Basic set-up for quality audio communication (for musicians) with Zoom / suggestions from Denys Bouliane,

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A) Basic laptop needs:

Most recent laptops will be suitable for video-conferencing, including music.
Understandably, the faster your machine and the larger your screen, the better !
For ex.: a basic MacBook Pro 13-inch with a minimum of 8GB of internal memory (the more, the better) will work very well..
13-inch MacBook Pro - Apple (CA)
Many older models (up to ca 5 years old) will do just fine.

B) zoom https://zoom.us

Zoom exists in 2 main versions:

1- "Zoom-Free" [40 mins. limit on Group meetings]

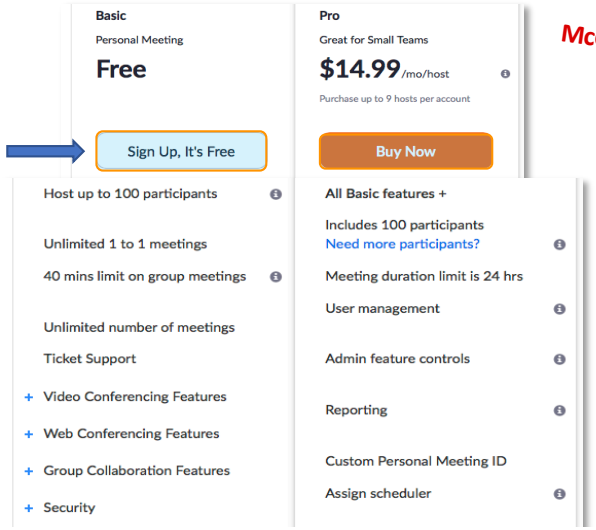
OR

- 40 mins. limit on Group meetings

2- "Zoom-Pro" ($14.99/month) [no duration limit on Group meetings]

- No duration limit on Group meetings
- Added User management, Administration controls, Recording space, etc.

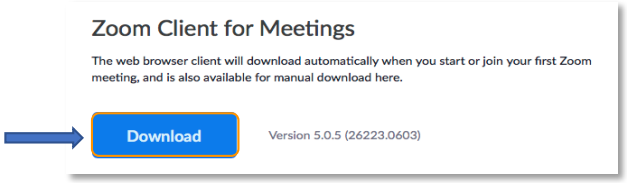
Plans and Pricing - Zoom



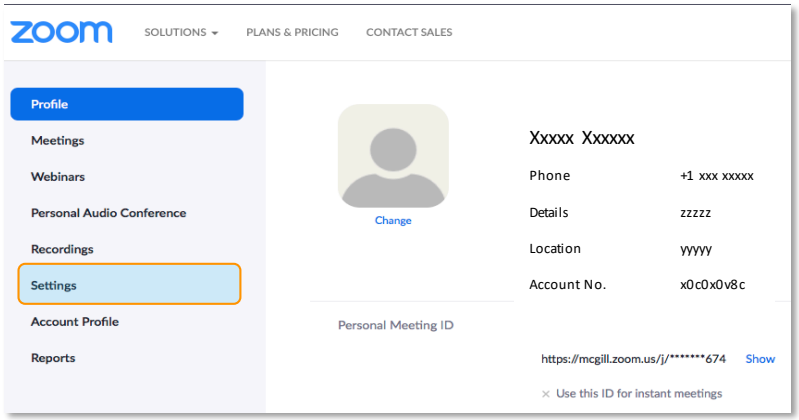
McGill provides a Pro-Version to all teachers

3- Sign Up (Free) or Subscribe

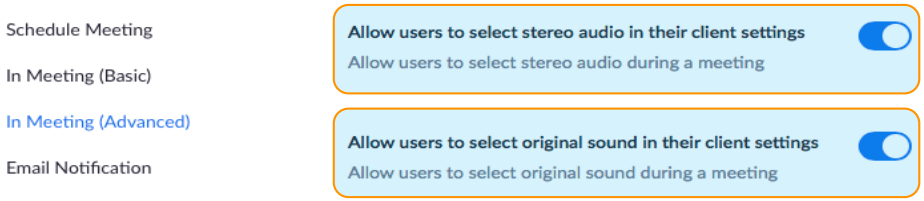
4- DOWNLOAD the Client Application



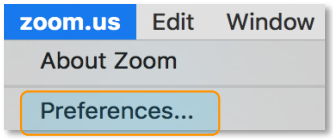
5- Go to your PROFILE and SETTINGS



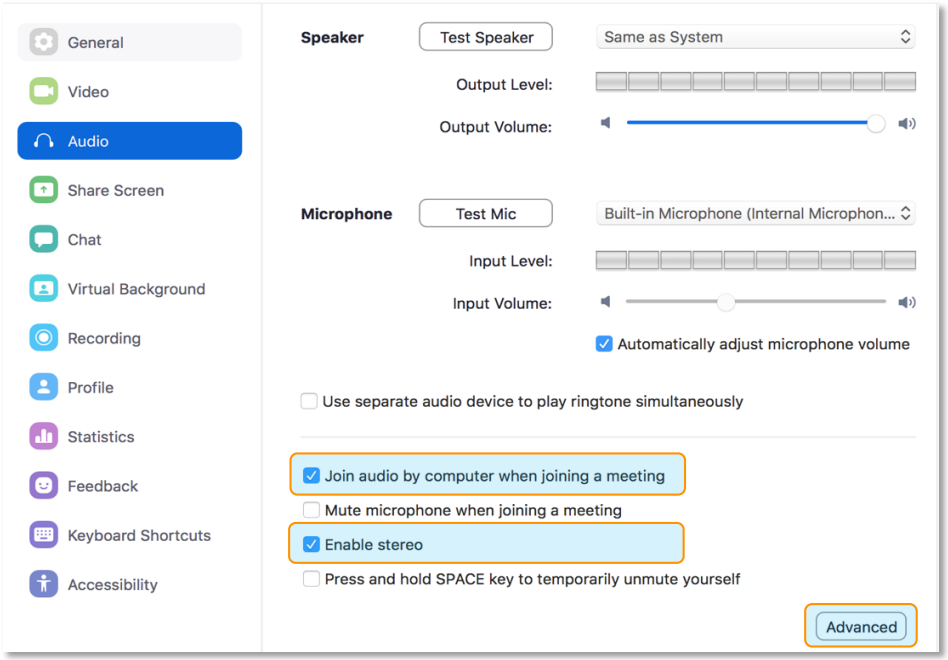
6- Scroll to > "stereo audio"



7- Launch your Zoom application on your computer and select "Preferences..."

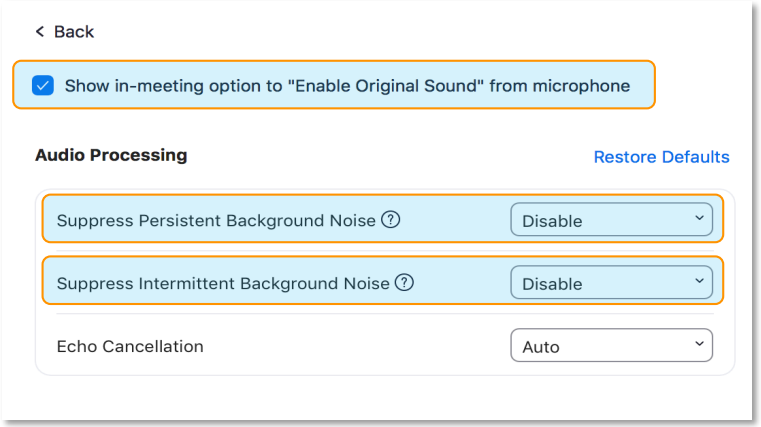


8- Select "Audio" and check "Join audio by computer" AND "Enable stereo"
Click "Advanced"



Advanced

9- Disable "Audio Processing"



** NOTE: If the Host transmits via Zoom or Zoom-Pro in hi-fi stereo,
all participants will also receive in hi-fi stereo.
If Participants have made the correct settings in their Zoom Profile Settings and Application, they will also be able to transmit in hi-fi stereo.

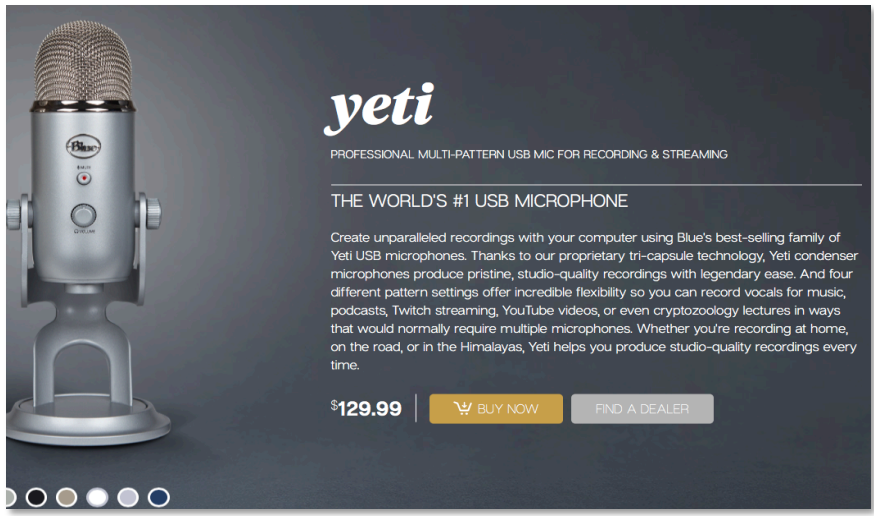
C) Basic softwares enable broadcasting in "hi-fi" stereo through Zoom
(quality varies according to source):
Ex: QuickTime Player, OrchPlay (with strong features for teaching music), iTunes, YouTube (from browsers like Google, Safari, etc.)

More "pro" audio softwares will need a driver adapted to Zoom (at times selecting the type of output will do…)
Ex.: ProTools, Pyramix, Adobe Audition, Logic Pro, etc.

D) Microphone needed for music transmission:
The simple built-in microphones in most laptops are optimized for voice transmission
(narrow frequency range, compression and noise suppression).
They are NOT suitable for music transmission.

- A relatively inexpensive usb microphone exists that can be
plugged directly into laptops and yield decent quality results:
Blue - Yeti

One can imagine a yeti microphone (stereo setting) well placed
in a music studio being able to broadcast one or several performers
(solo voice, solo instrument or with piano accompaniment, etc.)



E) Good quality headsets or earbuds needed:
For good audio quality and to minimize audio feedback loops.
Ex. Beats, Jabra, Apple, etc.

F) Good quality web camera can help:

The build-in camera from most modern laptops will provide a decent video quality while a dedicated usb webcam will improve that quality and add FLEXIBILITY (for ex.: making it possible to place the camera in a better position than the one dictated by the laptop screen.

See for ex. webcams best buy

G) **A Good (fast) Internet connection is necessary to ensure a minimum of quality:**

-Typically: Bandwith* of 35 Mbit/s upload and 100 Mbit/s download (check with your provider)

(*)Bandwidth is the amount of data that can be transferred per second

H) FULL or Partial RECIPROCITY:

If decent TWO-WAY *(but NOT simultaneous, see point J)* music communication (teacher-student; presenter-participant, etc.) is to be achieved, ALL Participants should have a similar configuration on their end:

- -decent laptop
- -good internet connection
- -good usb microphone
- -good headset/earbuds
- -external webcam (optional)

BUT: In a situation where the main host (teacher, presenter, etc.) does NOT require a quality audio feedback from the participants outside of their own voice (NO music transmission), a simple Zoom-Free set-up from the participants would suffice, without extra microphone or webcam. They teacher/presenter would broadcast in hi-fi stereo and all would receive in that quality.

I) The Experience:

Video-conferencing with more than 10 music participants is certainly possible but not necessarily easy to manage.
If any broadcast in hi-fi quality is intended, one has to reduce the number of live transmissions, muting and reconnecting in turn microphones and webcams.

Most issues with Zoom quality are from the fact that the upload side of most internet connections is much smaller than the download side.
For every ten packets of data that comes down, one packet of data is sent up.
This is why turning off the video camera and high-quality microphones when not in use is important…
Read more at:
Zoom Quality and Data Usage | NC State Extension

J) **IMPORTANT NOTE: LIVE DUPLEX Transmission is NOT for Zoom !**

*** Live Performance in Duplex over Zoom is NOT really possible without latency (time lag).**

For ex.: a singer on one end and pianist on the other performing together

For ex.: an ensemble of 2 or more players performing together

- **But For teaching(*) Zoom will work, given a good internet connection (large bandwidth) and a good basic equipment.**

(*) in a "one after the other" transmission mode.

For ex.: a student performs a passage and a teacher suggests corrections (playing AFTER the student has finished playing)

More Information:

ZOOM MEETINGS and STEREO AUDIO - YouTube

Audio – Zoom Help Center

Enabling stereo audio – Zoom Help Center