Open Reel Tape Digitization

OPEN REEL WORKFLOW

SETTING UP RECORDING

Check tape heads on all Studer machines, clean them if necessary.

1. use the tape head cleaner with swabs
    a. swipe from side to side, parallel to the direction of the tape passing, not up and down
    b. clean all parts of the tape path that come into contact with the tape
2. clean the rubber pinch roller with rubber cleaner (only needs to happen like once per semester)

Turn on all Studers and the computer

Turn on the Prism ADA and verify that Input-Output is set to 96kHz, 24bit, local clock.

On the computer, open WaveLab, open the recording window

Remove reels from box and inspect for base material, sticky shed or other damage:

- hold tape up to light
    1. if light passes through it's generally acetate; label "acetate" on big label on front and in Audio Originals db
    2. if light does not pass through it's generally polyester, inspect for sticky shed by rolling out some of the tape and watching if it sticks together. If it does, set it aside to be baked
- if tapes are on pancakes (without flanges):
    - we need to attach flanges in order to work with it, like so:
        - set a flange on top of the pancake such that the bolt-holes are aligned with the plastic tape-core
        - hold a flange up against the tape pack while flipping, so that it doesn't unravel
        - place another flange on top of the pancake, set the assembly on the desk
        - place nuts and bolts through flanges and core, use flathead screwdriver on bolt to hold steady while tightening bolt with phillips head screwdriver
        - examine tape pack through flange window to determine if it's acetate or poly

Load reels onto the right side (pickup) of the Studer machines, with the tape feeding down along the outside edge.

If there is no leader attached to the front, attach some.

When cutting leader tape or the reel hold the straight edge at an angle so that the edge of the blade has direct contact with the tape or reel. This makes cutting much easier.

Load an empty reel of the same size onto the left side (feed) of each machine.

Feed tape through the tape path and attach to empty reel on left.

Rewind tape

1. Press "Shift" before pressing Rewind (<) on the tape transport
    a. this puts the wind into "library wind" mode which is slower and more appropriate for old tapes like the ones we work with
2. If tape is dirty:
    a. hold Pellon around the tape, on the right side of the head assembly, as it passes through (not too tightly) to clean it
    b. Be careful not to twist the reel tape during this process.
3. if the tape has splices which are no longer valid, they will fall apart during this process. repair splices as needed.

Check channel configuration

1. Stop the tape halfway through the rewind process, or wherever you can find program content
2. Once content is located, press play on the tape
3. On the patchbay, route the signal through a phase-reverse loop to the Big Knob
    a. This switches the phase on 1 channel, putting it 180 degrees out of phase with its counterpart on the other channel

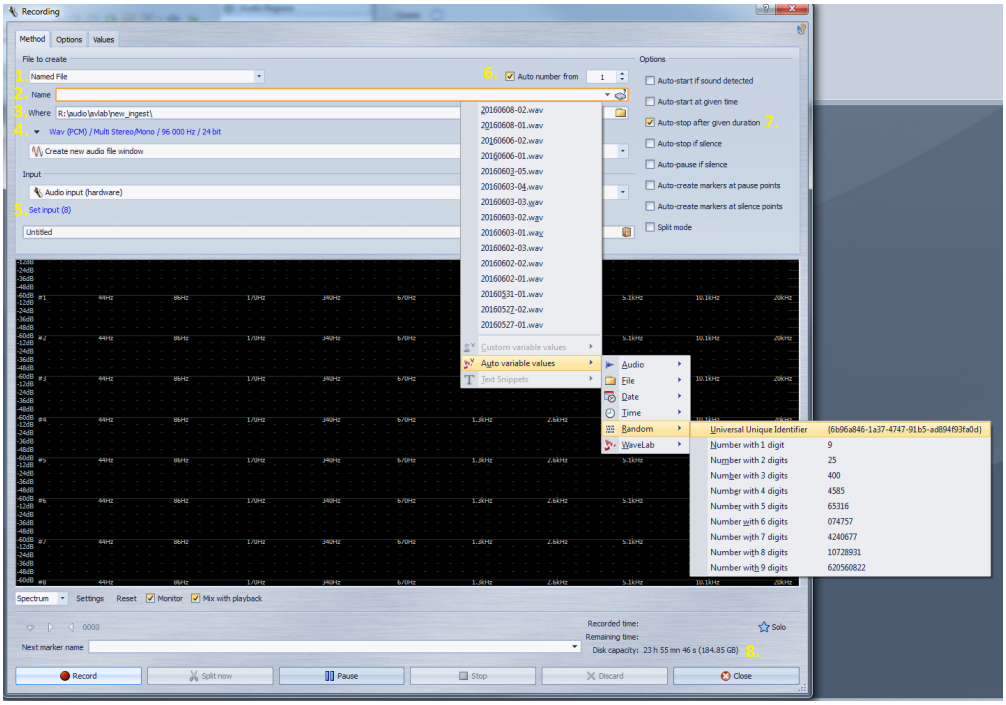
4. On the Big Knob, press "mono"
    a. this combines the two channels into 1 signal before passing it to the speakers
    b. if the signals came off the tape in phase, and were put 180 degrees out of phase through the patchbay, they will cancel each other out
5. If there is a legitimate volume drop, the tape is mono
    a. This can be hard to tell sometimes
    b. adjust azimuth to find the most cancellation (h/t to Cecilia for pioneering that)
    c. tape hiss is asyncronous to each channel, and therefore more likely to not cancel out
6. If it's mono, and it's musical content, put it on the appropriate machine
    a. if it's speech, we can downmix to mono in post and digitize on a stereo machine

Adjust azimuth

1. take your 2.5mil allen wrench and adjust the azimuth screw of the play head
2. you're listening for the most high-end that you can hear
    a. focus on applause if you can find it
    b. tape hiss if you can't
    c. headphones are helpful
    d. listening in mono is helpful
    e. try turning the volume up, 90dB +

Rewind tape the rest of the way

In the Wavelab recording window, verify that



1. You are creating a "named file"
2. The filenames are Wavelab-generated UUIDs
    a. make sure that you delete the braces {} at the start and end
        i. will cause scripts to crash
    b. we use this to prevent filename collisions in the raw-capture directory
    c. this is a change from previous iterations of this workflow, we're doing away with batch names and numbers as we move to the new storage situation

3. Save files to R:\audio\avlab\new_ingest\
4. The format is Wav (PCM)/**Multi Stereo/Mono**/96000Hz/24bit
5. Set the Input for the recording
    a. Just make sure it matches the number of tapes you're actually doing
6. That you are auto-numbering from 1
7. Auto-stop is in the proper configuration, for reel tapes at 3.75ips it should be set to 2:00:00
    a. Auto-stop allows us to automatically stop the recording after a given duration. This is helpful because it means that we can add, at the end of the day, another session of tapes that we can then name the next day. Settings for auto-stop can be found in the Record Window->Values tab->Recording programming section->Duration.
8. Verify the amount of storage available on the disk
    a. It is automatically updated if we encroach on the last 10% of our space, so this shouldn't be an issue, but definitely check

Press “RECORD” button in the WaveLab recording window.

Press PLAY on all Studer machines.

Turn the volume up on all the monitors on the Studers. As the original recording starts, verify that it's digitizing at the correct speed.

SAVING RECORDED FILES

Once all reels have played through and stopped spinning, hit the STOP button in the WaveLab recording window.

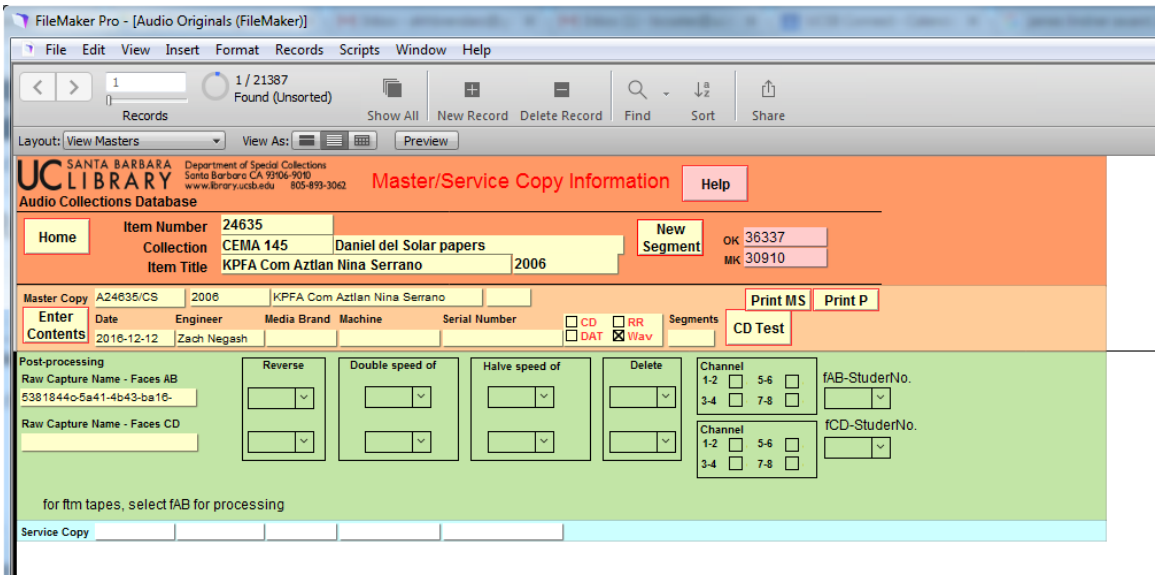
4 files, named sequentially starting with channels 1-2, will appear in WaveLab.

Spot-check files by opening their tab and playing 5-seconds of audio from the beginning, middle, and end. Make sure it is what you expect based on your setup.

X-out of each tab when done.

In FileMaker

- Enter Find mode
- Search by audio number (a1234)
    - be sure to get 1 single result
    - if you get more than 1 result, try searching for the audio number in the collection you're working on too
- Verify that the channel configuration is filled-out correctly on the "Audio Originals" layout
- Click “New Master”
- Enter rawCapture filename in box
- Fill out the rest of the form in green:
    - Pick which face(s) to reverse
    - Pick which face(s) to double or halve the speed (speech only!)
    - pick which face should be deleted, if they contain no signal
    - Pick the AD channel this tape was captured on
    - Pick with tape deck the tape was captured with

- 

STORING REELS AFTER RECORDING

Wind all remaining tape onto the RIGHT reel of each Studer machine.

Use red adhesive tape (red traditionally means the tape is tails out). This keeps the reel from unwinding during storage.

Discard any old stickers or remove any old writing on the new reel that does not apply to the tape contents.

Use the wax pencil to write the call number (A####) on the Reel.

Put the reel back in the original box, maintaining a consistent order.

Using the read sharpie draw a dot next to the call number on the sticker that is placed on the outside of the original box.

TROUBLESHOOTING

Tape is noisy, not just the recorded content but the mechanical processes are noisy. Here's some special noises to listen for while rewinding:

1. Paper-y scrapes: usually means there is something in the tape pack or that a piece of tape is actually dragging. If at all possible please remove this before continuing to rewind.
2. Loud Squealing: if the tape starts squealing very loudly stop it immediately and wind it back on the original reel. This indicates that the tape has "sticky-shed syndrome" and must be baked before being digitized. Sometimes tapes will chirp or squeek, that's fine. You'll know this sound when you hear it because it's quite loud and distinct.