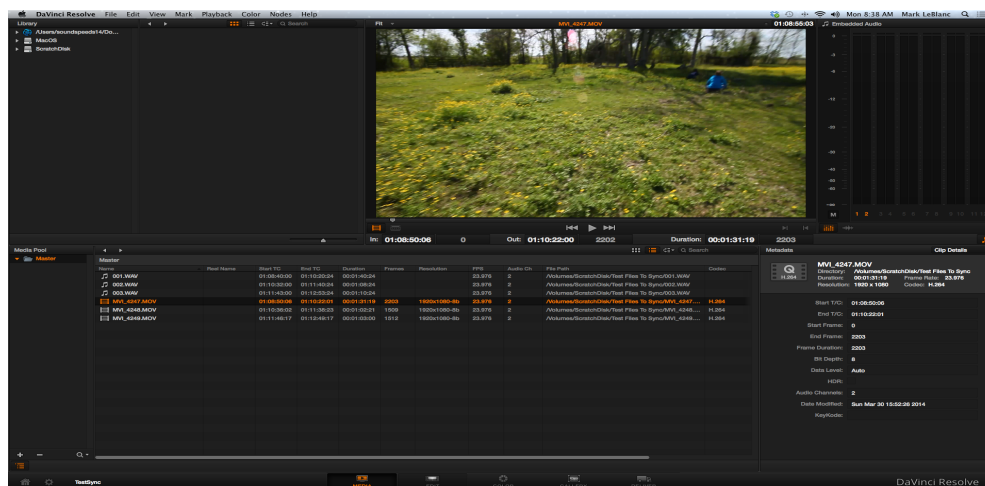
10. After a few moments, the display will update. NOW!!! look at the Start TC values for the video clips!! The program has read the linear timecode provided by the TIG, converted the values and embedded them into the video clip.



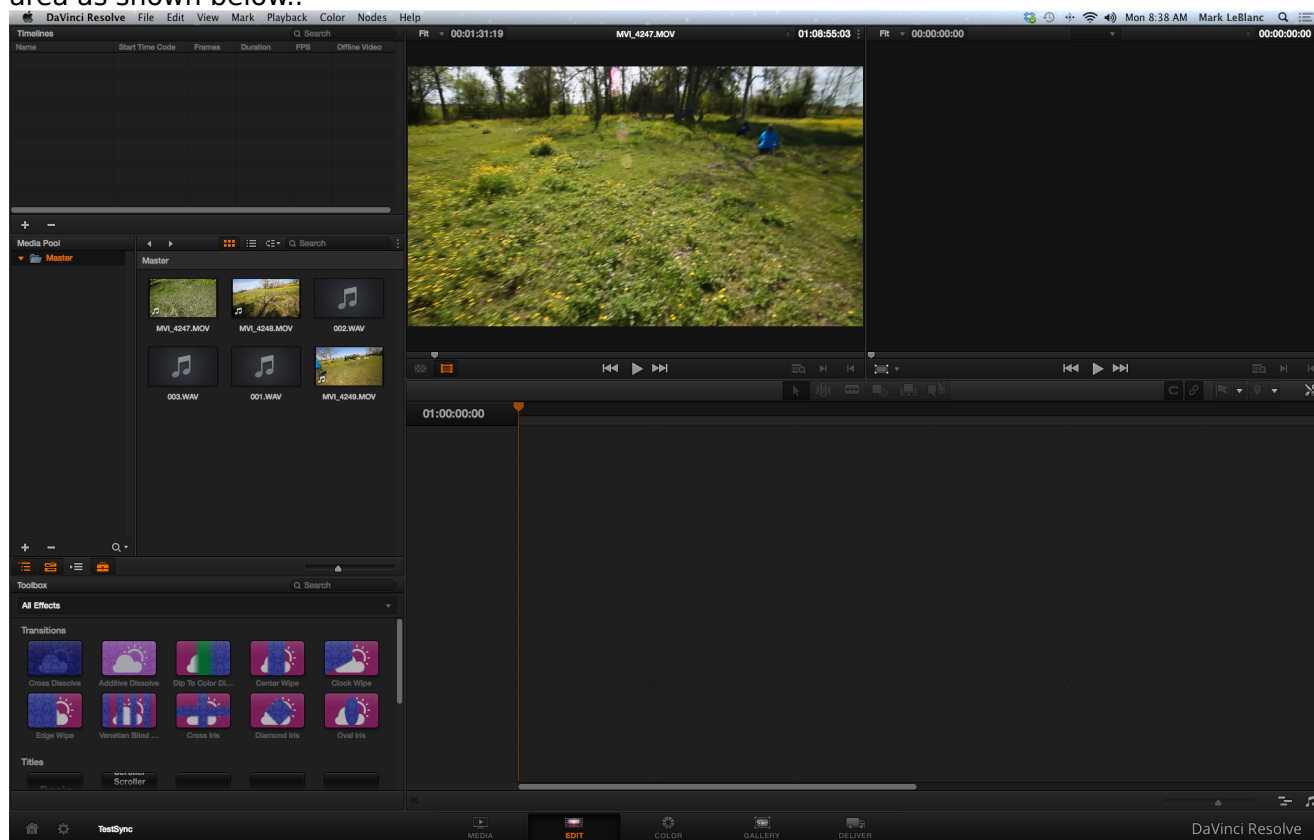
11. Now Select all clips, audio and video then right mouse click and select "Auto-Sync based on Timecode".



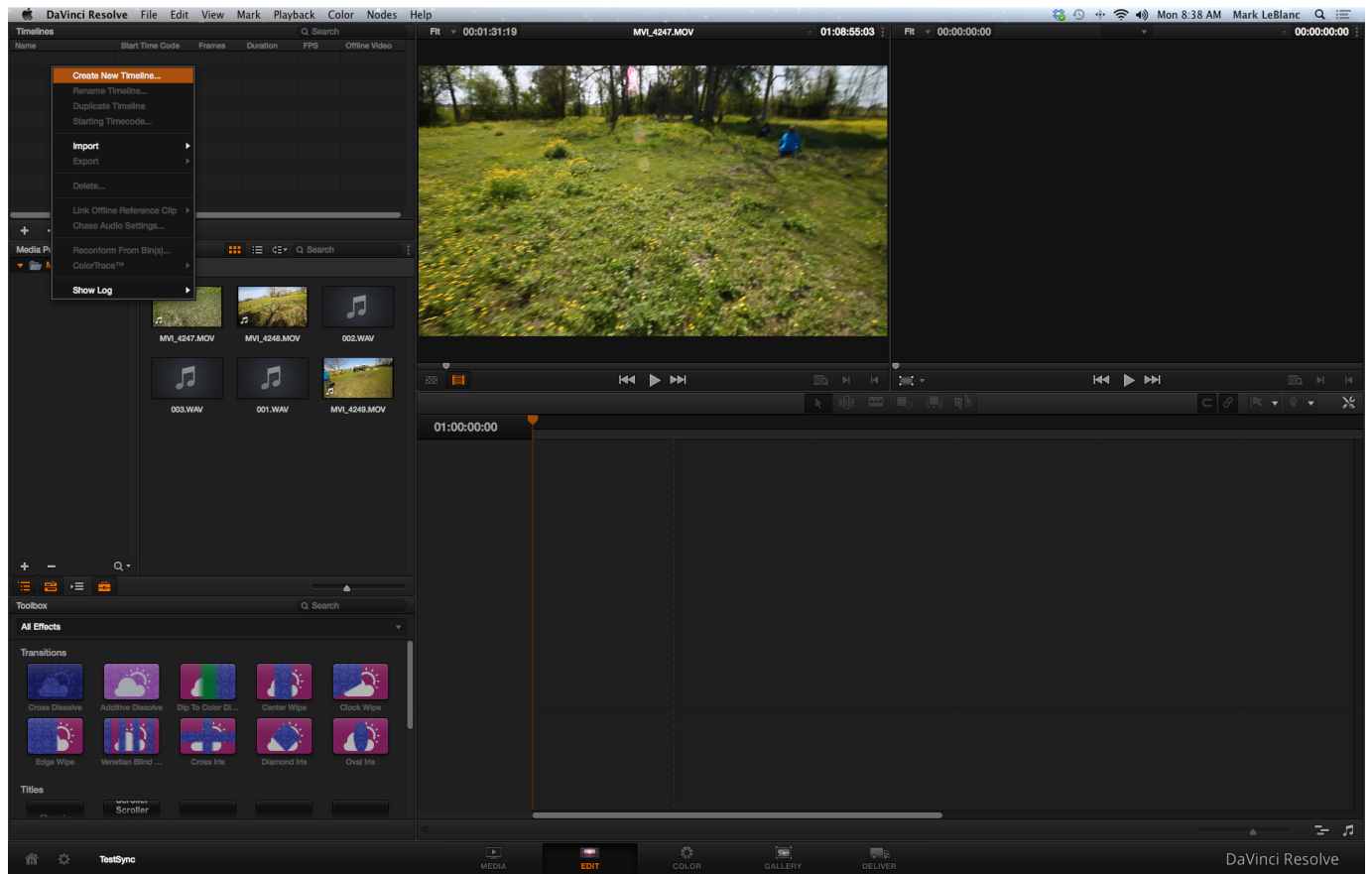
12. Your movie clips should now have your production audio embedded. Double click on any of them to test.. Once done, it's time to render out the clips with the new audio for editing.



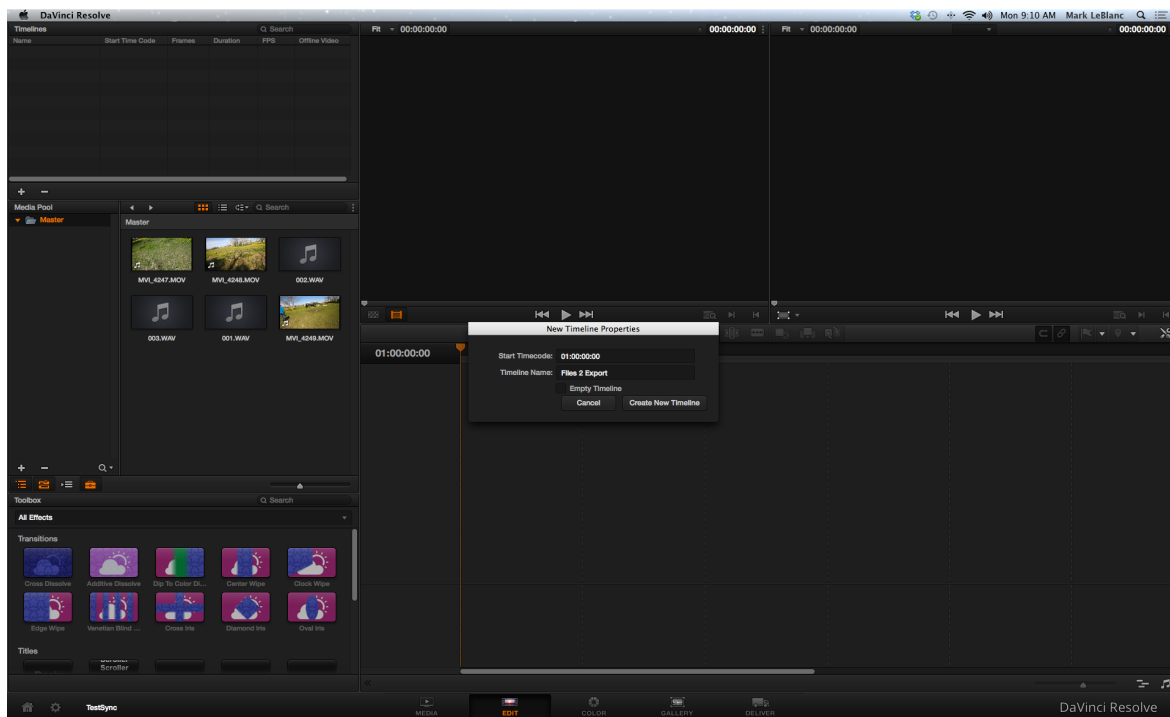
13. Click the Edit button located on the bottom of the window. This should bring up the editing area as shown below..



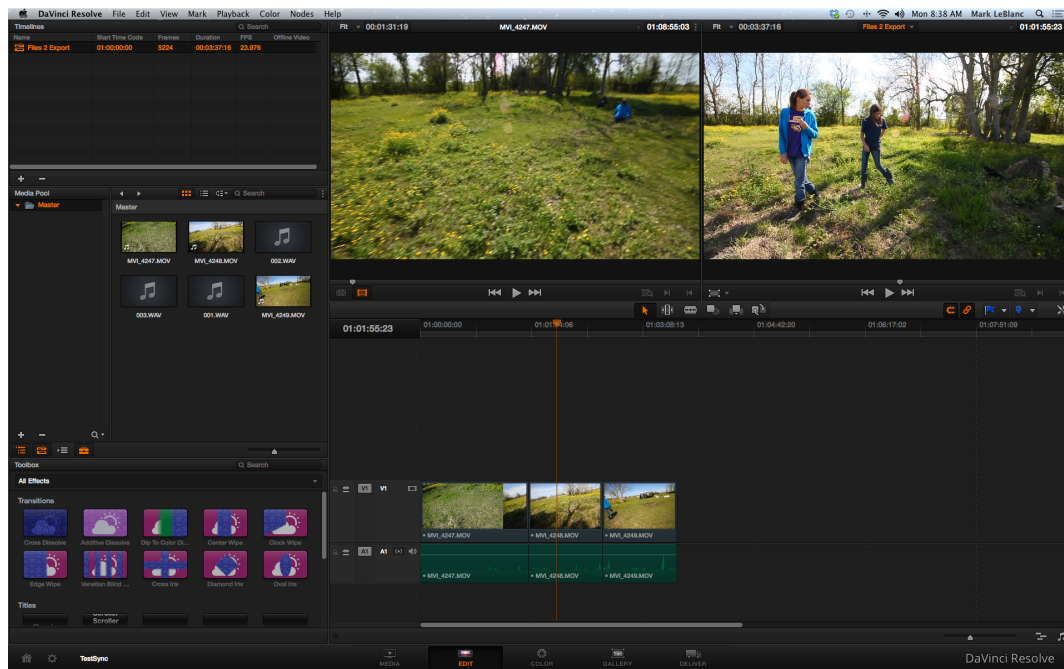
14. In the upper left corner, right mouse click anywhere in the “Timeline” area. Select “Create New Timeline”.



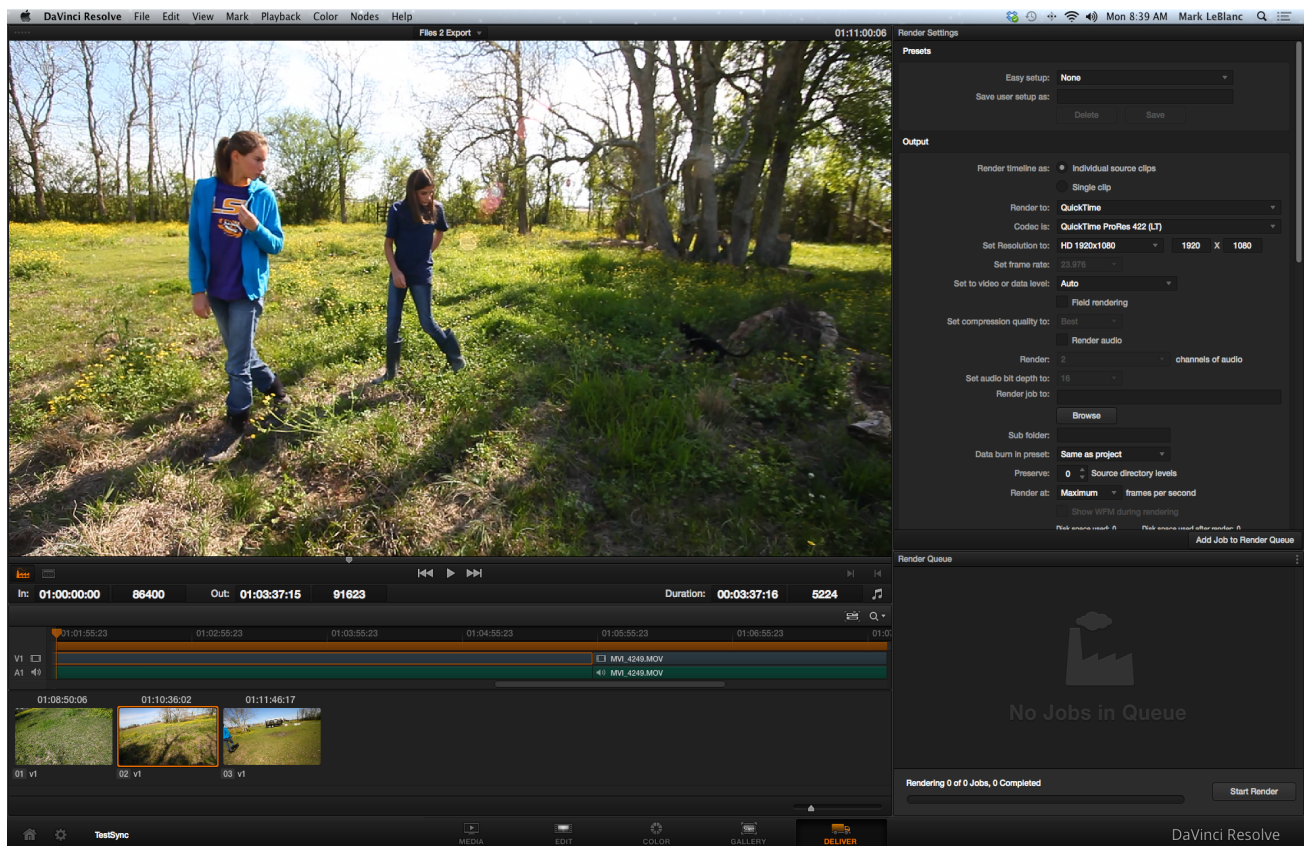
15. When the Window opens, name the timeline whatever you wish. It's important to “Uncheck” Empty Timeline. With this box unchecked, the program will automatically populate the timeline with all your clips.. Easier than having to drag and drop. But, if you would like, you can do any trim operations here, prior to Rendering.



16. All your clips should now show up in the edit timeline. Scrub around to double check all the clips are in proper sync.

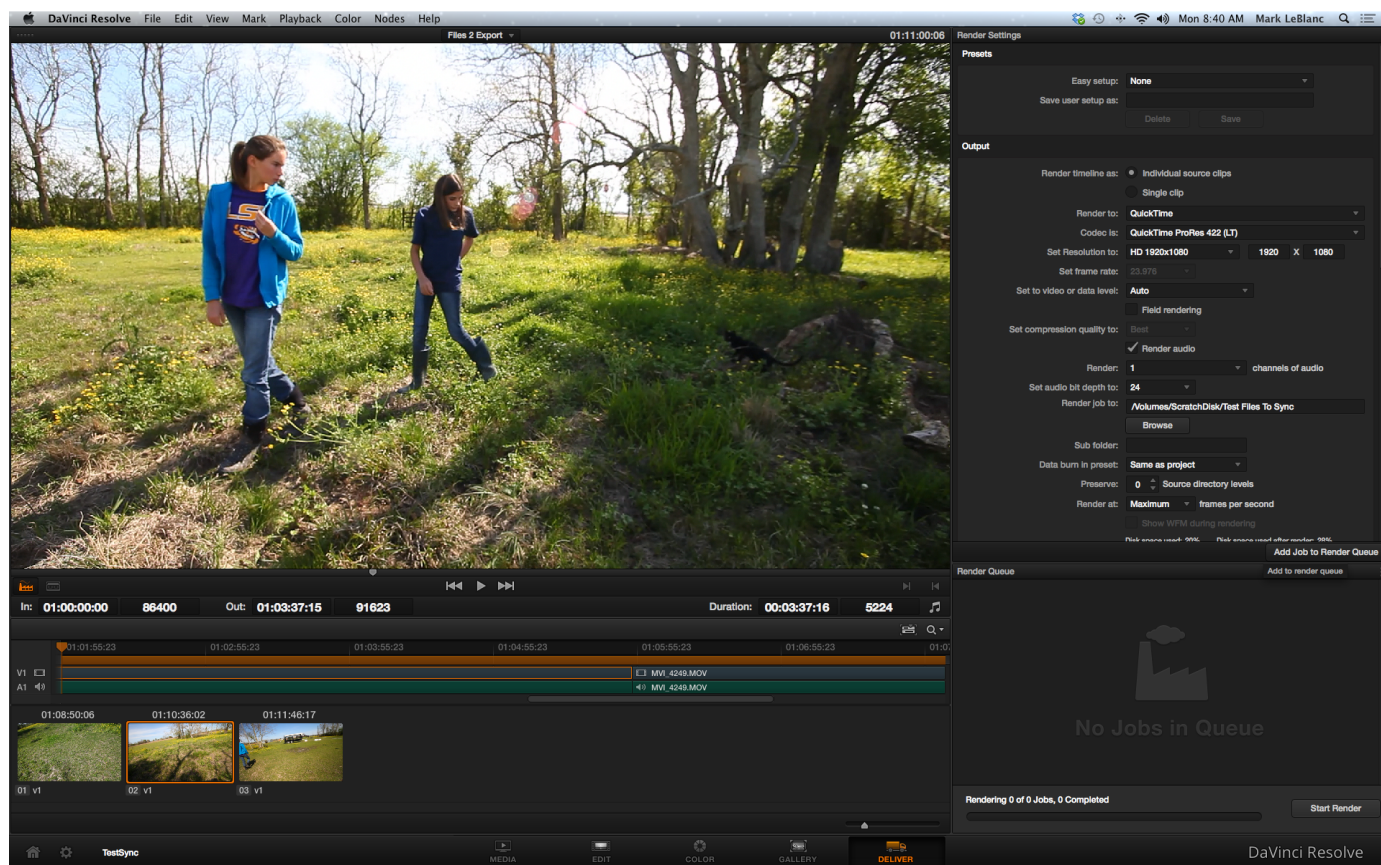


17. Now click the “Deliver” button in the lower control button area to open the Render Page. Your render settings are located on the right side of the screen.



18. Here are the settings I used. Most important are

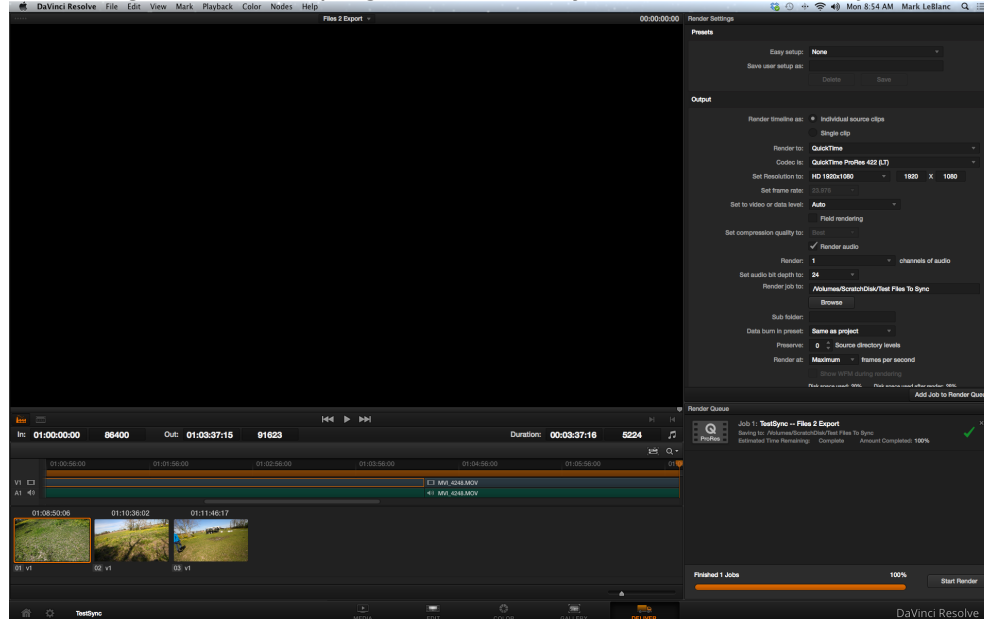
- a. Render timeline as: "Individual Source Clips"
- b. Whatever quicktime file type you want. In my case Quicktime ProRes 422 (LT)
- c. Make sure "Render Audio" has a check next to it. Otherwise your audio won't be rendered.
- d. Set the proper "Set audio bit depth to" In my case the Sound Devices 702t was set to 24 bit audio.
- e. I also set the number of "Channels of audio" to 1 as I only recorded to the "A" track of the 702t. It's common to have upwards of 8 channels of audio on many reality show gigs I do..
- f. Tell the program where you want the resulting files to go by clicking "Browse" button located below "Render job to:"
- f. Once done with the settings, click on the "Add job to Render Queue"



19. Your files will start to Render out. Go get something to drink.. This might take a while..



20. If all goes well, the program will show you when the render job is complete.



That's it!! Your video clips now have the production audio tracks embedded in them. If you were to select the "Append" audio function instead, you would could keep your original audio and have the production audio tacked on to the end of your audio.. In most cases, this not the desired outcome.

In conclusion, using Linear timecode generated by the TIG syncbox makes worry free, frame accurate sync a breeze. The Free version of Resolve gives every user the ability to quickly sync files and make the editing process hassle free. No more worrying about Missed Claps, RF issues or inferior camera preamps. This process can be used with an ANY camera.. I've tested the TIG with the Sony EX1 (Very popular on reality gigs), Canon and Nikon DSLR's in addition to BlackMagic's own line of Cinema Cameras.... Good luck!!

Blackmagic Resolve

<http://www.blackmagicdesign.com/products/davinciresolve/software>

Mozegear TIG

<http://www.mozegear.com/#!tig/clmn>

Sound Devices

<http://www.sounddevices.com/>