DEARREALITY

USER MANUAL

v1.13.1

Please read this manual carefully before using the software.

Using headphones requires responsible listening!

Last updated: Jan 2023

Quick Start Guide

Install and authorize your new plugin:

Double-click the .pkg (Mac) or .msi (Win) file

Follow the installation instructions.

Open the plugin in your DAW of choice, enter your license code and click on ACTIVATE.

For more information, please visit: www.dearreality.com

System requirements and supported platforms

Supported sample rates: 44.1, 48, 88.2, 96, 176.4 and 192 kHz.

Supported buffer sizes: 128, 256, 512 and 1024

For latest System requirements & Supported Platforms, please check the product page on our website.

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1 Introduction

Thank you for purchasing our dearVR MONITOR plugin, and welcome to your personal reference-grade mix room.

Relying on Dear Reality's outstanding binaural headphone technology, dearVR MONITOR combines the analytic advantages of headphone listening, such as high detail resolution, and good spatial representation, with the perception of mixing in a perfectly matched control room.

Don't limit yourself anymore by poor room acoustics or missing speaker setups. Mix with greater confidence and accuracy anytime, anywhere, and in any common speaker setup from Stereo up to 9.1.6. This manual will help you understand the plugin and how to use it in your projects.

Have fun!

2 Virtual Mix Room

It is no secret, creating a great mix is so much easier within a perfect control room. We have probably all experienced the feeling when a final mix does not translate as expected to other systems. With dearVR MONITOR you now access your own virtual mix room over headphones.

While developing dearVR MONITOR, the aim was to create a reference-grade "virtual mix room" for all sorts of audio productions and genres. For a long time, the audio industry has been defining the characteristics of control rooms, even though the “perfect“ mix room de-facto does not exist. Everyone has a slightly differently view, and that’s fine.

However, there are certain characteristics that define a reference mix room:

- a certain reverb time
- a defined spatial geometry
- no reflections that color the sound
- a very diffuse reverb tail

When modeling a virtual mix room, you could measure the parameters of "legendary" mix rooms and transfer them to a software plugin afterwards. But what real benefit would you have working in this captured studio control room? You probably never worked in one and probably never will... and even if you did... maybe you don't like the mix room’s acoustic characteristics?

That's why we took a different approach for dearVR MONITOR. If THE perfect mix room doesn't exist, but we know the characteristics of a good reference room, why don't we leave it up to you to customize YOUR perfect mix room?

We believe that a good sounding control room is a very subjective thing and should therefore be flexible within certain limits. It becomes a perfect control room for you when

you feel comfortable with the room's characteristics and perception and feel "at home" in it or in other words, when the room seems plausible to you.

The adjustable parameters include the main properties that influence the sound image in a real room, and which are neglected in conventional stereo headphone playback:

- the size of the room
- the distance between the loudspeaker and the listener
- the characteristics of the control room

We deliberately programmed all parameters into just two sliders - Ambience and Focus, which are easy to understand and can be adjusted within a range of 0 to 100 for AMBIENCE and a range of -100 to 100 for FOCUS.

With dearVR MONITOR you benefit from steady listening conditions, even outside your studio, for recording and monitoring sessions. This allows you to take advantage of all benefits of a real reference listening room, where a sound engineer can easily assess the quality of an existing recording. The more often you work in this particular room, the easier it is for you to judge how the recording would sound in a different environment.

DearVR MONITOR also puts you just a few clicks away from listening to your recording in a different environment, so you can be sure that your "living room" mix will still sound great in a small car!

Our aim is to ensure that you do what you do best when setting up your personal control room: Trust your ears!

Simply experiment with the room parameters of your virtual control room. As soon as you feel that your setup sounds realistic and pleasant, you've done it! You have created your own personal reference control room that you can now take with you wherever you go.

3 dearVR MONITOR

Being inserted in the master bus of your DAW, dearVR MONITOR enables you to monitor a variety of loudspeaker configurations on any regular headphones. The plugin is divided into two main areas. On top, you find a comprehensive visualization of your virtual mix room and the selected speaker setup. The control panel below contains three sections providing you with direct access to all important parameters:

1. Input
2. Control room
3. Output

Illustration 3.1 - Plugin Overview

3.1 Input

dearVR MONITOR lets you choose between 32 common speaker setups, starting from Stereo up to 7.1.4 and 9.1.6. Simply select in the input module the speaker setup that fits your recording. You find a complete list of all setups and their speaker configuration at the end of the manual.

To use multichannel setups your DAW needs to support tracks with the corresponding channel count!

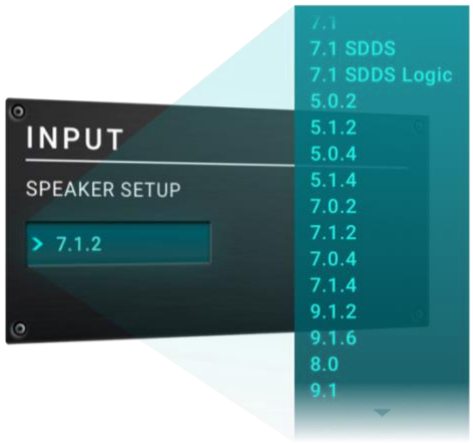


Illustration 3.2 - Input Section

3.2 Control Room

Using Dear Reality's outstanding virtual acoustics headphone technology, dearVR MONITOR combines the analytic advantages of headphone listening with the perception of mixing in a perfectly matched mix room. dearVR MONITOR comes with five mix room characteristics which can be selected in the SCENE menu.

Type	Description
Mix Room A	Our perfectly tuned Mix Room A: No flutter echoes or discrete reflections, well-absorbed short room response.
Mix Room B	Our perfectly tuned Mix Room B: No flutter echoes or discrete reflections, well-absorbed short room response, slightly broader than Mix Room A.
Mix Room Large	The classic large mixing room with a big console and more reflecting surfaces.
Analytic Dry	The perfect anechoic chamber: Direct sound of headphones with realistic speaker crosstalk.
Analytic Position	Direct sound of headphones with the realistic crosstalk of speakers and early reflections.

Illustration 3.3 - Control section

dearVR MONITOR lets you easily adapt the virtual mix rooms to your taste using the AMBIENCE and the FOCUS sliders. Use the AMBIENCE slider to set the amount of diffusion, and therefore the vividness of the virtual mix room. FOCUS changes the amount of binaural impression. You can select the right stop between overall coloration and localization, based on the patented Clarity algorithm by Sennheiser AMBEO.

Illustration 3.4 - AMBIENCE and FOCUS Parameter

Moreover, dearVR MONITOR provides you with 11 common listening environments. Does your mix pass the car test? Stop spending hours double-checking how your mix translates into common listening scenarios. Simply select the desired scenario in the SCENES menu.

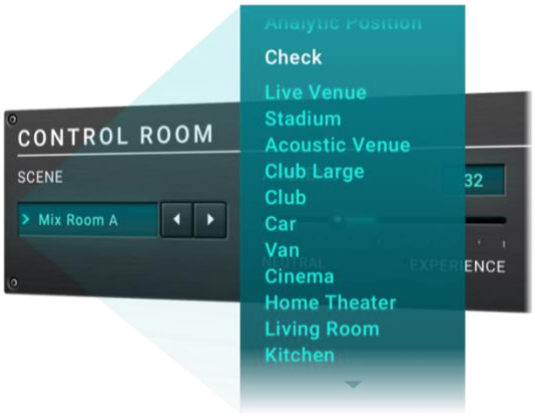


Illustration 3.5 - Overview Check Scenes

DearVR MONITOR puts you just a few clicks away from monitoring your production in the following acoustic environments:

Type	Description
Live Venue	Your mix on the stage: Mid-sized venue with some slap-back reflections, medium reverberation, and low-end smear.
Stadium	Ready for Superbowl? Stadium with discrete early reflections and longer low-end reverberation
Acoustic Venue	Well-treaded venue for acoustic performances with bright reflections and a well-balanced, medium-long, reverberation time.
Club Large	A large club with lots of reflections, low-end smear, and a large speaker distance.
Club	Compact, acoustically well-treated, reflective club.
Car	How is your mix in a middle-class car with a regular sound system?
Van	How does your mix sound in an upper-class van with a high-end sound system?
Cinema	Your mix in an acoustically well-treated cinema with a large screen.
Home Theater	Experience your mix in a small acoustically treated home theater with lots of low-end.
Living Room	Stop sacrificing your living room and listen to your mix in a living room with a tonal low-midrange reverberation.
Kitchen	The final check in a kitchen with a tonal low midrange reverberation.

3.3 Output module

Head rotation is a crucial factor when it comes to localizing sounds in the three-dimensional space. Therefore, dearVR MONITOR provides you with the possibility to simulate rotating your head in the virtual mix room to judge your mix precisely and accurately. Also, the headtracking automatically uses the one sent out from dearVR SPATIAL CONNECT, if you have it set up in your session.

Control the overall output volume of the dearVR MONITOR using the master gain. Because of the plugin structure, the different speaker setups use different gain compensation values within their categories to ensure distortion free summation.

Illustration 3.6 - Output Module

Pro Tip – Level compensation for A/B listening
Of course, your mix should also work on headphones! You can use the Master gain to compensate for gain differences between the plugin output, according to the chosen parameter, and the bypassed plugin. Note, that you should pay attention to your levels, so no clipping is introduced in your plugin chain!

3.4 Spatial Headphone Compensation

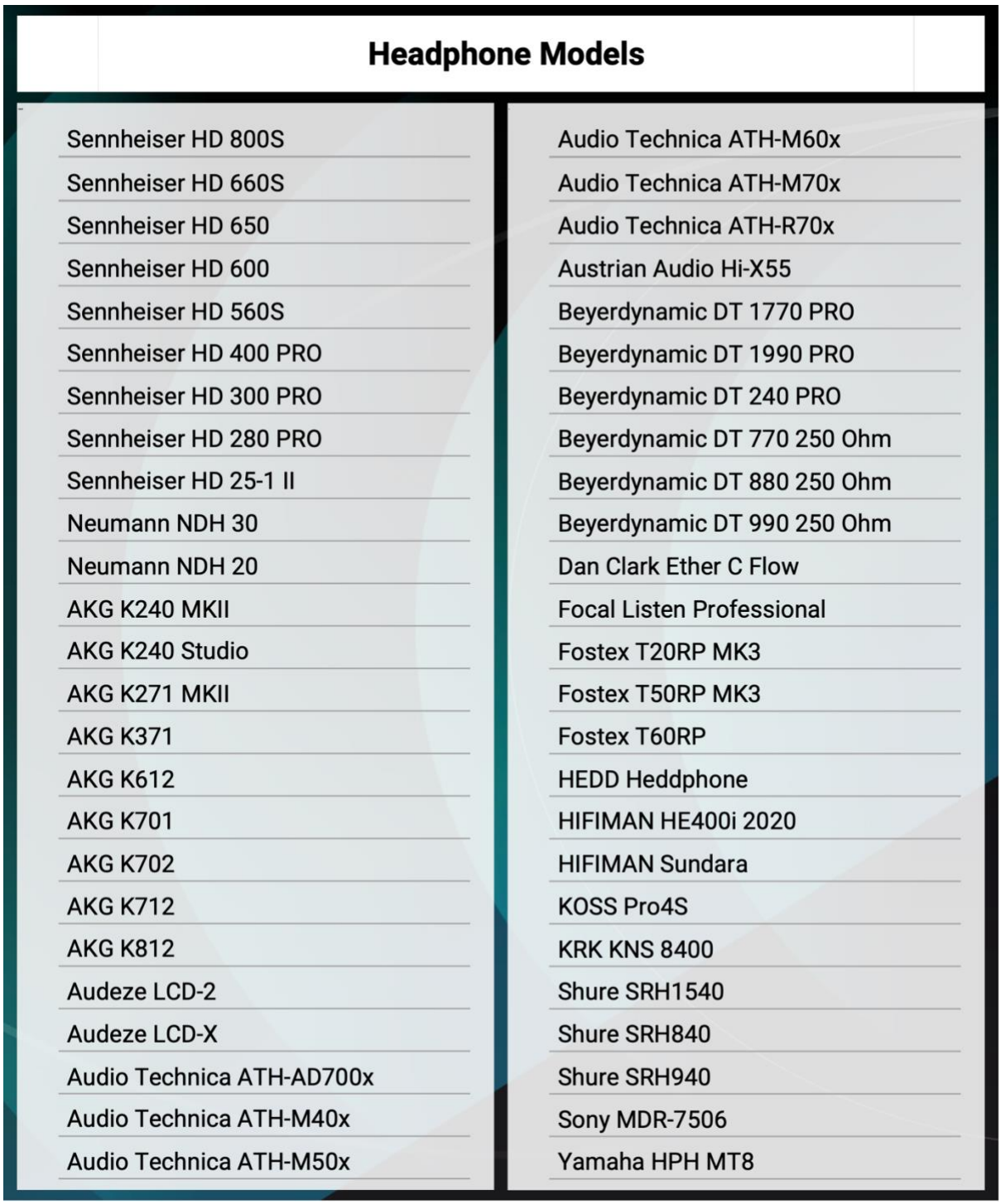
Binaural audio works best with a linear frequency response. Since there is no ideal headphone with a perfectly linear frequency response, we have built in a tool to compensate the deviations of common headphone models. The Spatial Headphone Compensation (SHC) module equalizes the signal in correspondence to your headphone model to cancel out any non-linearities and thereby enhances the binaural experience. To achieve this, we have used handpicked headphonce compensation (HPC) library data and optimized this data with our own ears as a final quality control.

You can activate the headphone compensation by clicking the on/off button on top of the output module. Click on the icon to open the context menu.
From the drop-down menu you can choose between many different headphone models.
You can adjust the Low- and the High-end to your personal taste with the Shelving-Filters.
Use the Gain-Trim to adjust the input level. Since some of the applied HPC curves strongly boost certain frequencies, the default value is -6dB. Be careful to avoid clipping when changing it.

You can choose between two filter type modes for our SHC model data, by clicking on “Lin” for linear-phase (more delay, no phase shift) or “min” for minimum-phase (low latency but some phase shifting introduced).

Illustration 3.7 – SHC module

The following headphone models are supported:



3.5 Bypass

Comparison is key for a good mix. Of course, you want to check your mix also without our idealized mix rooms, just like the end user will listen to it. But a simple bypass of the plugin will also introduce level differences. This is, why we implemented a bypass feature into dearVR MONITOR. It bypasses all plugin processing so you can listen to the original mono or stereo file again. For any level differences you might experience, you can click on the Bypass field to open a small window, where you can adjust a gain to match the level. This feature works only in mono and stereo since any multichannel format needs binauralization to be played over headphones.

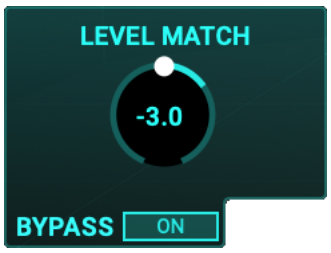


Illustration 3.7 - Bypass module

3.6 Performance

DearVR MONITOR drains a lot of performance, especially when using configurations with a multichannel speaker setup. Therefore, if you encounter any performance issues, we recommend trying a lower sample rate setting. If you are still experiencing performance issues, try to use a smaller space with less reverb.

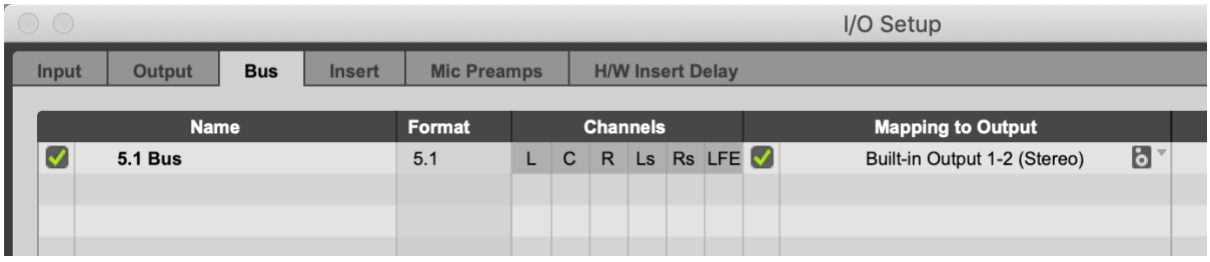
4 DAW integration

4.1 Pro Tools

In Pro Tools 2020.11 there was an internal change, which requires MONITOR's ITU setup.

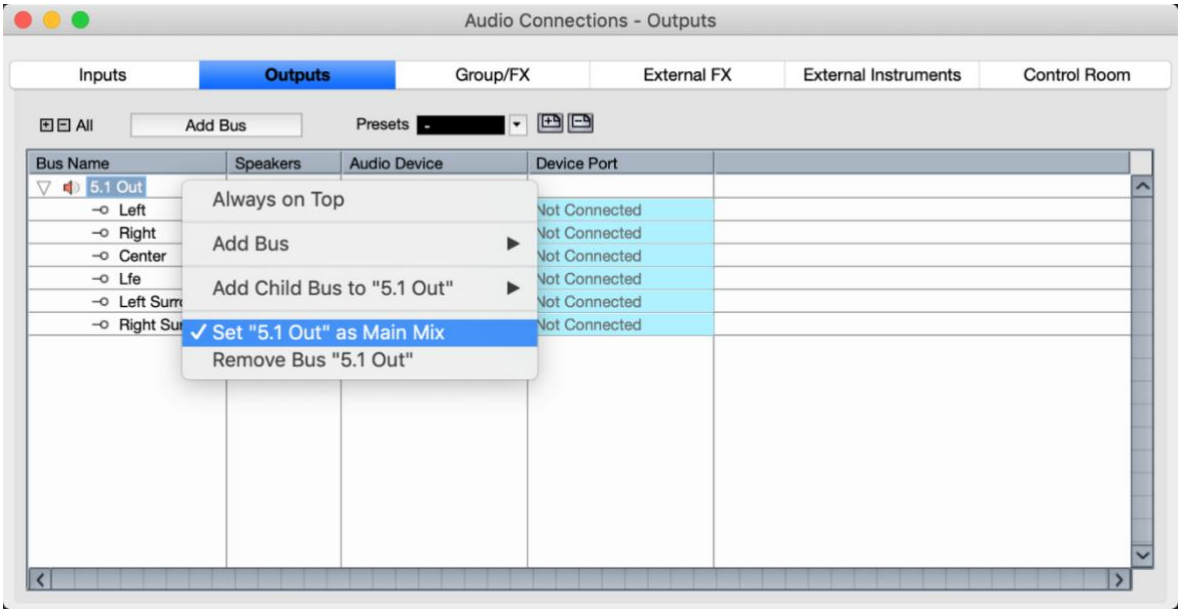
- Create an output bus for the format you want to monitor.
- Route all your sources to this bus.
- Create a master bus for the bus and put dearVR MONITOR on it.

- Configure dearVR MONITOR as you need it.
- To connect the bus to your headphones output you need to go to Setup -> I/O and search for Bus. There you can connect your bus to the output.

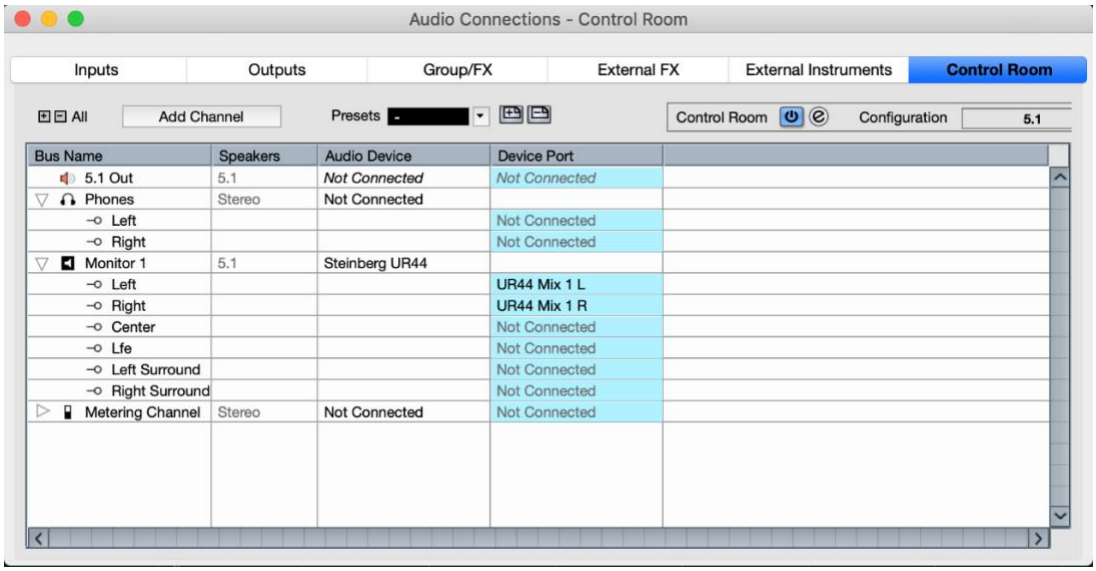


4.2 Nuendo 10

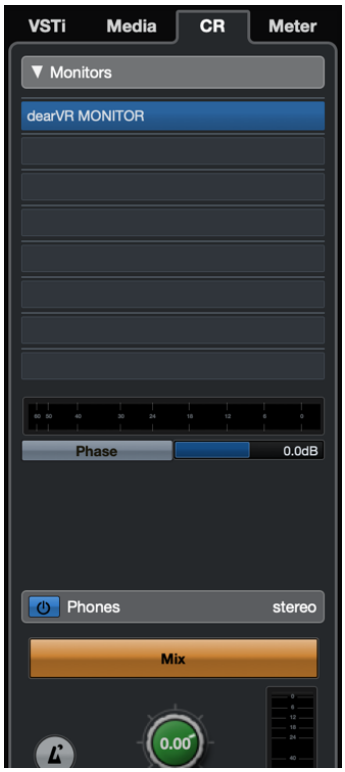
- Go to Studio -> Audio Connections
- Create an Output for the output format you want to work with. Right-click on it and select it as your main mix. This ensures you can bounce your session in the correct format properly.



- Move there to the Control Room tab.
- You will have a Main mix in your multichannel format. Create a Monitor by right clicking on the window and select “Add Monitor” with the same configuration as your main mix and assign your headphones output.



- Go to Studio -> Control Room and move there to the tab “Inserts”
- Place dearVR MONITOR on the Monitor you just created.

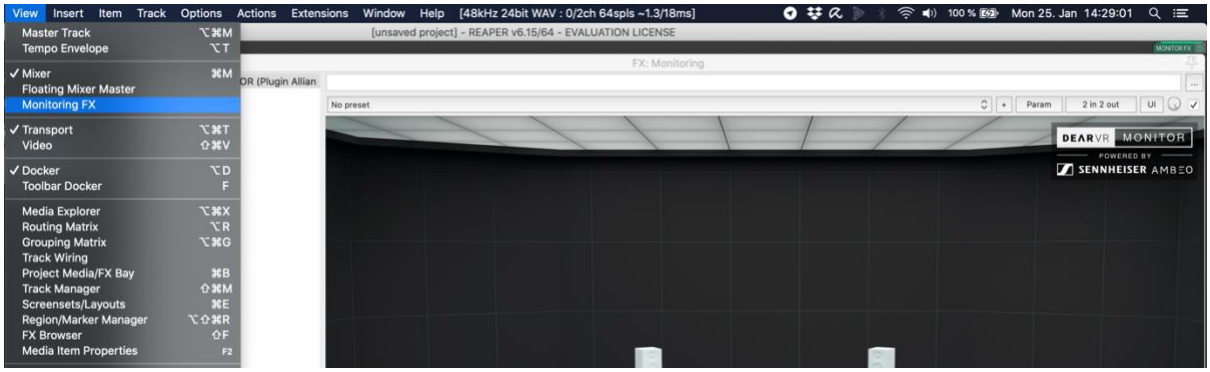


4.3 Logic Pro X

In Logic Pro X you can simply put dearVR MONITOR on the master channel to monitor your mix. The Dolby Atmos plugin is also supported, simply place dearVR MONITOR behind the Dolby Atmos plugin.

4.4 Reaper

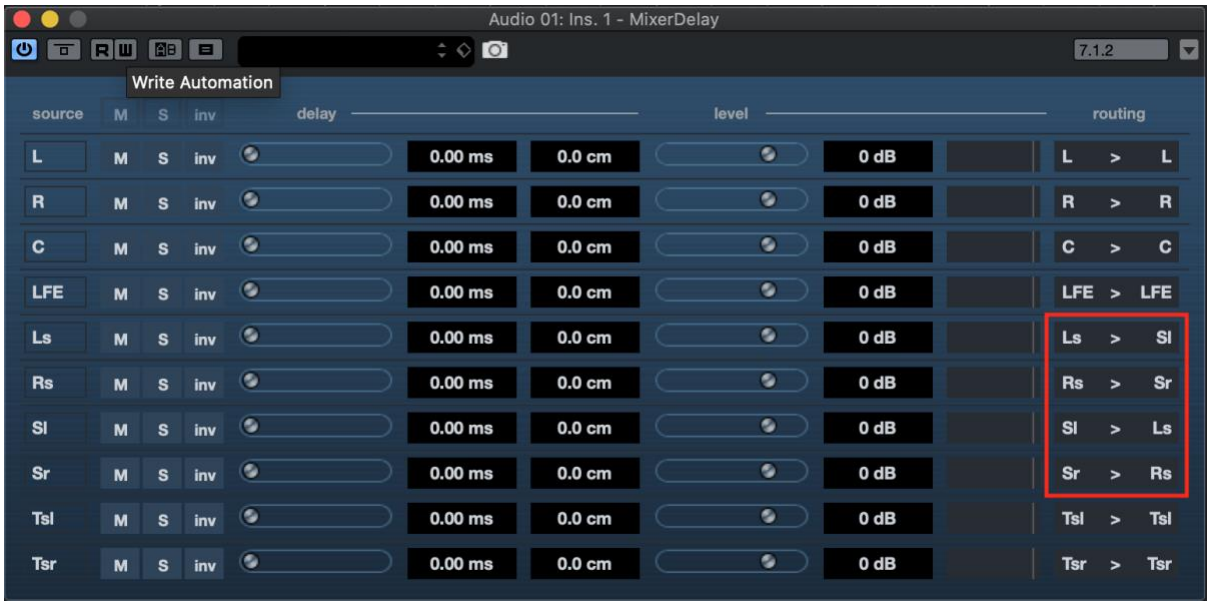
In Reaper you can put dearVR MONITOR into the Monitoring FX and select the correct input configuration to monitor your mix. With this setup, your mix is automatically rendered in the correct configuration, you do not have to bypass the plugin like this.



5 Speaker setups

dearVR MONITOR supports 32 different speaker setups. We strive to provide you with all relevant speaker setups for audio productions and will regularly update our database to adapt dearVR MONITOR to the latest DAW setup changes. With dearVR MONITOR we currently support all track formats which are available in Pro Tools. For higher channel counts, which are not available in Pro Tools, we focus on the Nuendo layout. We marked the setups which are only supported by specific DAWs in the following section. Even if a setup is not supported with the native panner of your DAW, you can reroute the flipped channels to make MONITOR work again with your native panner. We additionally support Logic Pro's channel layouts by dynamically adjusting the channel routing when using dearVR MONITOR inside Logic Pro, including the Dolby Atmos Renderer plugin.

Pro Tip – Adjusting channel order in NUENDO
If you run into any problems with mixed up channels in Nuendo you can use the MixerDelay plugin to switch channels in your signal flow. You can also use it to configure formats that are not compatible natively with dearVR MONITOR. In the following screenshot, you can see an example for switched side surround and surround channels in a 7.1.2 setup.



Type	Description
L	Left
R	Right
C	Center
BC	Back center
LC	Left center
RC	Right center
LFE	Low frequency effects
SL	Surround left
SR	Surround right
SB	Surround back
SSL	Side surround left
SSR	Side surround right
SBL	Surround back left
SBR	Surround back right
HFL	High front left
HFR	High front right
HFC	High front center
HSL	High surround left
HSR	High surround right
T	Top
TL	Top left
TR	Top right

Mono Input (Pro Tools, Nuendo)	
Channel Number	1
Channel Description	C
Azimuth	0°
Elevation	0°

Mono Summed (Pro Tools, Nuendo)		
Channel Number	1	2
Channel Description	L	R
Azimuth	0°	0°
Elevation	0°	0°

Stereo (Pro Tools, Nuendo)		
Channel Number	1	2
Channel Description	L	R
Azimuth	-30°	30°
Elevation	0°	0°

Stereo Wide (Pro Tools, Nuendo)		
Channel Number	1	2
Channel Description	L	R
Azimuth	-45°	45°
Elevation	0°	0°

LRCS (Pro Tools, Nuendo)

Channel Number	1	2	3	4
Channel Description	L	R	C	SB
Azimuth	-30°	30°	0°	180°
Elevation	0°	0°	0°	0°

Quad

Channel Number	1	2	3	4
Channel Description	L	R	SBL	SBR
Azimuth	-30°	30°	-135°	135°
Elevation	0°	0°	0°	0°

4.0 (Pro Tools, Nuendo)

Channel Number	1	2	3	4
Channel Description	L	R	SL	SR
Azimuth	-30°	30°	-110°	110°
Elevation	0°	0°	0°	0°

5.0 Film (none)

Channel Number	1	2	3	4	5
Channel Description	L	C	R	SL	SR
Azimuth	-30°	0°	30°	-110°	110°
Elevation	0°	0°	0°	0°	0°

5.0 ITU (Pro Tools, Nuendo)

Channel Number	1	2	3	4	5
Channel Description	L	R	C	SL	SR
Azimuth	-30°	30°	0°	-110°	110°
Elevation	0°	0°	0°	0°	0°

5.1 Film (none)

Channel Number	1	2	3	4	5	6
Channel Description	L	C	R	SL	SR	LFE
Azimuth	-30°	0°	30°	-110°	110°	0°
Elevation	0°	0°	0°	0°	0°	-15°

5.1 ITU (Pro Tools, Nuendo)

Channel Number	1	2	3	4	5	6
Channel Description	L	R	C	LFE	SL	SR
Azimuth	-30°	30°	0°	0°	-110°	110°
Elevation	0°	0°	0°	-15°	0°	0°

6.0 (Pro Tools, Nuendo)

Channel Number	1	2	3	4	5	6
Channel Description	L	R	C	SL	SR	BC
Azimuth	-30°	30°	0°	-110°	110°	180°
Elevation	0°	0°	0°	0°	0°	0°

6.1 (Pro Tools, Nuendo)

Channel Number	1	2	3	4	5	6	7
Channel Description	L	R	C	LFE	SL	SR	BC
Azimuth	-30°	30°	0°	0°	-110°	110°	180°
Elevation	0°	0°	0°	-15°	0°	0°	0°

7.0 (Pro Tools, Nuendo)

Channel Number	1	2	3	4	5	6	7
Channel Description	L	R	C	SSL	SSR	SBL	SBR
Azimuth	-30°	30°	0°	-90°	90°	-135°	135°
Elevation	0°	0°	0°	0°	0°	0°	0°

7.1 (Pro Tools, Nuendo)

Channel Number	1	2	3	4	5	6	7	8
Channel Description	L	R	C	LFE	SSL	SSR	SBL	SBR
Azimuth	-30°	30°	0°	0°	-90°	90°	-135°	135°
Elevation	0°	0°	0°	-15°	0°	0°	0°	0°

7.1 SDDS (Pro Tools, Nuendo)

Channel Number	1	2	3	4	5	6	7	8
Channel Description	L	R	C	LFE	SL	SR	LC	RC
Azimuth	-40°	40°	0°	0°	-110°	110°	-20°	20°
Elevation	0°	0°	0°	-15°	0°	0°	0°	0°

5.0.2 (none)

Channel Number	1	2	3	4	5	6	7
Channel Description	L	R	C	SL	SR	HFL	HFR
Azimuth	-30°	30°	0°	-110°	110°	-30°	30°
Elevation	0°	0°	0°	0°	0°	30°	30°

5.1.2 (none)

Channel Number	1	2	3	4	5	6	7	8
Channel Description	L	R	C	LFE	SL	SR	TL	TR
Azimuth	-30°	30°	0°	0°	-110°	110°	-80°	80°
Elevation	0°	0°	0°	-15°	0°	0°	45°	45°

5.0.4 (Nuendo)

Channel Number	1	2	3	4	5	6	7	8	9
Channel Description	L	R	C	SL	SR	HFL	HFR	HBL	HBR
Azimuth	-30°	30°	0°	-110°	110°	-30°	30°	-110°	110°
Elevation	0°	0°	0°	0°	0°	30°	30°	30°	30°

5.1.4 (Nuendo)

Channel Number	1	2	3	4	5	6	7	8	9	10
Channel Description	L	R	C	LFE	SL	SR	TL	TR	TSL	TSR
Azimuth	-30°	30°	0°	0°	-110°	100°	-30°	30°	-135°	135°
Elevation	0°	0°	0°	-15°	0°	0°	45°	45°	45°	45°

7.0.2 (Pro Tools, Nuendo)

Channel Number	1	2	3	4	5	6	7	8	9
Channel Description	L	R	C	SSL	SSR	SBL	SBR	TL	TR
Azimuth	-30°	30°	0°	-90°	90°	-135°	135°	-80°	80°
Elevation	0°	0°	0°	0°	0°	0°	0°	45°	45°

7.1.2

Channel Number	1	2	3	4	5	6	7	8	9	10
Channel Description	L	R	C	LFE	SSL	SSR	BSL	BSR	TSL	TSR
Azimuth	-30°	30°	0°	0°	-90°	90°	-135°	135°	-80°	80°
Elevation	0°	0°	0°	-15°	0°	0°	45°	45°	45°	45°

7.0.4 (none)

Channel Number	1	2	3	4	5	6	7	8	9	10	11
Channel Description	L	R	C	SSL	SSR	SBL	SBR	HFL	HFR	HBL	HBR
Azimuth	-30°	30°	0°	-90°	90°	-135°	135°	-30°	30°	-135°	135°
Elevation	0°	0°	0°	0°	0°	0°	0°	30°	30°	30°	30°

7.1.4 (Nuendo)

Channel Number	1	2	3	4	5	6
Channel Description	L	R	C	LFE	SBL	SBR
Azimuth	-30°	30°	0°	-	-135°	135°
Elevation	0°	0°	0°		0°	0°

Channel Number	7	8	9	10	11	12
Channel Description	SSL	SSR	HFL	HFR	HSL	HSR
Azimuth	-90°	90°	-45°	45°	-135°	135°
Elevation	0°	0°	45°	45°	45°	45°

9.1.2 (none)

Channel Number	1	2	3	4	5	6
Channel Description	L	R	C	LFE	SL	SR
Azimuth	-30°	30°	0°	-	-90°	90°
Elevation	0°	0°	0°		0°	0°

Channel Number	7	8	9	10	11	12
Channel Description	SBL	SBR	SSL	SSR	TL	TR
Azimuth	-135°	135°	-60°	60°	-80°	-80°
Elevation	0°	0°	0°	0°	45°	45°

9.1.6 (none)

Channel Number	1	2	3	4	5	6	7	8
Channel Description	L	R	C	LFE	SBL	SBR	SL	SR
Azimuth	-30°	30°	0°	0°	-135°	135°	-90°	90°
Elevation	0°	0°	0°	-15°	0°	0°	0°	0°

Channel Number	9	10	11	12	13	14	15	16
Channel Description	SSL	SSR	HFL	HFR	HSL	HSR	HL	HR
Azimuth	-60°	60°	-45°	45°	-135°	135°	-90°	90°
Elevation	0°	0°	45°	45°	45°	45°	45°	45°

8.0 (none)

Channel Number	1	2	3	4	5	6	7	8
Channel Description	L	R	SL	SR	HFL	HFR	HBL	HBR
Azimuth	-30°	30°	-110°	110°	-30°	30°	-110°	110°
Elevation	0°	0°	0°	0°	30°	30°	30°	30°

9.1 (none)

Channel Number	1	2	3	4	5	6	7	8	9	10
Channel Description	L	R	C	LFE	SL	SR	HFL	HFR	HBL	HBR
Azimuth	-30°	30°	0°	0°	-110°	110°	-30°	30°	-110°	110°
Elevation	0°	0°	0°	-15°	0°	0°	30°	30°	30°	30°

11.1 (Nuendo)

Channel Number	1	2	3	4	5	6
Channel Description	L	R	C	LFE	SL	SR
Azimuth	-30°	30°	0°	-	-110°	110°
Elevation	0°	0°	0°		0°	0°

Channel Number	7	8	9	10	11	12
Channel Description	T	HFL	HFC	HFR	HSL	HSR
Azimuth	0°	-30°	0°	30°	-110°	110°
Elevation	90°	30°	30°	30°	30°	30°

13.1 (Nuendo)

Channel Number	1	2	3	4	5	6	7
Channel Description	L	R	C	LFE	SBL	SBR	SL
Azimuth	-30°	30°	0°	-	-150°	150°	-110°
Elevation	0°	0°	0°		0°	0°	0°

Channel Number	8	9	10	11	12	13	14
Channel Description	SR	T	HFL	HFC	HFR	HSL	HSR
Azimuth	110°	0°	-30°	0°	30°	-110°	110°
Elevation	0°	90°	30°	30°	30°	30°	30°

6 Troubleshooting

DearVR MONITOR does not appear in my DAW on Windows:

DearVR MONITOR does not appear in DAWs, when a Visual C++ Redistributable is missing.

Try to install the “Microsoft Visual C++ Redistributable for Visual Studio 2015, 2017 and 2019 Redistributabel (x64)” on your machine. You can find the package here:

https://support.microsoft.com/en-ca/help/2977003/the-latest-supported-visual-c-downloads

7 Changelog

v1.8.0:

- Beta release
- Added Spatial Headphone Compensation feature with 15 headphone models

v1.9.0:

- Added 29 additional headphone models to SHC
- Added Bypass feature
- Bugfix – Sample rate related level offset: fixed a bug, where the gain relied on the used sample rate. Fix might lead to legacy issue.
- Minor bugfixes

v1.9.2:

- Added Sennheiser HD400 PRO to the headphone models

v1.11.0:

- Added support for Logic Pro's multichannel formats up to 7.1.4
- Added additional headphone models (Sennheiser HD300, AKG812, Yamaha HPH MT8)

v1.13.0:

- Added native M1 support for AAX
- Added additional headphone models (Neumann NDH 30, HIFIMAN Sundara)
- Added new Dear Reality Licensing engine

8 Contact

Support

Please let us know if there are any questions concerning the dearVR Plugin.
If you need further assistance, please send an email to:
support@dear-reality.com

For the latest news concerning dearVR please visit our website at:
www.dear-reality.com

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Caution

Using headphones requires responsible listening. Damage to hearing occurs when listen to loud sounds with headphones over time.

- Set the volume control of your computer to a minimum when connecting your headphones.
- Set the volume in a quiet environment and select the lowest volume at which you can hear adequately.
- Do not turn the volume control to high, as this can cause permanent hearing damage.
- Be aware that you can adapt to higher volume settings over time, not realizing that the higher volume may be harmful to your hearing.

Dear Reality GmbH will in any event not be liable for any damage to hearing caused by loud sounds.