



**Recommendations for Live Session sound setup
while conducting a Live Session from IQNITER
STUDIO**

Table of Contents

Introduction	2
Simple setup	5
Medium advanced setup - VoiceMeeter	6
Advanced setup - VoiceMeeter	12
Advanced – OBS Studio	14

Introduction

This document contains a detailed guideline of how to conduct a Live Session from IQNITER STUDIO with the best possible sound quality. It has been created to instruct about best practices that ensure the best performance in most cases.

In the document several dilemmas that directly influence the sound quality of a Live Session stream will be considered. Moreover, as the Live Sessions can be streamed with or without an audience in the studio, the proposed setup will ensure the best outcomes in both cases. The recommendations will include considerations such as:

- Instructor placement in relation to microphone and loudspeakers
- The session workout type
- Setup of studio computer
- Setup of loudspeakers in the studio
- Type of microphone used by instructor

The Live Session quality relies on the equipment and setup. Better microphones and more advanced configuration enhance the end user experience and give more flexibility for the instructor. As an example, volume manipulation separately for every component such as music or microphone or advanced effects such as auto ducking.

To highlight the importance of choosing the right configuration here is a video ([LINK](#)) which shows how the quality changes depending on the equipment and environment.

The guide proposes setups of various complexity that are tailored for the Live Session with and without audience in the studio:

1. Simple – Laptop only
2. Medium – with additional software VoiceMeeter
3. Advanced – with more advanced setup of VoiceMeeter and Virtual Cabel
4. Advanced – with additional software OBS and Virtual Cabel

Below is an overview of advantages and disadvantages of each setup. For further details on each setup, please see description throughout our guideline.

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Setup	Live Session without participants in studio		Live Session with participants in studio	
Simple	Advantages	Disadvantages	Advantages	Disadvantages
	<ol style="list-style-type: none"> 1. Simple setup does not require expensive equipment (but quality equipment is recommended) 	<ol style="list-style-type: none"> 1. Poor quality of music 2. Poor quality of instructor's voice 3. Hard to find good position for the speaker and the microphone 4. Hard to find volume balance between voice and music 	<ol style="list-style-type: none"> 1. Simple setup does not require expensive equipment (but quality equipment is recommended) 	<ol style="list-style-type: none"> 1. Poor quality of music 2. Poor quality of instructor's voice 3. Noise from other participants is heard by remote users 4. Hard to find volume balance between music and voice 5. Positioning is important, so the music is loud in the room, but do not disturb the instructor's voice
Medium - VoiceMeeter	Advantages	Disadvantages	Advantages	Disadvantages
	<ol style="list-style-type: none"> 1. Good quality of music 2. Good quality of instructor's voice 3. Easy to balance volume of music and voice 4. Software is available for free 	<ol style="list-style-type: none"> 1. Installation of third-party software is required (guide is available) 2. Additional configuration is required 	<ol style="list-style-type: none"> 1. Good quality of music 2. Good quality of instructor's voice 3. Easy to balance volume of music and voice 4. Software is available for free 5. With directional microphone ensures best quality for live sessions with local participants 	<ol style="list-style-type: none"> 1. Installation of third-party software is required (guide is available) 2. Additional configuration is required
Advanced – VoiceMeeter, Virtual Cabel	Advantages	Disadvantages	Advantages	Disadvantages
	<ol style="list-style-type: none"> 1. Good quality of music 	<ol style="list-style-type: none"> 1. Installation of third-party software is 	<ol style="list-style-type: none"> 1. Good quality of music 	<ol style="list-style-type: none"> 1. Installation of third-party software is

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	<ul style="list-style-type: none"> 2. Good quality of instructor's voice 3. Separation of system sounds (notifications, emails) from music for better user experience 4. Easy to balance volume of music and voice 5. Software is available for free 	<ul style="list-style-type: none"> required (guide is available) 2. Additional configuration is required 	<ul style="list-style-type: none"> 2. Good quality of instructor's voice 3. Separation of system sounds (notifications, emails) from music for better user experience 4. Easy to balance volume of music and voice 5. Software is available for free 6. With directional microphone ensures best quality for live sessions with local participants 	<ul style="list-style-type: none"> required (guide is available) 2. Additional configuration is required
Advanced – OBS, Virtual Cabel	Advantages	Disadvantages	Advantages	Disadvantages
	<ul style="list-style-type: none"> 1. Good quality of music 2. Good quality of instructor's voice 3. Easy to balance volume of music and voice 4. Software is available for free 5. Possibility of applying filters such as Auto Ducking (Lowering music volume while speaking) 	<ul style="list-style-type: none"> 1. Installation of third-party software is required (guide is available) 2. Additional configuration is required 3. Complex software to work with 	<ul style="list-style-type: none"> 1. Good quality of music 2. Good quality of instructor's voice 3. Easy to balance volume of music and voice 4. Software is available for free 5. With directional microphone ensures best quality for live sessions with local participants 6. Possibility of applying filters such as Auto Ducking (Lowering music volume while speaking) 	<ul style="list-style-type: none"> 1. Installation of third-party software is required (guide is available) 2. Additional configuration is required 3. Complex software to work with

Simple setup

Without audience in the room

To conduct a simple Live Session without an audience placed locally in the studio, it is important to focus on the best possible quality of music and speech. Therefore, we recommend the following:

Requirements	1. IQNITER STUDIO installed
Equipment	<ol style="list-style-type: none"> 1. To ensure the best quality, it is worth using an external camera and microphone connected to the computer. 2. Preferably the microphone should be external and good quality, connected to the computer as usually they provide better quality 3. If not applicable a built-in camera microphone can be used 4. To capture the music from the session, it is recommended to use a quality speaker in the studio
Placement	<ol style="list-style-type: none"> 1. The camera and microphone should be placed in front of the instructor. There should be no speaker or other sound sources in between the instructor and microphone. 2. The speaker with session music should be placed behind the instructor and should be pointing in the direction of the microphone 3. It is important to find a good balance between the volume of the music and the tone of speech, but it is an individual case depending on the equipment and surroundings. In this case the session sound is transmitted to the remote participants via the computer microphone together with the instructor speech mixed by the microphone.

With audience in the room

To conduct a simple Live Session with an audience placed locally in the studio, it is important to position the microphone and the music source in the right place, so the music is also caught by the microphone. Therefore, we recommend the following:

Requirements	1. IQNITER STUDIO installed
Equipment	<ol style="list-style-type: none"> 2. To ensure the best quality, it is worth using an external camera and microphone connected to the computer. 3. Preferably the microphone should be directional to not catch the sound of other participants and external from the camera as usually they provide better quality. If it is possible, the most recommended microphone type is a headset microphone which ensures that the instructor's voice will be well heard.

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	<ol style="list-style-type: none">4. If not applicable a built-in camera microphone can be used5. To capture the music from the session it is recommended to use a quality speaker in the studio
Placement	<ol style="list-style-type: none">1. The camera and microphone should be placed in front of the instructor. There should be no speaker or other sound sources in between the instructor and microphone.2. The speaker with session music should be placed behind the instructor and should be pointing in the direction of the microphone3. It is important to find a good balance between the volume of the music and the tone of speech, but it is an individual case depending on the equipment and surroundings.

Routine before going live

Applying one of the simple setups, immediately before going live there are several activities that must be considered.

- Check if the camera and the microphone are properly connected to the computer
- Ensure there are no sound sources between the microphone and the instructor
- Position the loudspeaker behind the instructor so that the music gets directly to the microphone

Medium advanced setup - VoiceMeeter

To perform a Live Session with options for improved sound quality, a more advanced setup with an additional software (VoiceMeeter) can be used. It is a software which allows you to mix sounds together within the computer. It will allow you to transmit the voice of the instructor from the microphone and the music directly from the computer (not via the computer microphone). This ensures the best quality of music and flexibility of controlling the sound parameters including volume balancing between music and instructor speech.

The software can be downloaded for free from:

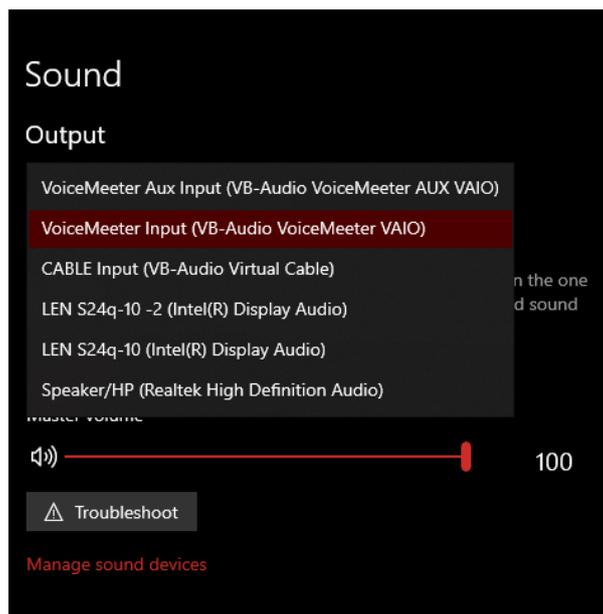
<https://vb-audio.com/Voicemeeter/banana.htm>

It is important to download the VoiceMeeter **Banana** version. After the download ends it must be installed and the computer must be restarted. When starting the software, the below picture represents how the software should look like.

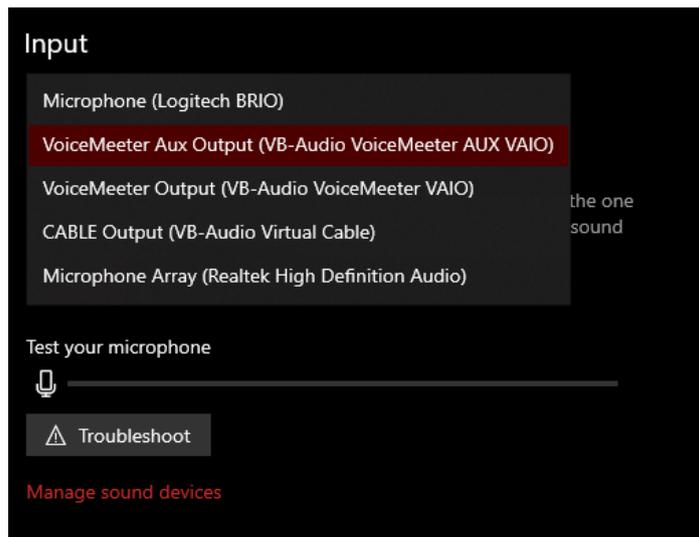


Setup of VoiceMeeter Banana

First it is required to direct the local sound from the computer to the VoiceMeeter. In the sound options in the computer system, we need to choose “VoiceMeeter Input (VB-Audio VoiceMeeter VAIO)” option as our output device.



Next as the input device in our system there must be “VoiceMeeter Aux Output (VB-Audio VoiceMeeter AUX VAIO)”.



In such setup, all the sound locally in the computer will be routed to the VoiceMeeter channel

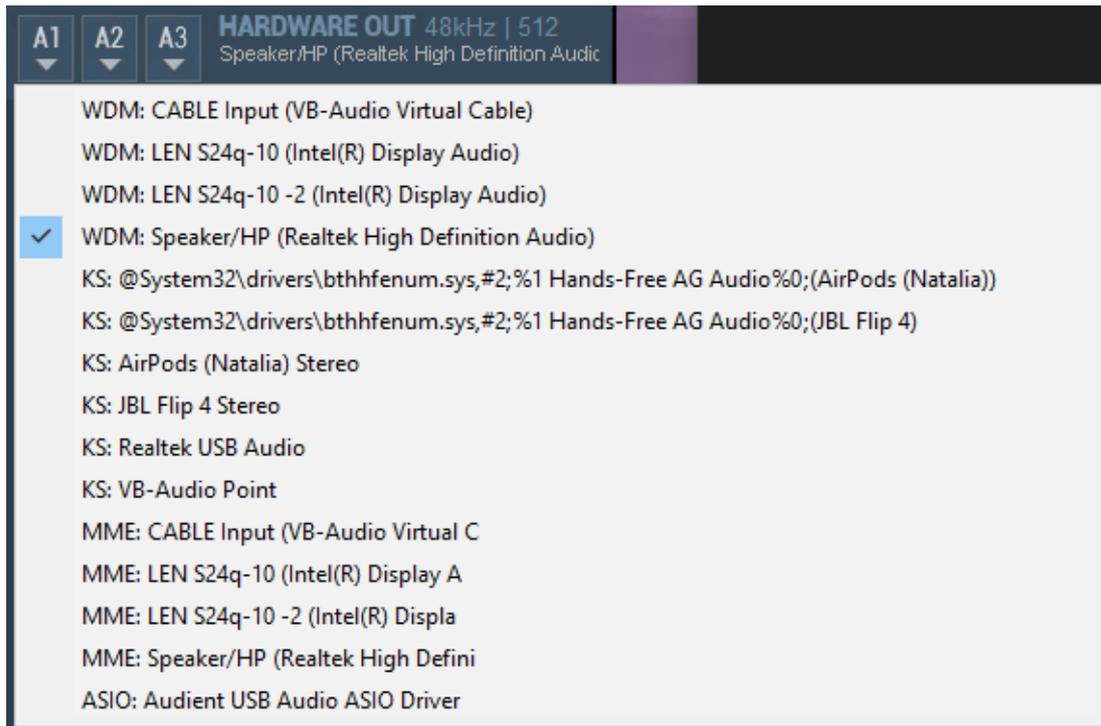


Here it is possible to adjust the volume and additional parameters of simple equalizer (optional settings).

To be able to hear the sound it is required to specify an output device in VoiceMeeter.



Here there are 3 channels A1, A2 and A3 which can be connected to different speakers or headphones. At first let's assign A1 to our computer default audio output (speaker or headset) by clicking the A1 button and selecting the device we want to use.



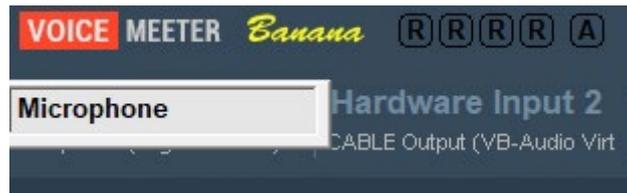
At this point it should be possible to hear the computer sound and control the volume of it through the VoiceMeeter.

Microphone connection

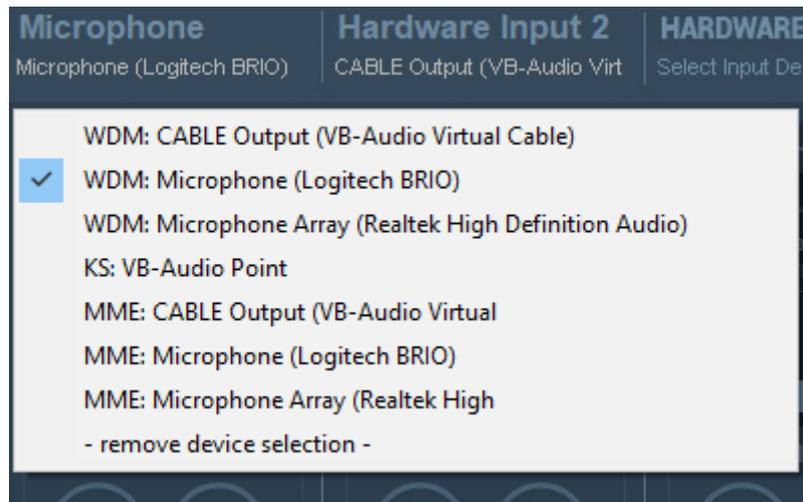
To connect the microphone, it must be specified in the Hardware Input Tab.



It is a good practice to always use the Hardware Input 1 as a microphone input, so it is always clear what the tab represents. Optionally it is also possible to rename the tab by right-clicking the name of it.



To select the microphone that we want to use, we need to click on “Select Input Device” label, and it will show all the possible microphones connected to the computer.



We need to choose the microphone that we would like to use. As it can be noticed, there are for example two Logitech BRIO with different labels “WDM” or “MME”. It is important to choose the same label as in every other tab. They represent drivers which process the sound. Preferably it is WDM, but if any issues experienced it is worth to try MME.

Sound routing

After the devices are set, we need to specify the routes where the sound should be transmitted.



A1, A2, A3 represent our output devices such as speakers or headset mentioned before and they correspond to A1, A2 and A3 labels in the Hardware Output tab. Therefore, to be able to hear the computer sound or own speech it must be selected accordingly to where the device is set. (Speaker set to A1 then A1 must be selected).

B1 and B2 represent “VoiceMeeter Output (VB-Audio VoiceMeeter VAIO)” and “VoiceMeeter Aux Output (VB-Audio VoiceMeeter AUX VAIO)” respectively which can be chosen as input devices in the applications. It is a good practice to transmit mixed sound through B2 therefore

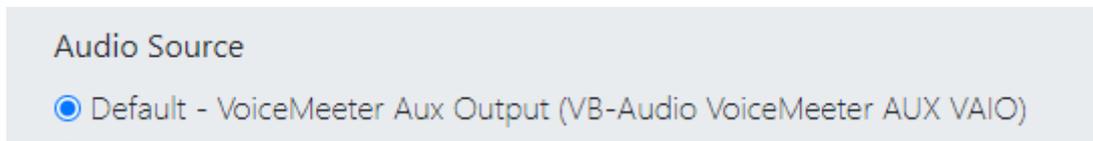
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in the microphone tab and in the tab where the computer sound is plugged in the B2 must be switched on.

At this point the setup is finished and by selecting A1, A2, A3 and B1, B2 it is possible to control what goes into our ears and to the stream separately.

To find the right balance between the music and speech volume it is a good practice to turn on A1 in the microphone tab, so it is possible to hear own voice and modify the volume such that it is clear. Afterwards A1 can be disabled so the voice goes only into the stream.

On the streaming website to use the VoiceMeeter the audio source in the options must be set to "VoiceMeeter Aux Output (VB-Audio VoiceMeeter AUX VAIO)".



Equipment

To provide the best experience through the Live Session video stream, the equipment must be of decent quality and correctly positioned.

	Live Session with participants in the studio	Live Session without participants in the studio
Equipment	On the market there are directional microphones which are suited for capturing speech in high quality regardless of the background noises. This type is the most recommended.	When there are no participants in the studio, for best quality, we recommend using headphones to playback the music or a speaker with low volume.
Placement	<ol style="list-style-type: none">1. The music during the session is usually loud. Therefore, the microphone must be located close to the instructor – most preferably a headset microphone.2. If it is possible, it is also recommended to place the speakers behind the microphone or at least not directly pointing at it, so the sound does not go directly into the mic.	If the playback music comes from a speaker it is recommended to use a directional microphone or at least to not point the music directly into the mic.

Routine before going live

With the VoiceMeeter setup, immediately before going live there are several activities that must be considered.

- Check if the camera and the microphone are properly connected to the computer
- Ensure the VoiceMeeter is set following the instructions from the guide
- Select Audio Source on the streaming website to VoiceMeeter Aux Output
- Check the positioning of the speakers and test your voice using VoiceMeeter

Advanced setup - VoiceMeeter

The more advanced setup allows us to separate music from the studio (Spotify) from the system sounds such as notifications etc.

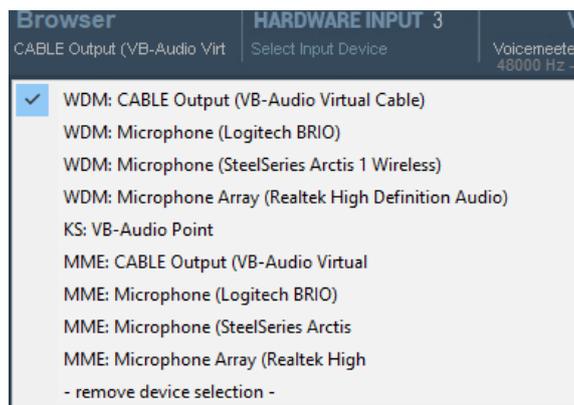
At the beginning it is required to follow the guide from the previous section to set up the VoiceMeeter.

Once it is done an additional driver must be installed.

<https://vb-audio.com/Cable/>

After the download go to the location of the file. It is a .zip file that must be extracted by right-clicking and selecting "Extract all". The content will be moved to a new folder with the same name as the downloaded file. To install the driver, it is required to run the VBCABLE_Setup_x64.exe as an administrator. To do that we must right-click the file and select "Run as administrator". After the message that the driver was installed is shown it is required to restart the computer.

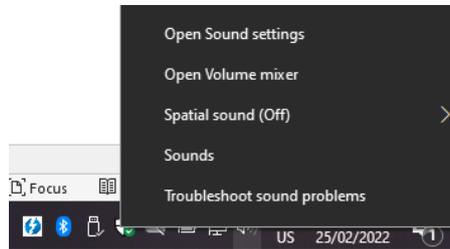
The next step is to update the setup in the VoiceMeeter. In the tab with "Hardware Input 2" next to the microphone let's choose "Cable Output (VB-Audio Virtual Cable)"



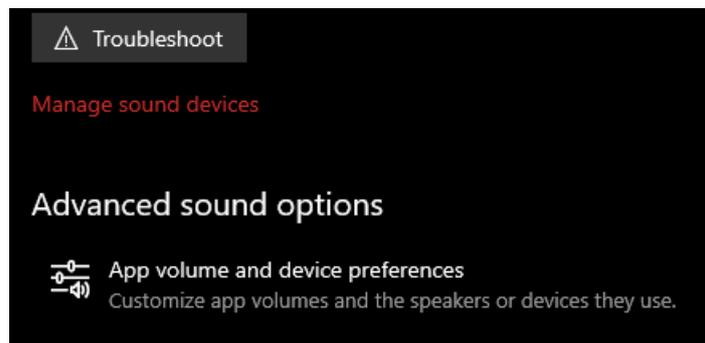
This channel will capture the application from where the music comes.

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The next step is to change the system settings. To do that go into the sound settings either by right clicking the speaker icon at the bottom left and choosing “Open sound settings” or going into control panel.



In the settings window scroll down and select “App volume and device preferences”



Here you can see the list of apps running on the computer that play sounds. If Spotify is not visible ensure that it plays music at that moment. When the source application for music is visible it is required to change the output to the CABLE Input (VB-Audio Virtual Cable).

App	Volume	Output	Input
System sounds	100	Default	Default
Google Chrome	100	CABLE Input (VB-Audi	Default
VoiceMeeter	100	Default	Default

In this case the music source is Google Chrome but if it is Spotify change the setting only for Spotify.

At this point you can control the music volume separately in the tab and it is separated from any other system sounds.

The same as in the previous section the B2 route must be selected so the music goes into the stream. The A1 will enable our output speakers or headphones to play music. Furthermore, now you can disable B2 in the “VoiceMeeter VAIO” channel, so the system sounds do not go into the stream.



Routine before going live

With the VoiceMeeter setup directly before going live there are several activities that must be considered.

- Check if the camera and the microphone are properly connected to the computer
- Ensure the VoiceMeeter is set following the instructions from the guide
- Select Audio Source on the streaming website - VoiceMeeter Aux Output
- Check the positioning of the speakers and test your voice using VoiceMeeter

Advanced – OBS Studio

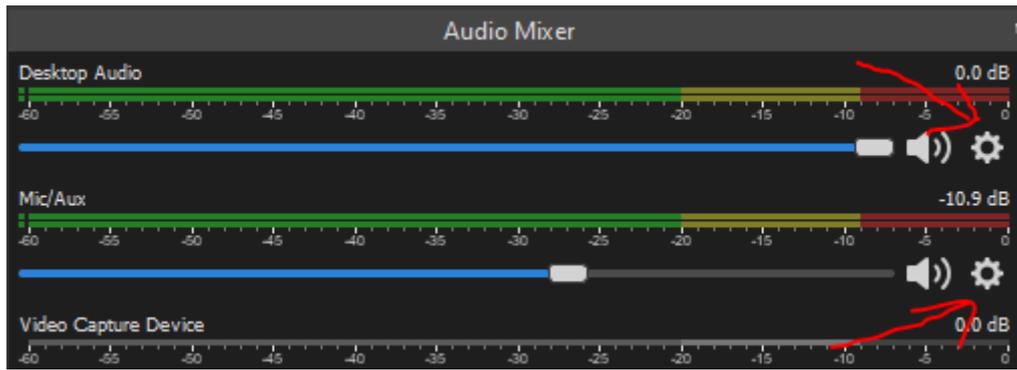
It is also possible to achieve equivalent results with OBS Studio. The required installations are:

- Virtual cable (described in previous section)
- OBS Studio (<https://obsproject.com/>)
- Audio Monitor Plugin for OBS Studio (<https://obsproject.com/forum/resources/audio-monitor.1186/>)

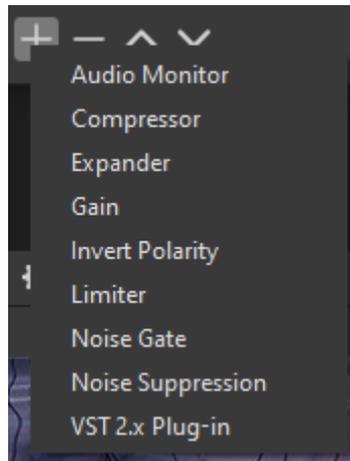
To download the Audio Monitor Plugin, go to the website and after clicking on “download” button select “installer” version.

After the installation of OBS Studio, to set up the plugin we need to click on the settings button in the “Audio Mixer” panel where the sound is controlled.

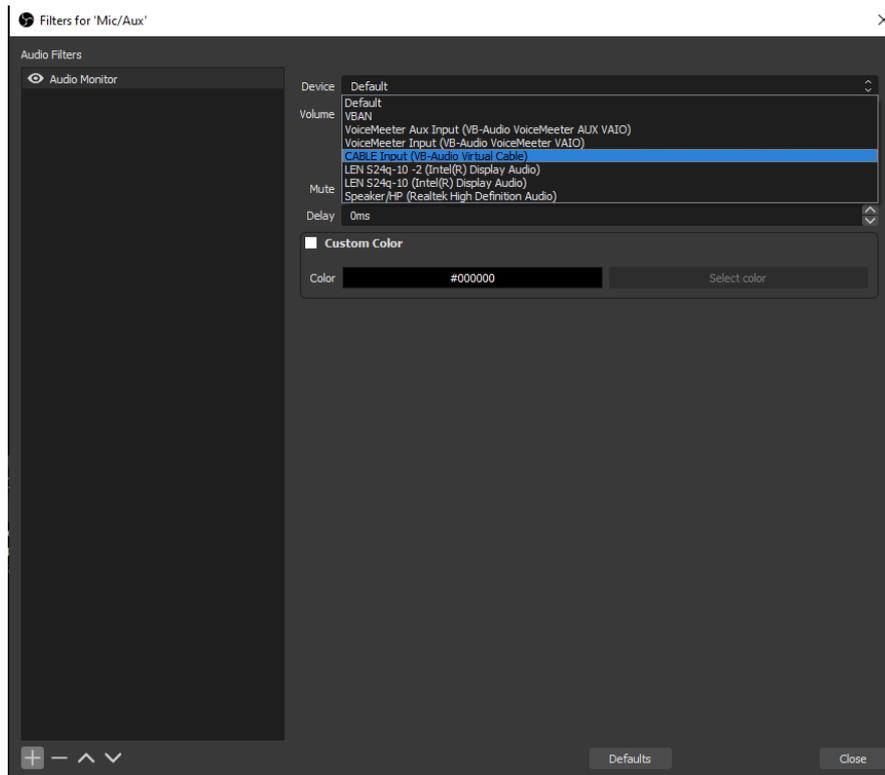
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By clicking on the button, we select “Filters”. To add a filter press + in the left bottom corner. There the “Audio Monitor” should be visible.



After the Audio Monitor is added we must select from the device drop down menu the Cable Input (VB-Audio Virtual Cable).



The same process must be done for both “Mic/Aux” and “Desktop Audio”.

On the streaming website select CABLE Output (VB-Audio Virtual Cable)

Audio Source

- Default - VoiceMeeter Aux Output (VB-Audio VoiceMeeter AUX VAIO)
- Communications - VoiceMeeter Aux Output (VB-Audio VoiceMeeter AUX VAIO)
- Microphone (Logitech BRIO) (046d:085e)
- VoiceMeeter Aux Output (VB-Audio VoiceMeeter AUX VAIO)
- VoiceMeeter Output (VB-Audio VoiceMeeter VAIO)
- CABLE Output (VB-Audio Virtual Cable)
- Microphone Array (Realtek High Definition Audio)

Routine before going live

With the OBS Studio setup, immediately before going live there are several activities that must be considered.

- Check if the camera and the microphone are properly connected to the computer
- Ensure the OBS Studio is set following the instructions from the guide
- Select Audio Source on the streaming website – CABLE Output
- Check the positioning of the speakers so the microphone does not catch noise

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