

Digitizing anything is time consuming and expensive, but digitizing analog audiocassettes is particularly problematic.

Fortunately, audiocassette technology is recent enough that playback equipment still exists.

Consequently, we can cobble together Frankenstein technologies to digitize audiocassettes with minimal expense and get reasonable, if not professional quality, results.

I want to share with you some experiments I've run at the Wiregrass Archives at Troy University Dothan Campus.

Let me provide some context: The Wiregrass Archives has 5 major oral history projects in its collections, almost all of which is on audiocassettes.

1. We ran a Veterans History Project in 2002-5 that, with student Oral History class contributions, collected over 40 hours of interviews
2. Two area high schools did similar interviews, one did so for years, and both deposited the work at the Archives
3. A local living history museum collected oral histories between 1990 and 1996 from local old folks, and have deposited dozens of them at the Archives (many with transcripts).
4. A variety of other classes and local historians have provided over

50 interviews with area people.

My initial foray into digitizing 15 of these cost \$300 (not bad) but took the hobbyist over a year to finish. I needed a way to cut that time and expense down.

So I began to experiment with scrounged analog equipment. I owned an Olympus WS 311-M digital recorder that I received as a Christmas present and use for Alabama History Podcasts (available on Soundcloud and iTunes).

I convinced my dean to purchase 2 Tascam DR-40 hand-held recorders to update our existing stock of analog audiocassette recorders. Each was ca. \$170.



Full sized audiocassettes are one thing, but we had a plethora of microcassettes, too. Luckily, we had acquired both a Sony and Panasonic microcassette recorder.

Shown here are the rigs between the Sony M570V microcassette and the Olympus WS 311-M recorder in the upper right, and the Tascam DR-40 in the lower left.

The Olympus can accept a 3.5mm plug, but the Tascam lines in with a 1/4 inch guitar jack, so you must add a converter which costs about \$3.

Let me talk about quality in a minute.



For full-sized audiocassettes, I experimented with a Panasonic Slim Line recorder – the Archives had purchased 8 of these in 2002 and all but wore them out.

Here you can see the rig from the Slim Line to the Tascam using the 3.5mm ended cable with the converter attached and plugged in.

Again, with the Olympus, you don't need the converter.



Life is good when audio-editing programs are robust and free. I'm not an Apple guy, so I have been using Audacity since 2012 to edit my podcasts and other audio projects. It's open source and free, and the most recent upgrades are exceptionally good.

What you see here is the wave form from the first 2 minutes of the full-sized cassette after digitization. I've done some minor editing on this, removing noises and a few seconds of chatter.

Results

- Ease of setup and use; earphone monitoring available
- Tascam
 - defaults to WAV files (industry standard)
 - allows pre-recording moderation of gain
- Olympus
 - defaults to WMA files
 - Gain adjustment monitoring only during recording
- Problem: Ambient noise
 - Cassettes contain "roar"
 - Cassette player heads pick up more "roar"
 - 3.5mm jacks connect poorly and add clicks

I got encouraging results, with some caveats.

Both set ups were easy to use and allowed me to use a headset to monitor the transfer

The Tascam DR-40 records in industry standard WAV files (though you can set it to other formats) and, which I liked, allowed me to set gain and other recording components BEFORE I began recording digitally.

The Olympus WS 311-M defaults to the Microsoft proprietary format WMA, but the new Audacity software will import that format directly.

The Olympus does not allow me to set gain, balance, and other recording components unless I'm actually recording, so to record after getting these things set, I have to create a second recording, which is a bit of a pain.

I encountered some problems, shown here.

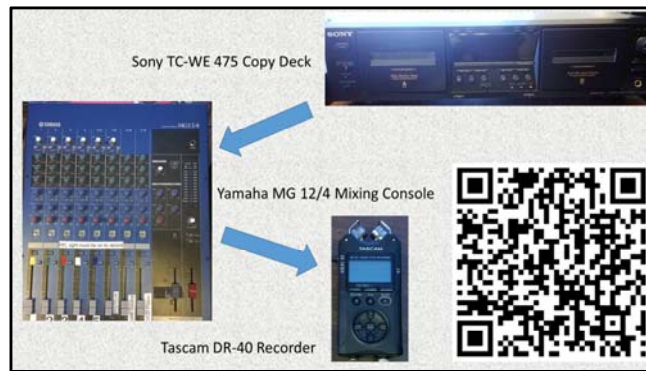
Audiocassettes "roar" a bit with ambient noise anyway, and cheap players pick up more roar in the playback, so that transfers to the digital file and has to be removed in editing.

More distressing – the small jacks don't fit well, and every time you touch anything you're likely to embed a sharp click. Even picking up the headphones to check on progress yields clicks that are hard to get rid of in editing.



So I experimented with heavier and hardier components that used RCA or 1/4 inch jacks that are much more stable.

In addition, my hobbyist sound guy told me that mixing or adjusting the analog before it hit the digital recorder made editing much easier, so here's my Rube Goldberg set up on a table in my office.



Years ago the Wiregrass Archives acquired the Sony TC-WE 475 audiocassette copy deck to provide cassettes to those who gave us interviews.

The Yamaha MG 12/4 Mixing Console was retired from our theater in favor of a more modern mixer, but it works perfectly well and connects to the tape deck with RCA cords. It's also WAY more powerful than I need or use. I use only the gain controls on the far right – the red slider and one knob above it. But it does the job by reducing squelch before it, too, gets digitized.

I connect the mixer to the Tascam digital recorder with a ¼" jack cable.

This set up works the best of all as it provides me with two points of control and does not add noise even when I monitor progress by handling the headset. This means I can set up a transfer, then go back to my other work, monitoring progress occasionally.

Of course I have to edit the digitized sound file, but it is a far easier job.

You can access this presentation via the QR code on the slide or through my website www.martyolliff.com (What I'm working on Now).