

## Mixer Align by Audio

Multi-camera footage of a single event can have various shots starting and ending at different times. So when the footage start times are different, you can use the mixer audio to synchronize the clips on the timeline. The program algorithm attempts to find and align automatically the waveforms of the media.

Synchronizing multiple camera videos based on audio tracks can be done with Cinelerra-GG easily enough with the Window pulldown Mixers... → Align mixers option. *Align mixers* brings up a window displaying your mixers, the currently selected Master Track, and a list of all of the Audio Tracks.



Figure 1: A 2 camera Align mixer window using audio initial condition before any match applied

Here is a set of the usual steps to take advantage of this feature.

- 1) Load your camera media with insertion strategy of “resources only” .
- 2) Highlight in the Resources window, all of the media you want to mix.
- 3) Right mouse button on one of the media and click on Open Mixers; all mixer windows come up.
- 4) Provide a small target audio pattern for syncing by marking with the In/Out points ([ and ]).
- 5) Make a selection on the timeline in which to look for the pattern. Left mouse click, then drag select and highlight a search time domain.
- 6) Use the Window pulldown, Mixers... → Align mixers to bring up its dialog window.
- 7) Click on “Match”. This will take a few seconds so watch the rendering time percentage on the lower right hand side zoom panel, then note the changed values in the Audio Tracks listbox.
- 8) If you are satisfied with the calculated Nudge values in the Audio Tracks listbox and the audio track selected as the Master Track in the Master Track listbox, hit the “Apply” button.
- 9) Last, click on the OK green checkmark or to cancel click on the red X.

*Reset* is used to start over with the current session data, no undo. This means you can use the match repeatedly to refine alignments. All of the Audio Tracks listbox values will be reset.

*Undo* is used to put the media back to the initial state on the timeline. That is, the session will reload with the original, before any changes were applied.



Figure 2: Align mixer window after a Match has been applied. Note the Nudge amounts above.

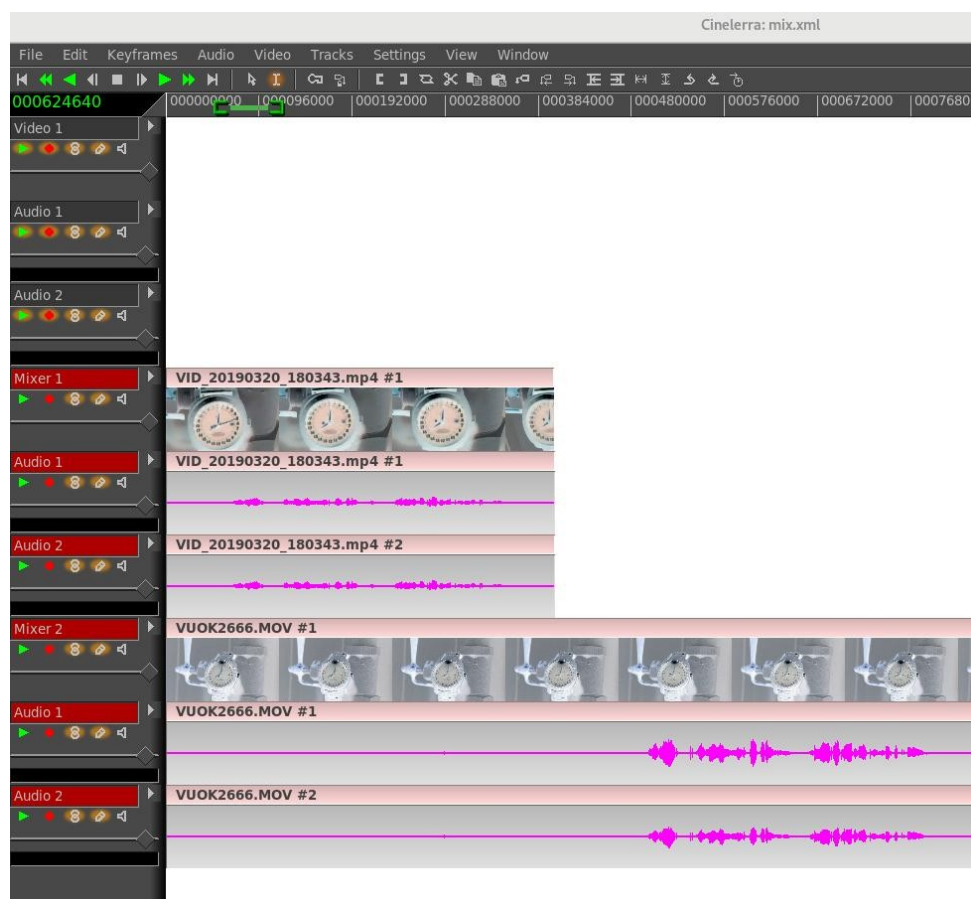


Figure 3: Setup for aligning by audio. Note that [ ] are set over a small sample waveform and highlighted selection that includes that.



Figure 4: An Audio match is complete. Note the waveform is aligned.

More detailed information follows about how this all works and the information in the dialog window. It is important to know that the result of the calculation is “best match” but you can still override the selections if you decide there is a better one. The dialog window is split into 3 sections:

- 1) *Mixers* lists the mixers that are active by highlighting them all initially. You can decide that you do not want 1 or more mixers to be used in the correlation calculation by un-highlighting the one(s) that should not be used. However, obviously you have to have at least 2 in order to align audio.
- 2) *Master Track* lists each of the audio tracks currently loaded for all of the mixers. You can decide to highlight a different audio track to be used as the master for correlation, but only 1 can be used.
- 3) *Audio Tracks* lists each of the mixer audio tracks. Again, you can highlight a different set of which mixer audio tracks that you want to use for the waveform correlation. Any audio tracks that are not highlighted, that is “turned off” will not be considered in the correlation calculation.

The letter “R” in the Audio Tracks listbox represents the correlation value. R=1.0 designates that if both the pattern and the matching section were in the highlighted area, they are completely correlated – this is a good self-test to check. Nudge=0.0 means just that!

The header “pos” stands for the timeline position.

When the “Apply” button is pressed, only the Mixers listbox is relevant at that time.

The Mixer with the master track will not move, everything else will be lined up.