

## Getting Started with JamKazam



Following are some notes from our work at the The Black Rose Acoustic Society with JamKazam as an online jamming platform. Much of it also applies to the use of audio interfaces in other audio programs for recording, playing back, and collaborating online with your computer.

In the first part, I'll offer some general info about the JamKazam program. Next, I'll describe the gear you'll need. Finally, I'll offer some steps for getting JamKazam installed and configured with your hardware, followed by a few tips for using the program. A couple of appendixes will describe additional features and ways to use them.

### Why JamKazam?

Zoom may be the most popular way to collaborate online, but in jam settings, it effectively only allows one player at a time to be unmuted. JamKazam feels much more natural. With JamKazam *and the right equipment*, everyone can simultaneously hear everyone else in sync in the session, as though all players are in the same acoustic space.

Communication over any network is subject to delays caused by physical distance and processing along the way. This type of delay is called "latency", and it makes playing music with others quite a technical challenge. JamKazam's structure and internal processing are optimized to keep latency as low as possible.

The program is available by subscription with very reasonable fees and one free option. <https://www.jamkazam.com/>

Also, because JamKazam offers both public and private online jam sessions, you can use it to connect not only with your usual jamming friends but with other players all over the country. Open a public jam, and you'll probably see folks joining you to check out your vibe and to play along with you.

### What About Video?

Moving video into and out of a computer requires much, much more computing power and network bandwidth than does audio. Add video to your audio sessions, and it becomes very difficult for programs like JamKazam to keep you in sync with others in your session. Because of this, it's best not to use JamKazam's video feature.

No worries though. It's surprisingly easy to get used to playing along with others without seeing them, because the audio experience is so good. It can feel very close to being in the same room with them, and your ear training will likely improve without the distraction of video.

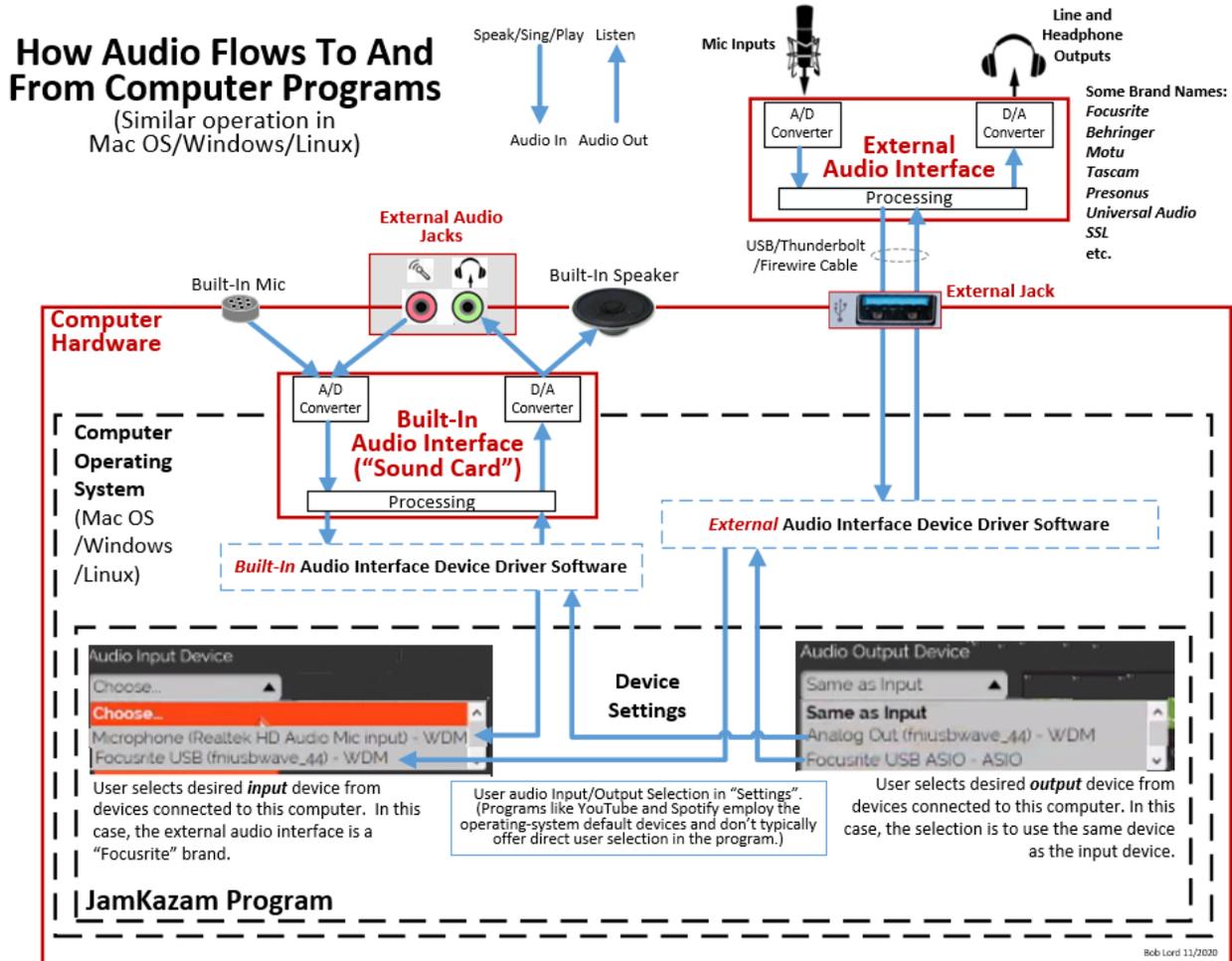
### How Computer Audio Flows (For Techies)

To effectively use any computer-audio program, it helps to have a basic knowledge of how the audio flows. Here's a few words on that.

We all use computer programs to play back music and video for entertainment and to collaborate online. Audio moves into and out of our electronic machines through hardware devices called "audio interfaces". Almost all computers these days come with some sort of internal audio interface for utility purposes. Internal ones are sometimes called "soundcards".

Most playback-only programs like YouTube and Spotify don't offer direct user selection of the audio interface hardware they use, but more sophisticated ones let the user decide. Both Zoom and JamKazam offer audio and video device selection within the program.

This diagram shows how audio gets to and from typical programs like Zoom, JamKazam, GarageBand, Audacity, and many others running in our computers. It's a little busy, but hopefully it'll help you to visualize the flow you're configuring in a program's device settings.



The diagram shows a computer with both a built-in audio interface and an external one plugged into a USB jack. JamKazam's dropdown menus act as simple switches, enabling the user to select which of the two hardware components the program will use to process audio. Note that the input and output devices can be different, depend on the selection.

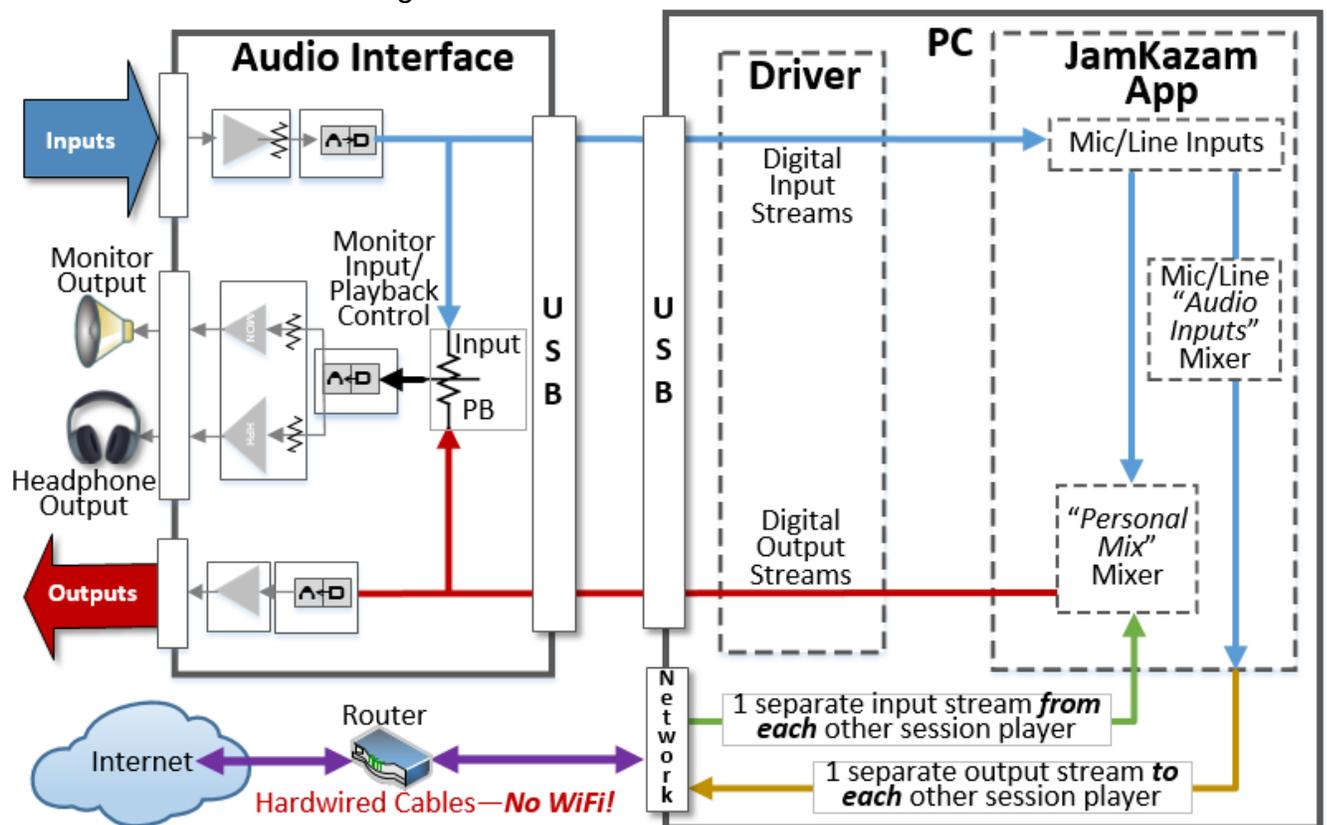
(If you're curious, video flows in a similar way into and out of a computer. As for audio, there are internal and external video hardware interfaces (typically called "video cards" or "capture cards"), USB and other types of interfaces, driver software, and video-device selections in some application programs like Zoom and JamKazam. Again though, we won't be using video in our adventures with JamKazam.)

### How Audio Flows Within JamKazam (For Everyone)

It may help you in using JamKazam to know how audio flows within the program. Simply stated, JK accepts digitized audio from your local mic/line inputs and from the other players in your session via the Internet. It combines these two sources together to create a mix that you can monitor in headphones. This mix contains audio from you directly and from all the other players in your session. The mix effectively makes it sound like you're all in the same room. This is your "Personal Mix," as shown in the JK session screen.

JK also combines just your local mic/line inputs, and it sends that mix out to all the other players in your session. This is the mix labeled, "Audio Inputs" in the JK session screen.

Here's how it all flows in diagram form.

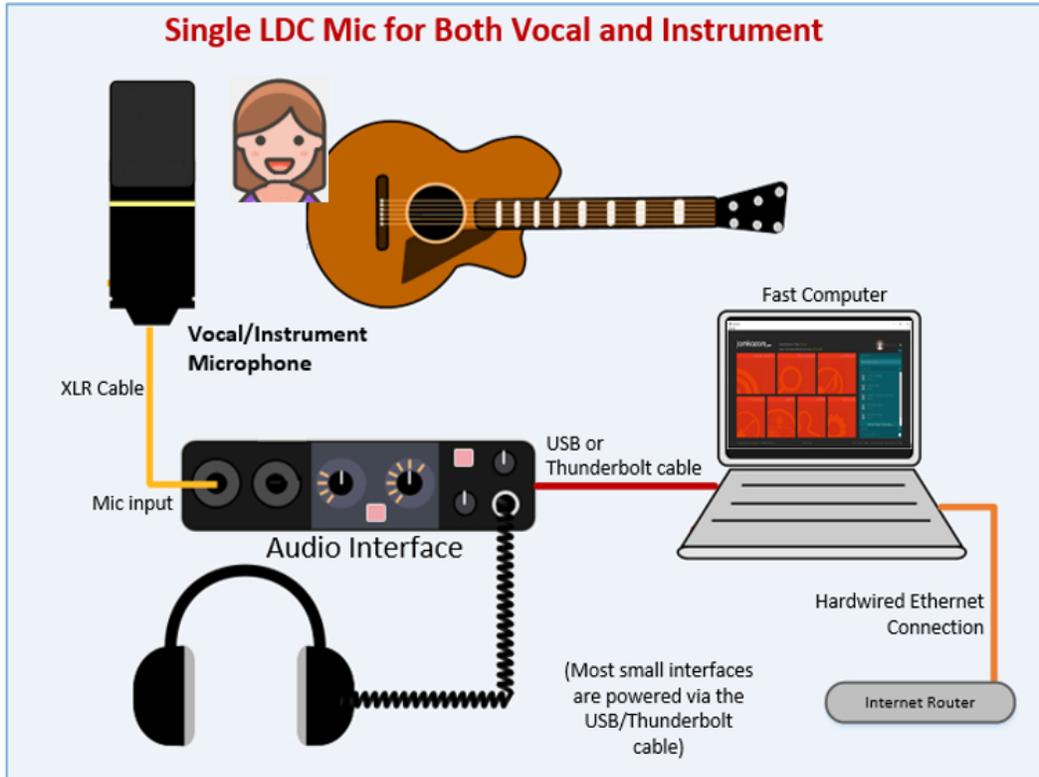


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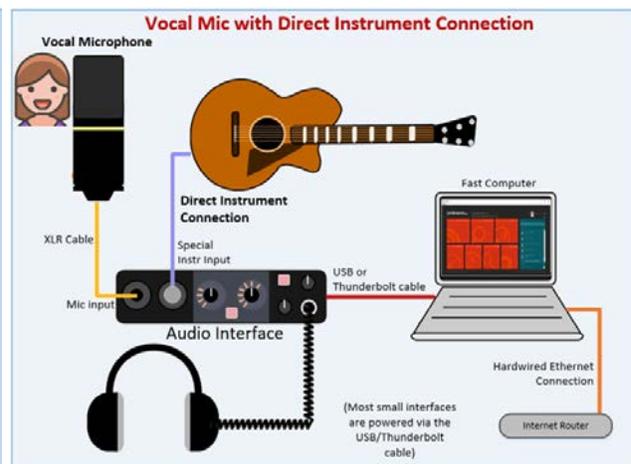
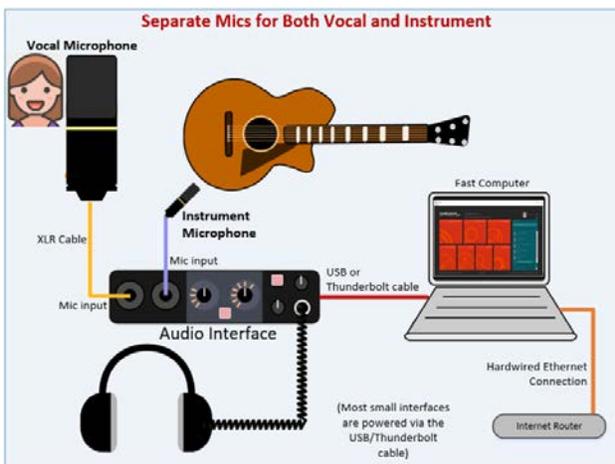
It's important to understand that JamKazam receives and sends *separate streams* of audio to and from *each player* in your session. All this network activity and processing is why it's important to use the fastest computer you can with the program. This is also why it's important NOT to use WiFi with it. WiFi can be a network bottleneck, and JK needs the fastest and most direct route to the Internet to give you the most realistic, online jamming experience.

## Gear Necessary to Use JamKazam

The usual audio interfaces that come built-in with computers are only provided for utility use. They are not designed for very high fidelity or low-latency (that is, fast, short-delay processing) as is required for effective music collaboration. So, for JamKazam, we need to supplement our internal hardware with an external, plug-in audio interface. Here's what this setup looks like in its simplest form with one microphone to pick up both your vocal and your instrument. When using just one mic, it's usually best to use a large-diaphragm condenser (LDC), as they are sensitive enough for the job.



There are many ways to configure your inputs. Here's a couple more options. The left uses two mics, and the right uses just one mic and an instrument pickup.



## Equipment List

Following is a list of the special hardware required to use JamKazam effectively. The goal here is to select gear that offers the fastest speed and lowest latency possible:

1. A relatively recent, fast PC or Mac computer or laptop running a late version of Windows or Mac OS. For best results, no other programs should be running while jamming with JamKazam.
2. For simple, 2-player sessions, Internet service with a minimum of **+++10 Mbps for \_both\_ upload and download+++**. *Upload* speed must be good, and that's the trick. Most of us have decent download speeds to support fast browsing, but jamming requires you to *upload* audio at fast speeds, too. In general, the higher the better. (Check your up/down speeds at ***speedtest.net***) You'll need more speed to add more players in your sessions. Like I said, the higher the speed, the better!
3. An Ethernet cable long enough to connect your computer directly to your router. **(WiFi adds layers of latency. Don't use it! Use a wired network connection.)**
4. A low-latency (<10ms) audio interface, preferably from the list of tested units in the link below or newer. **+++Your interface must be a low-latency device+++** It can have a USB connection for PC or Mac, or a Thunderbolt one, if your Mac requires it. Such devices can be had from around \$50 on up.  
When selecting your interface, pay particular attention to operating-system compatibility. For instance, we have found that the Behringer UM2, while cost effective, works well only on Mac platforms. It is *not* recommended for Windows. Also, don't be tempted to use a USB mic as your audio interface. See #7 below.

This list is getting old, but it indicates OS compatibility for each JK-tested device:  
<https://forum.jamkazam.com/showthread.php?tid=196>

5. For Windows, the latest device driver written specially for your audio interface. These can usually be downloaded from the manufacturer's website. Other drivers may work for basic things, but a vendor/device-specific one will have the lowest latency possible. For Windows, this is usually what's called an "ASIO" driver. A unique driver for Mac devices is usually *not* required, if they have Core Audio compliance. However, some drivers offer additional features on Mac OS, like loopback capability. (See Appendix D.)
6. A USB (or Thunderbolt if Mac) cable to connect the interface to your computer. These usually come with the interface.
7. An **analog** mic. Preferably a large-diaphragm condenser (LDC) if you want to pick up both your voice and your instrument using one mic. (You can also use two separate mics or even plug your guitar directly into your interface, but it's simpler and cheaper just to use the one mic to pick up both your voice and guitar.) An acceptable LDC can be had from about \$50 on up.

**+++Do not use a USB mic with JamKazam. The processing in most USB mics is too slow for low-latency use. For best results, use an audio interface along with a standard, analog mic with a 3-pin, XLR connector.+++.**

8. A mic stand or other means to position the mic in front of you, so it can capture both voice and instrument. Of course, if you plan to use 2 mics, you'll need 2 stands.
9. XLR cable(s) to connect your mic(s) to your interface.
10. A hardwired set of headphones. Preferably closed-ear style, which completely encloses your ear, so your mic can't "hear" your 'phones. **(Bluetooth adds layers of latency. Don't use it! Use only wired headphones.)**

The above list is a starting point for folks who just want to get going with JamKazam without much research. If you're tech-savvy, there are lots of other combinations of gear that could work, as long as they're selected and tuned for low latency and good fidelity.

### **Cautions/Disclaimers**

The JamKazam process is very sensitive to delays introduced anywhere in the chain of software, hardware, and networking between users. If any one player in a session introduces delays by not adhering to the list above, it negatively affects *all* other players in the session. Imagine being in a live jam, and you're the only one playing loudly and off the beat. That's what you'll experience without the above requirements being met. Like, way uncool, dude.

Using JamKazam can be a somewhat tweaky process. The program was written in around 2014, and it's come a long way in maturing toward stability. Its behavior varies, depending on the operating system, computer loading, and network timing. JK offers video in its sessions, but it's best to keep the video *OFF*. This gives the program the best chance of providing clear audio in sync across all people in a session. JamKazam is an audio feast best consumed without a video side dish.

### **Investing In Your Music**

You may balk at spending money on audio gear just for purpose of jamming, and that's understandable. Keep in mind though, that this is the very gear you can use to record yourself into your computer using any one of a large number of audio programs. It's a great way to practice and monitor your progress.

And hey, Finneas. When you're not using your brand-new audio gear to jam on the network, this very same gear will enable you to record your sister's Grammy-winning album in the opulence (or squalor) of your very own bedroom. Money well spent.

## Configuring JamKazam With Your Hardware

(These steps and screens are from a setup in Windows. Mac screens should be similar, if not the same. Also, JamKazam is an evolving program, so there may be slight variations in the steps, depending on your version. These steps are from version 1.0.3954. YMMV!)

1. If you haven't yet done it, set up a JamKazam account at [www.jamkazam.com](http://www.jamkazam.com)
2. Download and install the very latest version of the program.
3. On Windows, make sure you've installed the *very latest version* of your audio interface's driver software. Go to the Downloads area of the manufacturer's website to check this. A driver is not usually required on Mac platforms.
4. There's usually some sort of configuration app associated with most audio interfaces, and it usually gets installed as part of driver installation. If not, skip this step.

Find and open your audio interface's configuration app and set the Buffer Size. This setting determines the minimum latency your interface can offer. A good starting point is a number from 64 to 128

Set the sampling rate to 48000. This must match the setting you'll see later in JamKazam.

5. Directly connect your computer to your router with an Ethernet cable. I know, this can be a pain, but Ethernet cable is cheap, and stringing a cable is absolutely worth it. It will give you the best chance for success with JamKazam.
6. Turn **OFF** WiFi in your computer. Disabling WiFi will force your computer to use the wired Ethernet connection. If you don't do this, you may end up scratching your head over bad audio quality and syncing.
7. Using the diagrams in the previous Necessary Gear section, connect your audio interface, mic(s), and instrument (if you're using a direct connection for it.)  
**Plug your headphones into your audio interface, not your computer.**
8. Most audio interfaces these days offer you two headphone listening options:
  - ◆ You can choose to hear your microphone and instrument inputs **before** the interface sends them to your computer. This is often called "direct monitoring", or "low-latency monitoring", or "input monitoring". It all happens inside the interface, before your computer gets a chance to delay your input signals.
  - OR--
  - ◆ You can choose to hear your inputs **after** they've been sent to, processed, and returned from your computer. This is sometimes labeled "Playback", "USB", or "USB Playback". It's labeled to indicate that what you hear in your headphones is coming back from your computer and not from within the audio interface. This is the selection we want in JamKazam.

Some interfaces even have a knob which allows you to mix the direct and playback signals.

However your particular interface presents the direct-monitoring feature, ***you must disable it*** for the best JamKazam experience. Either turn the direct-monitoring switch OFF, rotate the mix knob all the way to the Playback position, or turn off the feature in your interface's software. If you don't disable this feature, you will likely be hearing echoes and/or yours and your other players' audio out of sync with each other.

9. Now that the hardware is set up, crank up the JamKazam program and log into it.

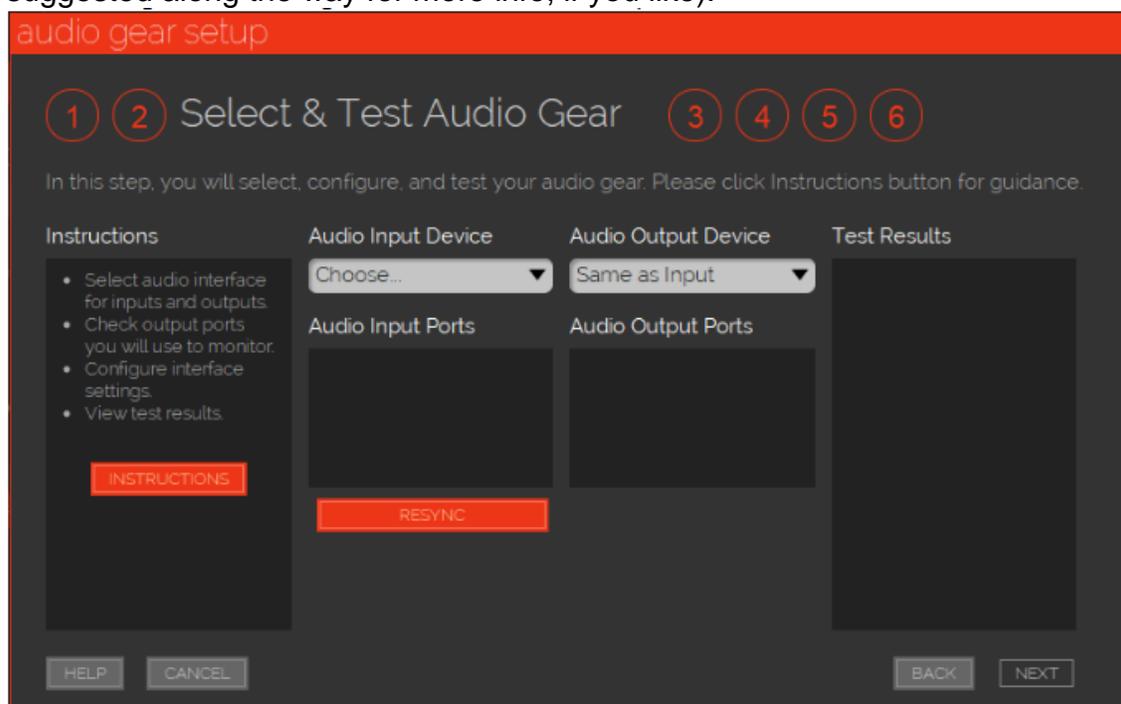
*NOTE: JamKazam is still evolving, and its graphic user interface (GUI) can sometimes be pretty slow to respond. When you click in the GUI, give a little pause, before you click again. Expect response delays, rather than clicking frantically to make things change.*

10. If JamKazam prompts you to update itself, allow that to happen. As of this writing in early 2021, updates happen frequently, and it's best to always use the latest version for maximum stability and features.

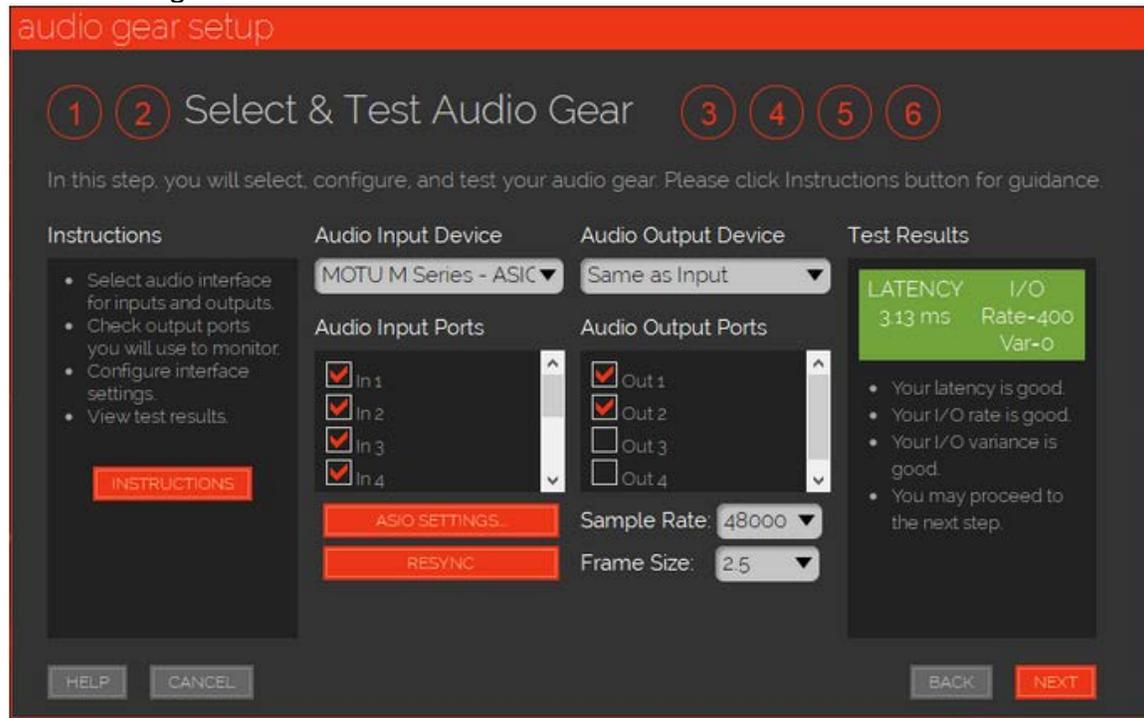
11. In the upper, right-hand corner of the opening screen, you should see your name and a little down arrow next to it. Click the down arrow.

12. Click "Audio Gear" in the menu. (Don't worry about the "Video Gear" menu option. We won't be using that.)

13. Click through the next screen to this screen. (You can watch the instructional videos suggested along the way for more info, if you like):



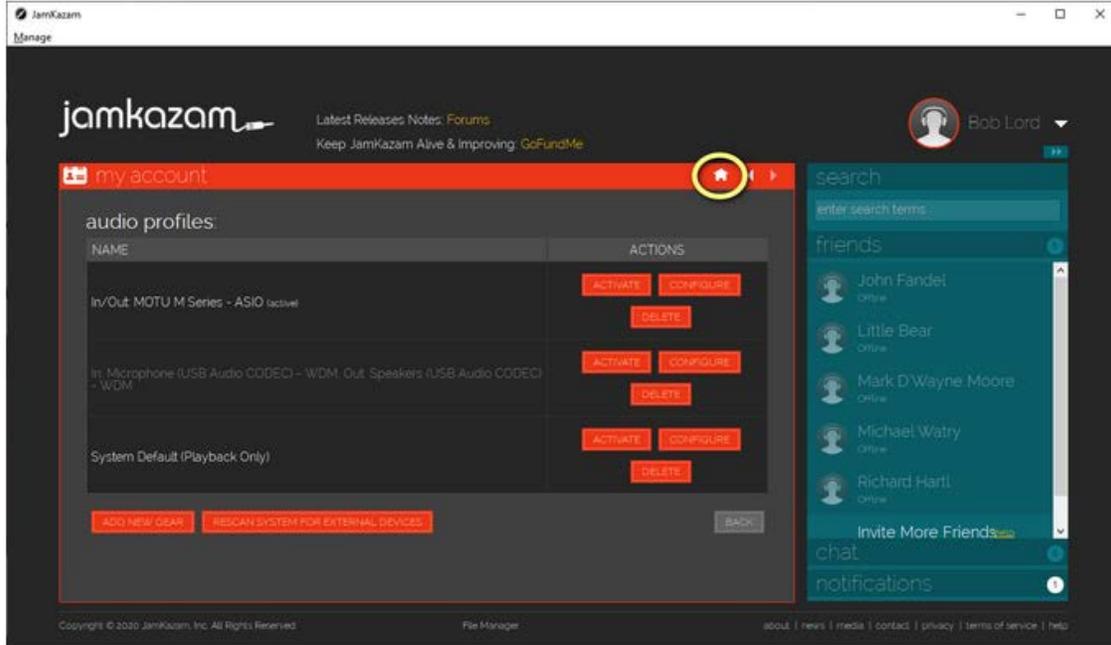
14. After a few seconds, your external audio interface should show up in the Input Device dropdown. Click Choose, select it, and wait for the Test Results to populate. This may take several seconds or more. If you've chosen a low-latency interface, and if your broadband connection is fast, you should see green tiles, as below. Yellow tiles just mean your gear is a little slower, and you may not get the best results. You want the latency shown to be less than 10ms if at all possible. Try the Resync button if things don't look right.



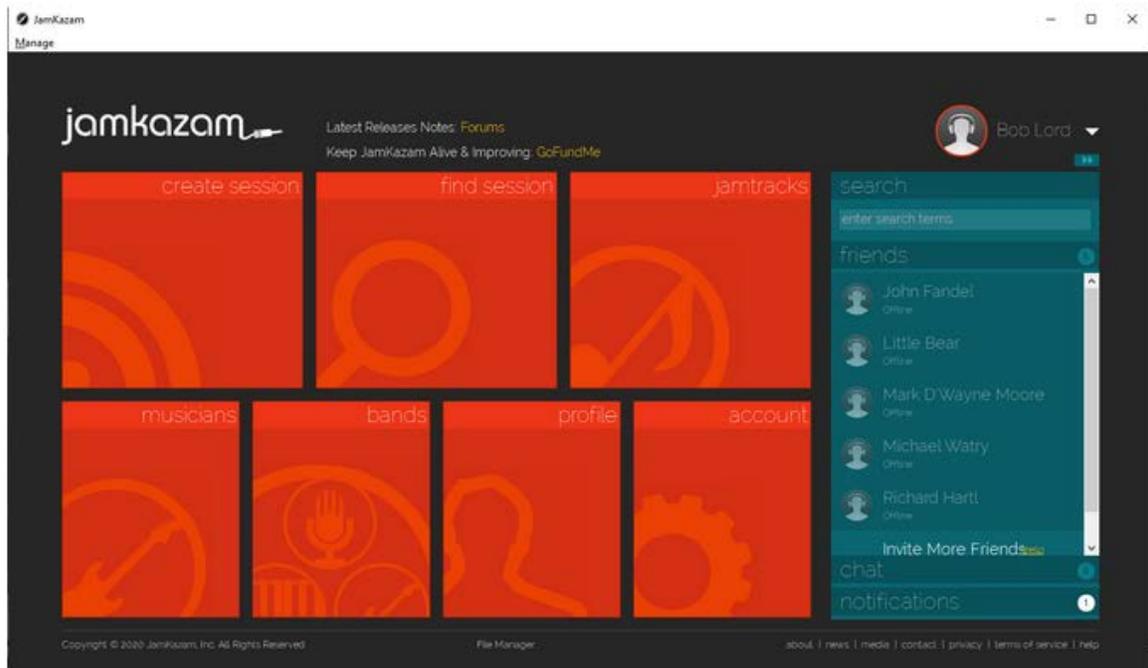
15. In this same screen, set your Sample Rate to 48000 and leave the frame size at 2.5. The Test Results may update. Wait for them to finish.
16. On Windows, click the ASIO Settings button and set the sample rate to 48000 and the buffer size to a number between 64 and 128. (You won't see this button on a Mac.)
17. Once you have your inputs and outputs configured, and the colored tiles to the right are green or at least yellow, click Next.
18. Click through the next few screens to the summary screen at the end and click the Close button to, uh, close it. You'll be taken to the Audio Profiles screen.

(We'll ignore the track selection screen for now. In JK, each audio interface input must have a corresponding "track" to allow controlling its level in a session with others. Adding tracks is easy. See Appendix B for more details.)

19. In the Audio Profiles screen, click the little, white, "house" icon. This takes you "Home" in the JK GUI.



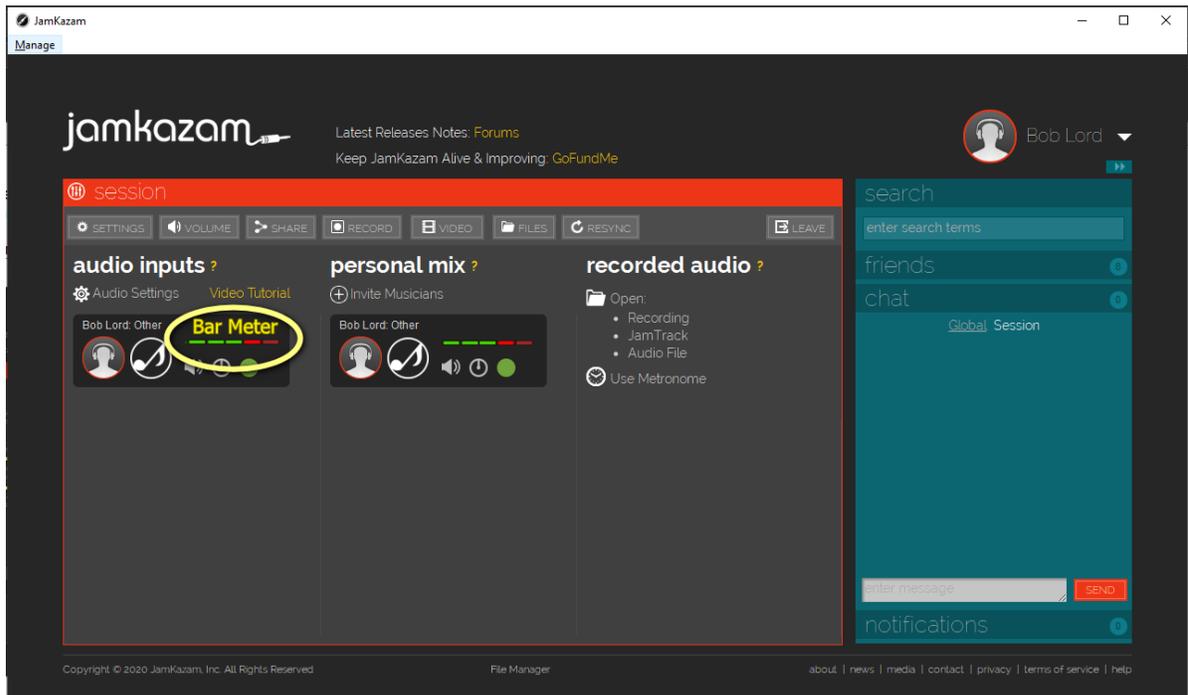
Home screen:



20. After you've performed all the steps above, it's a good idea to click the "Create Session" tile in the Home screen and to create a Quickstart Private session. Do that, and you should see the Session screen below. The horizontal bar meters beside your name should move as you speak into your mic, and the colored dots in each tile should be green or at least yellow. All this tells you that your audio is working, and that you're logged into the outside world with JamKazam. To add to the gooey, geeky goodness,

you can mouse over the colored dots to see lots of details about your latency and network performance. Doesn't *everyone* want to know exactly what their jitter is? Just be sure that your total latency is mostly green or yellow, and that none of the parameters stays red for any length of time.

If you do see much red status, return to the Add Gear screen and tune the Frame size and ASIO buffer size values to lower values, until you get the green light, so to speak.

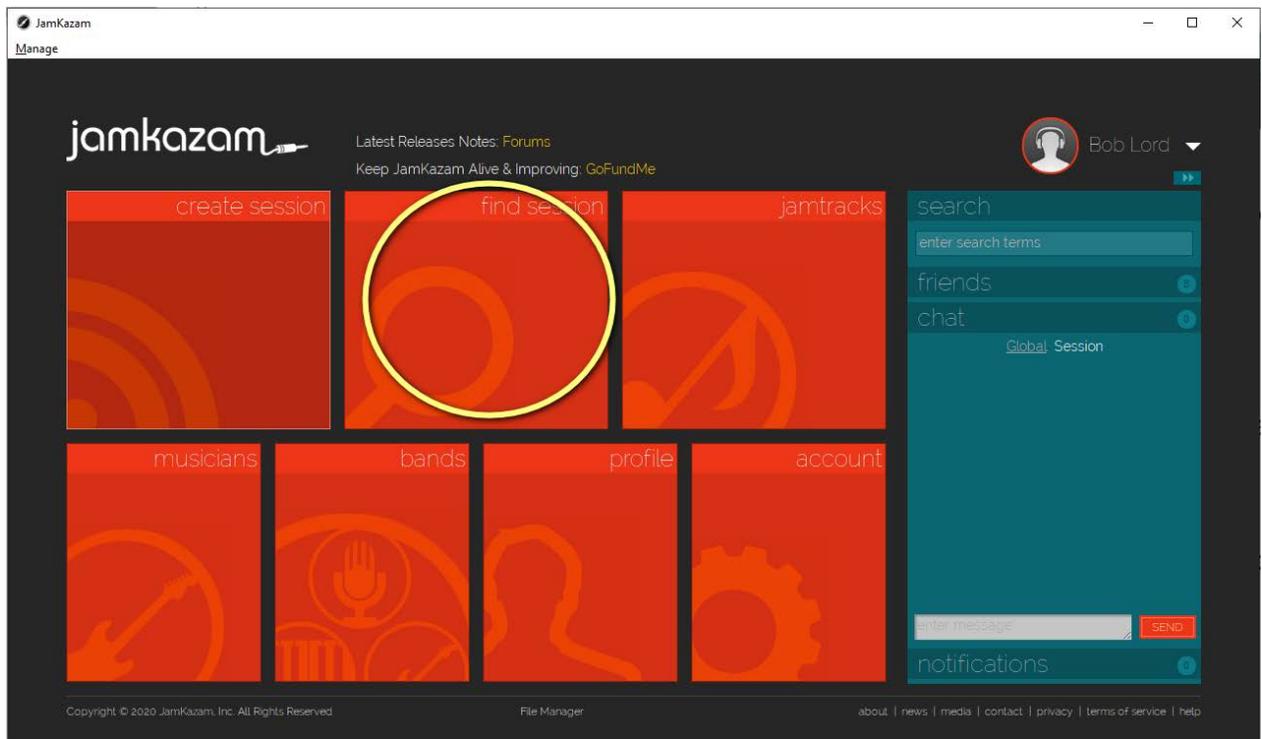


21. While you're in this screen, set your audio levels. To do that, sing and play **as loudly as you will in the jam** closely and directly into your microphone(s) and adjust the gain control(s) **on your audio interface** such that the far, right-hand red bar **never** lights. The 2nd red bar should only occasionally light.

- **Good level setting:** 
- **Bad level setting:** 

(If your input(s) go into distortion, your other players will hear nasty, loud, raspy noise. You'll then be scorned and reviled, and your ancestry will likely be impugned. You might even be ousted from the jam.)

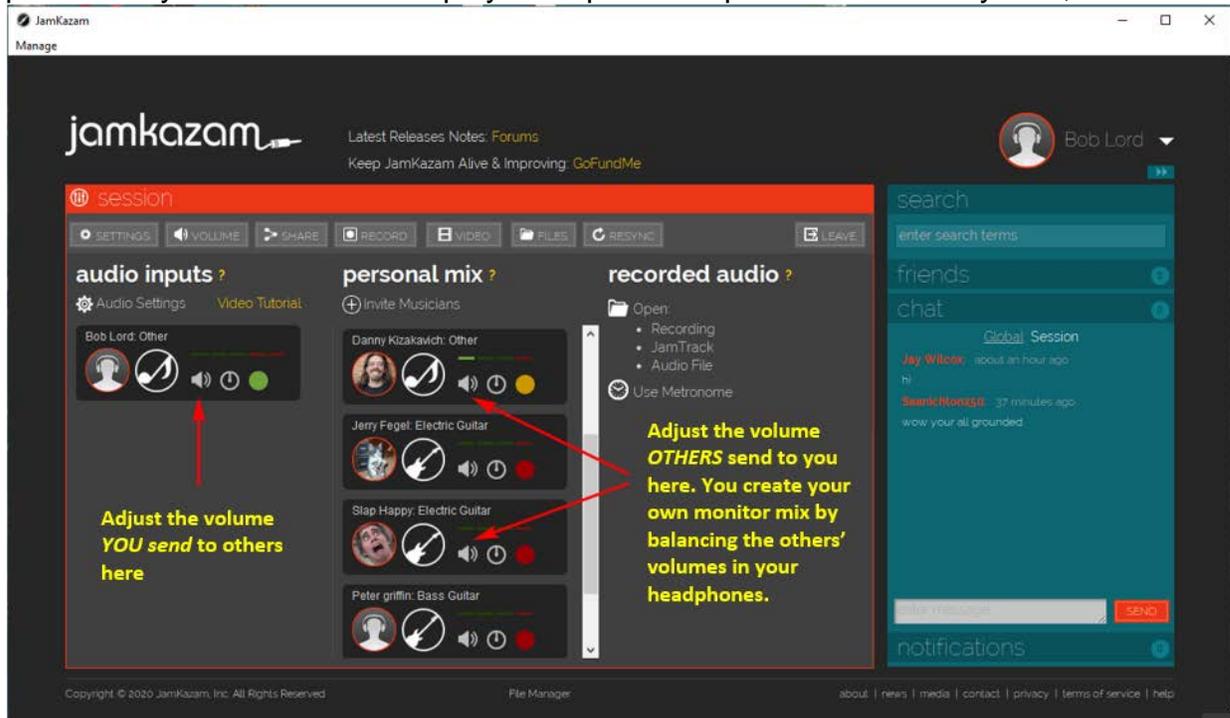
22. When you're satisfied with all that, click the Leave button to, uh, leave the session. You'll return to the Home screen.
23. Finally, it's time to get your jam on! When it's time for your jam, click the "Find Session" tile in the Home screen. There, you'll probably see the session you've been invited to. If not, scroll down or search to find it. Then, follow the prompts to join in. Alternatively, you can click the Create Session to set up your very own jam session for others to join.



24. There are many ways to set up JK sessions to ensure either privacy or public access, depending upon your desires. Check the tutorials online for more details. As an example of how we set up sessions for small groups of known, “friended” players at The Black Rose Acoustic Society, go to Appendix A.

## Tips For Use

- In the session window that appears when you've joined a jam, you can create your very own "monitor mix" in your headphones. Mouse over the little speaker icons in the "Personal Mix" column to adjust each player's volume in your 'phones to taste. In this same screen, you can adjust the outgoing volume of your voice and instrument using the little speaker icons in the "Audio Inputs" column. You can also adjust the pan position of yours and the other player's inputs to separate them. Pretty cool, eh!



If it helps, think of JamKazam as both a transmitter and a receiver. The inputs in the left-hand column are your "transmitter:" signals **to** others. The inputs in the right-hand column are your "receiver" signals **from** others.

- You can record your sessions in JamKazam for later playback. The details are beyond the scope of this document, but it's a very useful feature. See Other Resources below for more info.
- You can play backing tracks or play along with your favorite songs in a session in a variety of ways. Check Appendix D for all the skinny.
- There's a built-in metronome available in the session window. Click the "Use Metronome" link to crank it up. You can choose from a variety of click sounds, including one that simulates a realistic snare snap.
- You have complete control over who joins your jam. You can limit it to people you know, or you can open it up to the world. Your choice.
- You can schedule jam sessions into the future, and you can specify all sorts of info about your jam to attract the kinds of musicians you want to play with.
- Keep in mind that JamKazam is an fast-evolving program, particularly in 2020-21, as the COVID pandemic forces people to play in their homes. When you open the program, it'll often prompt you to update itself. It's usually a good idea to do that to ensure you have the best stability and latest features.

- Some or even many of the screens and instructions in this document may become inaccurate, as JamKazam evolves and matures over time. Like I said, YMMV!

## Other Resources

That's pretty much it. You're on the air with JamKazam! There's lots more to the program, but all that's beyond these getting-started notes. As it is for so many things, YouTube's a good resource for tutorials and how-tos, as is the JamKazam and other online forums. As the program's user base grows, so does the wealth of helpful info on the 'net. Here's the forum:

<https://forum.jamkazam.com>

Beginning in 2021, some JamKazam subscription plans will also include developer support. Paid subscription is a good thing. It's reasonably priced, and it ensures that the program will evolve forward with bug fixes and new features into the future.



**Happy Jamming from all of us at  
The Black Rose Acoustic Society  
in Colorado Springs!**

In addition to JamKazam sessions, we also do Zoom jams with varying themes a couple times each week. For lots of info on our concerts, jams, and classes:

[www.blackroseacoustic.org](http://www.blackroseacoustic.org)

For over 700 videos of our concerts:

[www.youtube.com/blackroseacoustic](http://www.youtube.com/blackroseacoustic)

Bob Lord

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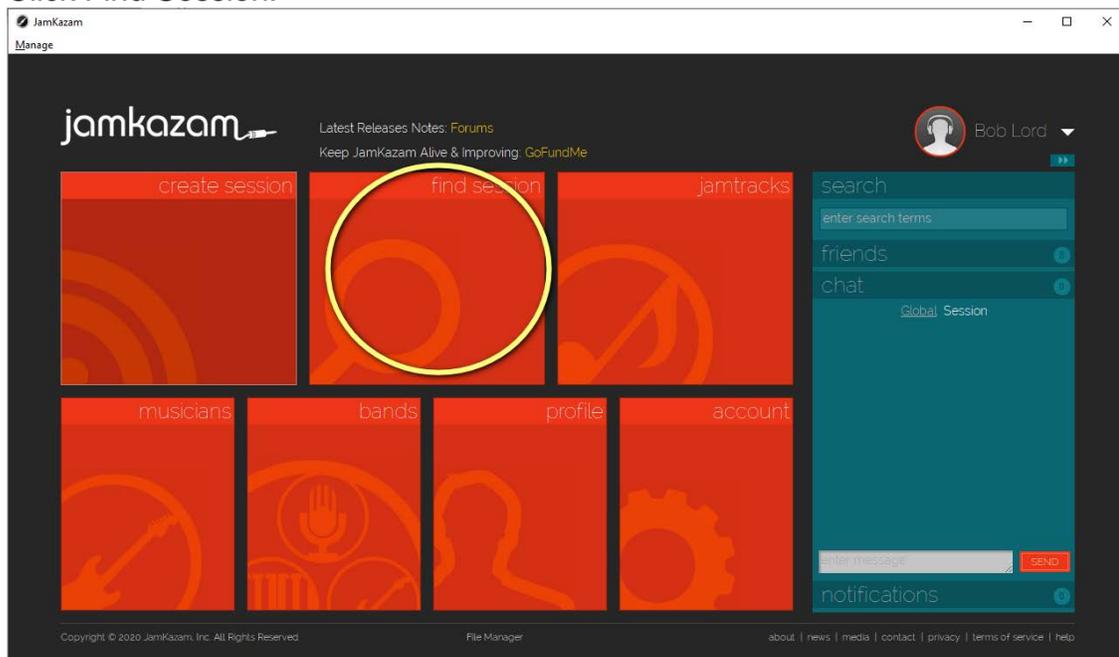
Disclaimer: The information in this document is not meant to be an endorsement or a criticism of the JamKazam program, its features, or any hardware mentioned. It's merely meant to document the experiences of several members of The Black Rose Acoustic Society in using the software, in hopes that it will aid others in their online musical endeavors.

The information contained herein may become inaccurate, as the software evolves and matures. No guarantee of accuracy or continued update is offered or implied.

## Appendix A Managing Black Rose JamKazam Sessions

To keep them simple and small, our Black Rose Acoustic Society JK jams are usually only open to “friended” players, and we let players in by approval. Here’s the setup process:

1. Start with “friending” folks you’ll play often with. Click the, uh, “friends” tab on the right in the Home screen. At the bottom of the tab, there’s a link to invite your jam partners as Jamkazam friends. They’ll get email invitations, and you’ll receive notification that they’ve accepted. After you all become JK friends, you’ll all find it easier to join each others’ sessions.
2. At the day and time you expect to play together, crank up JK and log into it.
3. Click Find Session.

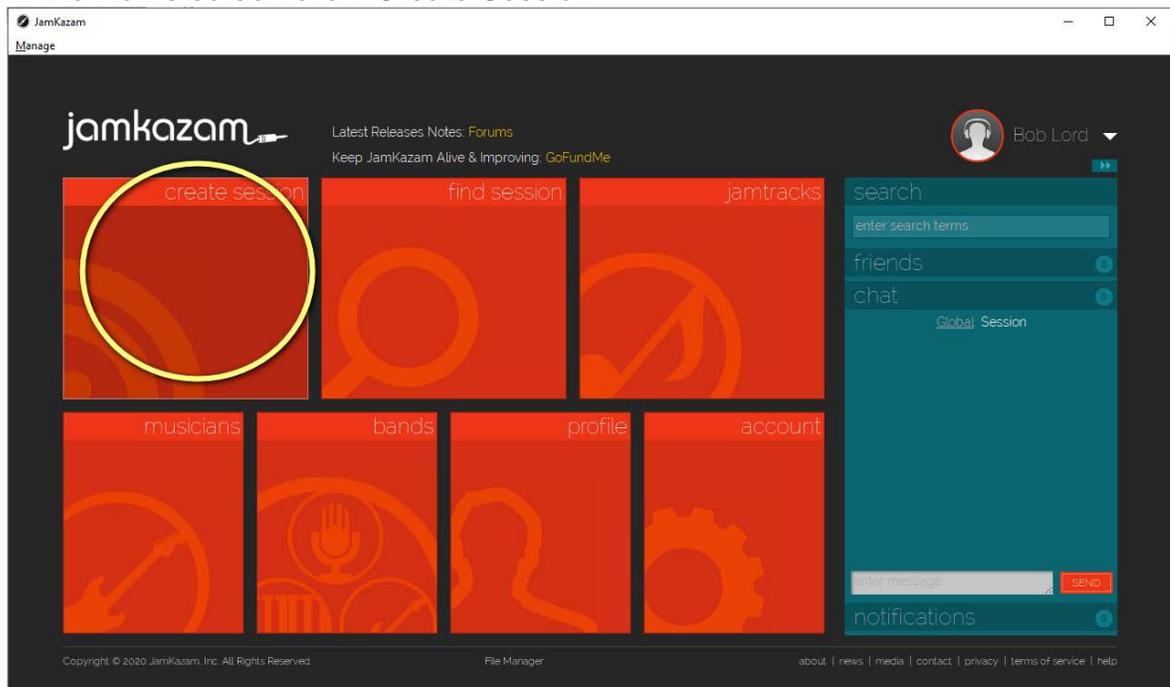


4. Click the “My Jams” and “Open Jams” tiles and search for a session named as you have agreed to name it.
5. **If you find your named session**, simply click on it, join it, and you’re done

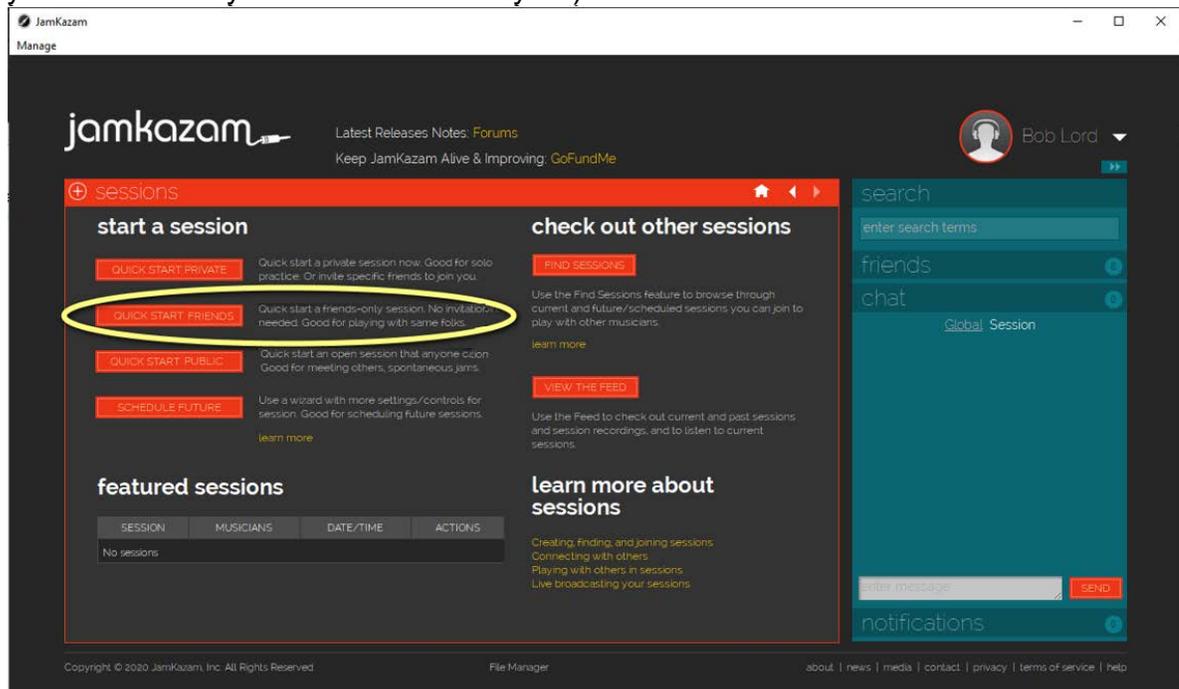
**If you *don't* find your named session**, you're the first player to arrive, and it's up to you to get things started.

6. Click the little “house” icon  to return to the Home screen.

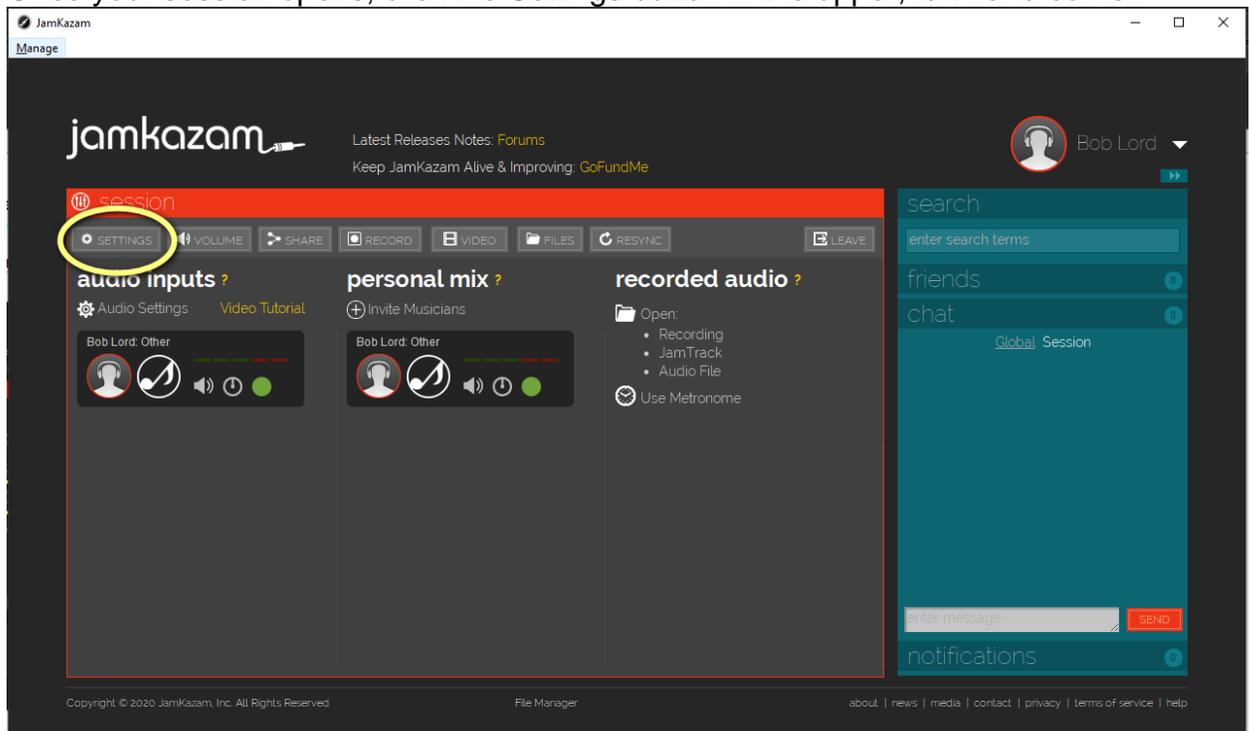
7. In the Home screen click "Create Session".



8. Start a "Quick Start Friends" session. (If you start a Quick Start Private session, your friends may not be able to find you.)

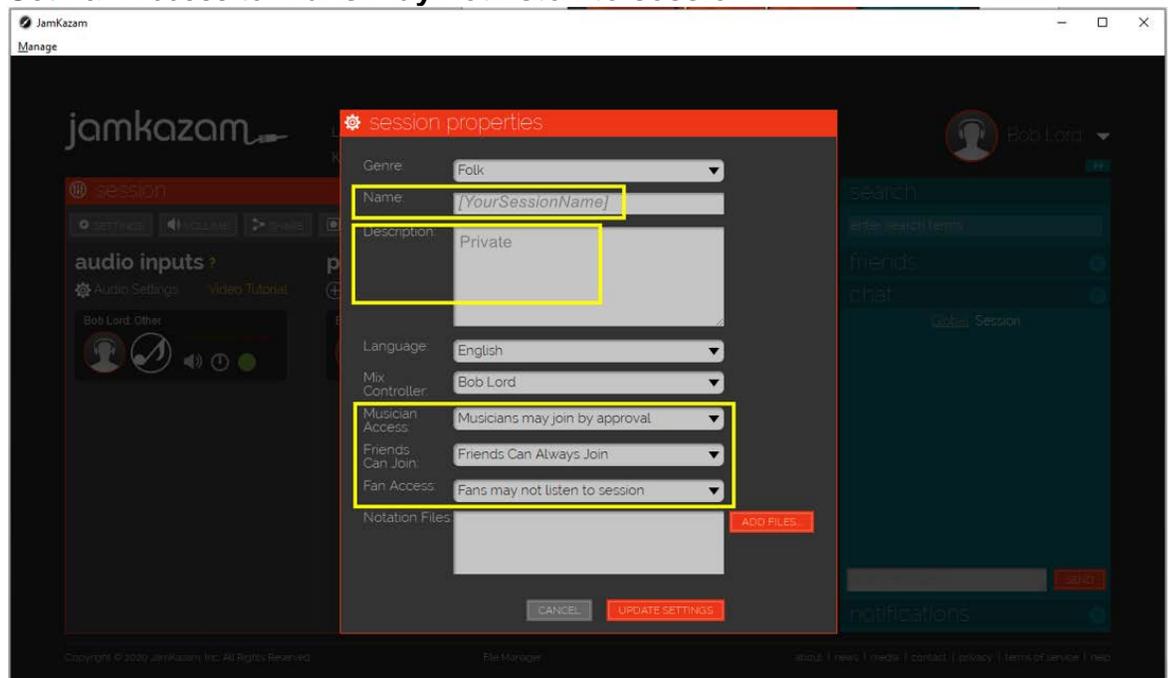


9. Once your session opens, click the Settings button in the upper, left-hand corner.

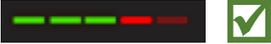


10. **+++IMPORTANT+++** In the Settings screen:

1. Edit the Name field to your agreed-on session name (**This is an important step, so others can find you!**)
2. Enter "Private" in the Description box. (The screen won't save without text here.)
3. Set Musician Access to "**Musicians may join by approval**"
4. Set Friends Can Join to "**Friends can always join**"
5. Set Fan Access to "**Fans may not listen to session**"



11. Click the Update Settings button to save your settings.
12. Once in your session, it's good to check your levels again. In the Session screen, locate the little horizontal bar meter  **in the left-hand Audio Inputs column.**
13. Sing and play **as loudly as you will in the jam** closely and directly into your microphone(s) and adjust the gain control(s) **on your audio interface** such that the far, right-hand red bar **never** lights. The 2nd red bar should only occasionally light.

- **Good level setting:** 

- **Bad level setting:** 

(If your input(s) go into distortion, the other players will hear nasty, loud, raspy noise. You'll then be scorned and reviled, and your ancestry will likely be impugned. You might even be ousted from the jam.)

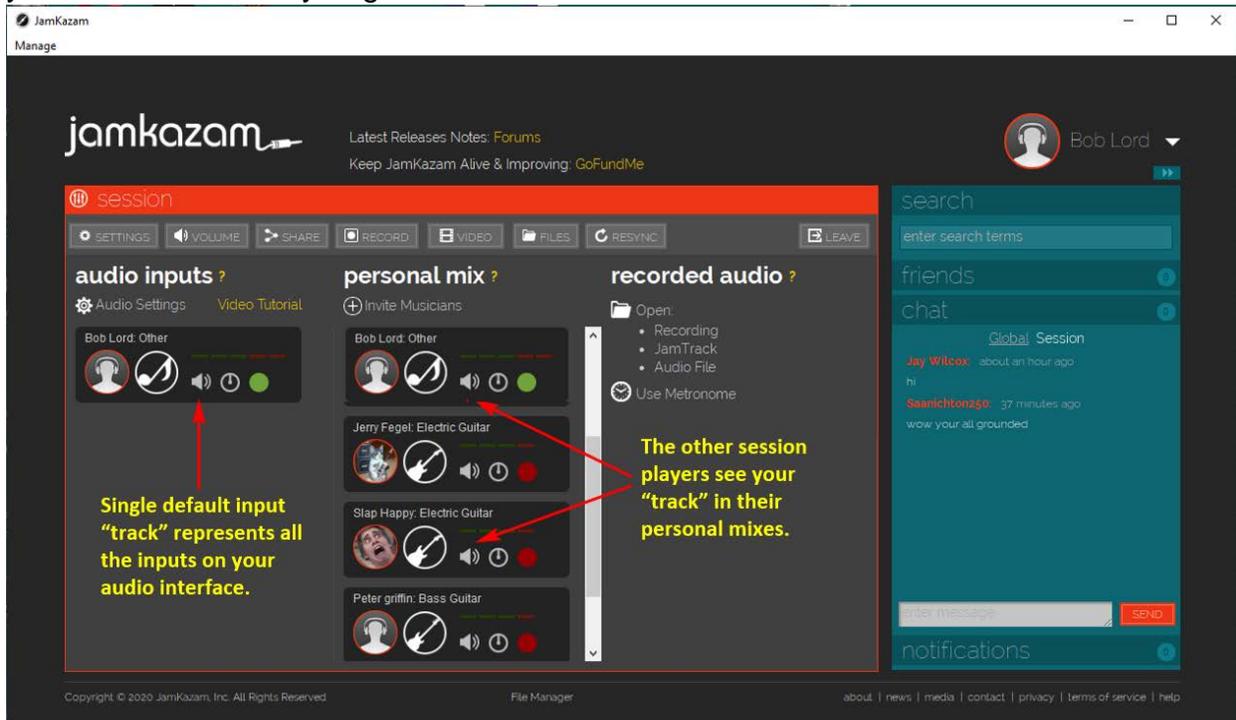
You should never have to change your level settings if you set them this way. This ensures that you maximize the quality of your interface's preamps. Small changes are OK, but try to resist the urge to move this setting, once you find the correct level.

If you've set your levels as above, and you still get complaints that you're too loud in the session, click on the little speaker icon by your name in the Audio Inputs (left-hand) column of the Session screen to adjust. **Don't** re-adjust your audio interface.

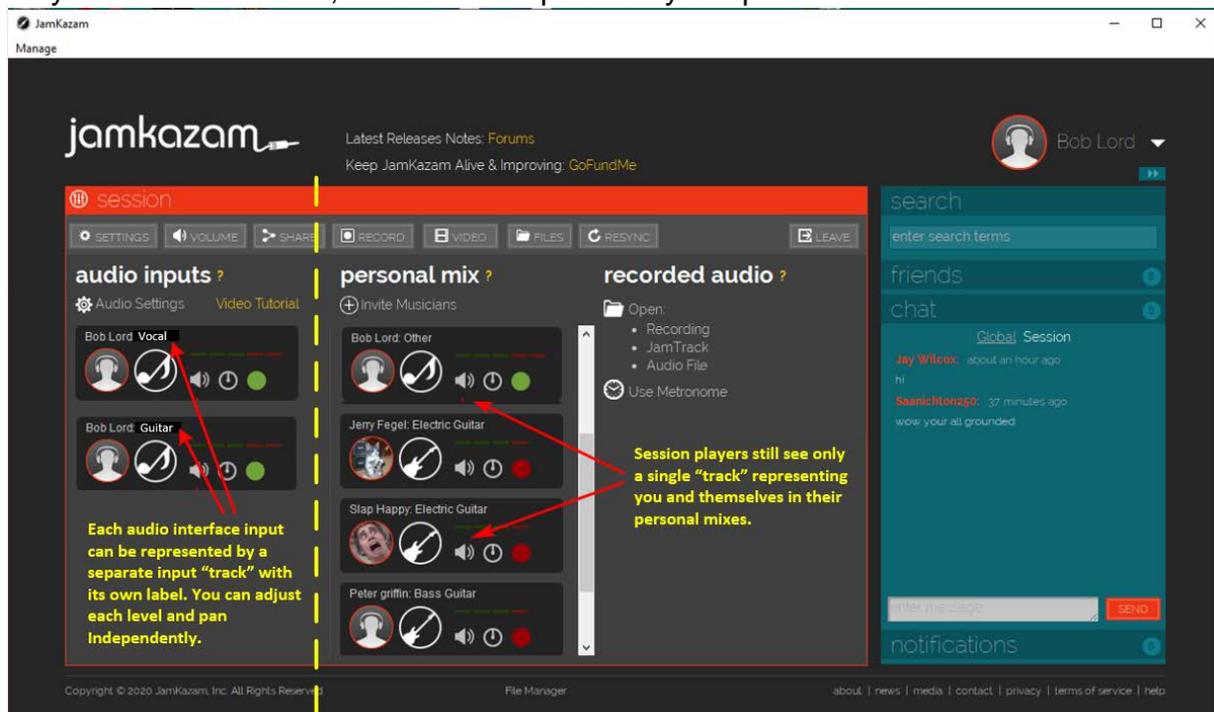
14. You're all set. Now, just wait for others to join your session, approve them if necessary as they join, and play away!

## Appendix B Creating and Using JamKazam Tracks

When you initially configure your audio setup in JamKazam, the program creates one “track” to represent all the inputs on your audio interface. That single “track” shows up in other session players’ Personal Mixes as below. Using the single, default track created for you is the easiest way to get started in JamKazam:



If you want more control over your audio, you can create a separate track for each input on your audio interface, like this example for my 2-input interface:



Other players still only see one track representing all your inputs, but you'll see all the separate tracks you create.

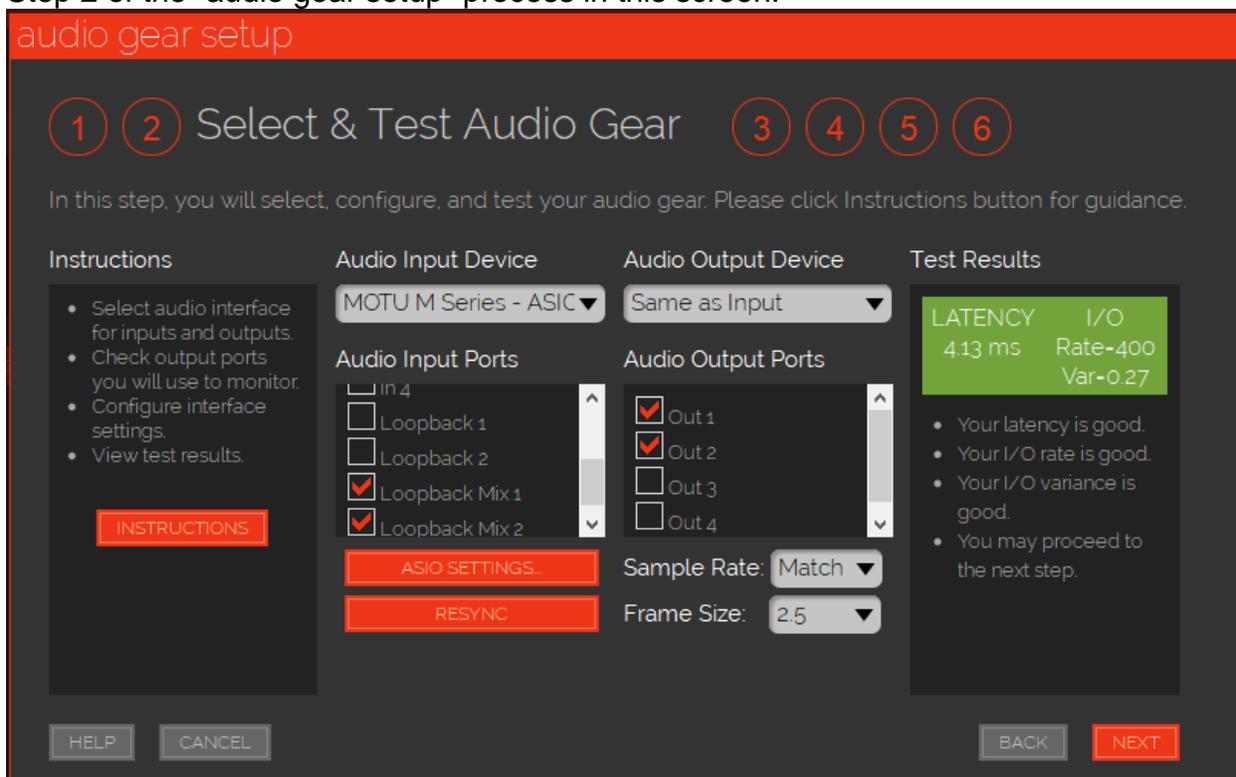
Configuring tracks for your inputs enables you to separately control and monitor:

- Your vocal level into the session.
- One or more instrument levels into the session.
- The stereo pan position of each of your inputs into the session.
- Special effects on each of your inputs. (Much more on this later in Appendix C.)

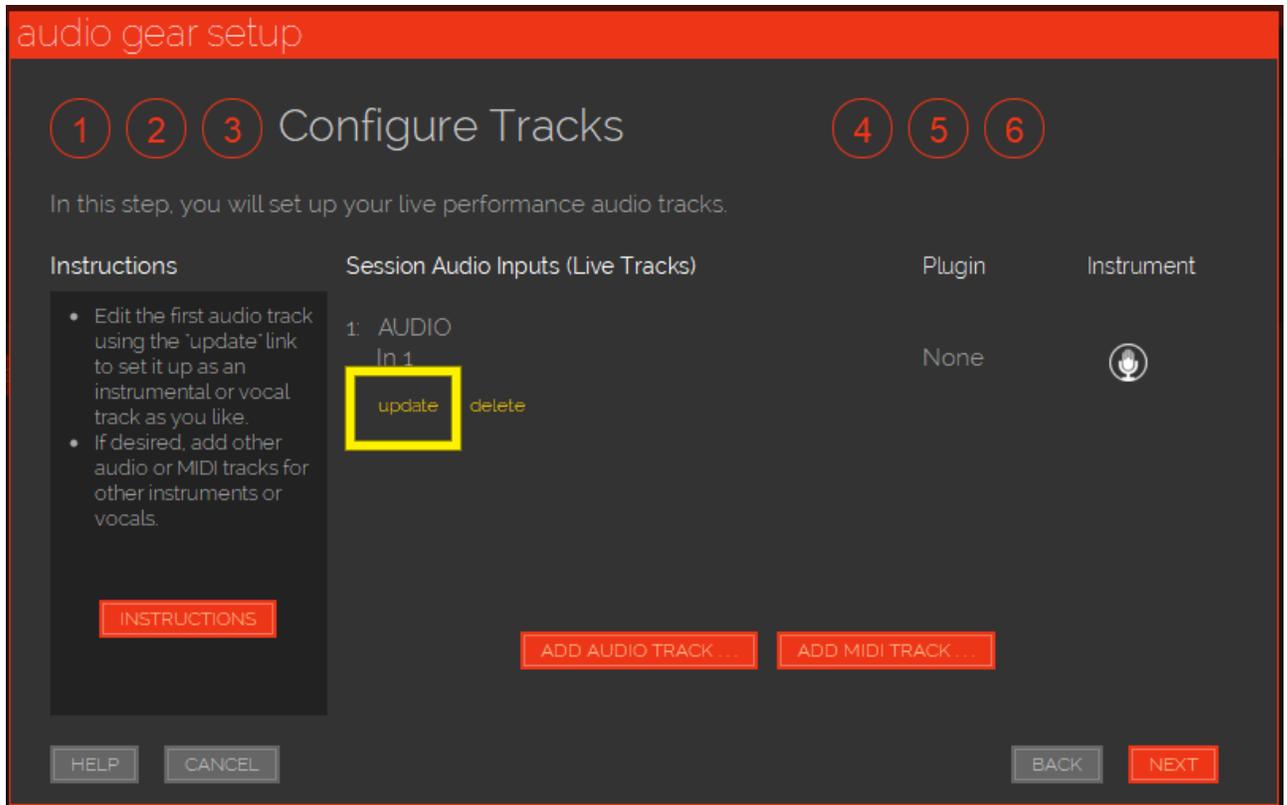
## Configuring Tracks

It's easy to set up a separate track for each of your audio inputs. You can do it either as you set up your audio initially or afterward at any time.

Here's the process during initial audio setup. I'll assume here that you've just completed Step 2 of the "audio gear setup" process in this screen:

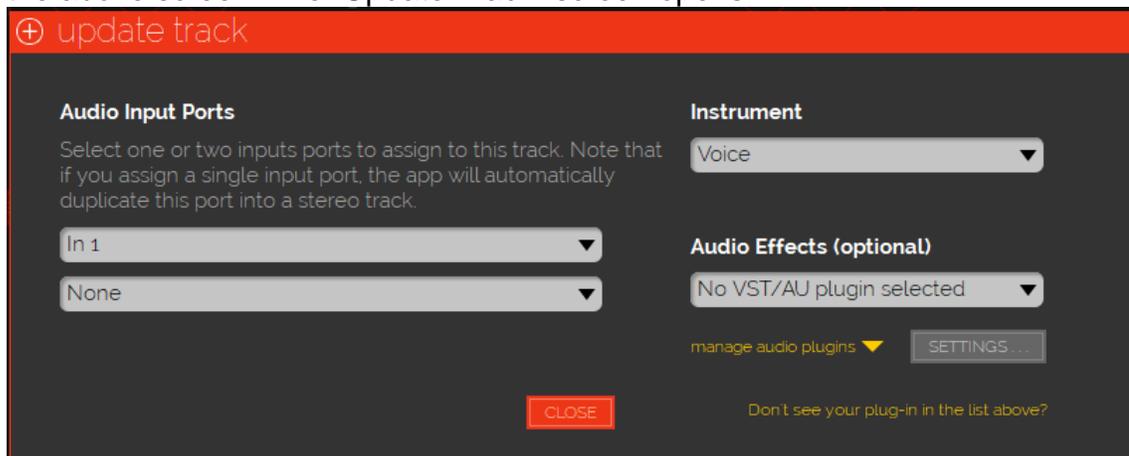


1. Click Next to open the Step 3, "Configure Tracks" screen. In it, you'll see the single, default "track" that JamKazam configured for you in the previous screen. This track represents all of the inputs you chose on your audio interface in the Step 2 "Select and Test Audio Gear" screen.



Now, let's assume that your audio interface has 2 inputs, and that you wish to use one for a vocal track and the other for an instrument track. In the next few steps, we'll configure your default track for vocals and add a second track for your instrument.

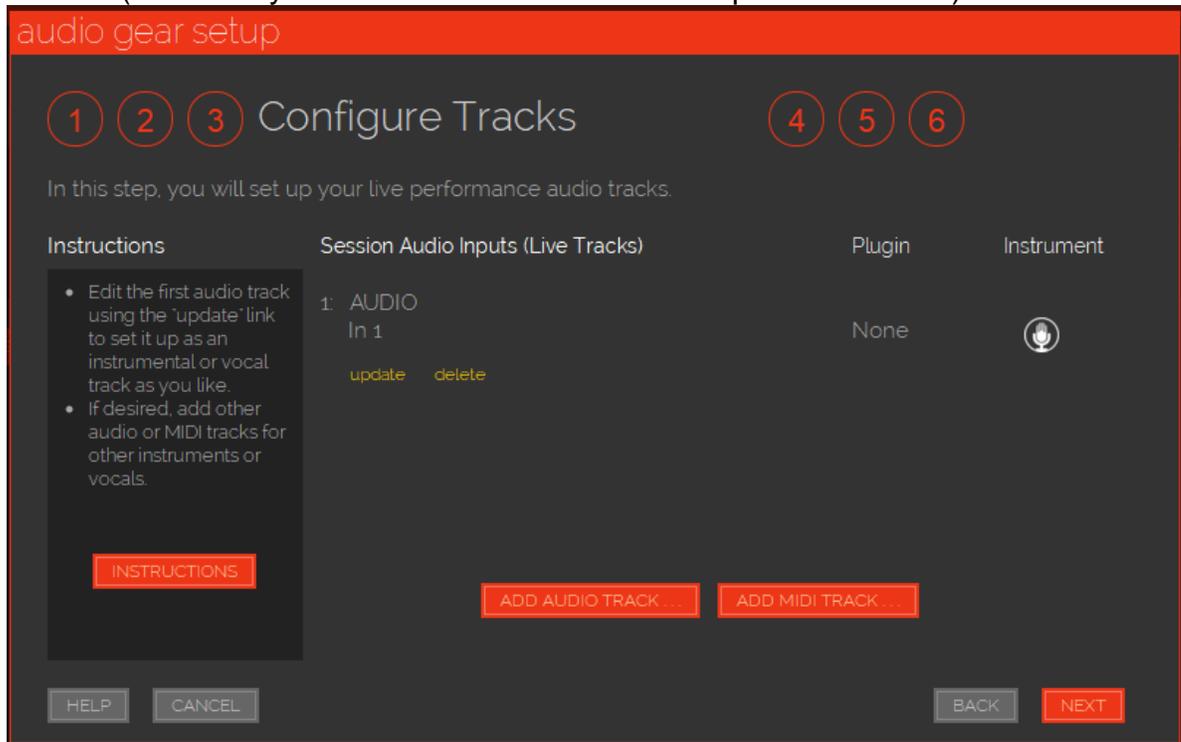
2. Click the tiny, yellow "update" link (a little hard to see) under the default track as in the above screen. The "Update Track" screen opens:



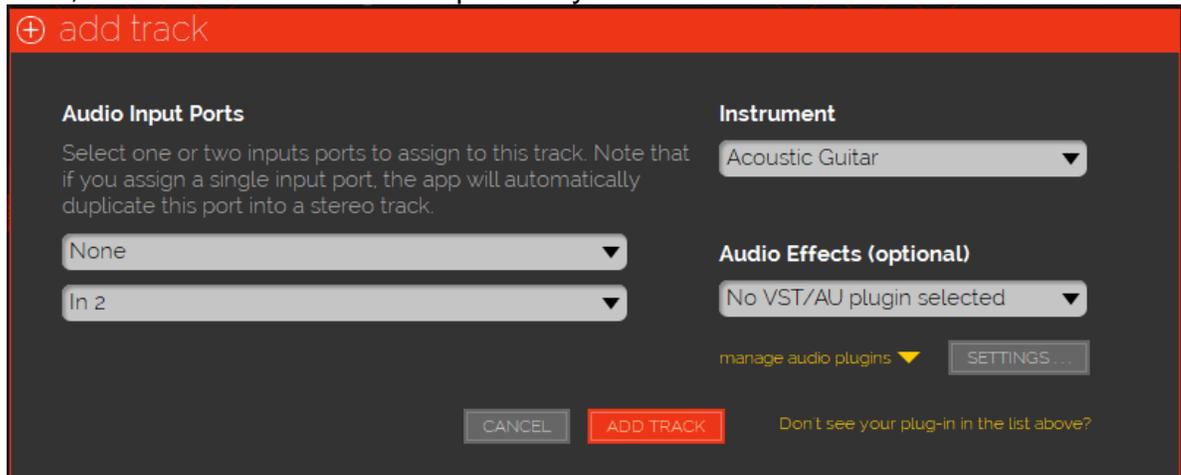
3. On the left, select your first input, typically labeled "In 1" in the upper selector, and select None in the bottom one, as above.
4. On the upper right, select the label "Voice" in the selector. (This is just a name for this track. You can set it to whatever you like.)
5. The Audio Effects selector enables you to use a VST plugin (a standard type of sound library) to apply to this track. For instance, you might want some reverb on

your vocal track. This is where you would apply that. More on plugins in Appendix C of this document. For now, just leave the “No VST” selection.

- Your vocal track is now configured. Click Close to go back to the Configure Tracks screen. (Note that your track shows a mic icon to represent “vocal”.)

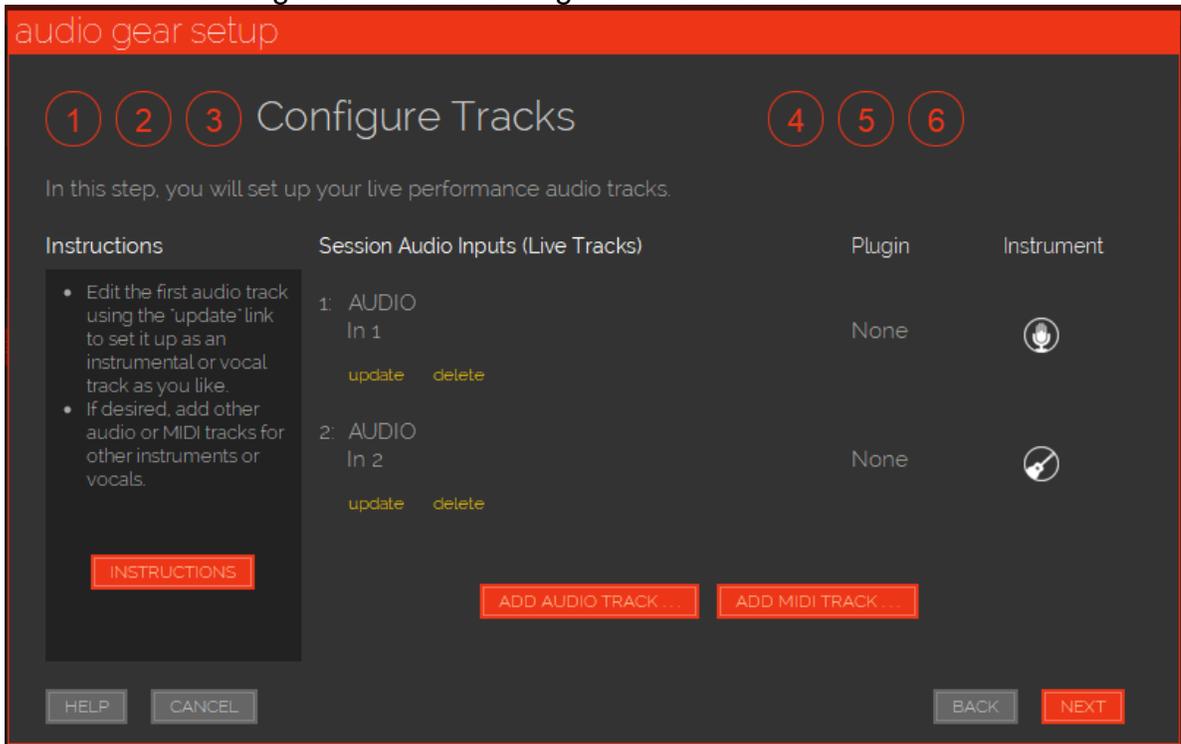


- Now, we’ll add a new track to represent your instrument. Click Add Audio Track.



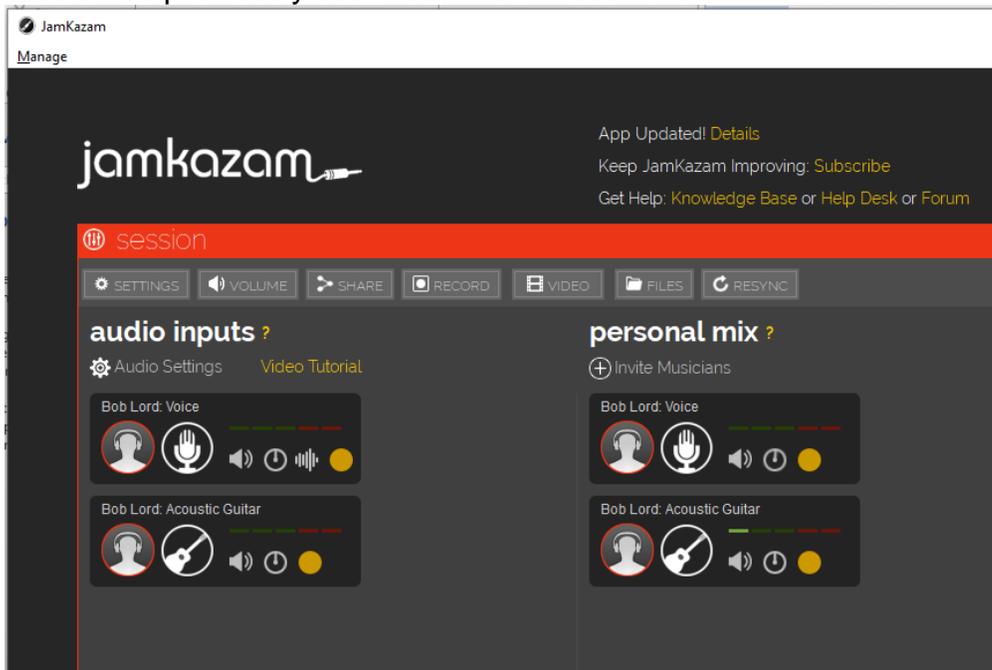
- This time, set the upper selector on the left to “None”, and the lower one to “In 2”, to assign this track to the second input of your audio interface. Label the track “Acoustic Guitar” or any other label you prefer in the upper right, and leave the Effects selector at “No VST”.

9. Click Add Track to go back to the Configure Tracks screen.



Now you'll see that JamKazam displays both the default track you've assigned to the first input on your audio interface along with the new track you've created and assigned to the second input on your interface. Icons represent each track type.

10. Click Next and continue through the audio gear setup process to the end as described earlier in this document.
11. After any change in your audio-gear configuration, it's best to check to make sure things are working correctly. In the Home screen, create a Quickstart Private session as previously described. You'll reach the Session screen:



In the Session screen, you'll see both your vocal and instrument tracks on the left and also in the Personal Mix column. You can use the controls in each place to adjust the parameters of each of your tracks as described earlier in this document. With separate tracks, you have much more control over your audio in the session. In particular, you have much better control over the relative balance between your vocals and your instruments this way.

**++NOTE++** The best settings for any of your levels are usually accomplished with the physical controls on your audio interface. Try to set up your input levels there first (as described earlier in this document), before you change levels in the program. You'll ensure minimum distortion and noise that way.

When you're done with your private test session, you can leave it. You're now set up with separate input tracks in any session you join.

## Appendix C About Effects Plugins

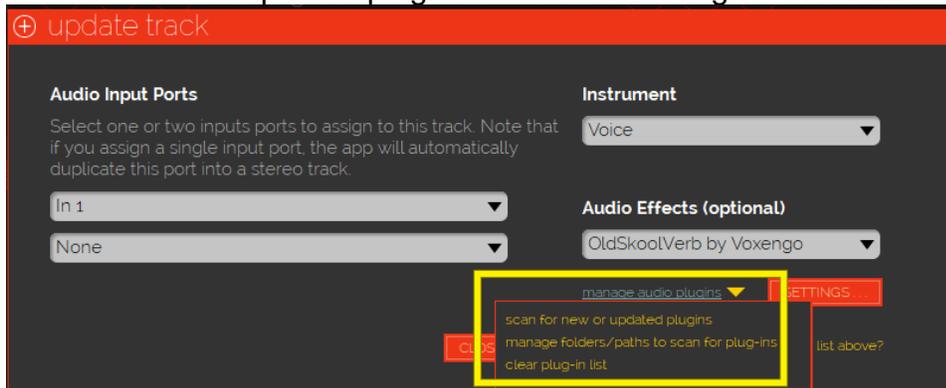
One of the big advantages of configuring a separate track for each of your audio-interface inputs is, that you can apply special effects to them. JamKazam supports what are called “VST plugins”, which are audio-processing software libraries that you can add to JK as “.DLL” files. There are hundreds of VST plugin files available on the Internet. Many are free, and many are paid. One of the best free ones for vocal reverb is called “Old Skool Verb” by the generous folks at voxengo.com.

**++NOTE++** There are numerous flavors of audio plugins, but JamKazam only specifically supports “VST” types. Not VST2, VST3, AAX, AU or any other types. Use only “VST” DLLs with JamKazam.

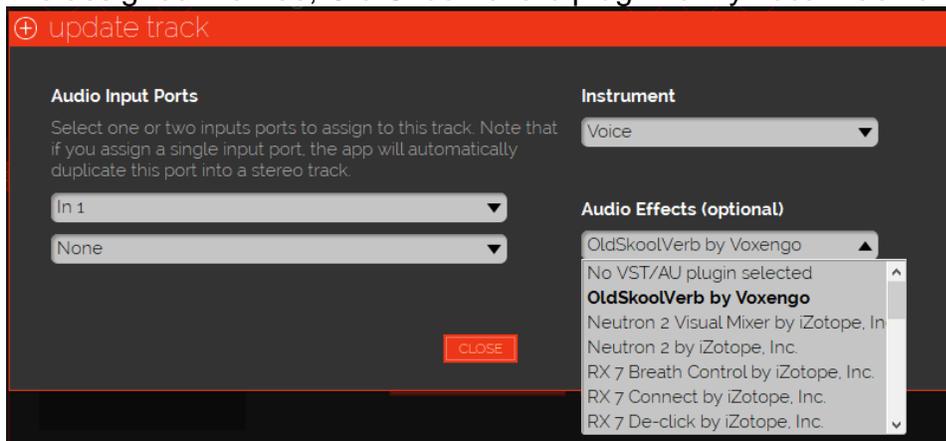
### Installing and Managing VST Plugins

To grab your very own copy of any plugin, go to the developer’s site and download their VST-only XXXXXX.DLL file for that plugin into any folder location on your computer.

Using plugins is easy. Simply “point” JamKazam to the folder you downloaded to using the “manage folder/paths to scan for plugins” link on the Update Track screen. Then use the “scan for new or updated plugins” link to tell JK to grab the .DLL files you’ve stored there:

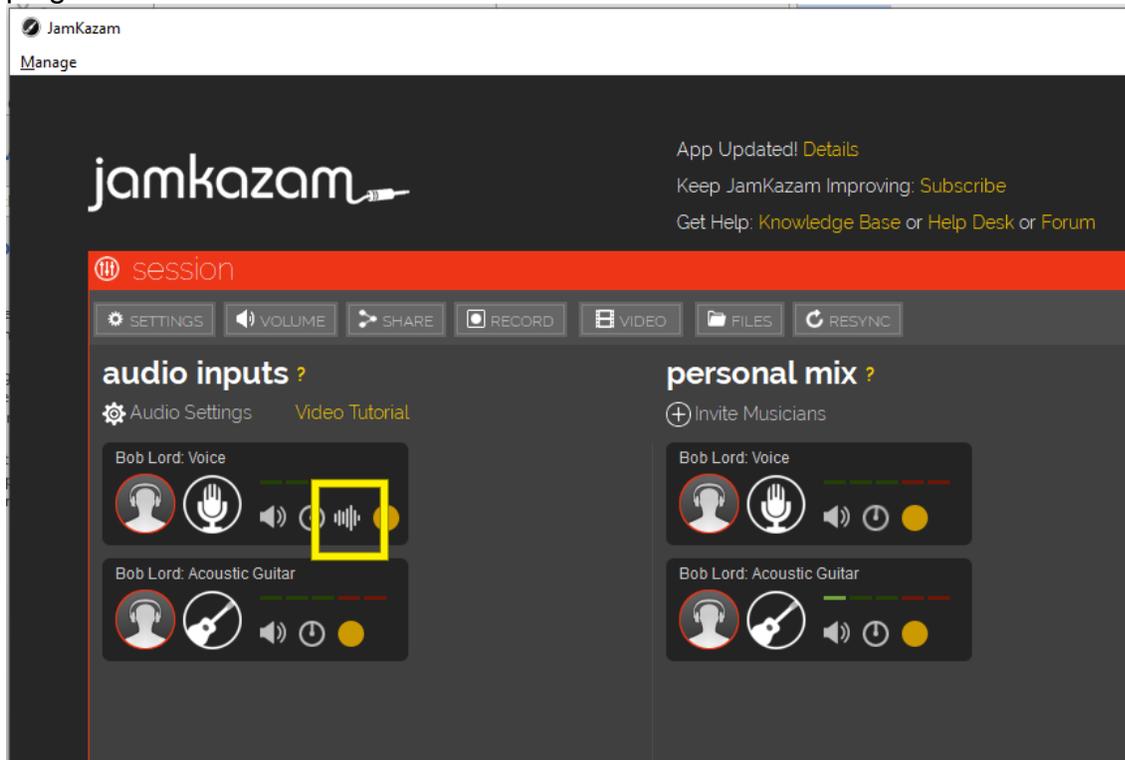


Once you have plugins installed, you can use the dropdown selector in the Update Track screen to assign any one of them to any of your desired tracks. In the following screen, I’ve assigned the free, Old Skool reverb plugin to my vocal track on input 1 of my interface:



## Using Plugins in a Session

Once your tracks are set up, you'll be able to access the plugin on any track in your sessions directly from the track. Here's how the tracks I set up earlier look in a Private session. Note the extra little icon in my vocal track on the left. That's the link to my reverb plugin:



Click that icon, and the full control panel for my Old Skool Reverb plugin pops up. There, I can tweak the sound to my heart's content. Pretty slick, right?



As I said, there are hundreds of plugins out there. Reverbs are only the beginning. Poke around, and you'll find compressors, limiters, gates, EQs, wobulators, and twizzle flangers. These days, any kind of audio processing that's possible is available in a plugin of one kind or another. Quite the playground for audio nerds, and much of it is absolutely free. It's an interesting time in history to be into audio! And, thanks to JamKazam, it's now possible to enjoy making music together with far-away friends using computer audio over the Internet.

## Appendix D Playing Background Audio Into Your JamKazam Sessions

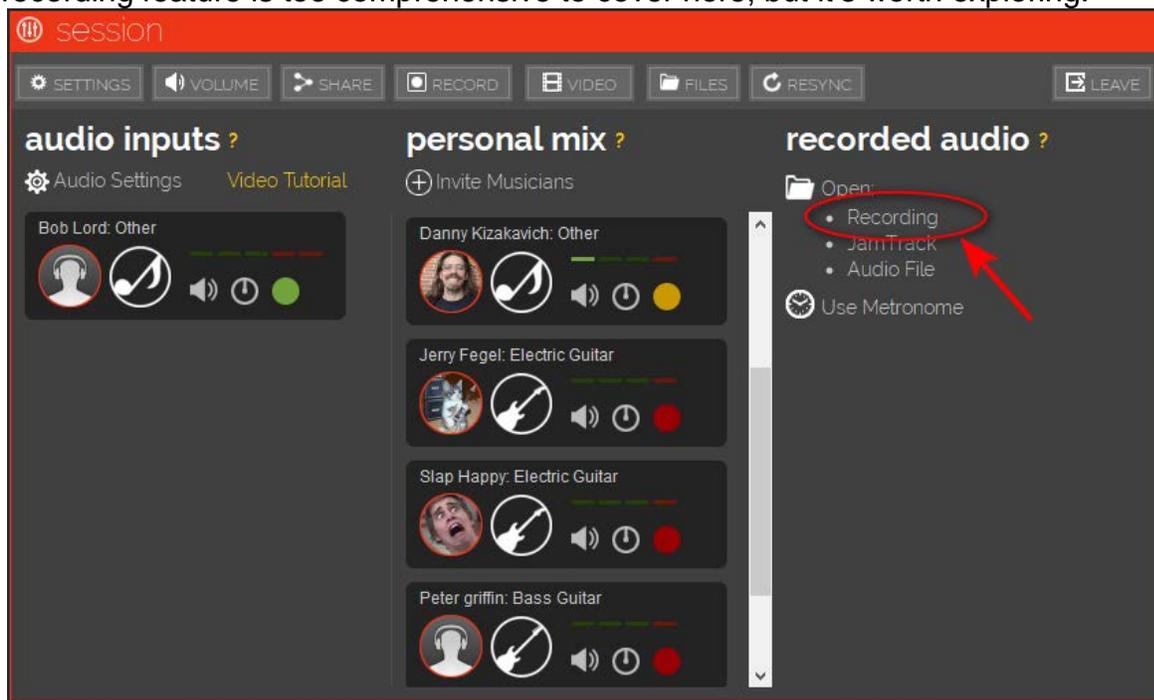
It's sometimes handy to be able to play backing tracks or other background audio into a JamKazam session. You can play along with a song that way, or you can introduce tutorials or custom click tracks into your sessions. I'll call this type of audio, "background audio" for our purposes. There's a number of ways to play background audio in your sessions, and I'll only give a brief outline of the simple ones. I'll dive much more deeply into the "loopback" method, because it's the one that directly supports streaming.

### Using an External Player

This is probably obvious, but I'll include it just in case. The simplest way to get background audio into a JK session is just to play it on an external player close enough to your microphone that the sound gets picked up. You can also plug an external player into one of the line inputs on your interface, for a more direct and controllable connection. The disadvantage is that this method requires both an external hardware and background audio on the media required for that hardware. Like, that's so 90s, dude.

### Using a Previously Recorded Session

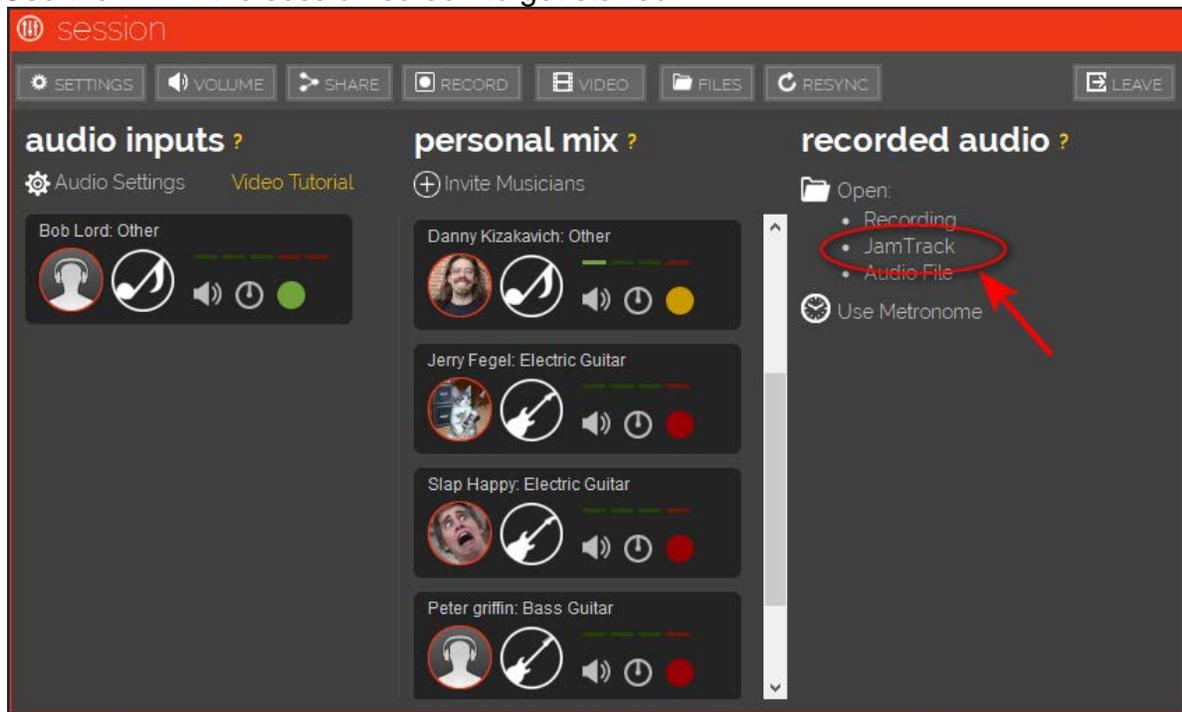
You can create your own backing track in JK by simply recording and saving a session. You can then play back your backing session using the link in the session screen. The recording feature is too comprehensive to cover here, but it's worth exploring.



### Using JamKazam's "JamTracks"

Jamkazam offers a paid, built-in feature that gives you complete, multi-track backing audio within your sessions. The "JamTracks" feature is extremely comprehensive, so I can't cover it here. Suffice to say that, if you need extensive musical backing support, and you're willing to pay for professional backing tracks, JamTracks are well worth exploring.

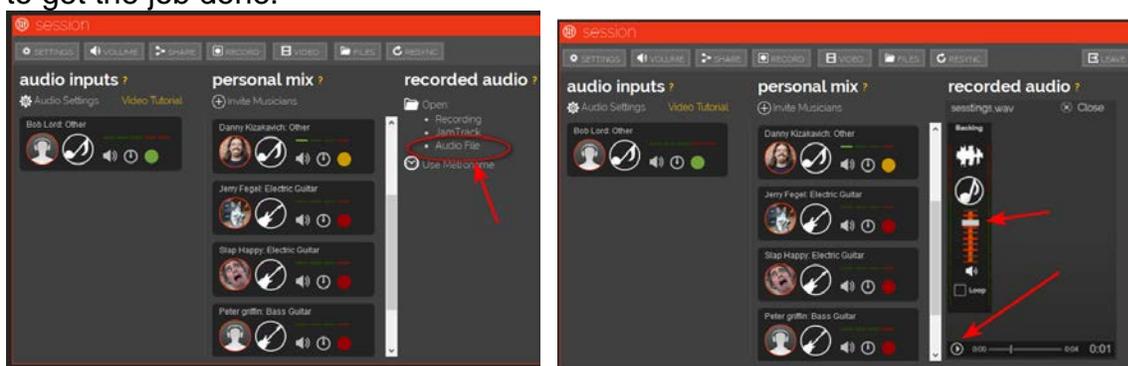
Use the link in the session screen to get started.



### Using an Audio File on Your Computer

JK has the ability to play audio files in various formats (including WAV and FLAC, but, notably, *not* MP3) within a session. This feature is easily accessed by clicking the Audio File link in the session window. A selector then opens, in which you can choose your file. Once chosen, a small player appears, in which you can control playback and level. The feature is intuitive to use and worth exploring.

The big disadvantage of this method is that it requires any content you wish to play in your session to be stored in specific file formats on your computer. Still, it can be a handy way to get the job done.



### But, What About Streaming Background Audio?

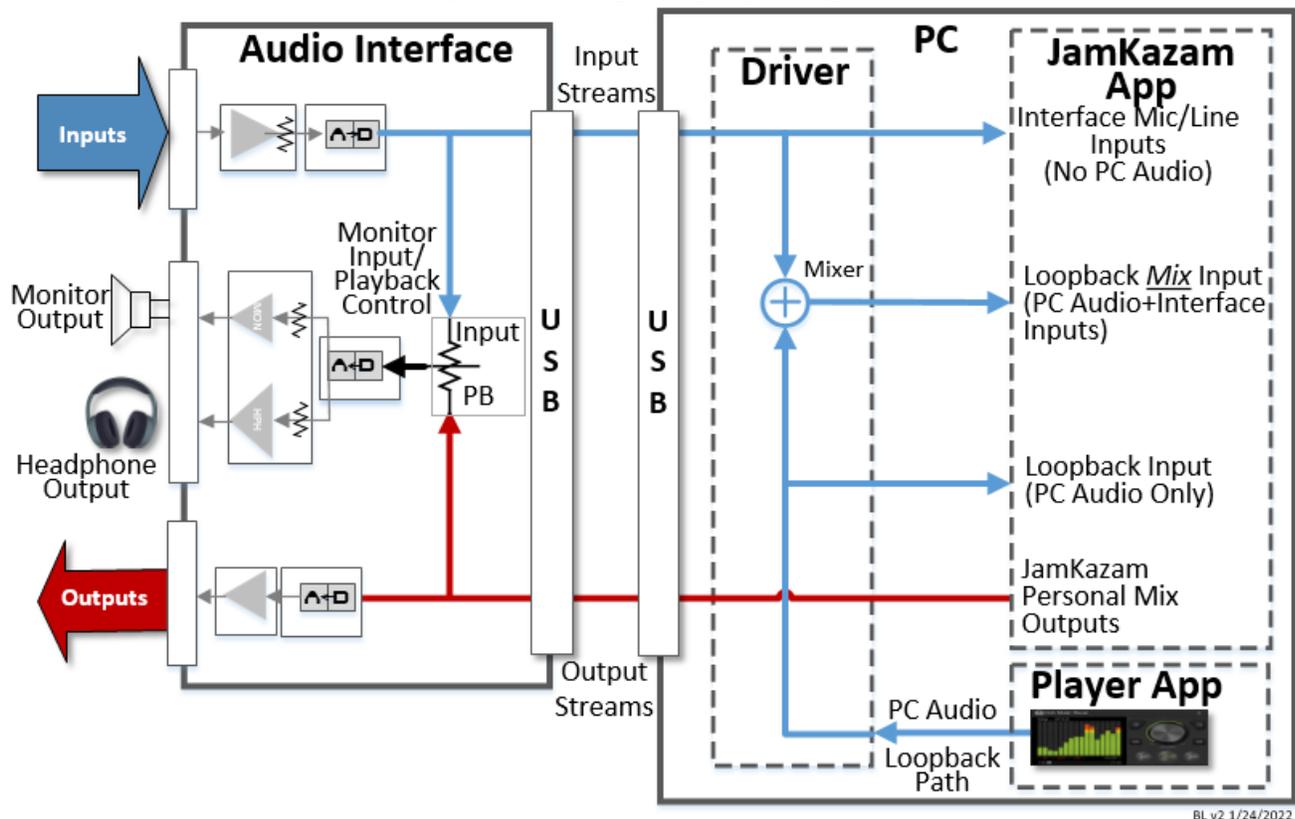
None of the methods above give you the freedom to play streamed content into your sessions, and that's perhaps the most desirable goal of all. With so much music on demand from Spotify, YouTube, Pandora, and so many other sources, *streaming background audio* is really our ultimate goal. So, let's see how to do just that!

## Using an Audio Interface That Offers a Loopback Feature

All audio interfaces offer a number of microphone and/or line-level inputs to the PC systems to which they are connected. Some audio interfaces offer additional inputs called “loopback inputs,” as shown below. These special inputs contain any audio played back in the PC system to which the interface is connected. They’re generally named with the word “Loopback” in the label. “Loopback 1 Input”, for example.

In some cases, interfaces offer additional loopback inputs containing a *mix* of the interface’s mic and line inputs along with the PC’s audio output. In these cases, the inputs are usually named with the word “mix” in the label. “Loopback Mix 1 Input”, for example.

If your interface offers a loopback feature, you can use it to play the output of any PC player app (like YouTube, Spotify, or even a DAW) into your JamKazam sessions. This is handy, when you want to quickly find a song and play along with it, for instance.

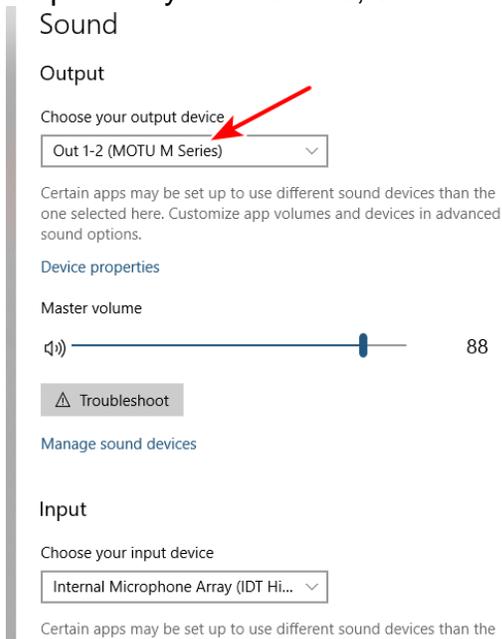


The following procedure uses a Motu M4 audio interface and JamKazam running in Windows as examples. The process is very similar in Mac OS, although you might require a special driver to get the loopback feature on your Mac. Also, loopback input labeling may differ slightly, depending on your audio interface’s brand and model.

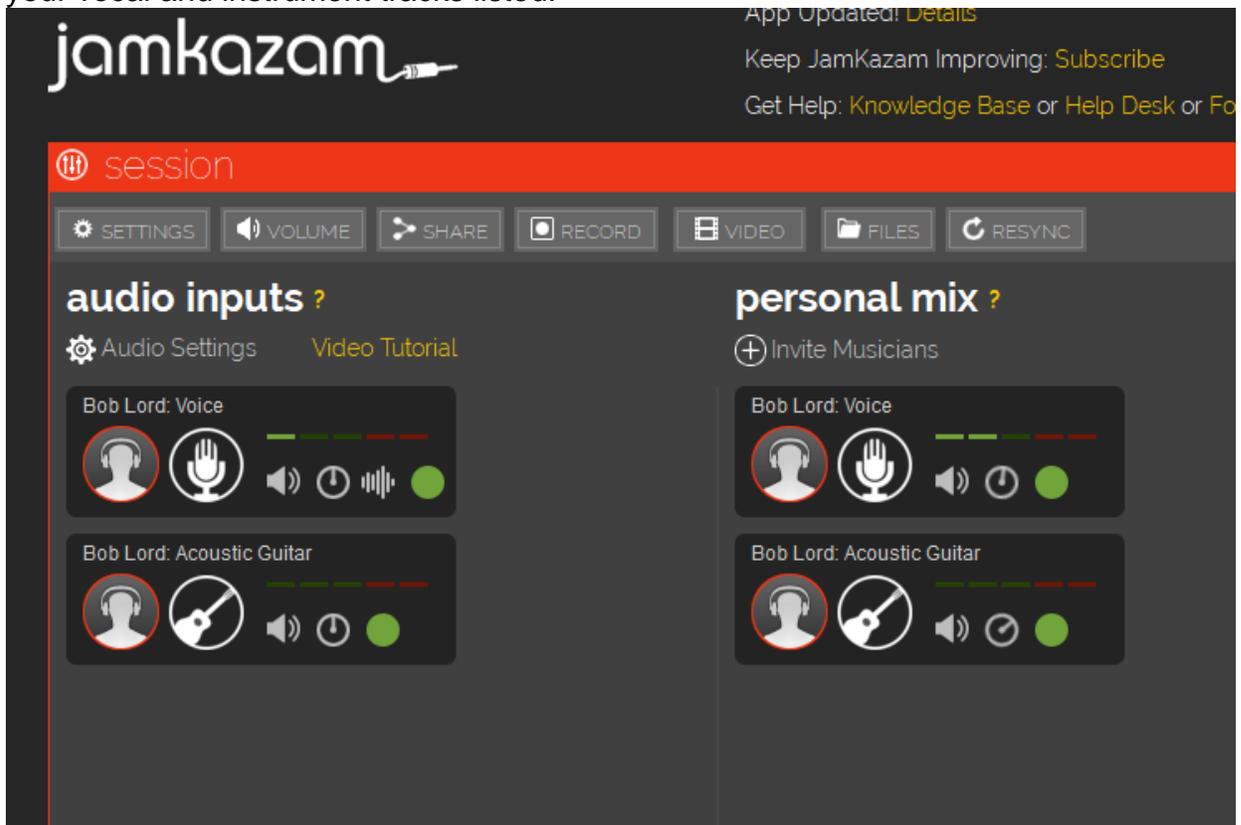
Before we get started, open JamKazam, and set up Motu as your audio device as normal. Then, create a Quickstart Session or two to verify it all works. This will ensure that any problems we come across in the procedure are limited to loopback setup itself.

**+++ Make sure it all works normally before going any further +++**

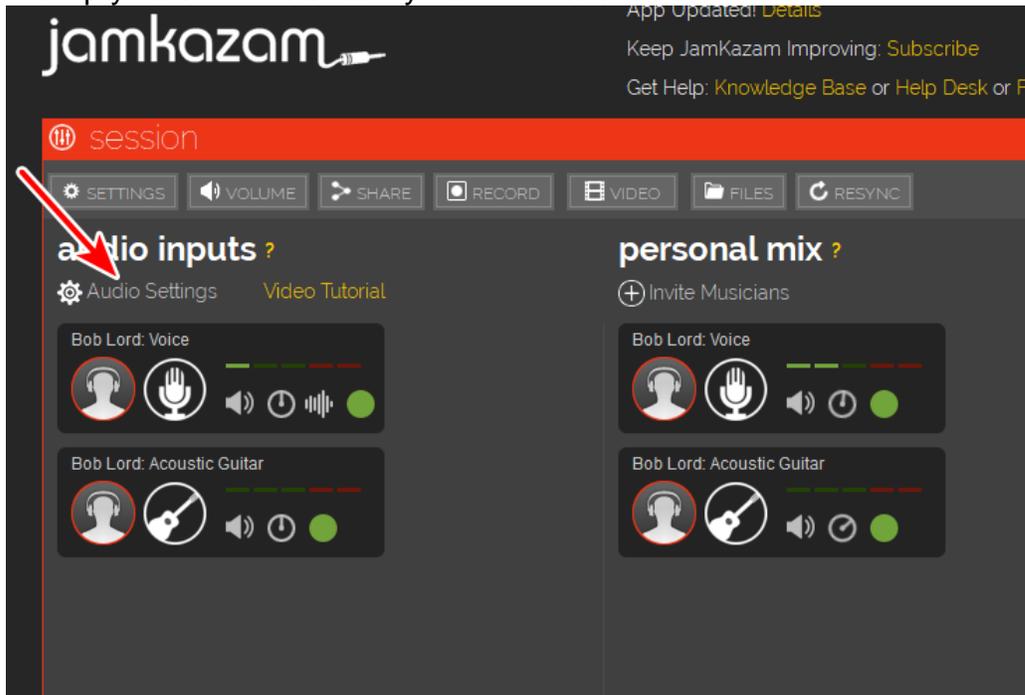
1. In Windows, right-click on the little speaker icon in the lower right-hand corner of the desktop.
2. In Sound Settings, select "Motu Output 1-2". Here, you're just directing your PC's audio output into your interface, so it can be looped back into JamKazam.



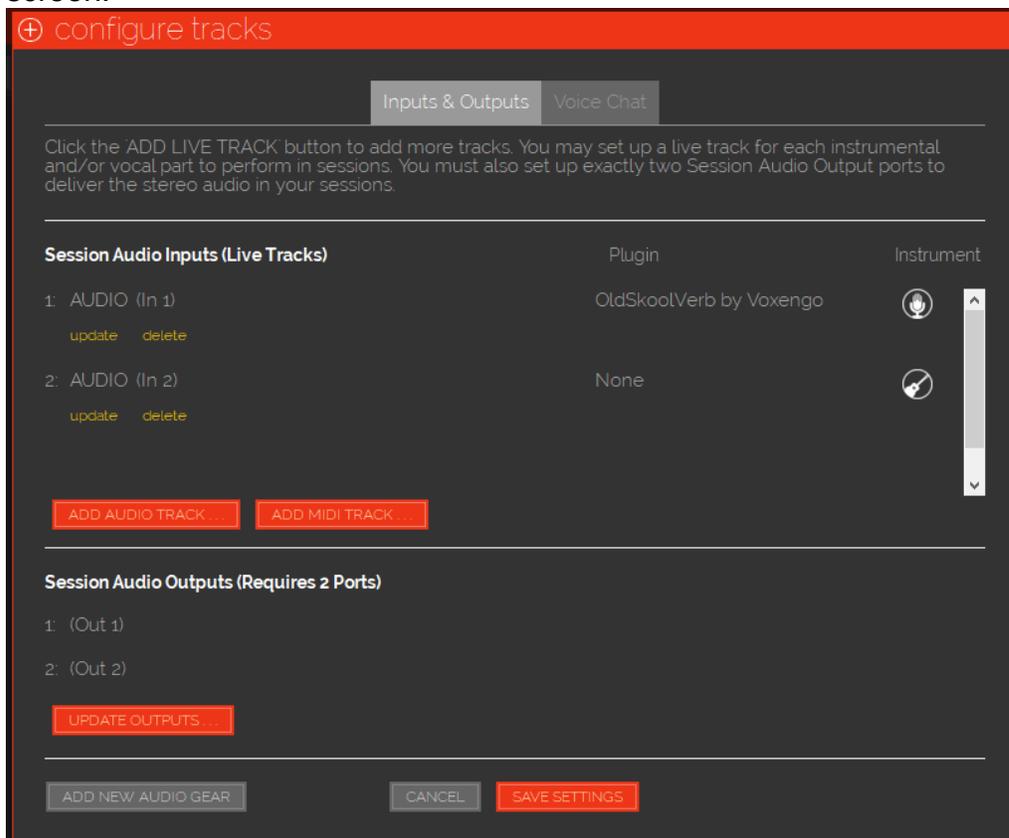
3. In JK, create a Quickstart Private session as you would normally do. You should see your vocal and instrument tracks listed.



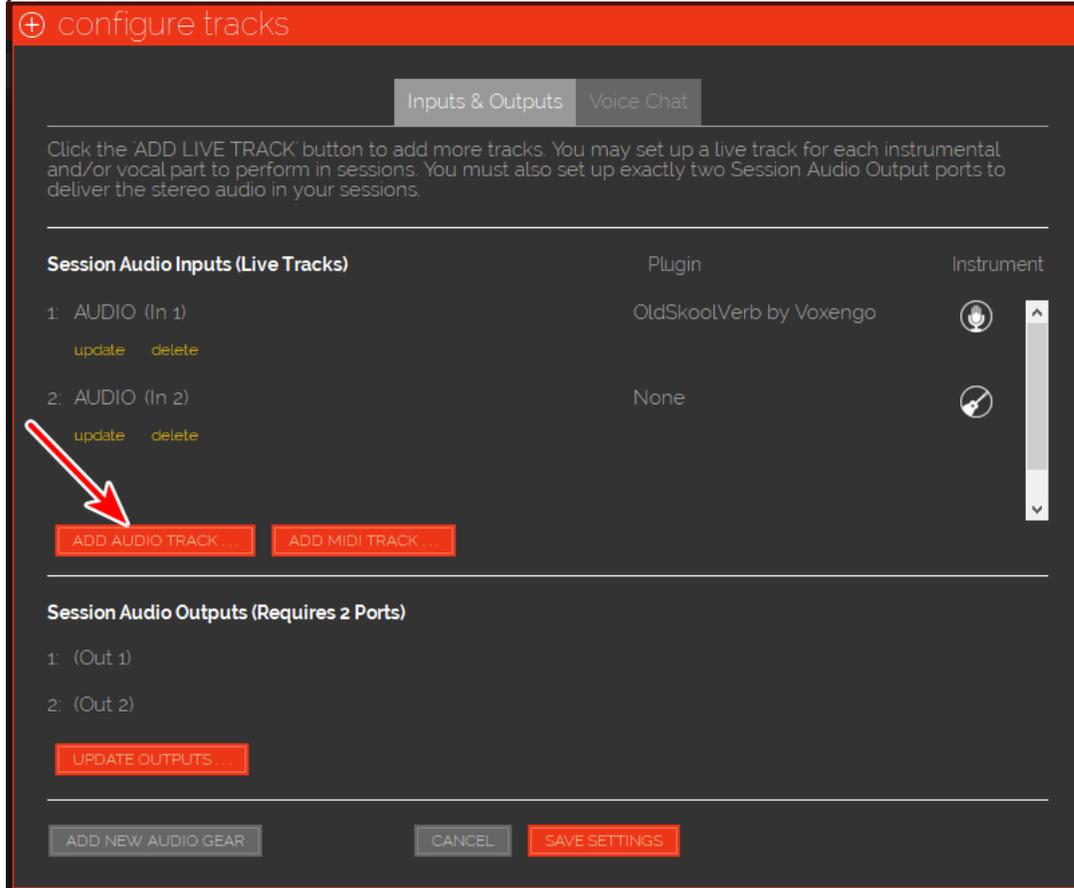
4. Click Audio Settings, right next to the little gear icon. You're going to create a 3rd track to loop your PC's audio into your sessions.



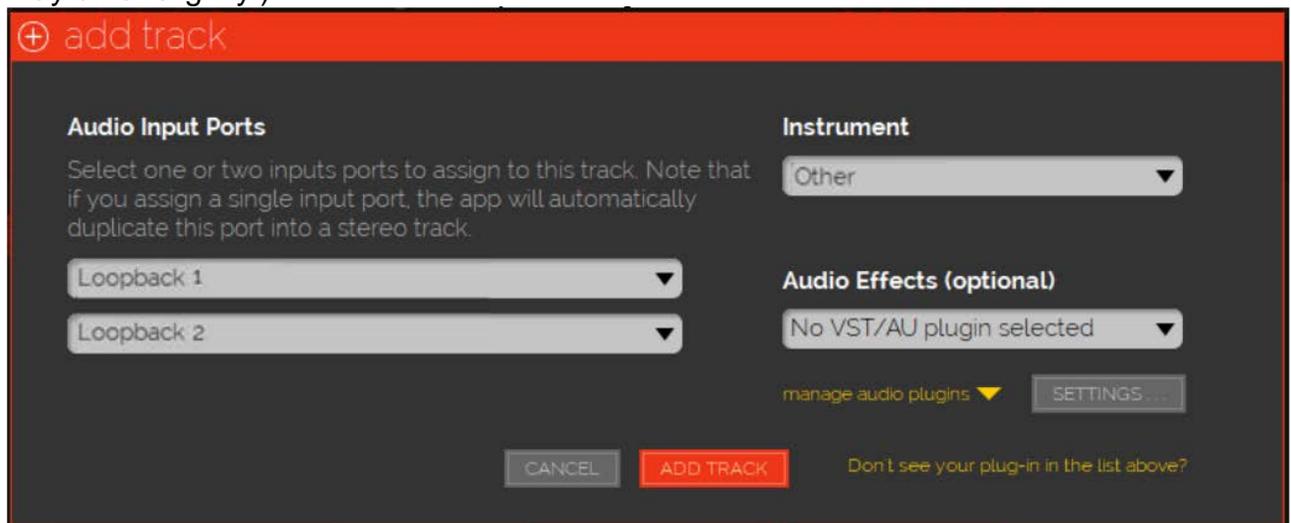
5. You should see your existing vocal and instrument tracks in the Configure Tracks screen.



- Click Add Audio Track. You'll now create that 3rd track to bring your PC's audio into your sessions.

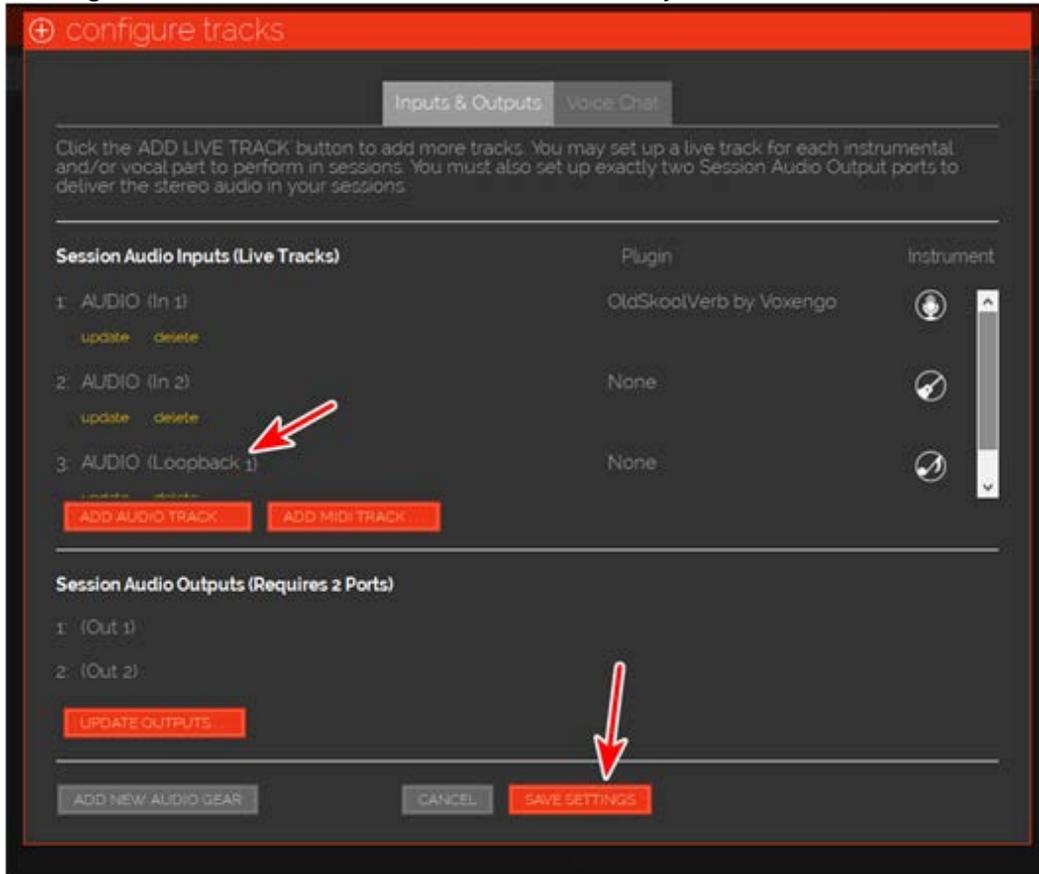


- In the Add Track screen, select “Loopback 1 and 2” as the new track’s inputs. Select “Other” for Instrument, and “No plugin” for Audio Effects. (Make sure you use the two “Loopback” inputs and **NOT** the “Loopback *Mix*” ones. Also, labels for your interface may differ slightly.)

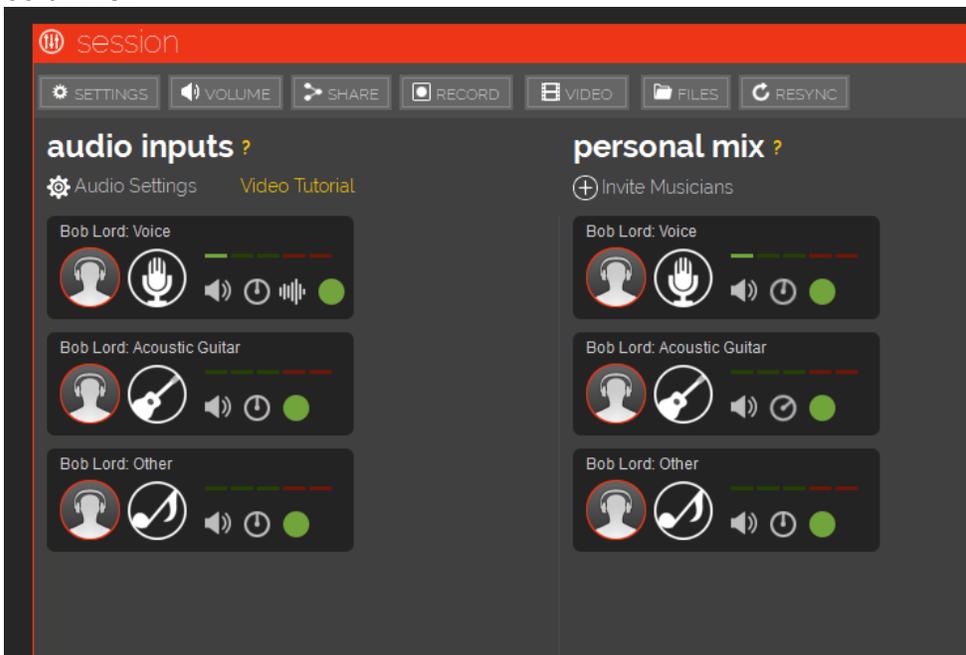


- Click the Add Track button to close the screen.

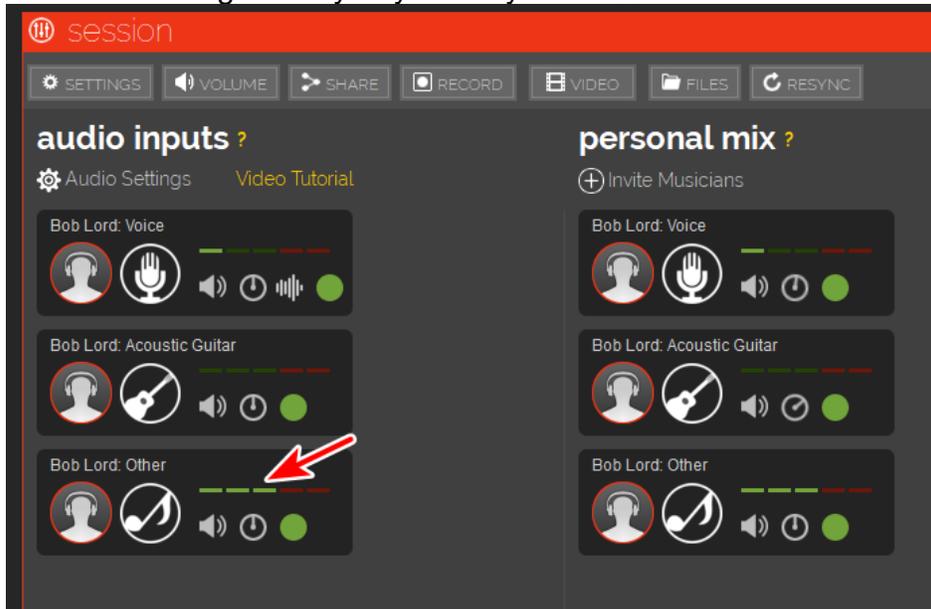
- You should see your new track listed in the Session Audio Inputs list. Click Save Settings to make the track active and return to your session.



- Returning to your session, you should see your new track marked “Other” in both columns.



11. Play some audio from YouTube or any other source on your PC, and you should see the VU meter in your new track jiggle. Sing and play, and the other meters should jiggle, too. You now have 3 tracks in any session you create; one for your vocal, one for your instrument, and one for any audio you play on your PC. All 3 tracks will be heard mixed together by anyone in your session.

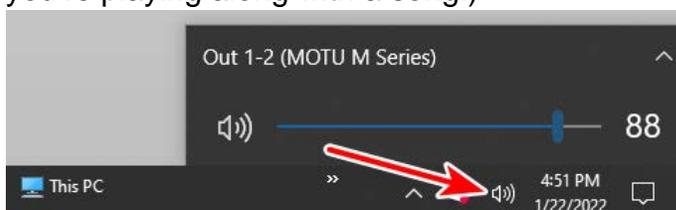


12. While you're in this screen, set your audio levels on all tracks, including your new loopback track. To do that, sing and play **as loudly as you will in the jam** closely and directly into your microphone(s) and adjust the gain control(s) **on your audio interface** such that the far, right-hand red bar **never** lights. The 2nd red bar should only occasionally light.

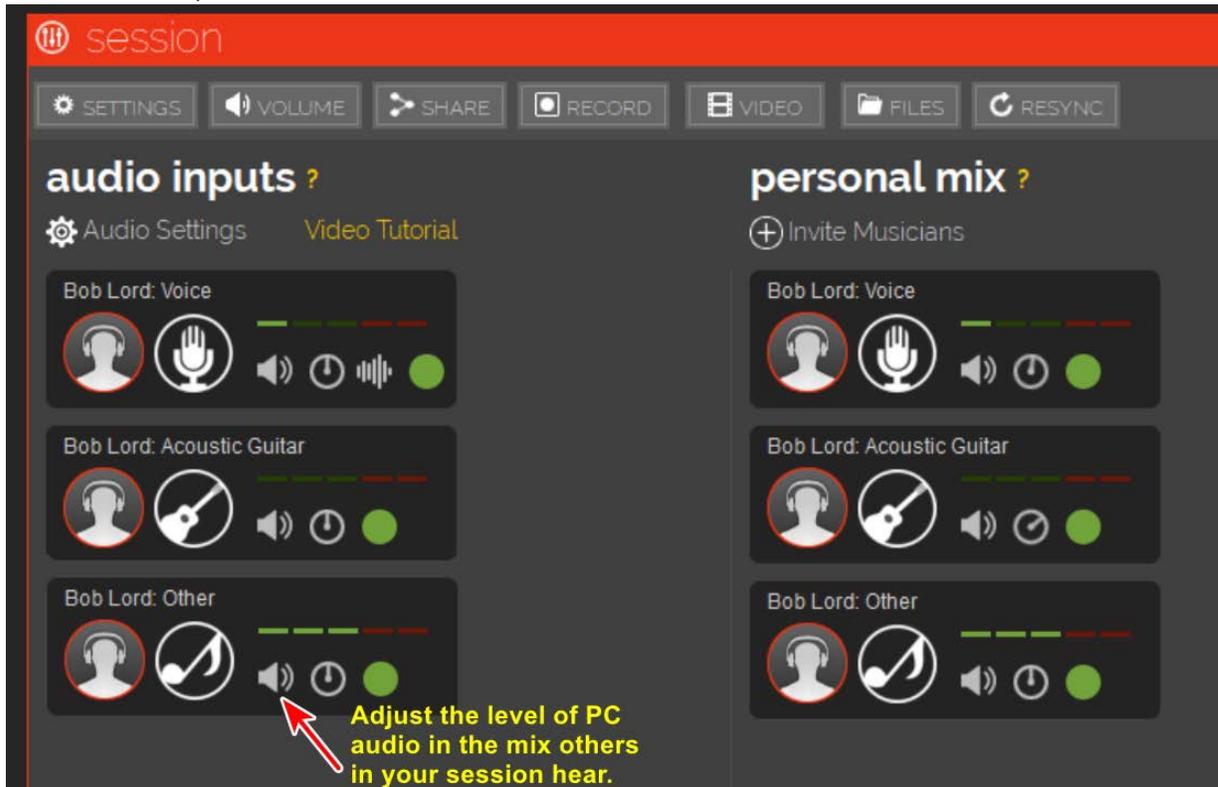
- **Good level setting:** 
- **Bad level setting:** 

(If your input(s) go into distortion, your other players will hear nasty, loud, raspy noise. You'll then be scorned and reviled, and your ancestry will likely be impugned. You might even be ousted from the jam.)

13. Now, set the level of your new loopback track, but in a slightly different way. **Using your Windows volume control (or a physical volume control on your PC or keyboard)**, adjust the level of PC playback audio to a comfortable level *in your headphones*. (In general, you'll probably want to keep the level pretty low, when you're playing along with a song.)



14. When you're in a session with others, use the level control on your loopback track to adjust the amount of its audio **others** hear in your session. (There appears to be a bug in JK (at least in the version tested here) that keeps this control from changing what *you* hear in your headphones, as it does for all other types of tracks. Because of this, you'll need to use both your Windows volume control and the track's level control to get a good balance of your loopback audio between what you hear and what others in your session hear.)



15. You're all set. You can now run JK sessions with vocal and instrument tracks mixed with streamed audio playing from within your PC. And, you can use any PC audio or video player source you wish.

### After Your Jam Sessions

When you're done with JamKazam, don't forget to set your PC's sound output back to its speakers as is normal. Otherwise, you won't hear audio from your computer. (In some configurations however, this will happen automatically, when you unplug your interface.)

You'll need to use this control to route PC audio to your JK sessions each time you start one. You needn't change anything though, if you don't want to use playback audio in your sessions.

# Sound

## Output

Choose your output device

Speakers / HP (IDT High Definitio... ▾

Certain apps may be set up to use different sound devices than the one selected here. Customize app volumes and devices in advanced sound options.

### Device properties

Master volume

🔊  100

 Troubleshoot

[Manage sound devices](#)

## Input

Choose your input device

Internal Microphone Array (IDT Hi... ▾

Certain apps may be set up to use different sound devices than the one selected here. Customize app volumes and devices in advanced