

SETTING UP MULTI-AUDIO OUTPUT FOR ZOOM

Setup Guide by
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READ ME FIRST:

The following document is a setup guide for streaming both your music and external microphone audio directly into Zoom for free. As with most things free, this setup is a bit complex. It is a 7-step process that requires two external downloads and some familiarity with setting up your computer audio input/output. You need to have your external microphone plugged into your machine by STEP 5.

The following setup was created and tested on a MacBook Pro using the Mojave OS. If you are using a PC or an older Mac operating system, you may run into issues. I am happy to help troubleshoot to the best of my ability, but I can't guarantee a solution. If you look at this document and think to yourself, "nope," that's A-Okay. I strongly recommend looking for my Facebook post on the "Dance Professors Online Transition Group" where I make some Zoom audio settings suggestions that can go a long way to improving your audio. If you're already a member of the group, you can find my post by clicking [this link](#) (it's currently the top post) or searching the group using the keyword "audio."

Looking for an external wireless headset that's compatible with macOS? I am using this [Kimafun microphone](#), and it's working quite well. There may be cheaper options, but make sure you double check that it works with your operating system. Not all microphones are cross-platform.

Questions/Issues?

Email me at - jessicarajko@wayne.edu

STEP 1: Download Soundflower

<https://github.com/mattingalls/Soundflower/releases>

To download, scroll down and click on the .dmg file:

▼ Assets 3

 Soundflower-2.0b2.dmg		57 KB
 Source code (zip)		
 Source code (tar.gz)		

What is Soundflower?

Soundflower lets you create a virtual audio output device that can also act as an input. For us, it helps us route audio inputs/outputs to multiple locations, which is a great asset when you need music and vocal audio to go multiple places (zoom and your own speaker system).

Using GitHub:

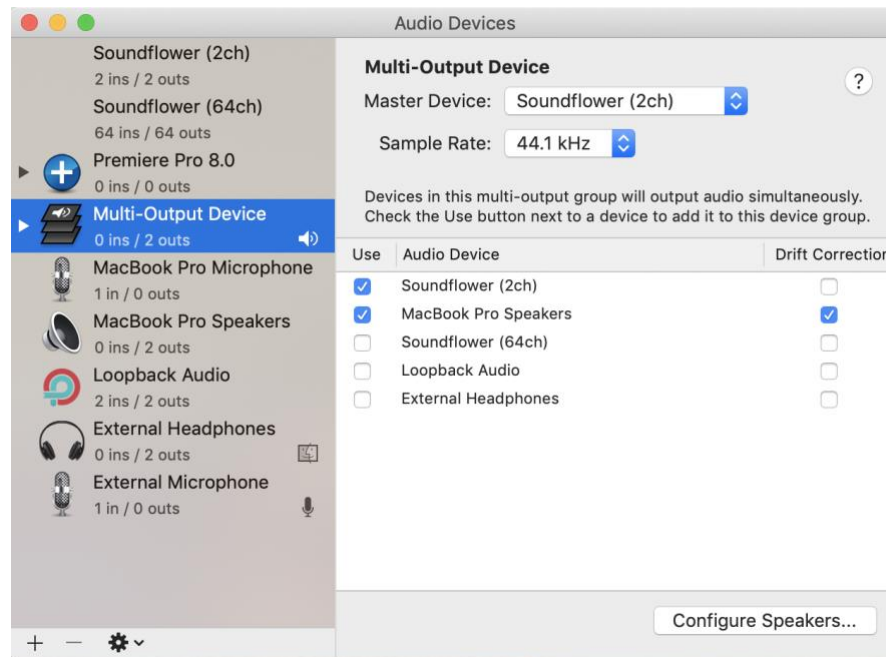
If you've never used github before, it's an online repository for people to share and edit code. Soundflower used to have a formal app, but it's no longer supported. Matt Ingalls made this kernel extension so that people could access the functionality that Soundflower provided.

Installing Soundflower:

Please see Matt's instructions for installing Soundflower posted on the GitHub website. There are a couple extra install steps that he walks you through.

STEP 2: Setup Your Soundflower Audio

- Open Audio MIDI Setup: You can find it by going to /Applications/Utilities OR search your hard drive for “Audio MIDI Setup.” Once open, it looks like this:



- Click the '+' button in the bottom left corner and select "Create Multi Output Device"
- In the panel that appears on the right, select:
 1. Whatever your operating system calls your computer speakers, for example "Built-in Output," or in my case "MacBook Pro Speakers"
 2. "Soundflower (2ch)"

You can see how I setup my multi-output device in the screenshot above.

STEP 3: Download Max 8

<https://cycling74.com/downloads>

- Once you've downloaded Max 8, follow the install instructions. Be patient, it can take a while. Max 8 is a really powerful program, so the install is on the larger side. Make sure you have some free space on your hard drive.

What is Max 8?

Max is a visual programming language for music and multimedia. Media artists use it to create all kinds of digital music and visual art. It's a really powerful tool, but for our needs, you won't have to make anything.

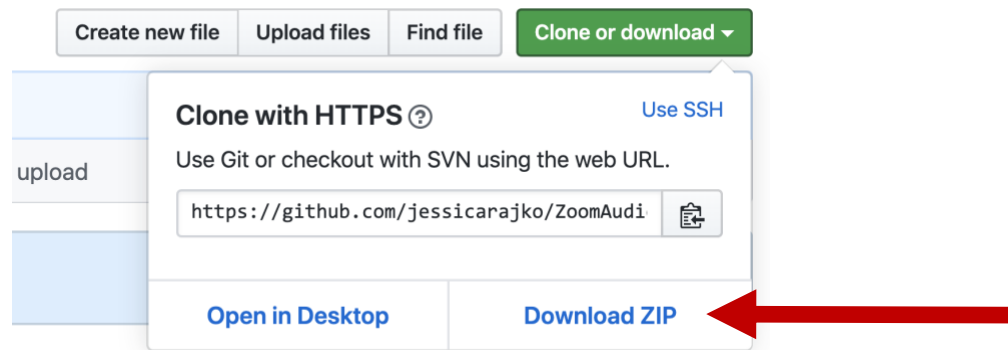
Do I have to pay for it?

No. If you've never installed Max on your computer before, you'll get a 30-day free trial. After that any programs (or "patches" as they're called in Max) you have will automatically run in "runtime" mode. This means you can run existing programs, but you can't edit them. For your needs, editing is completely unnecessary.

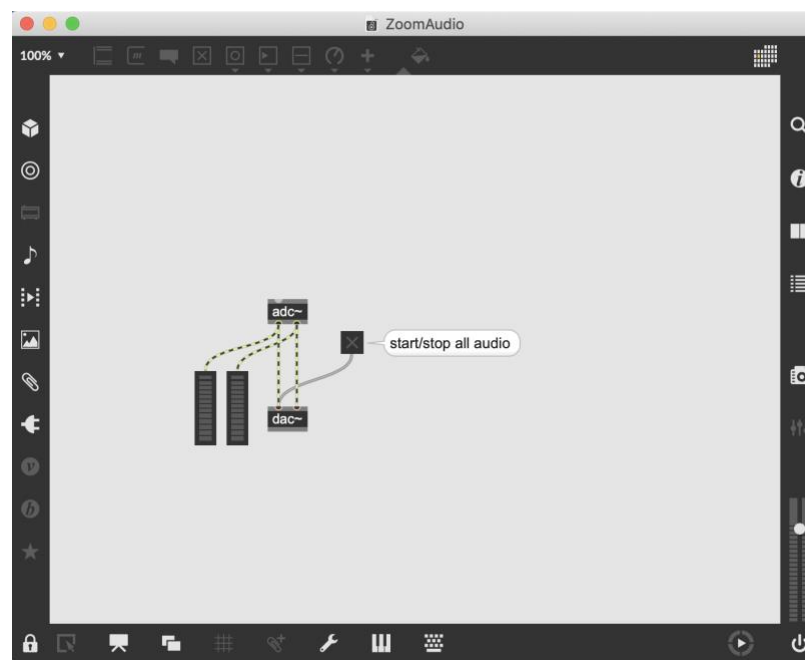
STEP 4: Download and Open ZoomAudio.maxpat

<https://github.com/jessicarajko/ZoomAudio>

- Scroll down to where it says ZoomAudio.maxpat.zip. To the right you'll see a green button that says, "Clone or download." Click on it and then click on "Download ZIP." You'll download a .zip file with the Max Patch you need in it.



- Open ZoomAudio.maxpat. It should look like this:



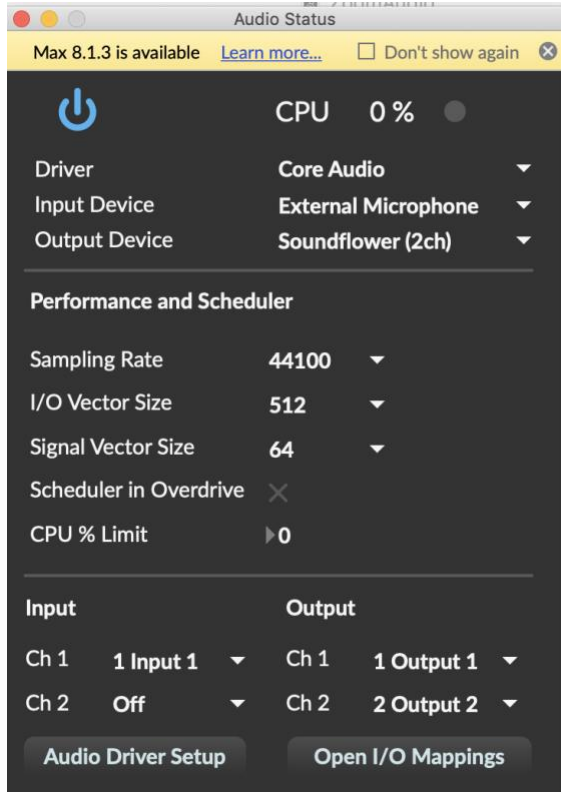
- Once the audio settings are arranged in Max 8 (see next step), then all you should have to do is open this file. To test, you must have your external microphone hooked up to your computer. Try speaking into the microphone. You should see the left bar light up. These are the only ones that will light up, so don't worry if the right bar doesn't light up.

Step 5: Setup Max 8 Audio Status

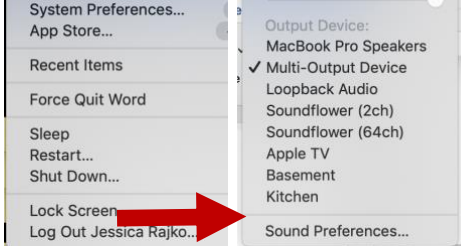
- While still in Max 8, look at the top bar and find “Options.” Click on it and then select “Audio Status.”

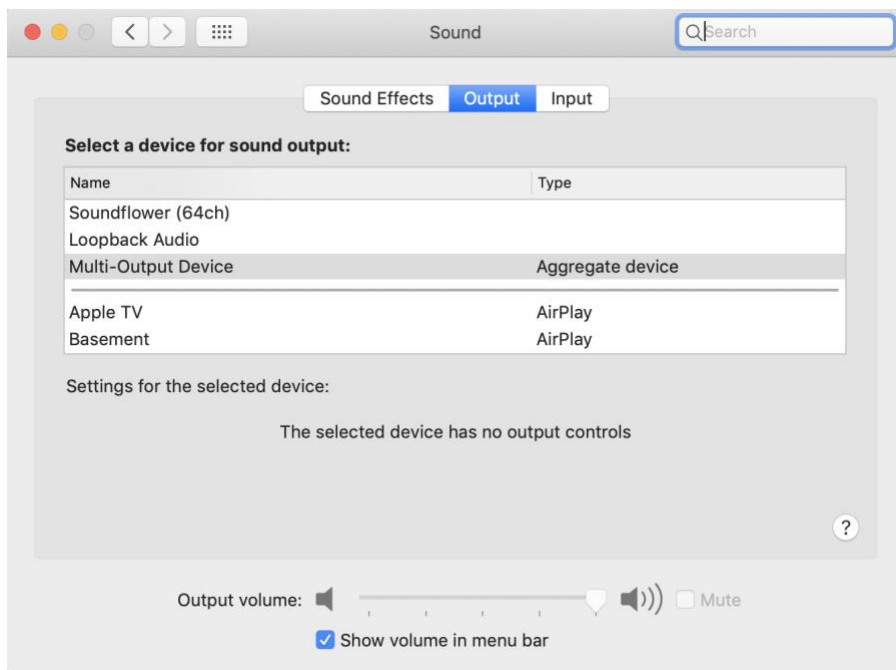


- At the top of the window, change your input to “External Microphone” and your output to “Soundflower (2ch)”. This integrates your external microphone with whatever music or sound you play on your computer (iTunes, Spotify, Pandora, etc.)
- Close the “Audio Status” window, but keep Max 8 open. You can minimize or hide it at this point.



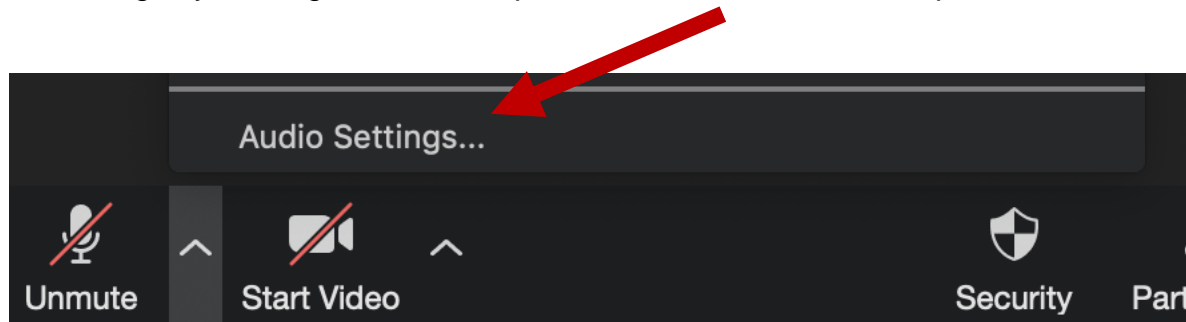
STEP 6: Configure Your Computer Audio Output

- Open your sound preferences: Click on the apple icon (top left), choose “System Preferences” and select the “Sound” icon OR by click on the audio icon (top left) and choose “Sound Preferences”. 
- For your sound Output, select “Multi-Output Device” (see below).
- NOTE: I am configuring the “Multi-Output Device” setting on my computer because I am using Spotify for music playback. Spotify does not allow me to manually select audio output, so I have to do it here. If you are using a music platform that allows you to set audio output within the app, then you can choose “Multi-Output Device” directly in the app itself. This keeps you from having to change your global computer audio settings. FWIW, most music apps don't let you change the audio settings in the app itself, so it's likely you'll need to do this step.

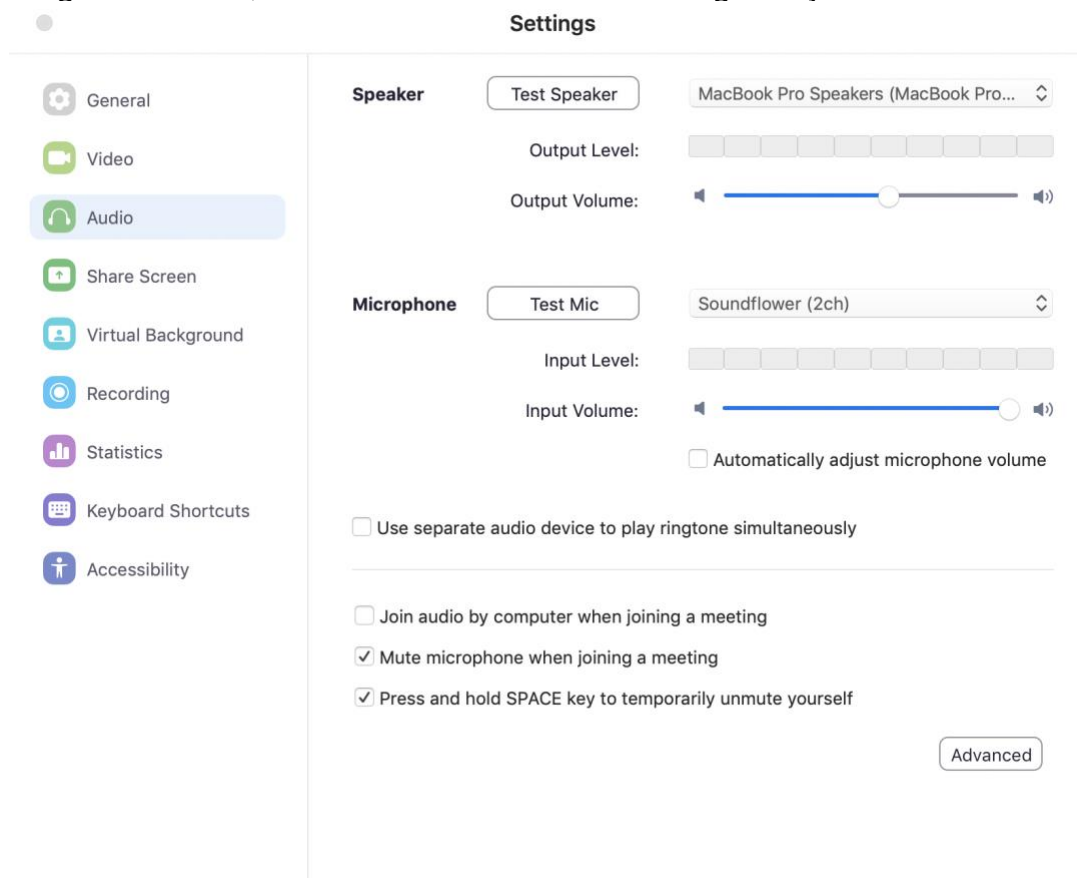


STEP 7: Configure Your Zoom Audio Input/Output

- Open Zoom and then open your “Audio Settings” You can access your audio settings by clicking on the little upward arrow next to the microphone.



- For your sound Speaker, select whatever calls your computer speakers, for example "Built-in Output," or in my case "MacBook Pro Speakers" (see below)
- For your sound Input, select "Soundflower (2ch)"
- You can test your audio setup by clicking on the "Test Mic" button. It will allow you to record a few seconds of audio and automatically play it back. Try speaking into your microphone and playing music at the same time. You should be able to hear both clearly. You may need to adjust your external microphone audio settings to find a good balance, but I've had luck without needing to adjust.



Setting Up for Each Class

Once you've got all your settings organized, you should be good; however, that doesn't mean you won't want to change settings back for a meeting, listening to music on your own, etc. Each time you go to teach class I suggest following these steps:

1. Plug in your external mic and turn it on.
2. Open Max 8 and check to make sure you see your volume meter moving when you speak into your external mic.
3. **KEEP MAX 8 OPEN!!** Don't close Max 8. Minimize it and keep it running while you teach.
4. Make sure your computer audio output is set to "Multi-Output Device."
5. Make sure your Zoom audio settings are as follows:
 - Speaker → computer speakers (ex. MacBook Pro Speakers)
 - Microphone → soundflower (2ch)
6. Run a microphone test, which records a small audio sample and plays it back for you. You can do this to check your external mic and music playback audio levels.

If anything is not working, come back to this guide and make sure your settings match the screenshots. Once you get used to this process, you should only need an extra 5 minutes to setup.

That's it!!!