EDITING SUGGESTIONS
for the brave, intrepid, and much appreciated people editing audio files for one of my electroacoustic pieces into a mix, if the piece is done virtually.

From your friendly composer Alex Shapiro

Greetings! If you have already worked with audio files, much of what's below is already familiar, but if not, I offer this as a very basic starting point. Needless to say, tomes have been written and video'd about digital audio mixing techniques, and I recommend that you dive in to any and all resources that interest you. Below is a mere snapshot of a very involved and enjoyable process.

Before we get started, I offer you a note of calming assurance: I'm a digital audio professional who's facile at this, and it took me two entire afternoons to mix just 12 tracks on a "virtual performance" of one of my pieces-- and those were recorded by pro musicians, not students with erratic entrances and phrasings, not to mention adventures in their definition of what "tuning" might be! So give yourself plenty of relaxed time to create a mix from whatever files your musicians send you.

Here's a creative bonus: as the ensemble leader, or the ensemble's engineer and editor, I encourage you to add your own artistry to the project. Feel free to mute parts of tracks if the pitch or rhythm is distractingly off and it would be too challenging to edit the adjustments. Recording is a different animal than live performance, and the goal is to create something as pleasing as possible from the audio tracks, while of course still retaining the humanness of their inception.

Well, okay: to a point: I'm all for humanness, but if someone accidentally records a really, really wrong note, that's where the love of humanity is replaced by the love of a mute button.

There are different software applications for editing audio files, from free ones like Garage Band, Audacity, Reaper, or Ableton Lite, to professional programs like Logic and Digital Performer, just to name a few. I try to avoid using specific command terms here when possible, because each program works a little differently. I encourage you to seek out tutorials on YouTube for whatever digital audio workstation (DAW) or sequencing application you use-- there are a lot of them!

If it offers any hope, I taught myself how to use all these applications long before the internet even existed, just by diving in, poking around, and learning from the results. It's actually fun. Really! And don't worry, you can't break anything. Not even a sweat. Digital audio editing is usually what's called "non-destructive," meaning, the original copy of the file will always be there.

That being said: go ahead and make a duplicate folder of all the audio files that have been sent to you, for peace of mind. Stow it away and know that if anything were to get corrupted in the mix process, you will always have fast access to the original.

And it's worth reminding you here— because audio editing is very detailed: every time you do something, click SAVE. Every time. On a Mac, it's the magic Command-S pas de deux of the thumb and forefinger You will appreciate this when, not if, the file you're working on suddenly quits, taking any unsaved efforts with it into the ether-sphere.

Additionally, from time to time do a "Save As" and create a newly named version of the file (aka, TITLE MIX EDIT2). This will give you yet another form of backup should anything unexpected occur.

So, here we go!

In the DAW, open a new file and begin by setting the tempo, and the meter.

Add empty blank stereo and mono audio tracks as needed. Drag each audio file from the musicians into a separate track, as well as both stereo ACCOMPANIMENT TRACKS, with and without the click. Some of the files from the musicians may be in stereo and others in mono, which is why it's helpful to have the two versions at the ready. Once done, delete any unused tracks.

Mute all the musician tracks for now.

Begin by adjusting the ACCOMPANIMENT TRACK and the TRACK with CLICK, which almost always include the count-off clicks. Ensure that the track with the click starts at measure 1 (aka, the beginning of the sequence). Everything else is going to align with this.

Once the ACCOMPANIMENT TRACKS are in place, your DAW may have the ability for you to insert markers— text indications—that will help you know where you are in the piece. I recommend that you begin by adding as many as you need; they can be really helpful for keeping track of where you and the musicians are.

While editing, you will only want to listen to the track with the click, in order to keep all the tracks in sync. Mute the performance (no click) track, until it's time for the final mix.

You will have asked the players to "slate" their tracks, indicating where they are playing by vocally counting off intro clicks that they hear in their earbud. Align the start of each audio file accordingly, so that it's in sync.

Occasionally, a musician will have neglected to slate their file. Naughty player! This means that you need to listen to the first thing they recorded, and drag their track into place accordingly. One of the cool things about working with waveforms is that you can visually see exactly where notes begin. Zoom way in, to make these waveforms big, and easy to align.

Start here:

Place all the audio files in order of where they appear in the score (woodwinds down to percussion), for organization.

Start by play-enabling one track at a time and listening to it against the accompaniment track with the click.

Now the fun begins! If a musician plays a little bit early or late on a beat, you can adjust this. The musicians will sound most like an ensemble that recorded together if all the audio tracks are rhythmically correct.

Zoom in to a comfortable viewpoint and, using a tool that often has an icon that looks like scissors, carefully snip a start and end point that will separate the problematic section from the rest of the track, and allow you to drag it a little earlier or later.

Your DAW will most likely offer two settings in the editing window: one that restricts the side-to-side movement of the audio file by sixteenth, eighth, quarter, half and whole notes, etc. (called "quantizing"), and one that allows you to freely nudge the track as pleases your ear.

Shapiro: basic DAW techniques

MIXING TIPS

So now that you've organized all the materials and everything is in the right place, you're ready to do some further editing, and mix.

Trim out excess noise

Using the scissors tool, trim out the empty space between entrances to lessen the collective background noise, since most musicians will not have recorded in soundproof recording studio iso-booths. Take care not to cut off the tail or ring out of a note!

When making cuts in the audio files, it's usually good to draw minor fades in and out of the clip, to assure smoothness, rather than an abrupt cut off.

After each audio file in the sequence has been "cleaned up," save a copy of the document and title it "UNMERGED," so that if needed you can go back and change the editing decisions that have been made.

Merge soundbites

In a current, new version titled MERGED, select an entire audio track, making sure the selection is from Bar 1 until the end of the final bar, and use the command to MERGE (meaning, connect) all the separate soundbites that may have been created each time you used the scissors tool in that audio track, to create one continuous audio file. This ensures that it remains in sync by starting at the first beat of bar 1, and prevents separate soundbites from accidentally moving around during additional editing.

Balance volume levels

The next step is to do an initial balance the volume levels of all the instruments for a pleasing result, since some have been recorded closer to microphones than others. In addition to the ability to just move a mixer fader to one good spot, you can create automation that allows the volume of a track to change up and down over time (consult a tutorial for your application).

A note about levels: begin with the faders well under 0 so that you have some headroom— digital audio is unforgiving with signal overload. Place the accompaniment track at a level just under that of the instruments to begin with, so that you can hear the instruments clearly. Once the mix takes shape, you can play with raising the levels.

Remember: when you're done, you will most likely want to raise the volume of the accompaniment track, because it is designed and mixed to be played back as loud as the instruments: it's an additional and equal section of the ensemble, and a vital part of the composition.

Pan the instruments

Next, use the pan button on each track in the mixer to spread out the perceived placement of the audio. This is especially good if you have two or more of the same instrument. Don't pan to the extreme left or right, but use a general 9 o'clock-center-3 o'clock rule. Think about where the instruments are on a physical stage, and roughly mirror that.

Add reverberation

Now it's time to add a little reverb, to give some room presence to the music and make the ensemble sound more like everyone was in the same hall when they played. You can either add reverb directly to each track, or route all the tracks though an auxiliary channel that has one reverb plugin. The mixer window is most likely the place where you will do this. There are many plugins available, and a tutorial will show you where to find the reverb to insert.

Equalize the frequencies

If some of the audio sounds muddy, you can add equalization (EQ) to brighten it up (or conversely, dial down the high frequencies if something is too bright). If you add EQ by, say, boosting the high frequencies, you are also boosting the volume, so use caution. A good approach when trying to brighten something, is to instead lower the mid-range frequencies, which tend to be the culprits in mud-making, particularly with home recordings.

Mute

Occasionally there will be audio issues such as odd glitches and stumbles that are too challenging to solve, and it is fine to either select and delete problematic sections of an audio file, or to simply mute that section by lowering the volume, so that it doesn't distract from the whole. An electroacoustic ensemble piece is the sum of the parts, and usually does not rely on any one line.

Automate volume changes

For an especially musical result, going through each track and adjust the volume of each phrase as it fits with the others. This truly is worth the time. This can be done several ways, and I tend to enjoy drawing the lines up and down in the editing window, so I can be very specific in the movements. A tutorial will show you the many options.

You may also wish to do this with the accompaniment track itself so that it can remain in tandem with whatever the musicians have recorded, but use discretion: the track was already mixed with anticipated volume shifts.

Mixing down

Now things are starting to sound pretty musical, and when you're happy with the balances between the instruments, it's time to mix them down to one new, empty stereo audio track that you can title INSTRUMENT MIXDOWN.

In short, anything you want recorded must be in "play," and "bussed" accordingly. If you don't know some of these terms, don't worry: consult the tutorial for your application as to how best to accomplish this.

Once you have all of the live instruments mixed down, open yet another stereo audio track, title it TITLE-FULL MIX, and mix the INSTRUMENT MIXDOWN, plus the ACCOMPANIMENT TRACK (without click) at the level you wish (about as loud as the instruments), to create the final mix of the live and prerecorded elements onto that new track. Remember to mute all the individual tracks (and aux effects tracks) and put the MIXDOWN track in "playback." Again, consult the tutorial for your application as to how to bounce that mix to your computer.

Shapiro: basic DAW techniques

And voila! You have achieved a mix! Congratulations!

I would be delighted to enjoy the fruits of your labors, and to heap praise upon you and your musicians, so please email me at alex@alexshapiro.org and let me know about your recording or video!

With gratitude for making these heroic sonic efforts with your musicians and with me,

Alex