

## HELPFUL TECHNICAL SETUP INFO!

Alex Shapiro's electroacoustic music-- in which the ensemble or soloist plays along with a pre-recorded audio track-- is composed with the intent of creating one seamless, sonic entity. The track is a significant, equal "section" in the ensemble, and should be played quite audibly. The downloadable audio files include the accompaniment track in its stereo performance mix, and also in a mix for the conductor or soloist that includes a click track for in-ear monitoring.

Electroacoustic pieces require either an audio system capable of playing the audio tracks from a laptop computer via a small digital audio interface connected to an audio mixer,

or,

A laptop to which USB headphones and an audio cable are connected (for use with multichannel files).

Using an audio interface is preferred, because it offers greater flexibility for volume levels and audio quality.

### Rehearsal:

The rehearsal room will need a basic PA system, ideally with stereo speakers that can play loudly, placed facing the musician(s). For large ensembles, place another monitor in the back by the percussion section if possible, to ensure that everyone hears the same downbeats.

There is a stereo performance track which the musician(s) (and later, the audience) hears, as well as the stereo track that includes the click heard solely by the conductor or soloist through headphones or earbuds. If desired, one ear may be left uncovered, in order to clearly hear the live players against the track. The headphones or earbuds are plugged into an audio interface that goes between a laptop computer and an audio mixer.

### Bonus!

Musicians can practice Alex Shapiro's pieces at home by downloading the accompanying audio track, with or without the click. Please visit Ms. Shapiro's website, <http://www.alexshapiro.org>, to send an email requesting file access.

### Technical setup: The pro method:

Connect a laptop computer to a small audio interface, which in turn connects to an audio mixer. Open a simple multitrack digital audio application (see suggestions below), and load the accompaniment track **with** the click into one stereo channel routed **solely** to the headphones or ear bud worn by the conductor or soloist. Next, load the track **without** the click into two more stereo channels: one pair routed to the stage (and podium) monitors so that the musicians and conductor can hear the track (without the click), and another pair routed to the house speakers so that the audience can hear the track (without the click). The audio track uses panning effects, so be sure that it's routed to the audience in stereo.

An additional stereo channel may be used to route an optional pair of stereo microphones placed over the ensemble. If the band is mic'ed, it's best to have an engineer reading a music score to ride the faders at the mixing board and control the balance.

## **SOFTWARE:**

**Audacity or Garage Band, or any multitrack sequencing application**

## **HARDWARE:**

**USB audio interface (see below)**

**Miniplug or wireless headphones or earbuds**

## **SOFTWARE SUGGESTIONS:**

**Audacity:** for download; a free digital audio editor: <http://audacity.sourceforge.net/>  
Open the application, and open a new window. Go to FILE in the menu bar, and then down to "Import," and then to "Audio...". A dialog box will appear from which you can navigate to the audio file you have downloaded. Do this for each track you wish to add to Audacity. Most of the time just two tracks will suffice: one for performance (without the click) that is routed to the house speakers for the audience to hear, and one with the track and the click mixed in, for the conductor's earbuds. But sometimes it's helpful to also load the audio file with only the click, so that the balance between the click and the track can be adjusted for the conductor's preference.

**Garage Band:** comes with Macs.

Open the application, and when given template options, select LOOPS for your new file. In the menu bar under TRACK, select NEW TRACK..., and REAL INSTRUMENT. Do this twice, once for the track with the click, and again for the track without the click. Drag each stereo file into its track.

After importing, ensure that the tracks are perfectly aligned! They are designed to automatically be in sync, with aligned start times, but it's always good to check.

**AUDIO INTERFACE SUGGESTIONS:** (the hardware between the laptop and the mixer, to route the tracks to the stage AND the house, and also route the earbud audio to the conductor):

Just about any 4-channel I/O interface will work. Below are reliable companies, for which you can do an internet search by copying and pasting the model, to find the best prices:

**Behringer:** U-Phoria UMC404HD (about \$99)

**TASCAM:** US-4x4 USB 2.0 Audio Interface (about \$200)

**PreSonus:** AudioBox 44VSL (about \$250)

**MOTU interfaces:** 4Pre (about \$450); Ultralight (about \$550)

## **EARBUD SUGGESTIONS:**

Any earbuds or headphones will work. But in a perfect world, a wireless, single-ear summed stereo earbud, ideally with a clip to hold it in place, is what a conductor would want. Failing that, a stereo wireless pair would be great and offer the freedom of movement that being wired just doesn't. Here are two VERY general links; it's best to do your own internet search:

**Single summed stereo earbuds:** <http://tinyurl.com/lxnpymg>

**Wireless headphones:** <http://tinyurl.com/l4b43ej>

**Wireless setups for earbuds and headphones:** <http://tinyurl.com/opnwumg>

## **ALTERNATE METHOD using a multichannel file: The least expensive method:**

*Band director James DeCaro at St. Croix Preparatory Academy in Stillwater, Minnesota, wrote Alex with the following workaround suggestion using what's called a "multichannel" audio file, for ensembles lacking a full PA system. This requires a computer (a laptop is usually used); a free software application called VLC to play the downloadable multichannel aiff file; and a pair of USB or wireless headphones (they cost about \$40).*

**All multichannel files are available from Alex Shapiro at no charge.** To obtain one, please email her at [hello@alexshapiro.org](mailto:hello@alexshapiro.org).

### **SOFTWARE needed:**

**VLC** (free media player, for all platforms: <http://www.videolan.org/vlc/> )

### **HARDWARE needed:**

**USB or Bluetooth wireless headphones or earbuds**

**Or:** an interface for standard mini plug headphones or earbuds, such as a Griffin iMic:  
<https://griffintechnology.com/us/products/audio/imic>

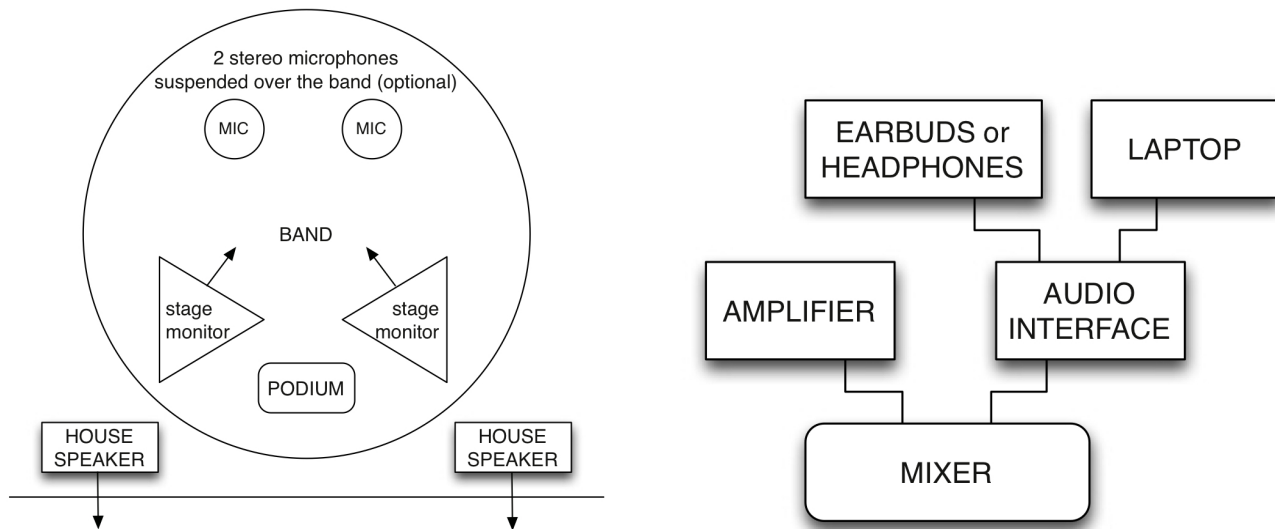
### **AUDIO FILE needed:**

**Multichannel AIF file** (create your own quadraphonic file from the stereo click track and the stereo performance track (see specific instructions below), or email Alex Shapiro for the file at [hello@alexshapiro.org](mailto:hello@alexshapiro.org).)

*Below are specific instructions for those with a Mac computer running Mac OS 10.4 or later, such as a MacBook laptop. All of this is equally doable on a PC.*

1. Connect your USB headphones or audio interface to the computer (if using an audio interface, connect your headphones to the device's audio output).
2. Connect the computer to external speakers (via the headphone jack).
3. Open the application Audio MIDI Setup (found on the hard drive, in /Applications/Utilities).
4. Click the "+" at the bottom left of the Audio Devices window that appears, and choose "Create Aggregate Device". You can give your device a name (eg, "EA Band Piece Setup) by double clicking "Aggregate Device" and typing the desired name.
5. Click the checkbox next to "Built-in Output" first, and then your USB headphones (eg, "Logitech USB Headset") or audio interface (eg, "iMic USB audio system").
6. Click on "Configure Speakers..."
7. Select the two checkboxes at the top, click on the Multichannel button, and choose "Quadrophonic" from the pull-down menu. Click on Apply and then Done.
8. Open System Preferences/Sound and choose your aggregate device in the Output panel.
9. Open the multichannel AIF in VLC.
10. Press play. The click track and music should be in your headphones, and the music-only track should be on your external speakers.

*Please note that none of the manufacturer or retailer suggestions in this document indicate a professional endorsement from Alex Shapiro or Activist Music. They are simply offered as helpful guides. And: please contact Alex with your own helpful solutions! We are all expanding this musical performance genre together!*



*Monitors, speakers, laptop, audio interface, and microphones, if desired (not needed), are connected by cables to the mixer, which is usually centrally placed in the back of the auditorium, or otherwise, on the side of the stage. It's helpful to also have one or two stage monitors at the rear of the stage, so that the percussionists can clearly hear the pulse of the track.*

### **Need to create your own multichannel audio file?**

In Audacity/Preferences, choose Import / Export from the list at the left, then choose the “Use custom mix” radio button. In a new Audacity window, import the performance track (without the click) **FIRST** — the order is important. Simply go to FILE in the menu bar, and then down to “Import,” and then over to “Audio...”. A dialog box will appear from which you can navigate to the audio file you have downloaded that you want to play from Audacity. Next, import the click track the same way. Select both tracks (Command-A on a Mac), click the FILE menu, and choose, “Export Audio...”. A dialog box will pop up, allowing you to choose to which channel each track is assigned.

**Please note:** “Multichannel” means, in this case, more than 2 tracks. You cannot use Audacity or iTunes to play a multichannel file back during performance. The application VLC (for all platforms: <http://www.videolan.org/vlc/>) will work well.

You CAN use Audacity for playback if the laptop is connected to a digital audio interface that routes the individual stereo (not multichannel) files through different channels on a mixing board (i.e., the track that the audience hears on one channel, and the track with the click that the conductor or performer hears, on a separate channel).

**Please contact Alex Shapiro with additional questions, or corrections to this guide, or suggestions for helpful additions to it, at [hello@alexshapiro.org](mailto:hello@alexshapiro.org). Thank you!**