

Vienna
Symphonic
Library

Vienna MIR Pro

Manual

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Introduction

What is Vienna MIR Pro?

Vienna MIR Pro / MIR Pro 24 is an innovative, highly integrated software package for mixing, spatialization (distribution in space) and reverberation of virtual orchestral instruments. Vienna MIR Pro / MIR Pro 24 is meant to be used "stand-alone", much like you would use a mixing console in the analogue world. Vienna MIR Pro / MIR Pro 24 offers integrated sample players, advanced stage positioning possibilities, sample-based reverb (so-called impulse responses), and individually assignable signal processing.

Its main goal is a fast and intuitive, yet highly realistic approach to the realisation and mixdown of virtual orchestral music as well as any other kind of digital audio production.

Vienna MIR Pro / MIR Pro 24 's main components and core technologies are:

- a host and MIDI interface for Vienna Instruments (Vienna Ensemble Pro 5)
- unique instrument-conscious (signal dependent) directivity handling
- a mixing and spatialization tool for any kind of digital audio sources on detailed virtualizations of real halls and stages
- a host for 3rd-party VSTi's (virtual instruments adhering to the VST and / or AU standards)
- a host for VST / AU effect and signal processing plug-ins with full latency compensation
- a convolution-based reverberation tool, derived from world class orchestral venues
- an advanced multi-format mixing engine with instrument-specific, hand-tuned presets
- an inviting, hands-on graphical user interface
- LAN capabilities and direct DAW integration
- a built-to-the-task algorithmic reverb add-on for hybrid reverberation and sound design

Walkthrough Video



Watch the video

11 Easy steps to work with Vienna MIR Pro / MIR Pro 24

0. Please make sure that your audio system, your Vienna Instruments (or any other virtual instruments), Vienna Ensemble Pro 5 and MIR Pro RoomPacks are installed properly; make sure that all dongles are in place and that all drivers are up-to-date.

1. a) Open Vienna Ensemble Pro 5, create a new Project, and chose the appropriate speaker configuration (Stereo, 5.1 Surround ...)
   b) Alternatively, select a previously saved Template Project (*.viframe32, *.viframe64).
   If you haven't done so already, configure MIDI and audio connections according to your needs. Make sure the VE Pro / MIR Pro engine is started.

2. Select MIR Pro / MIR Pro 24's Main View by clicking the Vienna MIR tab.

3. Select the MIR Venue of your choice, then the preferred Microphone Position within the Venue and load it.

4. Choose the Main Microphone's Output Format or create your own (unless you have loaded an existing Project and want to use its Output Format).

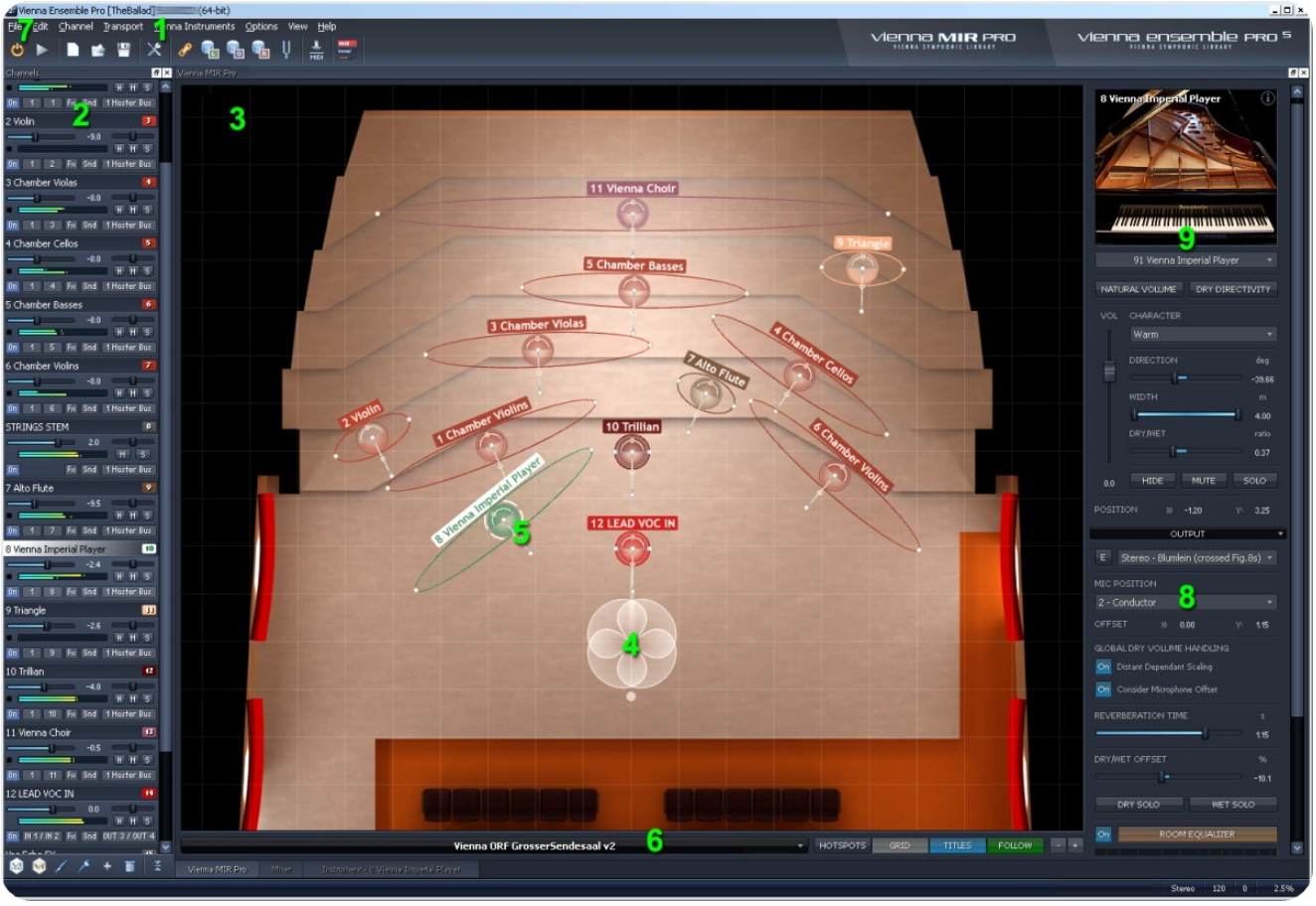
5. Activate the "Auto add Vienna MIR" option from the "Channel"-pull-down in VE Pro's Main Menu, or just click the respective icon. – This will instantiate the MIR Pro / MIR Pro 24 Connector plug-in in any newly created channel.

6. a) Add a Vienna Instruments (Pro) channel – select the proper Instrument Profile, load the samples of choice, connect MIDI port and channel and apply name.

b) Alternatively add a 3rd-party virtual instrument channel – select a General Purpose Instrument Profile, load the samples or patches of choice, connect MIDI port and channel and apply name. c) Alternatively add an Audio Input channel – select a General Purpose Instrument Profile, connect it to the the physical audio inputs of VE Pro and apply name.

7. Drag the instrument's (or audio channel's) Icon to the desired position on the stage of the selected Venue and adjust its direction, as well as volume and stereo width (if the default values don't fit).
8. Press Play on your MIDI Sequencer, or play some notes on your MIDI keyboard. Adjust any parameters of the Icon in real-time, or use the sliders in Instrument Channel View. Choose appropriate Instrument Character Presets from the pull-down, and/or add audio processing plug-ins in VE Pro's Main Mixer.
9. Repeat steps 6 to 8 to set up your orchestra.
10. Adjust the Master Bus's output volume in VE Pro's Main Mixer.
11. ... hear your virtual orchestra play in full depth and glory!
    – And don't forget to save your Project.

Main GUI Components



1. Main Menu
2. Channels List Panel
3. Venue View (Main Window)

4. Microphone Position Indicator
5. MIR Instrument Control Icon
6. Venue Selection
7. Engine Start Button
8. Channel Strip Panel: Output Channel
9. Channel Strip Panel: Instrument Channel
10. Venue View Controls

Quickstart

Once you have set up VE Pro 5 and MIR Pro / MIR Pro 24 according to your needs and have grasped a few basic concepts, MIR Pro / MIR Pro 24 will be self-explanatory – despite all the hi-tech that's going on "under the hood". The following paragraphs are meant to familiarize you with MIR Pro / MIR Pro 24 quickly. This will by no means replace a complete manual, but it should be sufficient to get you going within little time.

If you are completely new to the world of MIR, it might be a good idea to read the corresponding manual addendum "Think MIR – Philosophy and Underlying Concepts".

This Quickstart Guide will be mostly text-based. Please find all relevant screenshots in the subsequent section.

VE Pro and MIR Pro / MIR Pro 24

If you have the most recent build of VE Pro installed and running, you already have MIR Pro / MIR Pro 24 ready to go, too. MIR Pro / MIR Pro 24 is an integral part of VE Pro.

Most aspects of VE Pro handling won't be repeated here; everything that can be done with VE Pro alone can also be done when MIR Pro / MIR Pro 24 is brought into the equation. Please refer to VE Pro's manual for topics like file handling, network-related features, DAW integration, and so on.

Installation

First of all: Please make sure that you have a valid license on your eLicenser. You will also need the most recent version of the eLicenser Control Center

Even with VE Pro / MIR Pro / MIR Pro 24 already installed and licensed on your system, you will have to get the so-called MIR RoomPacks before you can actually use MIR Pro / MIR Pro 24. They contain the huge collections of multi impulse response data gathered from great musical venues MIR is all about.

The RoomPacks downloads are supported by VSL's Download Manager – just follow the instructions given in the User Area. It might be important to mention that the RoomPacks need to be installed, too. If you decide to change the installation path to a custom location, please make sure to point MIR Pro / MIR

Pro 24 to it later on (see below). The default installation path is WIN: <SystemDisk>\ProgramData\VSL\Vienna MIR; MacOS: Macintosh HD/Library/Application Support/VSL/Vienna MIR.

First Start

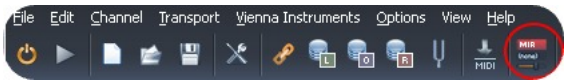
After the first start with a valid MIR Pro / MIR Pro 24 license detected on your eLicenser (demo or permanent), you will find a new tab at the bottom of VE Pro's main window:



Clicking the "MIR" tab will open MIR Pro / MIR Pro 24's own GUI. You will be looking at the so-called "Default Venue", which is just there because it looks better than an empty screen. ;-) It consists of just one single impulse position of the Vienna Konzerthaus' "Great Hall" and isn't meant to be used for any serious work.

Before you go on with creating your own virtual orchestra setting, please open MIR Pro / MIR Pro 24's Preferences (Main Menu: Options > Preferences > Vienna MIR) and make sure that the path to MIR's RoomPacks is set correctly (RoomPack Data Folder).

MIR Pro / MIR Pro 24 relies on a massive amount of convolution processes, which is why the engine has its own latency settings to optimize CPU load. As a rule of thumb, more latency means less CPU load, but there are two numbers to be taken into account here, namely the host buffer size (as reported by your audio system drivers) and latency setting. The latter should either be 0 (which is usually ideal) or a number greater the host buffer size. MIR latency below or equal to the host buffer size will yield sub-par results. All other Preferences can be left at their default values for now.

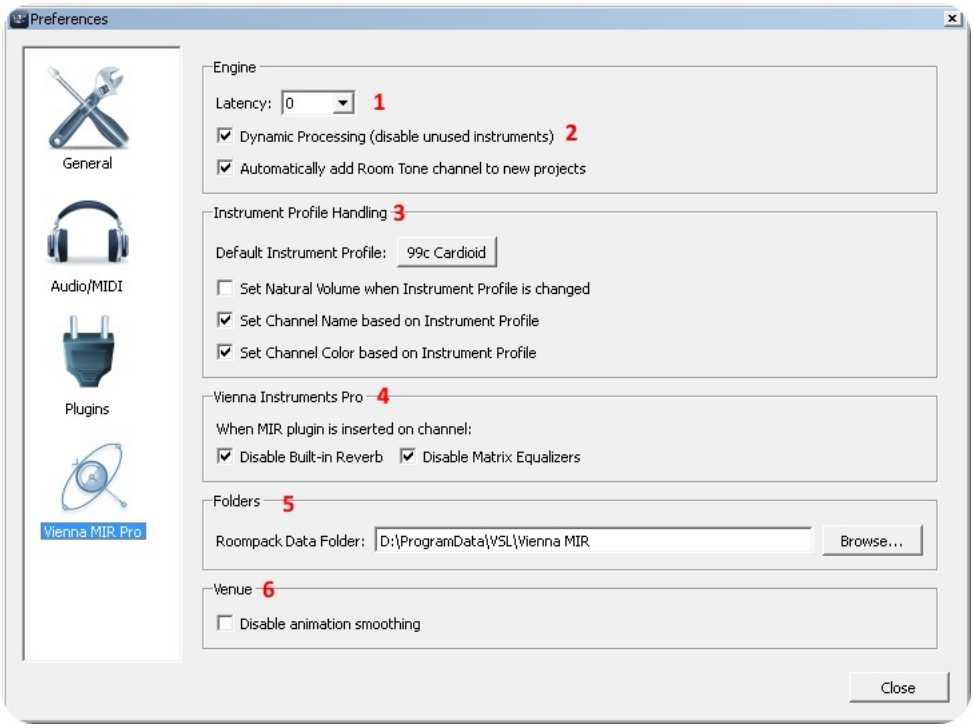


VE Pro's Main Menu Icon Bar offers another option especially for MIR Pro / MIR Pro 24: The "Auto add Vienna MIR" option (see image above) will instantiate the MIR Pro / MIR Pro 24 Connector plug-in in any newly created channel. (The option is also available from the "Channel" pull-down in VE Pro's Main Menu.) If you plan to create a complete MIR Pro / MIR Pro 24 arrangement from scratch, this will make your life much easier, and you can delete any superfluous connections with one mouseclick anyway.

> **Important**
>
> MIR Pro / MIR Pro 24 will not work with system latencies lower than 64 samples.

> **Tip**
>
> The highly optimized MIR Pro / MIR Pro 24 engine will allow for its use in a 32bit OS, too. While this may be sufficient for a first test, it is very unlikely that you will be able to do any serious work in this kind of environment due to the RAM limitations it imposes. A 64bit OS can still be considered to be mandatory.

Preferences



1. MIR Pro Engine's Processing Latency. Higher values mean lower CPU load.
2. Switches off any unused convolution threads, thus optimizing overall CPU load. Should be switched on under most circumstances.
3. … for customizing appearance and characteristics of newly created Instrument Icons in a MIR Venue. (Also applies to Audio Inputs and Busses.)
4. The built-in reverb and EQs of Vienna Instruments Pro 2 will most likely interfere with MIR Pro / MIR Pro 24 and can be switched off globally.
5. Defines the path where MIR Pro / MIR Pro 24 looks for any installed multi-impulse-response collections ("RoomPacks", file extension `*.vmi`).
6. Enhances graphics performance on certain systems (e.g. when using Remote Desktop). Should be left unchecked under most circumstances.

> **Important**
>
> As mentioned before: There are actually two numbers to take into account here, namely the host buffer size and MIR latency setting. The latter should either be 0 (which is usually ideal) or a number greater than the host buffer size. MIR latency below or equal to the host buffer size will give sub-par results.

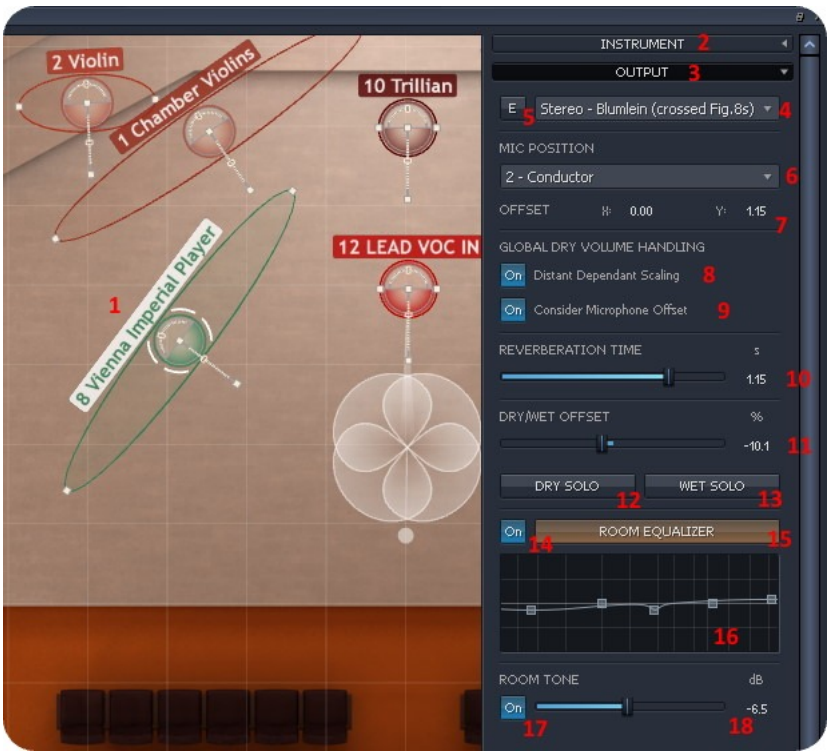
General GUI Elements and Navigation

- **Venue** – A Venue is a complete set of multi impulse responses derived from one microphone position in

a hall, including the underlying meta-data like the Venue Map. It is not possible to mix two or more Venues with each other. The selected Venue is always shown in the readout strip at the bottom of the Main Venue Window.

- **Icon** – The Instrument Control Icon is sometimes simply referred to as "the Icon" or "MIR Icon". It represents one underlying Vienna Instrument, a 3rd-party virtual instrument plug-in or an audio input, which means that it can cover a solo instrument as well as an ensemble.
- **Window** – Windows are also called "Panels". They are all part of the main GUI. All panels showing this little icon in the top right corner can be closed or detached, resized and/or moved away from the central Venue View by clicking one of the two icons with the mouse.
- **Editor** – Editors (or "Editor Windows") are floating and must be opened separately, mostly by clicking on a button labeled "E". They serve various purposes. Clicking "OK" will take over any applied changes. "Quit", "Cancel", pressing "Esc" on the keyboard or clicking the window frame's "x" sign will close an editor without applying any changes.
- **Fader** – A fader is a control element to continuously change the value of the connected parameter. Faders appear as parts of the Instrument Control Icon as well as in the Channel Strip and some Editors. Grab and pull the handle with the mouse cursor to change the value of the connected parameter, or click somewhere into the fader's path to let the handle gradually move in the cursor's direction. Double-click the fader to reset it to its default value.
- **Handle** – Handles always show elements in the GUI that can be dragged to change the value of a connected parameter. They appear as parts of faders as well as the Instrument Control Icon.
- **Button** – Buttons are parts of the GUI which allow for many different functions. They always appear to be slightly "3D"-shaped. They can work as permanent or momentary switches, or toggle a function.
- **Readout** – Readout boxes give detailed numerical feedback about a parameter's value. Most of the time they are connected to a graphical control element like a fader. Double-clicking into them allows for direct entry of a value using the keyboard.
- **Pulldown** – A pulldown looks a bit like a button, but it shows two arrows pointing up- and downwards on the right side. It allows you to choose from a list which gets displayed as soon as you click on the pulldown. You can select from the Pulldown menu with the mouse; as soon as the selection is made, the pulldown closes, only displaying the chosen entry.
- **Main Menu** – The Main Menu is the operating system's standard menu at the top of the application's frame in compliance with all its typical conventions.
- Ctrl, Alt, Shift, Command, Option – Some special functions can be called up by holding one of the three modifier keys Ctrl, Shift, Alt or Command, Option (OSX only) on the computer keyboard.

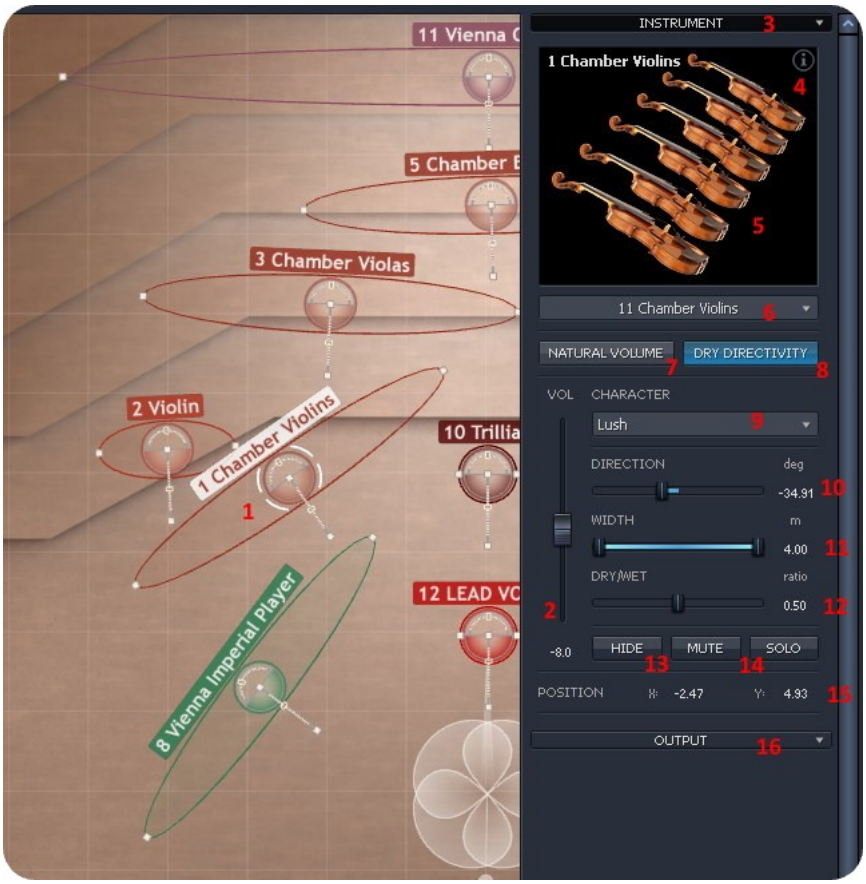
Output Channel Overview



1. Selected MIR Icon (with active Title option)
2. Instrument Channel Header (when hidden)
3. Output Channel Header (visible)
4. Output Format Selection (pull-down)
5. Open Output Format Editor
6. Select Main Microphone Position (pull-down)
7. Main Microphone Position Offset
8. Global Dry Signal Volume Handling Options
9. Consider Microphone Offset
10. Scale Reverberation Time
11. Global Dry / Wet Signal Offset
12. Dry Signal Output Only
13. Wet Signal Output Only
14. Open Room EQ
15. Room EQ On / Off
16. Room EQ Overview

17. RoomTone Volume Fader
18. RoomTone On/Off

Instrument Channel Overview



1. Selected MIR Icon (with active Title option)
2. Channel Volume Fader + Readout
3. Instrument Channel Header (visible)
4. Connects to Vienna Academy (online instrumentology)
5. Instrument picture (corresponds with chosen Instrument Profile)
6. Instrument Profile Selection (pull-down)
7. Set Natural Volume
8. Use Instrument Profile for dry signal
9. Select Character Preset (pull-down)
10. Icon Direction fader
11. Icon Width fader
12. Dry / Wet Signal Ratio fader

13. Hide Icon

14. Mute / Solo Channel

15. Icon Position

16. Output Channel Header (when hidden)

Creating a new Project

This section will guide you through the process of creating a MIR Pro / MIR Pro 24 Project step by step. Some of them will depend on the way you have integrated VE Pro in your setup (stand-alone mode, or integrated in your DAW on the same machine or via LAN). As mentioned before, please refer to the VE Pro manual if you need advice in this respect.

1. Defining the speaker setup in Vienna Ensemble Pro

Creating a new Project in VE Pro means a new Project for MIR Pro / MIR Pro 24 too, of course. Click the New Project icon on the Menu Icon Bar at the top, or select the respective command from the "File" pull-down menu.

A dialog window will open and ask you to select the desired channel configuration; please select a format from the list of pre-configured setups.

> **Important**
>
> MIR Pro / MIR Pro 24's Output Format is not the same as the overall channel setup! It is very well possible to have a MIR Pro / MIR Pro 24 stereo setup running in a VE Pro 5.1-surround frame. Likewise, choosing a surround setup for MIR Pro / MIR Pro 24's Main Microphone will not define VE Pro's global channel settings.

VE Pro will start a new Project now. By default, the application will create a Master Bus with the chosen number of output channels, including a full-fledged panner.

> **Tip**
>
> While it is not strictly necessary to do so, it might be a good idea to delete any panning devices from VE Pro's Mixer that aren't needed, just for the sake of clarity. In fact no panners are needed at all when working with MIR, as its engine takes care of all positioning issues by definition.

2. Venue Selection

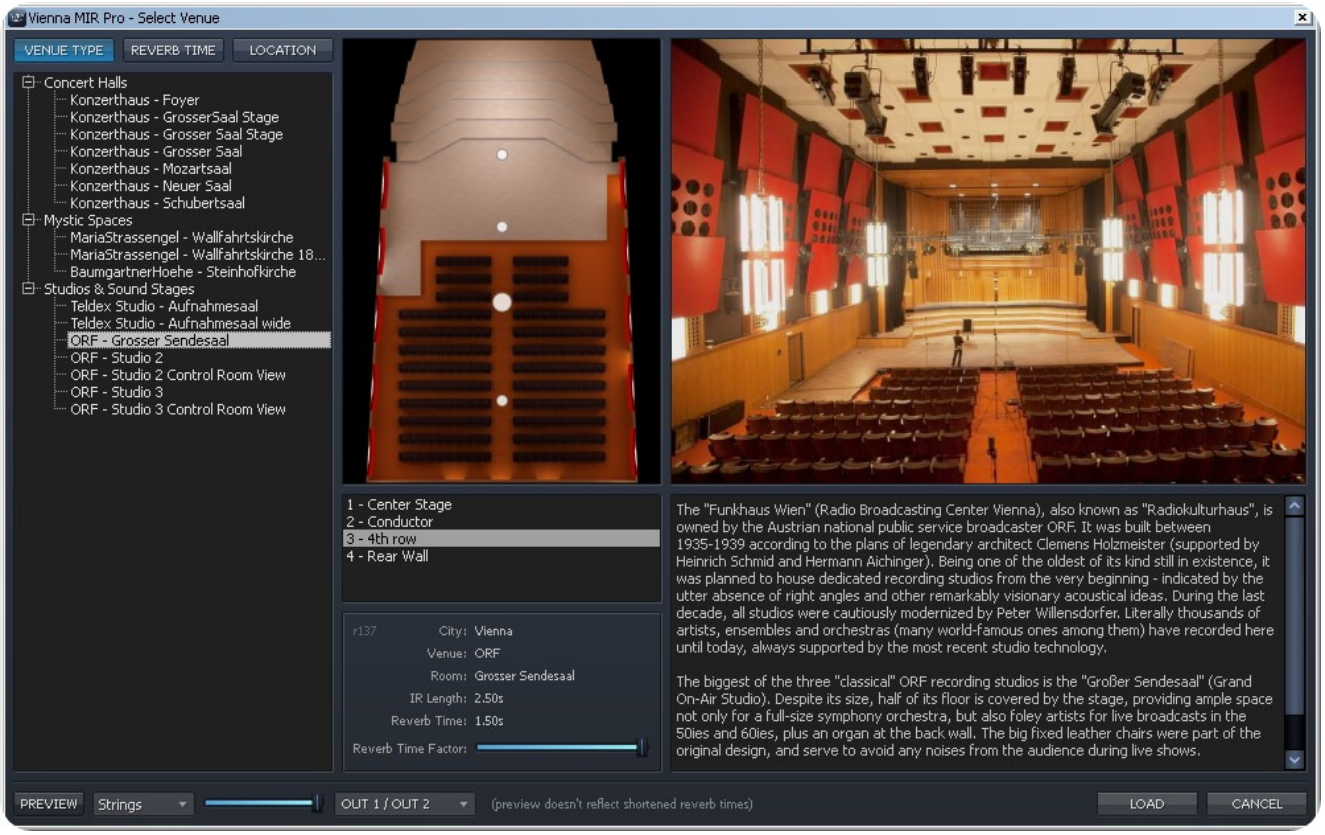
A click on the large Venue Selection bar below MIR's Main Window (a.k.a. Venue View) will open the Venue Selection dialog. First you will have to decide which Venue will fit your needs. You may sort them by location, average reverb time or room type. Listen to the pre-recorded "Previews" to get a rough idea of how selected instruments will sound on a certain stage from different distances. - A little slideshow and

some words on the architectural and historical background of the selected Venue are always available to make the decision easier.

With the chosen Venue, you will have the choice from up to four Main Microphone positions. (A typical position is selected by default.) Pick the one that seems to be appropriate, but don't worry too much: You can change to a different microphone position on the fly later on.

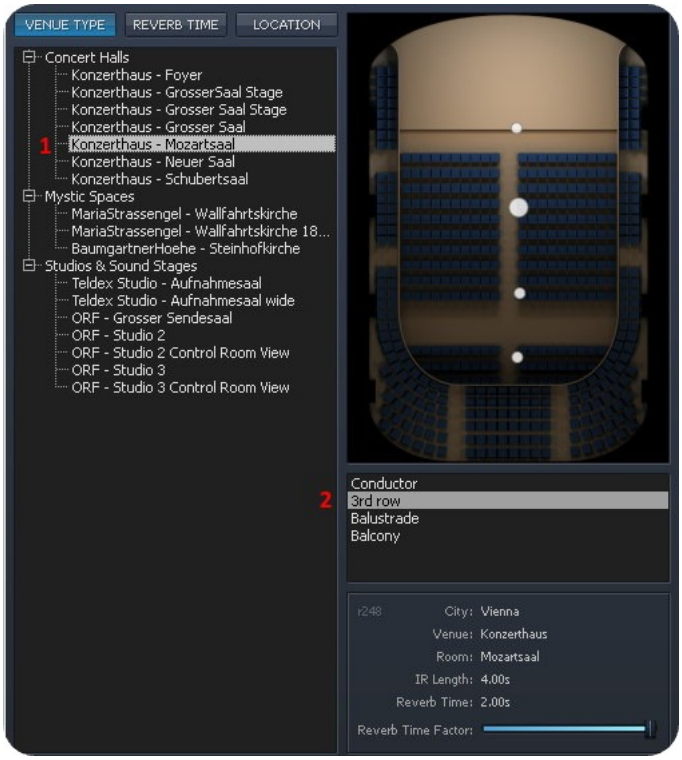
Also, it is no problem at all to change Venues even in an existing arrangement. Be aware though that depending on the layout and size of the available HotSpot area, some instruments may not play without manual repositioning (see below), and the overall sound might change considerably.

Venue Selection Dialog Window

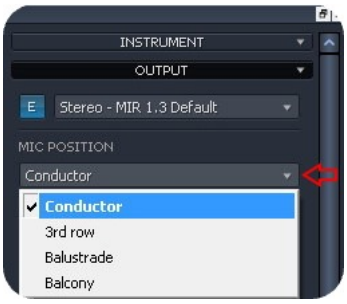


Selecting MIR Pro / MIR Pro 24's Main Microphone Position

Method A: Select a Main Microphone Position while choosing the Venue



Method B: Select a Main Microphone Position within the chosen Venue directly from the pull-down in MIR Pro / MIR Pro 24's Output Channel



3. Save the Project with a meaningful name

Really. Do it now.

4. Output Format

It is VERY IMPORTANT to understand that MIR's impulse responses are recorded in a meta format called **Ambisonics**, which allows for decoding of a recorded signal to literally any possible delivery format. This encompasses the number of "virtual microphones", their polar patterns, the direction they are oriented towards, as well as their individual volumes. In other words: We can choose the actual microphones after recording has taken place. (Please refer to manual addendum "**Think MIR - Philosophy and Underlying Concepts**" for details.)

This gives us the unique possibility to arrange a Main Microphone setup depending on the size and form of a hall, the type of arrangement, and of course the desired Output Format (Stereo, Quadro, Surround ...).

Of course, the treatment of instruments in MIR's Venues has to match the treatment of the decoded

impulse responses exactly; therefore, each and every signal source on MIR's stages is encoded to Ambisonics, too.

Quite understandably, the choice of a proper Main Microphone setup is as crucial as it would be in the case of a recording session with an orchestra in a real hall.

The Main Microphone's Output Format can be selected on the fly from the pull-down in MIR Pro / MIR Pro 24's Output Channel, or by right-clicking the icon that represents it on the Venue Map. We supply a number of presets with the most typical setups. As the changes are applied close to real-time (depending on the number of instruments already positioned on stage), just try which of them best fits your needs.

Using the mouse, the Microphone's icon may be dragged to different positions on the stage.

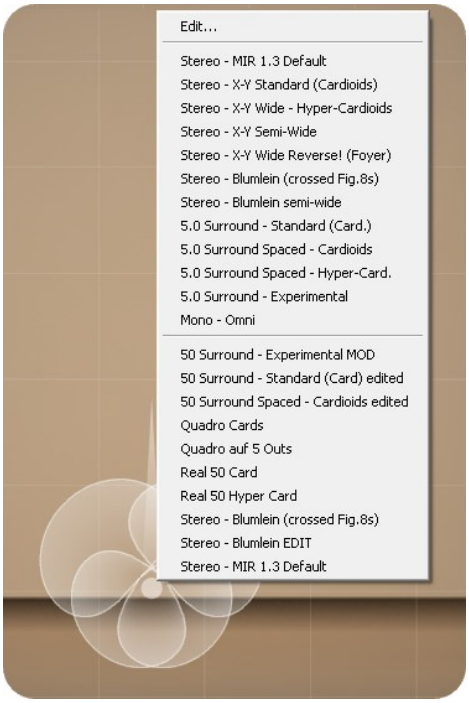
> **Important**
>
> These changes affect only the dry signal components, not the decoding of impulse responses! This feature is mostly used for centering and/or widening the acoustic imaging of an orchestra on the stage. Its behavior also depends on the "Global Dry Volume Handling" settings in MIR Pro / MIR Pro 24's Output Channel (which should all be switched "on" under normal circumstances).

The real power of MIR Pro / MIR Pro 24's Output Formats unfolds when fine-tuning a setup for a specific situation (or creating one from the scratch). This is achieved with the help of the Output Format Editor which can be opened either by clicking on the "E" (for "edit") button next to the pull-down, by double-clicking the Main Microphone icon on the Venue's stage, or from the context menu that opens upon right-clicking on the Microphone's icon.

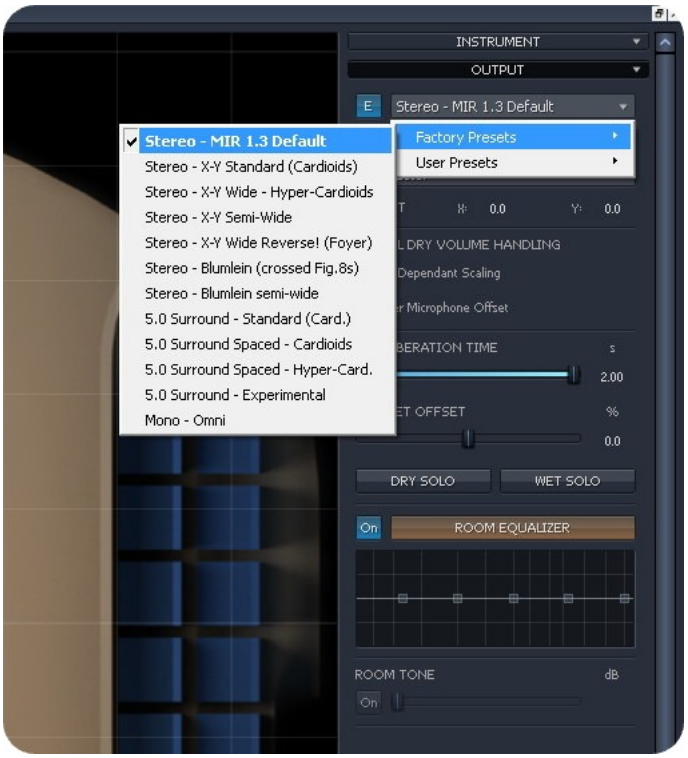
> **Important**
>
> As mentioned before, choosing an Output Format does not change the channel configuration of the underlying VE Pro!

Selecting an Output Format for MIR Pro / MIR Pro 24's Main Microphone (preliminary)

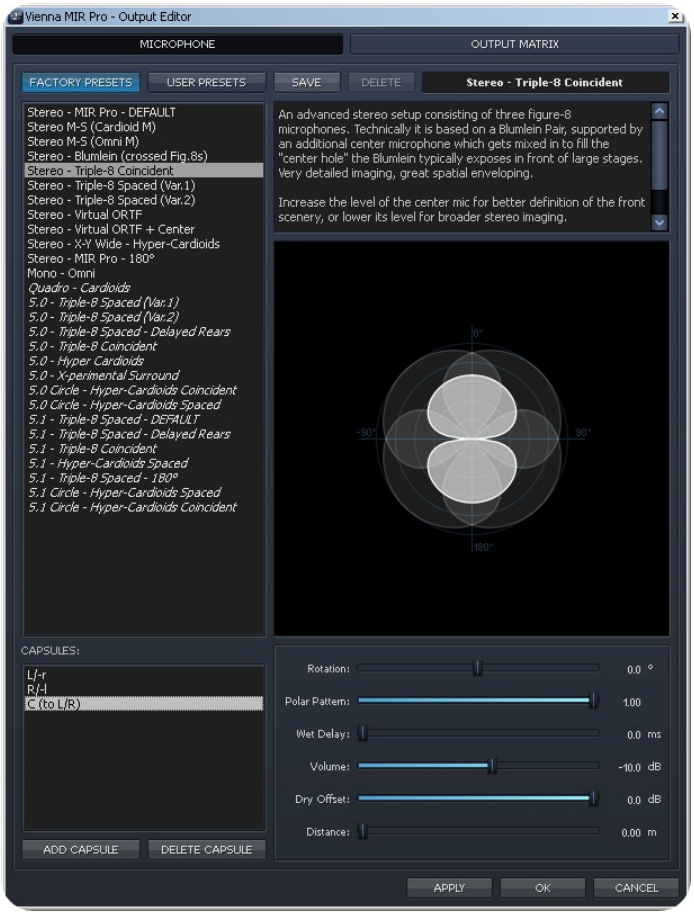
Method A: Context Menu (right-click on the Main



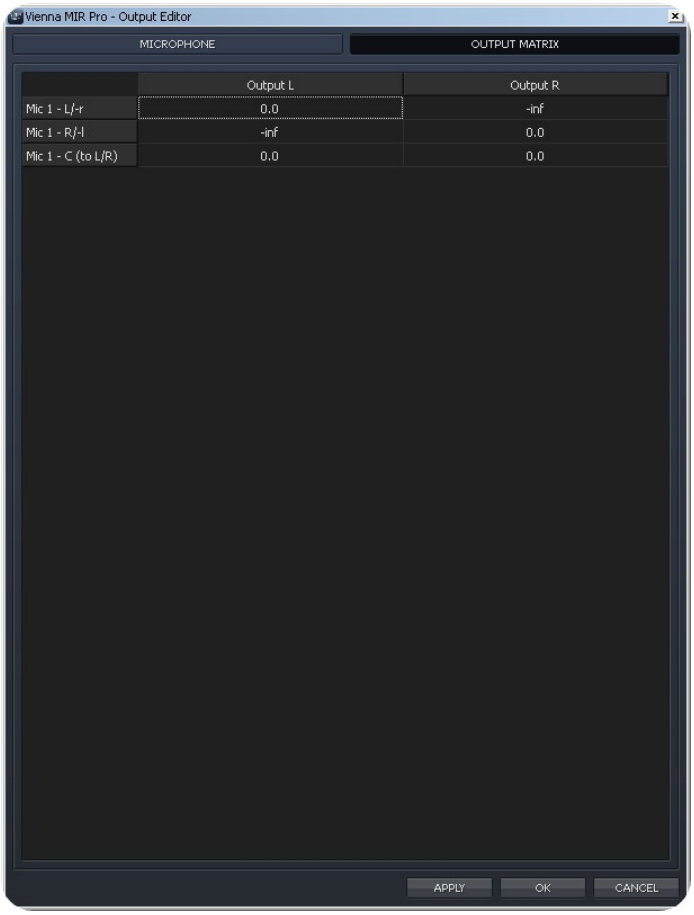
Method B: Using the pull-down in MIR Pro / MIR Pro 24's Output Channel Microphone Icon)



Main Microphone Output Format Editor



Main Microphone Output Matrix



This routing matrix will allow the free assignment of any number of virtual microphone capsules to any number of physical outputs.

This feature paves the way for advanced multi-microphone arrays and multi-channel downmixes.

5. Adding Vienna Instruments and other signal sources to MIR Pro / MIR Pro 24

VE Pro allows for three (or actually four) different kinds of signal sources:

- **Vienna Instruments and Vienna Instruments Pro**
- **Synchron Player** (Use the Mixer Preset "MIR Unprocessed" for all Studio products)
- **3rd-party virtual instrument plug-ins** (which also encompasses the Vienna Imperial Piano and MIR Pro / MIR Pro 24's RoomTone - see below)
- **Audio inputs**
- **Internal busses**

All of them can be connected with MIR Pro / MIR Pro 24 using the MIR Connector plug-in. By default, this VE Pro-exclusive plug-in routes a signal from VE Pro to the MIR Venue, where it is represented by a MIR

Icon, and back to VE Pro with both the positioned dry signal component and the individual room information created for this single signal ("Inline" mode). Using the Wet Signal Routing that's part of the Connector plug-in, the Wet part of MIR's output can be split from this channel for many different kinds of applications (see the tutorial screenshots of this manual).

New channels can be added either by clicking the appropriate icon in VE Pro's Channels List window, from the "Channel" Main Menu pull-down, or by right-clicking almost anywhere in VE Pro's GUI.

As soon as the option "Auto-add Vienna MIR" is activated by clicking on the rightmost icon in VE Pro's Main Menu bar, instruments can also be added by right-clicking MIR's Venue Map.

When a channel wasn't automatically connected with MIR Pro / MIR Pro 24, this can of course be achieved by manually selecting Vienna MIR Pro / MIR Pro 24 as a "plug-in" from VE Pro's "Effect +" menu.

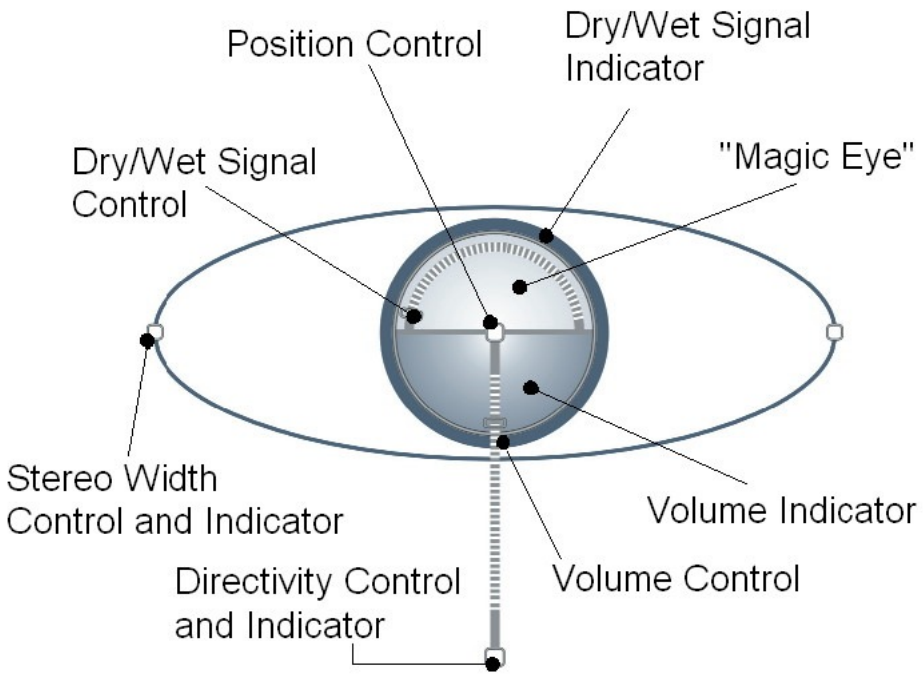
The first thing to do after adding a signal source to a MIR Pro / MIR Pro 24 arrangement should be the selection of the right Instrument Profile (see below). If you're adding a virtual instrument plug-in, don't forget to assign its MIDI Input Port and its MIDI Input Channel, too.

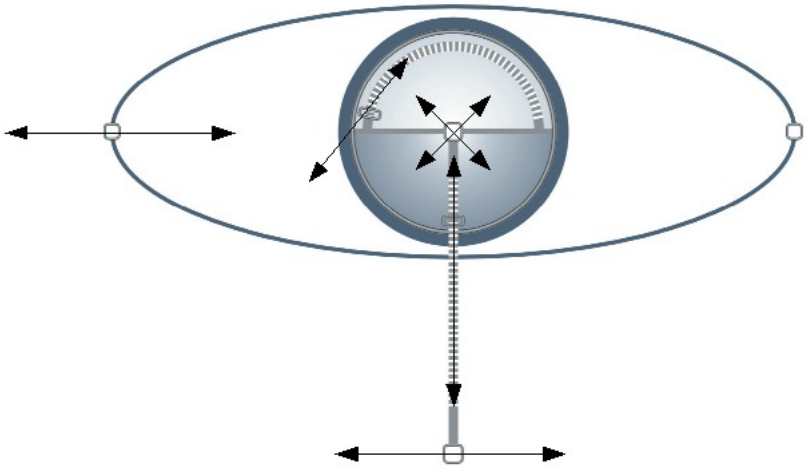
A user-definable Preference will assign the name of the selected Instrument Profile to the Channel, too.

Also set by a Preference, the color of the Icon can be determined by the instrument family it belongs to.

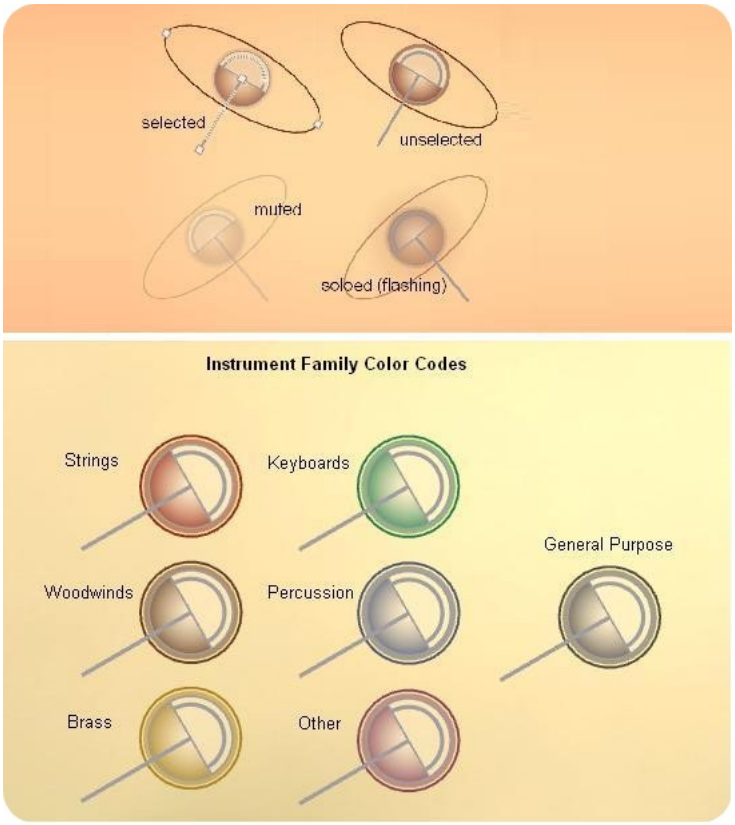
The MIR Icon on the stage of a MIR Venue is a specially developed tool to control most relevant aspects of a signal source in a room and thus in a mix. Every time you change the Icon's position, stereo width or direction on the stage, a new set of impulse responses is pre-rendered in the background (indicated by the Activity Gauge in the upper left corner of MIR Pro / MIR Pro 24's Main Window - see image). These pre-rendered IRs are created temporarily (they won't get saved to disk) and contain virtually all features that are relevant for MIR Pro / MIR Pro 24: They are unique regarding the signal source's position, direction, width, instrument profile, and the chosen Output Format.

The Mir Icon - Function Overview





The MIR Icon - Color Codes



These are the default colors supplied automatically on Instrument Profile selection.

Colors can be changed freely by using the Change Color dialog from the Context Menu in the Mixer, the Channels List or the Icon itself.

6. Instrument Profiles

Understanding the concept behind MIR's unique Instrument Profiles is almost as IMPORTANT as having some insight into the variable Output Formats described above, if you want to make use of MIR Pro / MIR Pro 24's features to their full extent. As you may remember, MIR's impulse responses are not only taken from a multitude of sources and main microphone positions. **MIR Pro / MIR Pro 24 handles directionality (i.e., "room") both from the listener's perspective (the microphone) as well as from the signal source's perspective (the instrument)**.

This is why we implemented detailed, individual Instrument Directivity Profiles for almost every Vienna Instrument. The underlying data were gathered over (literally) years of extensive research and development, and are now saved within so-called Profiles. Measured with the aid of our newly developed method (based on sectorized microphone swarms), we gathered an enormous database of spatial frequency profiles for all kinds of instruments and other sources. Taking into account these directivity-dependent changes in sound, we can now supply MIR Pro / MIR Pro 24 with a direction-dependent acoustic fingerprint. This is made possible by the way we recorded the multi impulse sets of each room: The impulses were sent into the room in the same sectorized way we used for measuring the instruments - in 60° steps, plus the room's ceiling and floor.

Instrument Directivity Profiles are not directly visible to the user, but selected from a list in accordance with the required Vienna Instrument's samples.

Apart from directivity information, Instrument Profiles contain data about other aspects, too:

- Natural Volume
- The Stereo Width inherent in the original recording
- Instrument and / or ensemble size
- Natural timbres and possible changes to them
- Typical playing techniques and ways of sound production

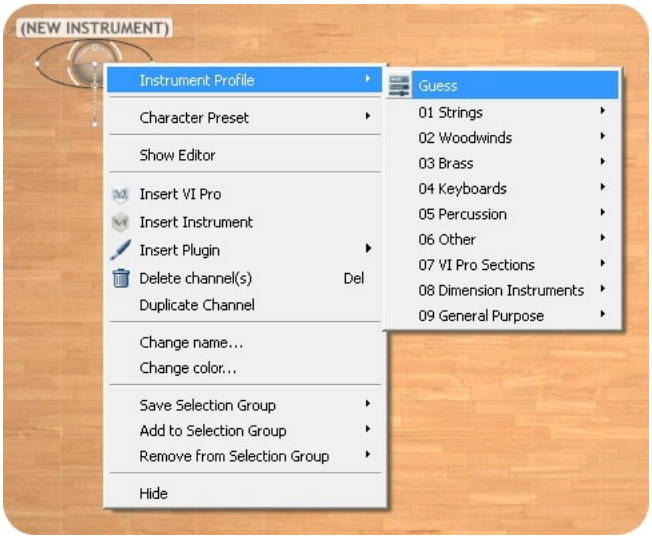
In combination with all these aspects saved in an Instrument Profile, the directivity patterns greatly enhance the possibilities of MIR, and thus the achievable realism of a virtual orchestral performance.

Please select the appropriate Profile from the pull-down menu below the Instrument Display in the Instrument Channel. Virtually every Vienna Instruments is listed here. (IMPORTANT: This is NOT a list of the valid Vienna Instruments licenses on your computer!) In addition we supply "General Purpose" Profiles for use with any source MIR Pro / MIR Pro 24 is able to process.

> **Important**
>
> Assigning an Instrument Profile does not mean that the respective sample data gets loaded in an Vienna Instrument. This has do be done manually.

Selecting Instrument Profiles

Method A: Open the context menu (right-click the selected MIR Instrument Icon) and select the proper Instrument Profile manually.



Method B: Use the pull-down in MIR Pro's Instrument Channel



Method C: Depending on the way you use Vienna Instruments Pro 2, MIR Pro / MIR Pro 24 can do an educated "guess" and select the appropriate Instrument Profile all by itself. - That said, it is quite understandable that this doesn't make much sense for VI Pro instances that will play samples from different instruments, e.g. Percussion. As a rule of thumb, Instrument Profiles have to be selected manually for all sources, except for VI Pro 2 used for a single instrument or ensemble.

7. Character Presets

Thanks to its Instrument Profiles, MIR Pro / MIR Pro 24 "knows" a lot about the instruments on its stages. This makes it possible to supply very deep and customized ways of handling them. Applying one of MIR's built-in Character Presets provides for the seemingly simple but highly efficient way of shaping an Instrument's timbre or "character".

Individual Character Presets are available for every single Vienna Instrument (with the exception of a few less commonly used percussions) - a total of more that 750 hand-crafted settings! Usually there will be at

least five "colors" to choose from just by clicking on the pull-down menu bar. In addition, depending on the instrument there may be one or several special settings.



In cases where there are no customized settings for an instrument, or if a General Purpose profile is employed, more generalized presets are used. These presets are marked with an asterisk (*) after their name.

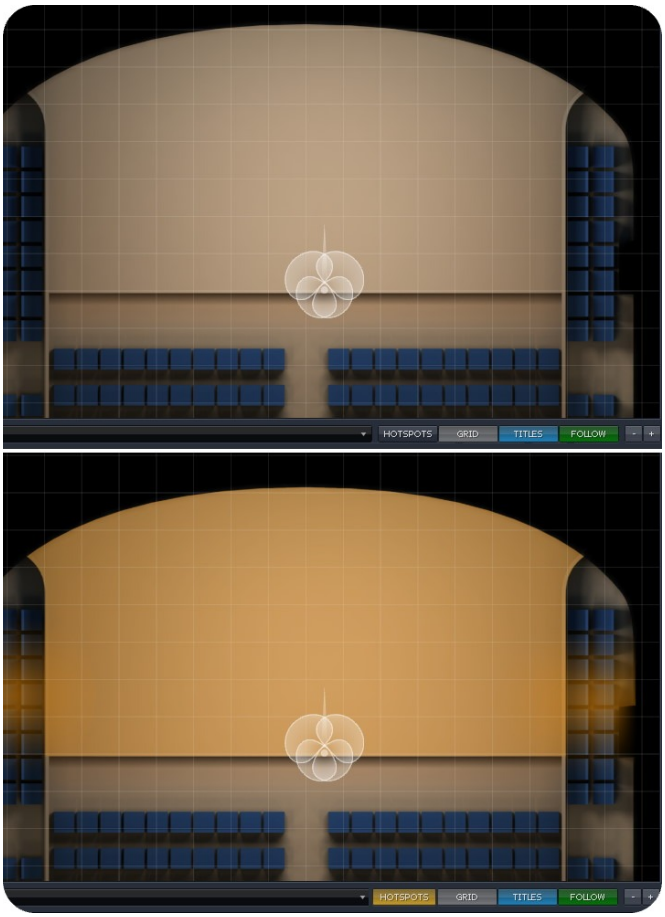
8. HotSpots

Not all areas in a room are possible positions for an instrument or other signal source (represented by the MIR Icon). As soon as you grab an Icon with the cursor, you will see certain parts of the room highlighted in a warm yellowish tone. These are so-called HotSpots, showing all valid areas for an instrument's position in a certain room. In a hall, this of course is the stage, but most of the time there's some more eccentric places, too, like balconies or selected spots within the auditory. - If you prefer to see those valid areas all the time, simply switch on the dedicated "HotSpots" button at the bottom.

If you try to put an Icon into a spot outside the valid areas, it will get muted. Especially after changing the Venue for an existing setup, Icons may suddenly reside outside the valid HotSpot areas. While this won't do any harm, it is advisable to pull those Icons back onto the stage or other valid areas; otherwise, the auditory results will be unpredictable since Instruments outside the valid areas remain muted.

> **Tip**
>
> You can (ab)use this as some kind of "parking lot" for instruments that haven't found their place within an orchestra yet.

MIR Pro / MIR Pro 24 Venue Hotspots



Icons can be positioned freely on the Venue's main stage area.

Depending on the chosen Venue, there may be several off-stage HotSpots available, too.



The area of all valid instrument positions within a MIR Venue ("HotSpots") can be made visible permanently.

Any Icon placed outside this area will be muted.

9. Setting Up and Controlling an Arrangement

Following the steps described above, you will be able to set up a complete arrangement in Vienna MIR Pro / MIR Pro 24 pretty fast.

In some situations the visual appearance of your virtual orchestra might become a bit crowded - this is where the "Hide" function will help a lot. Hidden Icons will play the same as visible ones, only lacking visibility.

A typical example is the addition of a solo violin to a violin ensemble for increased musical expression. The solo violin will very likely sit "on top" of the ensemble, obscuring both Icons' accessibility. Making use of the Selection Group feature introduced by VE Pro 5 allows full control over hidden Icons directly on MIR's Venue Map without actually touching it. (Please refer to the VE Pro manual for a detailed description

of Selection Groups and their handling).

Another very helpful feature is the possibility not only to copy, but also to save and import already set-up channels as Channel Presets and Templates. Importing allows for a partial recall of settings, too, so you don't have to start from scratch every time when you have already spent some time setting up a specific channel and then realize that some aspects had already been working well in a previous one.

10. Mixing - Getting "That" Sound

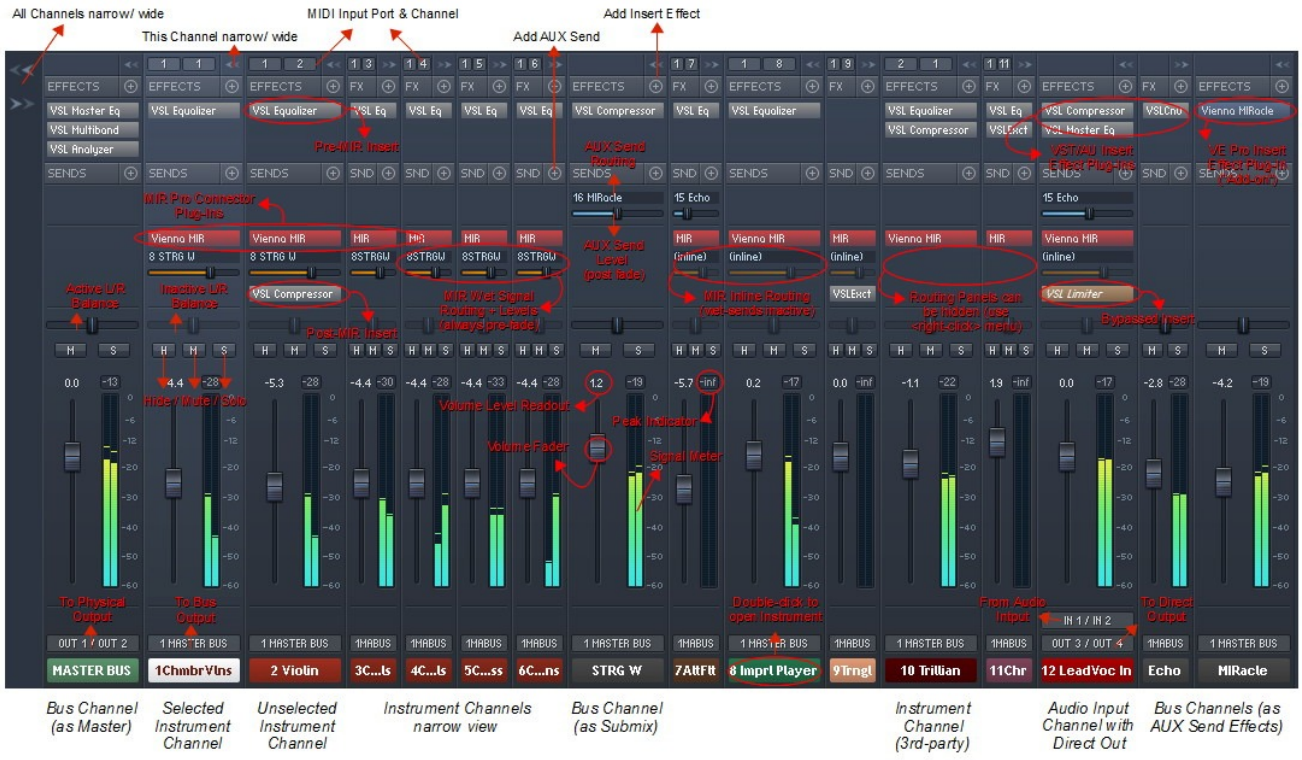
The combination of the new, "holistic" approach of Vienna MIR with the more conventional, "analytic" methods of VE Pro forms a scalable environment for both straightforward as well as highly complex musical mixing tasks. As soon as you need additional colors or processing options not supplied by the MIR Pro / MIR Pro 24 engine itself, you can switch to VE Pro's mixer and add any tool you have in mind.

The same is true for automation and remote control. As soon as a static setup is not enough, automation is just a click (or two) away. (Please refer to the VE Pro manual for a detailed description of Automation and MIDI Remote Control).

But don't let yourself get overwhelmed by all those options. Getting "that sound" is easier - and especially more intuitive - with MIR Pro / MIR Pro 24 than you might think by just reading these lines. We have compiled a long list of suggestions already: "Collected Hints for Your Daily Work with Vienna MIR". They are part of the following Tutorial Section.

...and don't forget to save your work.

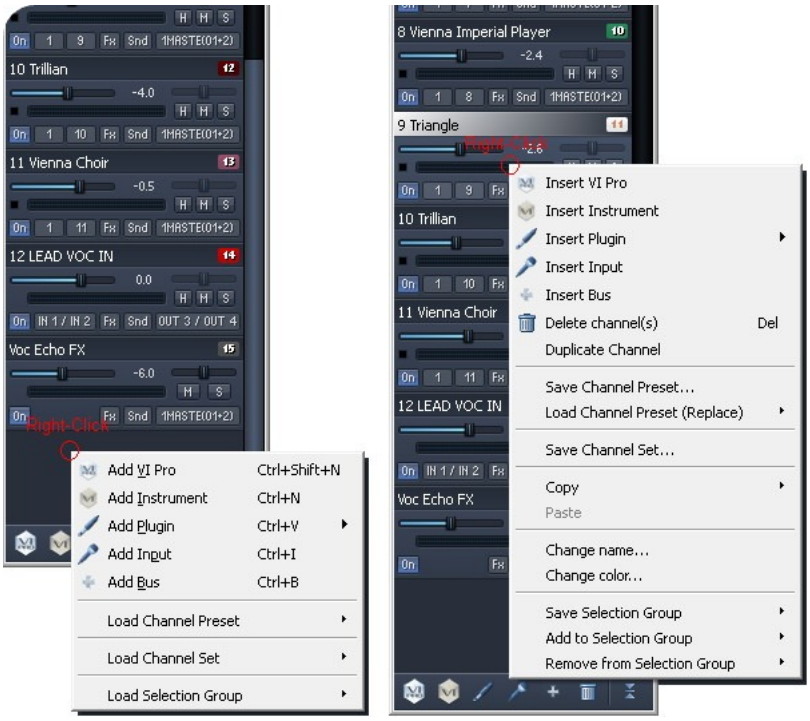
VE Pro Mixer - Functions Overview



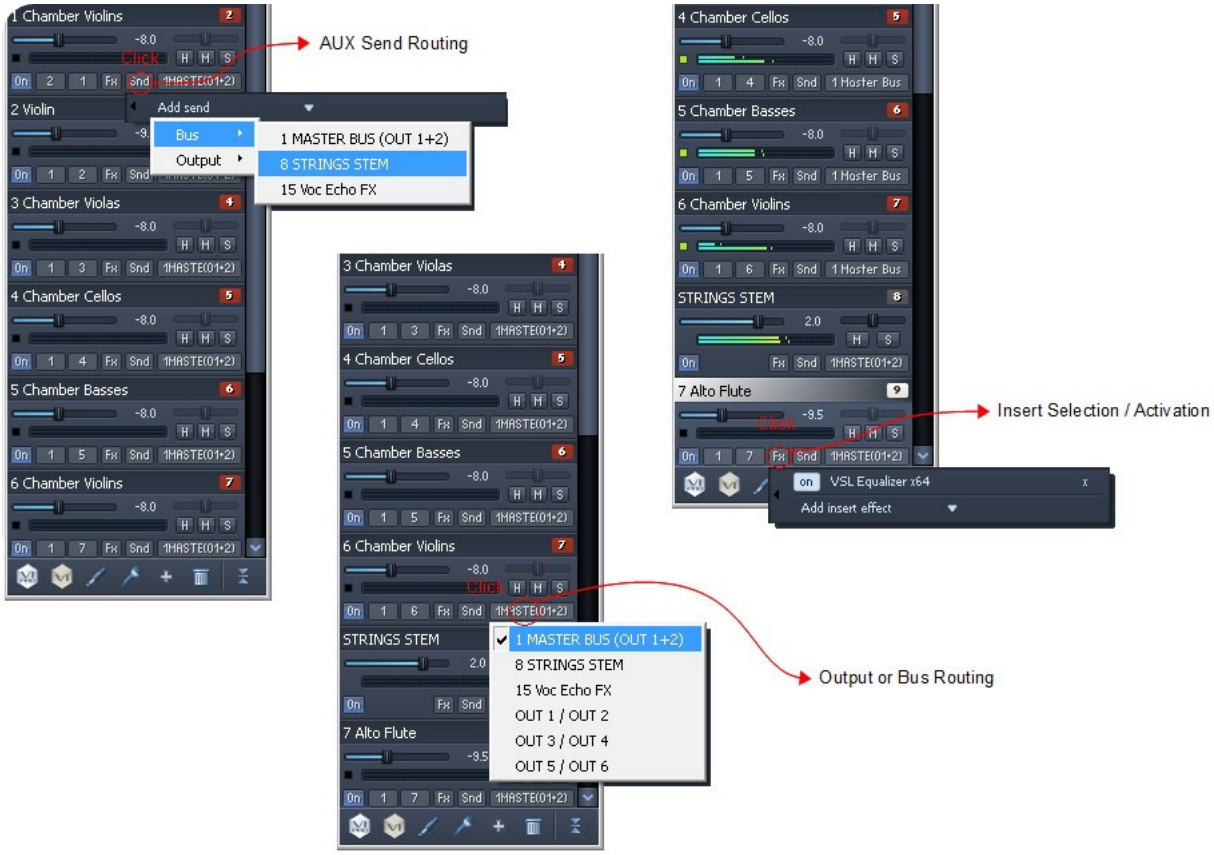
Channel List - Functions Overview



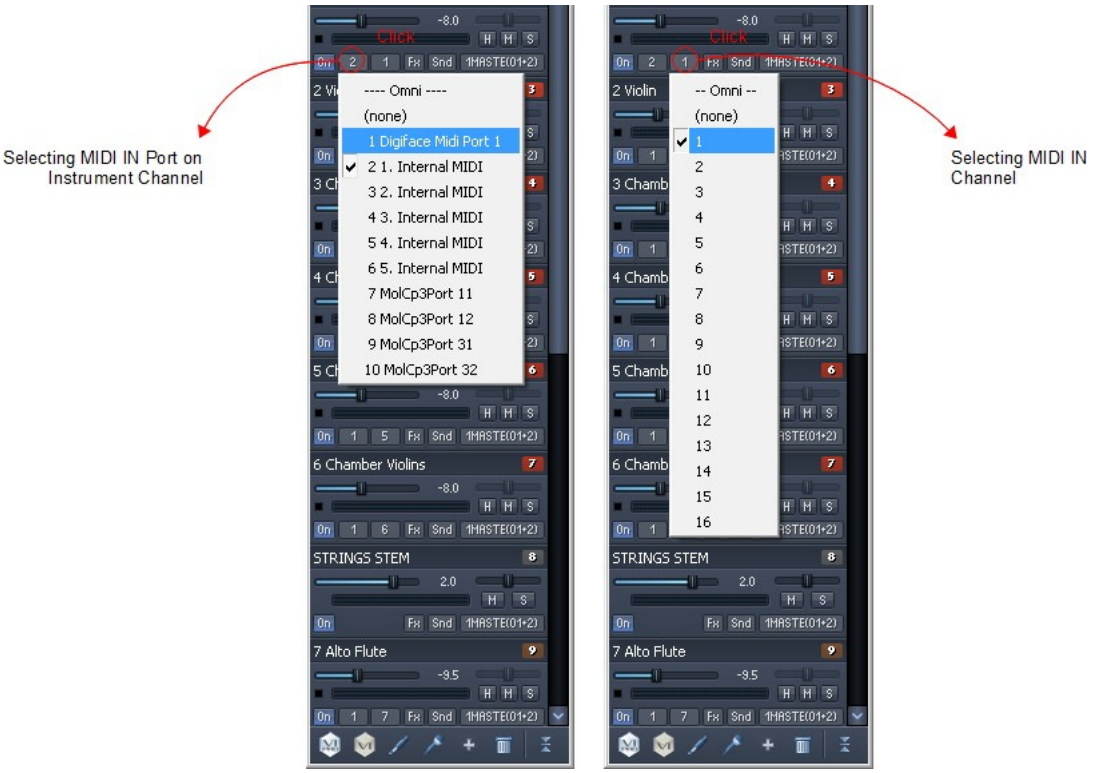
Channel List - Context Menus



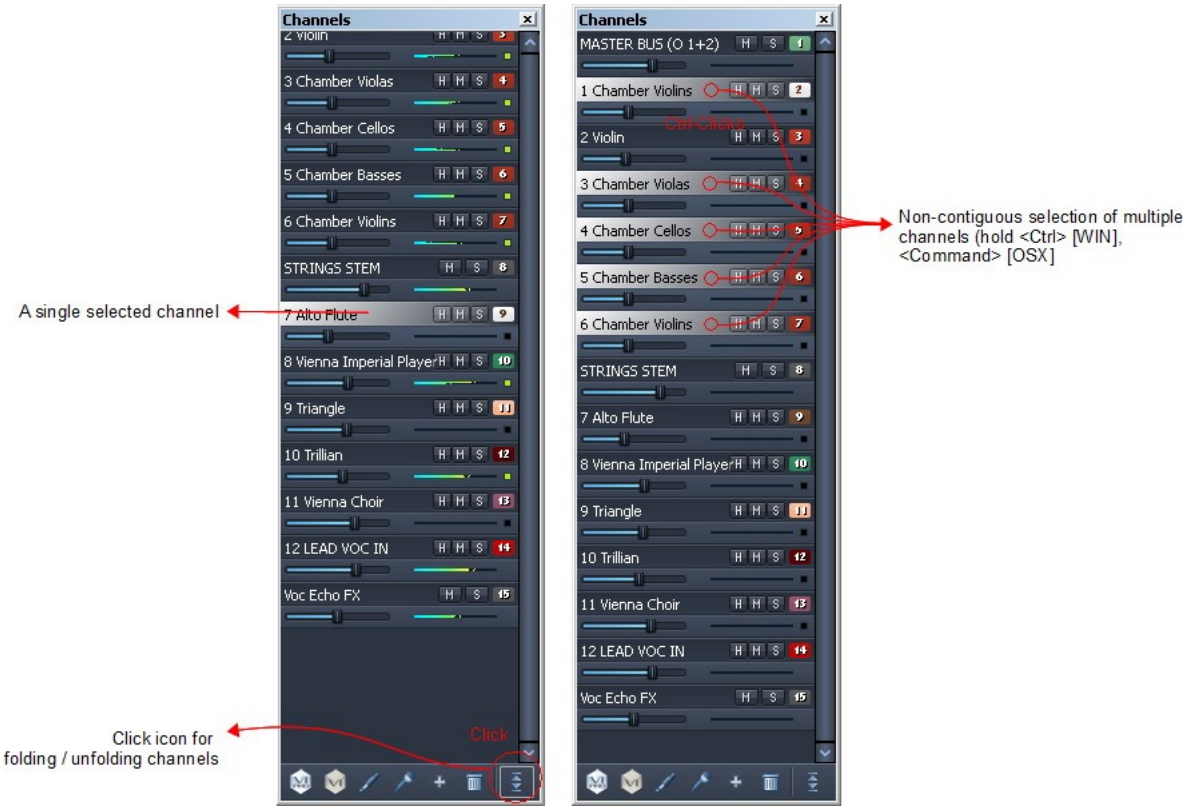
Channel List - Routing Methods



Channel List - MIDI Input Routing



Channel List - Narrow View



Addons

The "modular" concept of VE Pro / MIR Pro / MIR Pro 24 offers the unique opportunity to add special features without actually changing the software engines themselves. Three of these add-ons will be part of MIR Pro / MIR Pro 24 from the very beginning:

Room Tone

Every hall has a unique sonic signature even when there's actually nothing to be heard. This natural noise floor gives the human ear a sense of spaciousness and enveloping beyond the actual reverb. Digital audio systems, on the other hand, are more or less free of any background noise; while this is a good thing in most cases, it makes us miss this certain feeling of "being there" when re-creating a room out of nothing but impulse responses.

Room Tone is a separate sample player plug-in which is used and controlled by MIR Pro / MIR Pro 24 exclusively. It provides individual, seamless loops of this typical "sound of silence" for each microphone position in every hall MIR offers. It can be seen as natural dither, which makes sure that none of MIR's reverb tails simply disappear in cold digital black (i.e., absolute silence), but blend into the noise bed of the same provenience.

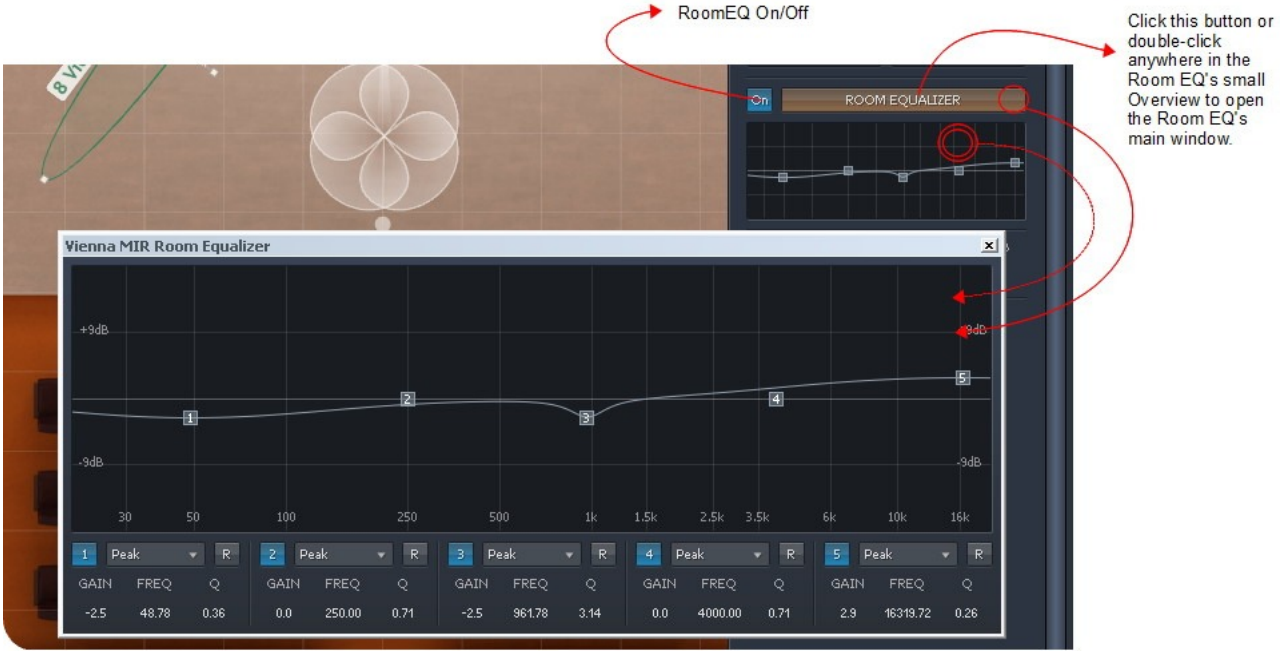
The Room Tone Fader allows you to control the noise floor level, as its proper volume is very context dependent. The neighboring "On" button switches Room Tone on or off (highlighted in blue is "on").

RoomTone will properly decode to any chosen output format, as it is recorded in Ambisonics like all the impulse responses themselves.

To avoid confusion, there can always be just one Room Tone channel active in any MIR Pro / MIR Pro 24 project. It can be instantiated automatically for any new project by a Preference.

Room EQ

EQ-ing is maybe the most basic as well as the most important way of sculpting the sound of an audio signal. While EQs are omnipresent in the age of digital audio, good ones are still rare – especially when they don't try to mimic some analog archetype. Vienna MIR EQ is said to be amongst the best of its kind (being a direct descendant of the much-lauded Vienna Suite 64-bit Master EQ). For long-time users of legacy Vienna MIR this will also replace the formerly built-in "Master EQ".



> **Important**
>
> Room EQ is applied to all wet signal components derived from MIR Pro / MIR Pro 24! If you need instrument-specific control, please use the MIR plug-in's routing options.

MIRacle: Algorithmic Reverb Add-On – Functions Overview

MIRacle is a tailor-made algorithmic reverb add-on for sweetening and enhancing MIR's sound.

"I don't want it to sound just realistic. I want it to sound flattering!!"

Vienna MIR Pro / MIR Pro 24 comes with MIRacle – a tailor-made algorithmic reverb add-on for sweetening and enhancing MIR's sound. It is derived from Vienna Suite's critically acclaimed Hybrid Reverb, enhanced by some advanced features for use with MIR Pro / MIR Pro 24. Technically, MIRacle is a VE Pro-exclusive plug-in, license-wise tied to MIR Pro / MIR Pro 24.

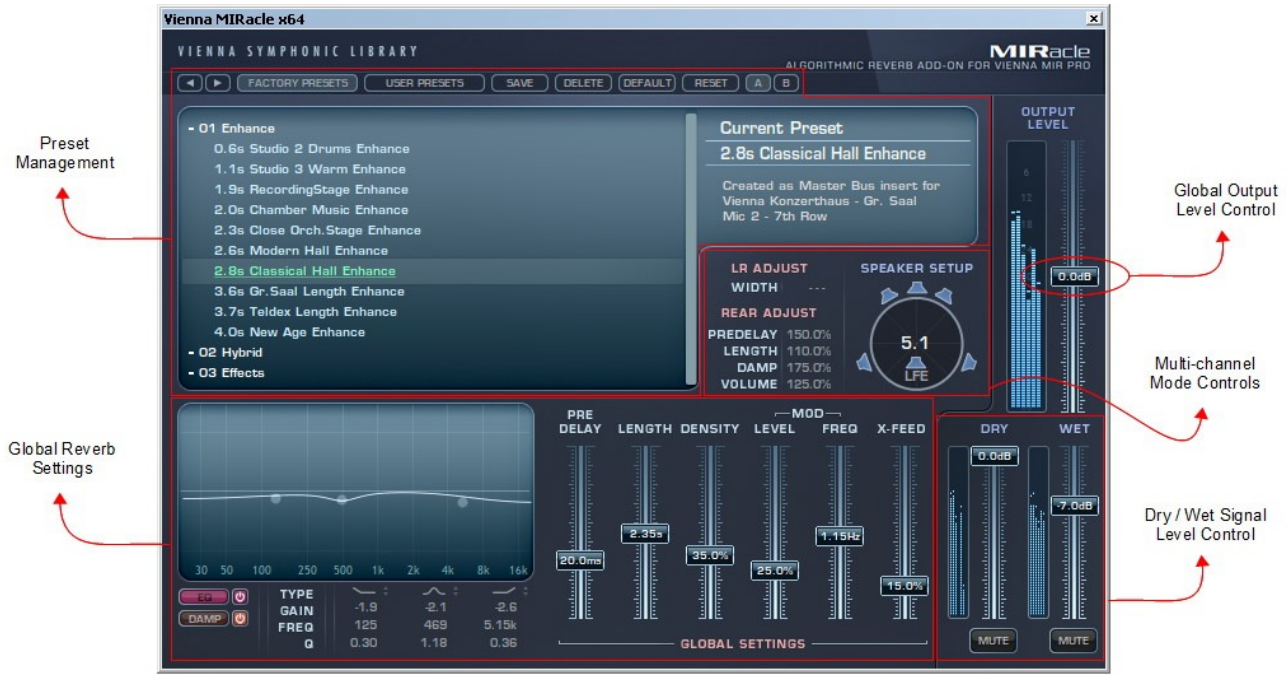
MIRacle is meant to be used as artificial acoustic "flavour" for the authentic spatial positioning supplied by

the actual MIR Pro / MIR Pro 24 engine. This is a tribute to the often-used technique of adding synthetic, "hyped" reverb on top of an orchestral recording derived from the combination of main and close microphones.

Please select MIRacle from the top of the "Effect +" menu in a VE Pro channel. A double-click on the newly added insert opens its GUI. This is a short rundown of MIRacle's main controls:

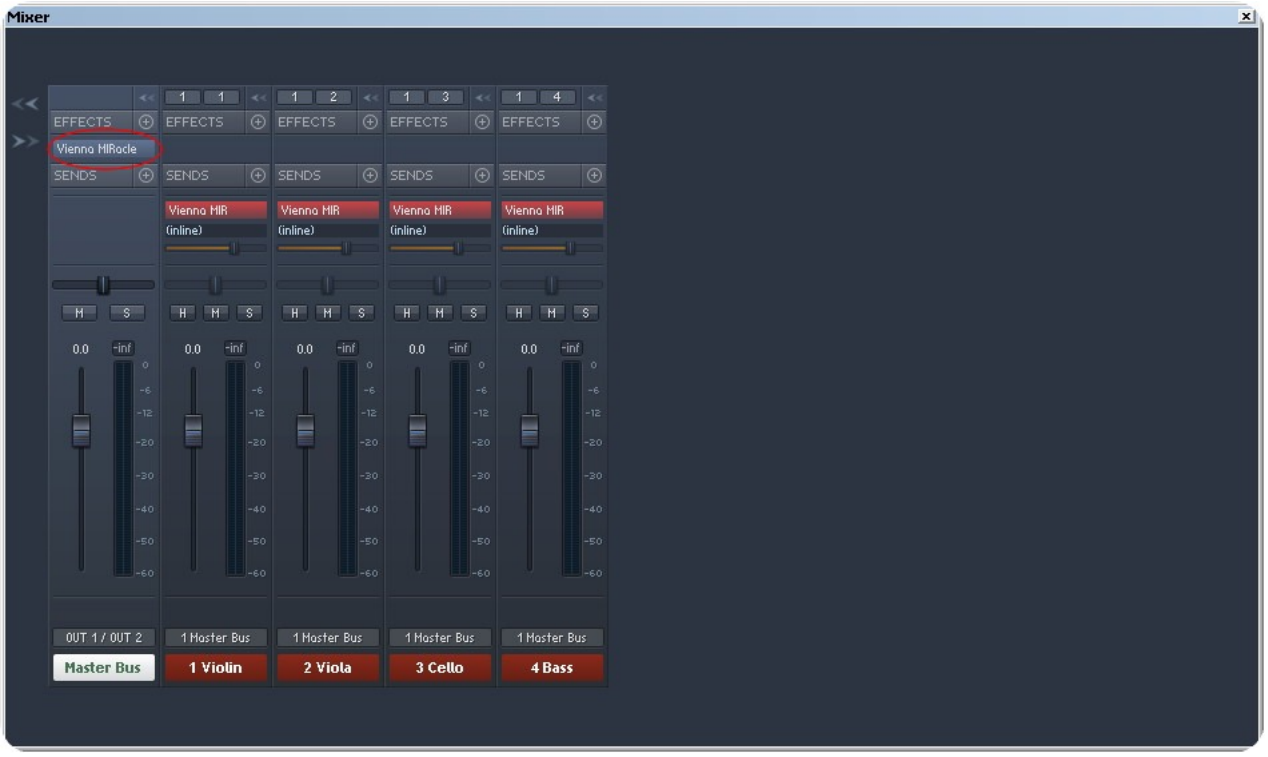
- **Predelay**: The amount of time (in milliseconds) between the dry signal and the onset of the algorithmic reverb.
- **Length**: The length of the reverb tail.
- **Density**: Adjusts the complexity and richness of the reverb tail. Please note that this setting also affects CPU usage.
- **Mod Level**: Controls the level of modulation in the tail. Higher values might create a sense of pitch shift in steady instruments. Helps to create a more vivid sounding decay and frequency spread. The modulation engine is turned off when setting Mod Level to 0%, and CPU usage will be somewhat lower.
- **Mod Frequency**: Controls the frequency of modulation in the algorithm. Modulation frequencies will be spread out randomly around the set value.
- **X-Feed**: Controls the crossfeed level from left to right inside the reverb algorithm. 0% means that an input signal only on the left channel will yield an output signal only on the left channel. 100% will produce an even distribution in the stereo field, resulting in a more consistent sound.
- **Filter Response Display**: Shows the response curve and frequency analysis for the current settings. The (horizontal) frequency range is from 20 Hz to 20 KHz, the (vertical) amplitude scale displays a range of 36 dB (-18 dB to +18 dB). Drag the filter handles to graphically adjust the filter’s boost/cut and/or frequency. When adjusting the filter handle, `Shift` locks the frequency; `Alt` locks the gain. Double-clicking a handle resets the respective band’s gain to the default.
- **L/R Width**: In stereo mode, this control enhances (or reduces) the perceived stereo width of the reverb tail. Settings above 100% will add that certain "bigger-than-life" feeling to reverbs that appear to be too "narrow". CAUTION: This feature is inactive in multi-channel operation.
  For multi-channel operation, there are a few additional controls which will get active as soon as VE Pro is used in a configuration with more than two (stereo) channels. MIRacle will automatically adapt to the chosen configuration.
- **Rear Adjust**: This section allows for the relative offset of some critical parameters used for the rear channels in surround setups.
- **Speaker Setup**: The displays follows the chosen channel configuration of VE Pro. Clicking one of the speaker icons will mute/unmute the reverb output of the respective channel.

Please look at the setup examples given on the following tutorial pages to get an idea about MIRacle's vast possibilities.



Using MIRacle

A Most Basic Setup



Vienna MIR Pro comes with a tailor-made algorithmic reverb add-on for sweetening and enhancing MIR's sound.

Provided that your final mixing stage is within VE Pro, the easiest way to use it is to insert it in VE Pro's master bus. MIRacle will automatically adapt to the chosen output format. Make sure that the Dry Signal is not muted, choose a Preset that fits your needs, and adjust the volume of MIRacle's reverb signal.

MIRacle comes with a number of presets. They are roughly sorted by their average reverb length and the planned application area: Presets labeled "Enhance" will fit a setup where the algorithmic reverb just adds color and modulation to the room derived from a MIR Venue. "Hybrid" presets are typically meant to be used with drastically shortened MIR Reverb times (see below).

Using MIRacle with Post-MIR AUX Sends

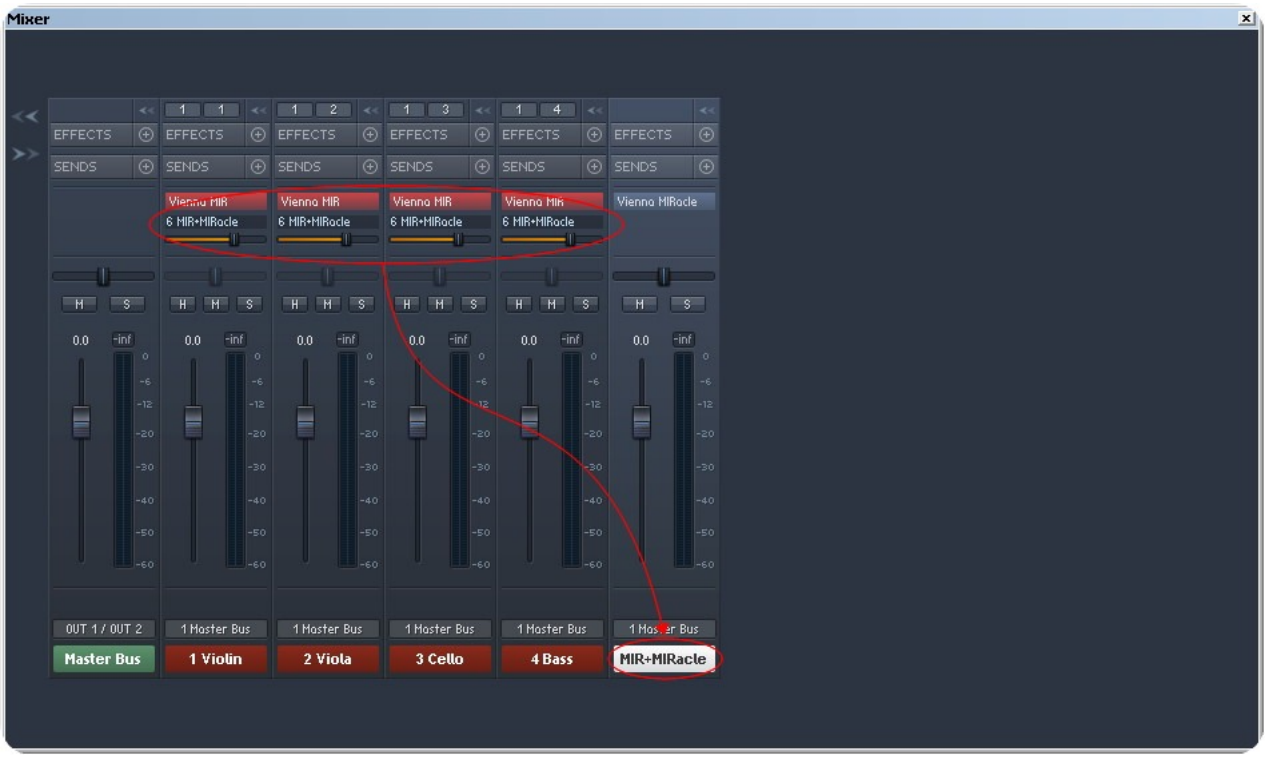


Using MIRacle with a conventional AUX send setup will allow for much more control.

Just add a new bus to VE Pro's mixer and select MIRacle as an insert. Make sure that the Dry Signal is not routed through the plug-in, and don't connect MIRacle's output to MIR Pro again.

Open an AUX send after the MIR plug-in on each instrument channel. Use individual AUX send levels from the mixer's instrument channels to achieve the sound you're after.

Using MIRacle and MIR Pro as Hybrid Reverb (1)



An even more elaborated setup uses the combined powers of both MIR Pro and MIRacle as a powerful hybrid reverb (a mixture of convolution-based and algorithimc effects).

In this scenario you will send only MIR's wet signals to MIRacle. This submix is the "dry" input from MIRacle's point of view, so make sure that it is not muted there. A typical setup is to scale MIR's Reverberation Time to only 50% or less of its original length, while adding a rich and modulating algorithmic tail to the (still intact!) positional cues derived from MIR's virtual stage.

> **Tip**
>
> For a "Hybrid Reverb"-approach, reducing the original reverb time of a MIR Venue to values as small as 0.3 to 0.5 seconds is a good starting point.

Using MIRacle and MIR Pro as Hybrid Reverb (2)



Taking it to extremes, you could also add varying amounts of algorithmic reverb to the dry signals – for an even more exciting sound of the resulting overall reverb.

Starting from the setup layed out on the previous page, simply duplicate the bus that contains MIRacle. Open its GUI and make sure to mute its internal Dry Signal Path, as we are going to send some un-reverberated instruments into it.

Add an AUX send after the MIR Connector Plugin on every instrument's channel (which now contains only the positioned dry signal from MIR, as we already are sending the wet signal to MIRacle 1). Make sure to set them to "pre-fade" operation (the fader color changes from light blue to orange).

Now send as much of the dry signals as you like to the second MIRacle instance and adjust the levels according to taste. The result should be a lush and dense, yet convincingly spatial reverb.

MIRx Mode

What it is

MIRx Mode is a dedicated function layer inside *Vienna MIR Pro* for the handling of prefabricated, Venue-dependent settings previously only available as a separate product, extending *Vienna Instruments Pro*. It gives access to more than **1,700 tailor-made presets for *Vienna Instruments* samples** and dozens of general purpose settings for other signal sources. When used in *MIR Pro* as part of *Vienna Ensemble Pro*, the most necessary steps of setting up a virtual orchestra or ensemble are carried out automatically (more manual interaction will be needed when working with the *MIR Pro* plug-in version). On top of it, all instantiated *MIR Pro* Icons will find their proper positions almost "magically" when switching between *MIRx*-enabled Venues. *MIRx* settings are just that: Tailor-made settings for *MIR Pro* Icons, carefully adapted for certain *MIR Pro* Venues. You can invoke and / or modify them whenever you need them, so your individual solution is always just a few mouse-clicks away. Nothing is carved in stone, but *MIRx* Mode and the presets it supplies will get you started faster than ever.

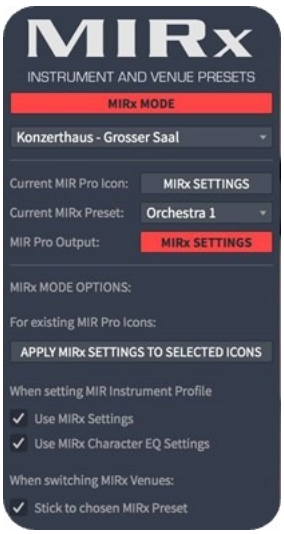
> **Note**
>
> *MIRx Mode* is not a different product, but a new feature set of *MIR Pro*, available for all its existing and prospective users, without additional charge.

How to get hold of it

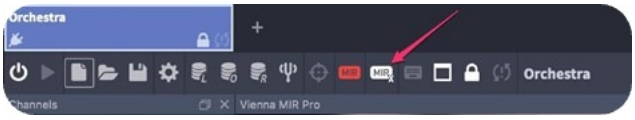
To gain access to *MIRx* mode and its presets, make sure to install the latest version of *MIR Pro*. If you're planning to use *MIR Pro* inside *Vienna Ensemble Pro*, please make sure to install the latest version of this application as well.

> **Important**
>
> Please note: *MIRx* Presets depend on properly installed *RoomPacks* with valid Venue licenses on your Vienna Key/eLicenser!

How to use MIRx Mode



1. Open an existing *MIR Pro* project or create a new one
2. Activate *MIRx* Mode (press Shift-x or click the respective button in the top bar of the MIR PRO user interface)



3. Select a *MIRx* Venue
4. Apply *MIRx* Preset settings to any number of selected *MIR Pro* Icons (they depend on the chosen Instrument Profile)
5. Use *MIRx* Preset Alternatives when needed (e.g., for soloists)

...enjoy the sound of your *Vienna Instruments* in perfect spatial balance! Of course there's more to *MIRx* Mode than just that basic stuff. Feel invited to read the following pages to make the best use of *MIR Pro's* new features!

Good to know

MIRx Presets are available for these *MIR Pro* Venues:

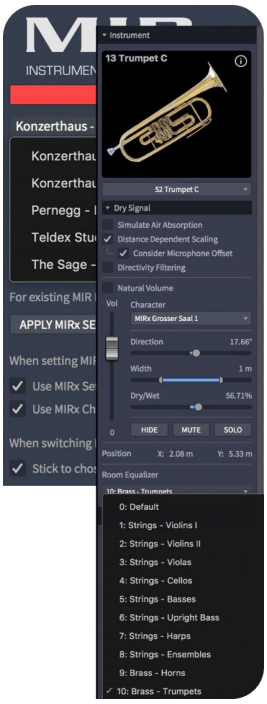
- Vienna Konzerthaus / Grosser Saal (RoomPack 1 - Vienna Konzerthaus)
- Vienna Konzerthaus /Mozartsaal (RoomPack 1 - Vienna Konzerthaus
- Teldex Studio Berlin / Aufnahmesaal (RoomPack 2 - Studios & Sound Stages)
- The Sage Gateshead / Hall One (RoomPack 4 - The Sage Gateshead)
- Pernegg Monastery (RoomPack 5 - Pernegg Monastery)
- Vienna Synchron Stage

Individually shaped *MIRx* Presets are available for most (if not all) *Vienna Instruments*. In addition, there are specific general purpose profiles for 3rd party ensembles, solo instruments and any other kind of signal source. *MIRx* Presets consist of several layers and aspects: Venue related settings, Instrument related settings, and global *MIRx* Mode options and features.

1. Venue related settings

- Output Format (stereo, in all cases)
- Main Microphone selection, setup and position offset
- Secondary Microphone selection, setup, position and volume offset (relative level)
- Global Dry / Offset (actually set to 0.0 in all cases)
- Reverberation Time (actually set to 100% in all cases)
- 24 dedicated Room EQ busses with individual settings for all typical main instrument families within an orchestra.

> **Important**
>
> **RoomTone** is **not** part of the *MIRx* Preset structure and therefore has to be enabled and adjusted manually. When using Natural Volume for *Vienna Instruments*, leveling the RoomTone volume to -10 to -12 dB might be a good starting point. **MIRacle** - *MIR Pro's* Algorithmic Reverb Add-On - is **not** part of the *MIRx* Preset structure, either.



2. Instrument related settingsProfile)

- Position, Direction, Width, Dry/Wet Ratio

- Room Equalizer assignment
- MIRx Preset Alternatives (e.g., positions such as 1st and 2nd Violins, dedicated Solo positions, or just different Characters such as "warm" or "bright")
- Position-dependent Character settings (a.k.a. "Pre-EQ" in MIRx for Vienna Instruments Pro)

> **Note**
>
> **HINT**: Using *MIR Pro's* Natural Volume feature for *Vienna Instruments* together with *MIRx* Presets will yield great results. Please note that Natural Volume is not restricted to *MIRx* Mode and can be used with all *MIR Pro* Venues!

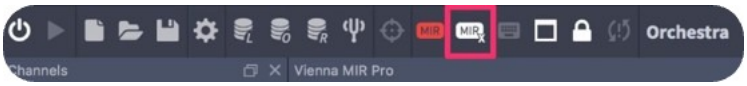
3. Global MIRx Mode features

- When changing to another *MIRx* Venue within the *MIRx* Settings window, all relevant instrument settings are either retained or adapted to the respective Venue-specific values.
- Existing *MIR Pro*-based projects may be converted to *MIRx* Mode globally or just for selected *MIR Pro* Icons.
- Newly instantiated *MIR Pro* Icons either may adapt to *MIRx* Preset settings automatically, or they can be set manually one by one.

GUI elements and options

The MIRx Mode On/Off-button

Clicking this button will **put *MIR Pro* into *MIRx* mode**. The button will be lit in bright red, and the *MIRx* Settings Window will open if it isn't already. Click the button again to turn off *MIRx* Mode.



You can also use the **keyboard shortcut "Shift"-X** to toggle the state of *MIRx* Mode.

The MIRx Settings Window

In this **floating window you may control all important aspects of *MIR Pro* in *MIRx* mode**. The window will open as soon as you switch on *MIRx* Mode, or by using the **keyboard shortcut "F7"**. You can put this floating window wherever it fits your needs. Once you have finished your *MIRx*-related work you can close the window safely without changing your settings or switching off *MIRx* Mode. The *MIRx* Settings Window offers functions to recall *MIRx* Presets for *MIR Pro* Icons ("Instruments") and the Main Microphone/Output section of *MIR Pro*. In addition, some options will determine how *MIRx* Presets will be handled by *MIR Pro*. The big button right below the *MIRx* logo will switch *MIRx* Mode on or off. It simply reflects the status of the On/Off button in the menu bar. As soon as it is lit red, all functions and options of the window will become active and accessible. The pull-down menu allows for choosing from up to three sets of *MIRx*

Presets, depending on the MIR Venues available. Once you have set up a project in *MIRx* Mode, you can switch between the available Venues here - without any other manual re-adjustments! All necessary changes are applied automatically according to the selected Venue.



The "*MIRx* Settings" buttons next to the labels "Current *MIR Pro* Icon" and "*MIR Pro* Output" actually serve two purposes: When lit red, they indicate that the current *MIR Pro* Icon (shown in the "Instrument Channel" on the right side of the Main Window) and *MIR Pro's* Output Channel match the settings of the chosen *MIRx* preset. In case any parameter has been changed manually, the button will go dark; clicking on it again will re-assign the default *MIRx* Settings to the selected item.

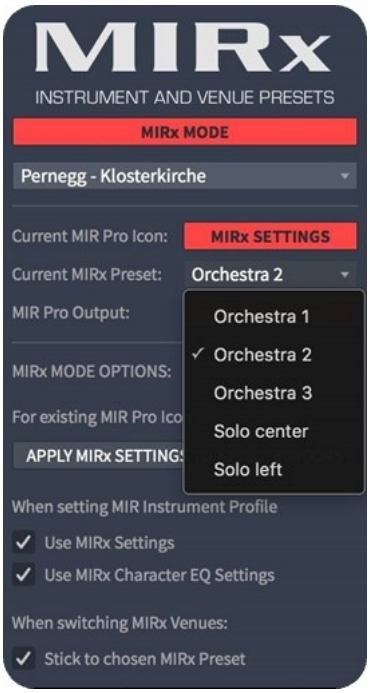
Pressing "X" on your computer's keyboard will assign *MIRx* Settings to the current *MIR Pro* Icon, too.

In most cases there is more than one typical "Orchestra" position available for a selected instrument (e.g., Violins 1 and 2, Triple Horn 1 to 4, or soloist positions at the center of the stage). These additional settings are called "*MIRx* Alternatives" and can be selected by using the right-click context menu directly on a *MIR Pro* Icon, or by using the pull-down menu in the *MIRx* settings window. *MIRx* Alternatives literally double the amount of available *MIRx* Presets! By default, the first "Orchestra" position and the applicable Character Preset are assigned to a *MIR Pro* Icon according to the selected Instrument Profile. Switching *MIRx* Alternatives will change the Character settings, too.

MIRx Mode Options

The *MIRx* Mode Options accommodate a button to manually assign the *MIRx* Settings of the chosen Venue to all selected *MIR Pro* Icons. This is how existing setups and templates can be brought into *MIRx* Mode with just a few clicks. Just be aware that *MIRx* Settings always depend on the chosen *MIR Pro* Instrument Profile! Normally, *MIR Pro* will choose the proper *MIRx* Preset automatically for any selected *MIR Pro* Icon with a valid Instrument Profile as long as *MIRx* Mode is on. The same is true for the Character settings. There may be situations when you would like to do this on a case-by-case basis rather than completely automated - which can be achieved by switching these options off. As mentioned before, there are many cases where more than one typical "Orchestra" position is available for a selected instrument (e.g., Violins 1 and 2, Triple Horn 1 to 4, or soloist positions at the center of the stage). These additional settings are called "*MIRx* Alternatives" and can be selected by using the rightclick context menu directly on a *MIR Pro* Icon, or by using the pull-down menu in the *MIRx* settings window. *MIR Pro* will stick to the chosen *MIRx*

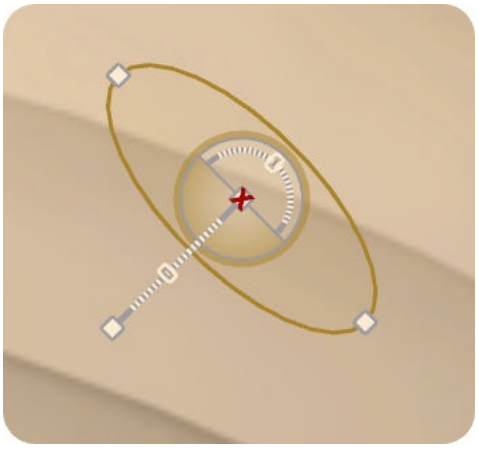
Alternatives when switching Venues, unless you deactivate the respective option in the *MIRx* Settings window. This might be useful when you want start from a fresh perspective rather than from a previous version of a similar setup.

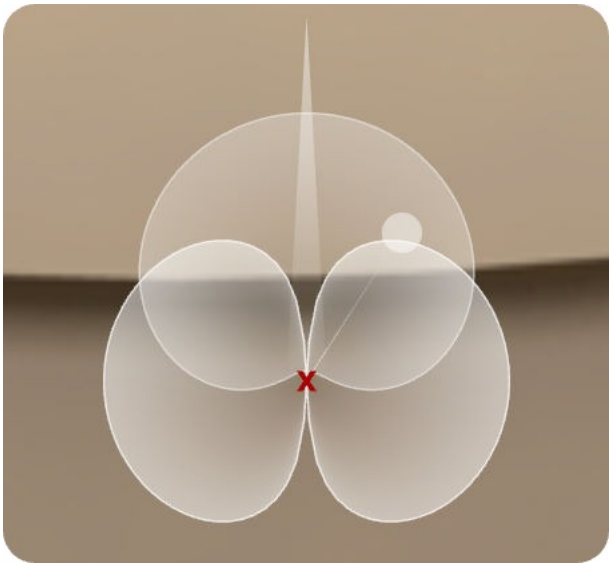


> **Tip**
>
> As a rule of thumb, all *MIRx* options can be left "on" for most applications. This is also the default setting.

3. MIRx Settings Indicators on the MIR Pro Venue Map

Once the *MIRx* Settings have been assigned to a *MIR Pro* Icon, a little red "x" appears across the Position Handle at the center of the Icon. Changing any parameter will cause the "x" sign to disappear. Click the "*MIRx* settings" button in the *MIRx* Settings Window to get back to the preset values. As mentioned before, Instrument Volume is not part of the *MIRx* Preset structure.





Similarly, the center of the Main and Secondary Microphone Icons are marked with a little red "x" as soon as the Output Channel's parameters all comply with the *MIRx* Preset's values. Changing any value will make the "x" sign disappear. Click the "*MIRx* settings" button in the MIR Settings Window to get back to the preset values.

> **Note**
>
> The *MIRx* settings for the Output Channel are assigned automatically when a *MIRx* Venue is selected.

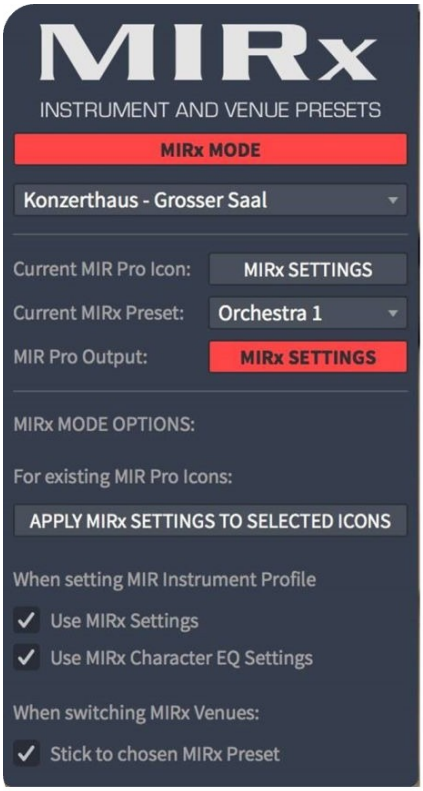
How to use

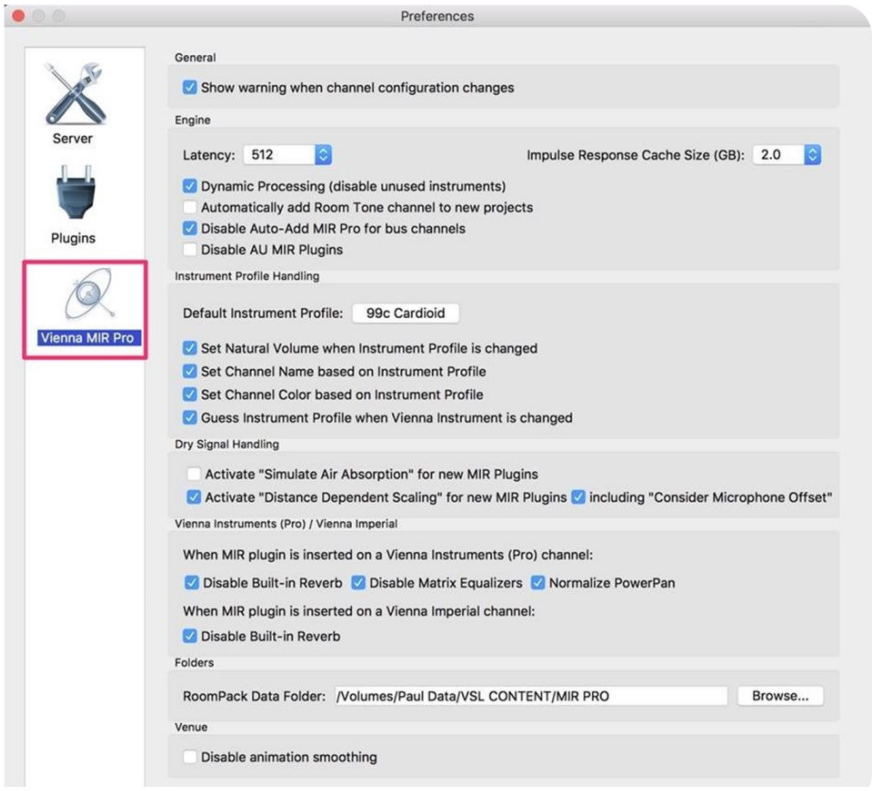
First of all: **RELAX! Actually there's nothing new to learn**. *MIRx* Mode is only a tool to recall handcrafted, instrument-specific settings for *MIR Pro* Icons and optimized Output Formats for some *MIR Pro* Venues. Once assigned, you may switch **off** *MIRx* mode if you want - it won't do any harm. (In other words: *MIRx* Mode isn't needed to actually **run** *MIR Pro*, just to access its settings). Likewise, you can re-activate *MIRx* Mode whenever one or several aspects of your project need access to the Preset settings again.

> **Important**
>
> Currently *MIR Pro's* undo function doesn't work for choosing *MIRx* settings! This might change with an update in the near future.

Here are some examples of how to integrate and employ *MIRx* Mode in your work:

> **Tip**
>
> For the most convenient workflow please switch ON all *MIRx* Mode options in the *MIRx* Settings window, and make sure to enable all options in the *MIR Pro* Preferences section called "Instrument Profile Handling".





Example 1A: Creating a new MIR Pro setup using MIRx Mode in Vienna Ensemble Pro

- Start a new *MIR Pro* project in stereo configuration (at this time, multi-channel setups are not supported by *MIRx* Mode)
- Add a *Vienna Instrument (Pro)* Player to this project; if you haven't activated the Auto-add *MIR Pro* function, replace the channel's Stereo Pan plug-in with *MIR Pro*.
- Activate *MIRx* Mode (...the *MIRx* Settings Window will open, too).
- Select the *MIRx*-ready Venue from the pull-down in the *MIRx* Settings Window (...the Output Channel's *MIRx* Settings button should already glow red).
- Load a Patch, Matrix or Preset into the *Vienna Instrument (Pro)* Player
- Provided all *MIRx* Mode options and *MIR Pro* Preferences are set as outlined above, *MIR Pro* will assign the proper Instrument Profile automatically. Consequently, the default *MIRx* Preset for the chosen *Vienna Instrument* patches will be loaded, too.
- Choose the *MIRx* Preset Alternative that fits your needs. Some Instruments have five or more individual Presets to offer! Look at the screenshots below to get the idea.
- Now keep adding *Vienna Instruments* until your orchestra is set up according to your needs.
- In case you want to add signal sources other than *Vienna Instruments*, assign the 99x - *MIRx* General Purpose Profile to your *MIR Pro* Icon manually and choose the desired *MIRx* Preset Alternative.



Selecting MIRx Alternatives can be done directly in the MIRx Settings window or in the rightclick context menu of the MIR Pro Icon.
The instrument shown in the screenshot offers several individual "Orchestra" positions and two solo positions close to the Main Microphone.

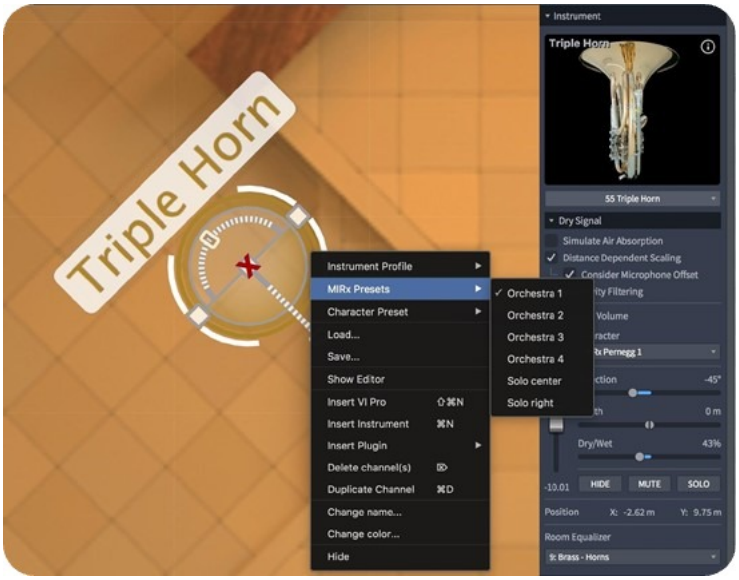
Example 1B: Creating a new MIR Pro setup using MIRx Mode in your Digital Audio Workstation (DAW)

> **Note**
>
> **HINT**: The main difference for *MIRx* Mode used with *MIR Pro's* plug-in version (compared to the deeply integrated version in *Vienna Ensemble Pro 5*) is that more manual input is necessary. This is due to the fact that *MIR Pro*, instantiated as a plug-in in your DAW, has no way of "knowing" what kind of signal it will be used for.

- Add a *MIR Pro* Plug-In to a stereo track of your host application.
- Open *MIR Pro's* Main Window.
- Activate *MIRx* Mode (...the *MIRx* Settings Window will open, too).
- Select the *MIRx*-ready Venue from the pull-down in the *MIRx* Settings Window (...the Output Channel's *MIRx* Settings button should already glow red).
- Select the *MIR Pro* Icon and assign the desired Instrument Profile (please see *MIR Pro* Manual for details).
- Provided all *MIRx* Mode Options and *MIR Pro* Preferences are set as outlined above, the default *MIRx* Preset for the selected *Vienna Instrument* patches will be loaded, too.
- Choose the *MIRx* Preset Alternative that fits your needs. (...see the screenshots for Example 1A).
- Keep adding *MIR Pro* Plug-Ins to other channels in your DAW until your orchestra is set up according to

your needs.

- In case you want to add signals derived from other sources than *Vienna Instruments*, assign the 99x - *MIRx* General Purpose Profile to your *MIR Pro* Icon and choose the desired *MIRx* Preset Alternative.



Selecting MIRx Alternatives from the right-click context menu of the MIR Pro Icon. Please keep in mind that the Character Presets differ for each position, too!

Example 2: Converting an existing MIR Pro setup to MIRx Mode

> **Important**
>
> Always work on copies of existing projects. There's no easy way to "un-*MIRx*" a setup once it got converted. Turning *MIRx* Mode off does **not** restore previous settings!

- Open a *MIR Pro* project you created earlier.
- Open *MIR Pro's* Main Window.
- Activate *MIRx* Mode (...the *MIRx* Settings Window will open, too).
- Select the *MIRx*-ready Venue from the pull-down menu in the *MIRx* Settings Window (...the Output Channel's *MIRx* Settings button should be lit red now).
- Select all Instruments / *MIR Pro* Icons you want to change to *MIRx* settings.
- Click the button labeled "APPLY *MIRx* SETTINGS TO SELECTED ICONS".
- Select individual Instruments / *MIR Pro* Icons.
- Choose the *MIRx* Preset Alternatives that fit your needs (...see the screenshots for Example 1A and 1B).

Example 3: Using MIRx Presets for own creations

Unlike the original *MIRx* for *Vienna Instruments Pro*, there are absolutely no restrictions in *MIR Pro's MIRx*

Mode to change any parameter at any time. This makes *MIRx* mode the perfect starting point for individual orchestra placements, be they just subtle variations of the original presets, or radical changes from them. The little red "x" markings of the *MIR Pro* Icons and the two Microphone Icons will disappear as soon as a parameter's value is changed. Still, all other parameters have retained the values supplied by the previously assigned *MIRx* Preset. This allows for countless variations and adjustments, founded on the well-rounded overall settings of *MIRx*. (In case you want to go back to the preset values, select an instrument and click the "*MIRx* Settings" button in the *MIRx* Settings window, or press the key "x".) The most meaningful first step to change an instrument's sound in *MIR Pro* is to use another Character Preset. The "Pure" setting means that no changes are applied to the sound of the incoming signal - this is what you would hear without the "Pre EQ" of *MIRx* in *Vienna Instruments Pro*. (For more ideas and ways to make use of the different techniques offered by *MIR Pro* please refer to the "Getting THAT Sound" section in *MIR Pro's* Manual.) Of course you can also try to use *MIRx* settings in other MIR Venues than the ones used for the three original setups. When selecting a "non-*MIRx*" Venue from *MIR Pro's* Venue Selection dialog you will be presented with a dialog window asking whether you want to reset the *MIRx* specific settings or keep them intact:



> **Important**
>
> When changing to a Venue without available *MIRx* Presets, *MIRx* Mode will be disabled in any case!

While it might be tempting to transfer *MIRx* Presets to other Venues available from *MIR Pro's* RoomPacks, be aware that all settings have been created for one specific setup in one specific hall - Character Presets as well as Room EQs, Main Microphone Setup as well as the Secondary Mic's settings. Character Presets will usually translate quite well to other Venues, while Room EQs will have little value (other than the assignments to the different instances). Finally, any aspect of a *MIRx* Mode Preset can be saved separately for later use in another context. The concept of *MIR Pro* Room Equalizer Banks which has been introduced especially for *MIRx* Mode will be discussed in the following section of this add-on manual. Please refer to the *Vienna MIR Pro* User Manual for more information about the Output Format Editor, *Vienna Ensemble Pro* Channel Sets and *MIR* Engine Projects.

Room EQ bank assignment and usage

The Presets created for *MIRx* - the convolution reverb extensions for *Vienna Instruments Pro* - rely a lot on specific Room EQ settings for different instrument families. While this is easy to achieve with *MIR Pro's* dedicated wet signal routing options when using it in Vienna Ensemble Pro 5, this was impossible to do with more conventional DAWs and the plug-in version of *Vienna MIR Pro*. With the introduction of *MIR Pro's* Room Equalizer Bank feature this partial limitation has been overcome. 32 individual Room EQ settings can be assigned to any *MIR Pro* Icon, and an additional "0 / Default" setting is used for all "un-routed" Icons without a dedicated assignment. It's crucial to understand that the Room EQ does NOT affect the dry signals at any time (which means that it isn't meant to be used as "master bus EQ"). The Room EQ has always been one of the main tools to sculpt the room-sound derived from MIR's multi-impulse responses,

and it has just become more versatile now.



> **Important**
>
> Room Equalizer Banks are available at any time and are not restricted to *MIRx* Mode!

To assign a Room EQ setting to a *MIR Pro* Icon, click the new pull-down menu at the bottom of the *MIR Pro's* Instrument Channel on the right. Select the setting of your choice, or assign an unused slot. Open the Room EQ's edit window by clicking the "E" button right next to its On/Off switch in the Output Channel for detailed adjustments and file management.

> **Note**
>
> The Room EQ slot shown in the Output Channel's EQ windows will be in sync with the Icon/Instrument displayed in the Instrument Channel, unless another slot is selected in the Output Channel's Room EQ pull-down.

Please take a look at the screenshot on the following page:

The Room EQ's main window allows you to select any of the slots for detailed editing using the arrow buttons near the top. Providing a meaningful name right below the slot's number will make proper assignments and navigation considerably easier. This is the name that will also appear in the respective line of the pull-down menu in the Output Channel.

Complete collections of Room Eqs can be saved and loaded with the Load Bank/Save Bank buttons in the upper menu bar. Individual Room EQ settings can be saved and recalled at a later point by using the Load/ Save buttons in the lower menu bar. Bypass and Reset functions are handled in a similar way for the whole bank as well as for individual slots.



Using Room EQ Banks

While it might be neither necessary nor feasible for every project to use 32 different EQ settings for the wet signals derived from MIR Pro, it can make all the difference to have three or four fine-tuned EQ curves for, e.g., strings, brass, woodwinds and percussion instruments.

Another typical approach sports special processing for bassheavy instruments, for vocals, or for any other kind of signals with special acoustic requirements.

For small adjustments it's a good idea to save an existing EQ curve, and to recall it after changing to the next unused slot. Don't forget to change the name to avoid confusion, though.

> **Note**
>
> Projects without Room EQ assignments and from previous versions of MIR Pro will always default to slot 0.

MIRx Settings - Overview

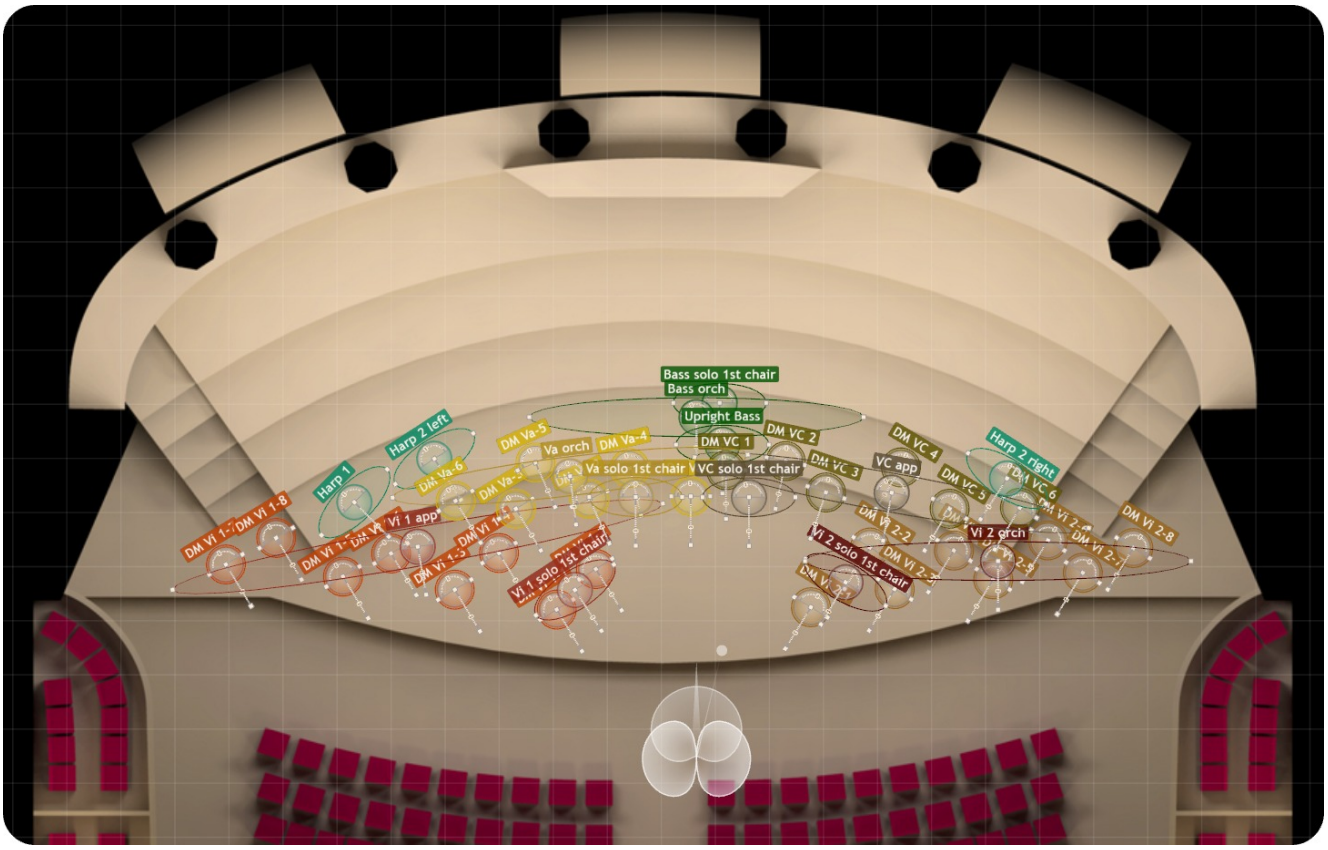
The following screenshots will give you an overview of all available positions for the displayed instrument group for the existing *MIRx* Venues.

- Each *MIR PRO* icon represents one virtual instrument.
- The *MIR PRO* icon provides information about direction, stereo width and placement of each instrument.
- You can see the main microphone positioned in front of the virtual orchestra.

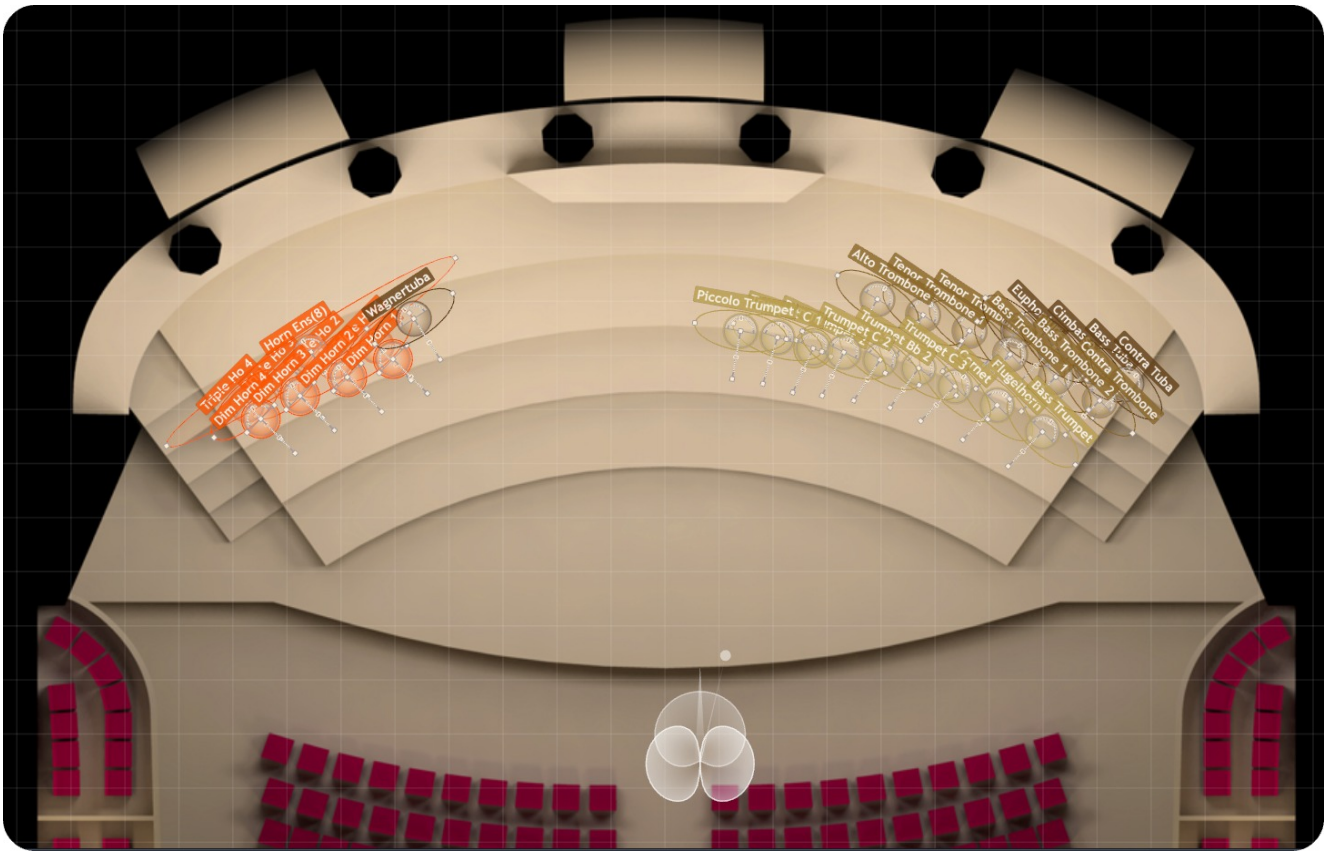
- You will see a few unusual positions as well - that's simply because the instrument might actually sound best in a specific hall when the player is NOT looking straight at the conductor!

Konzerthaus Grosser Saal

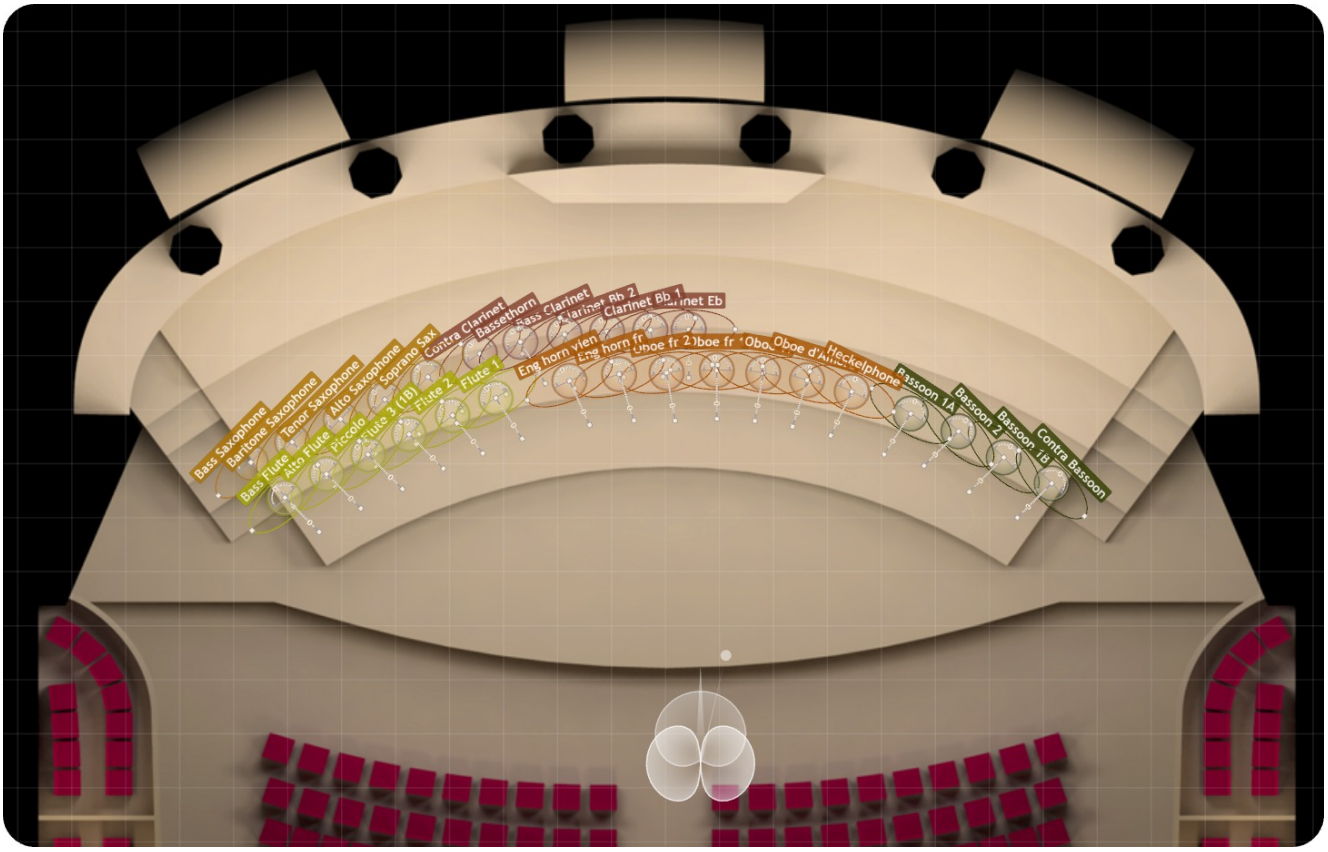
Strings



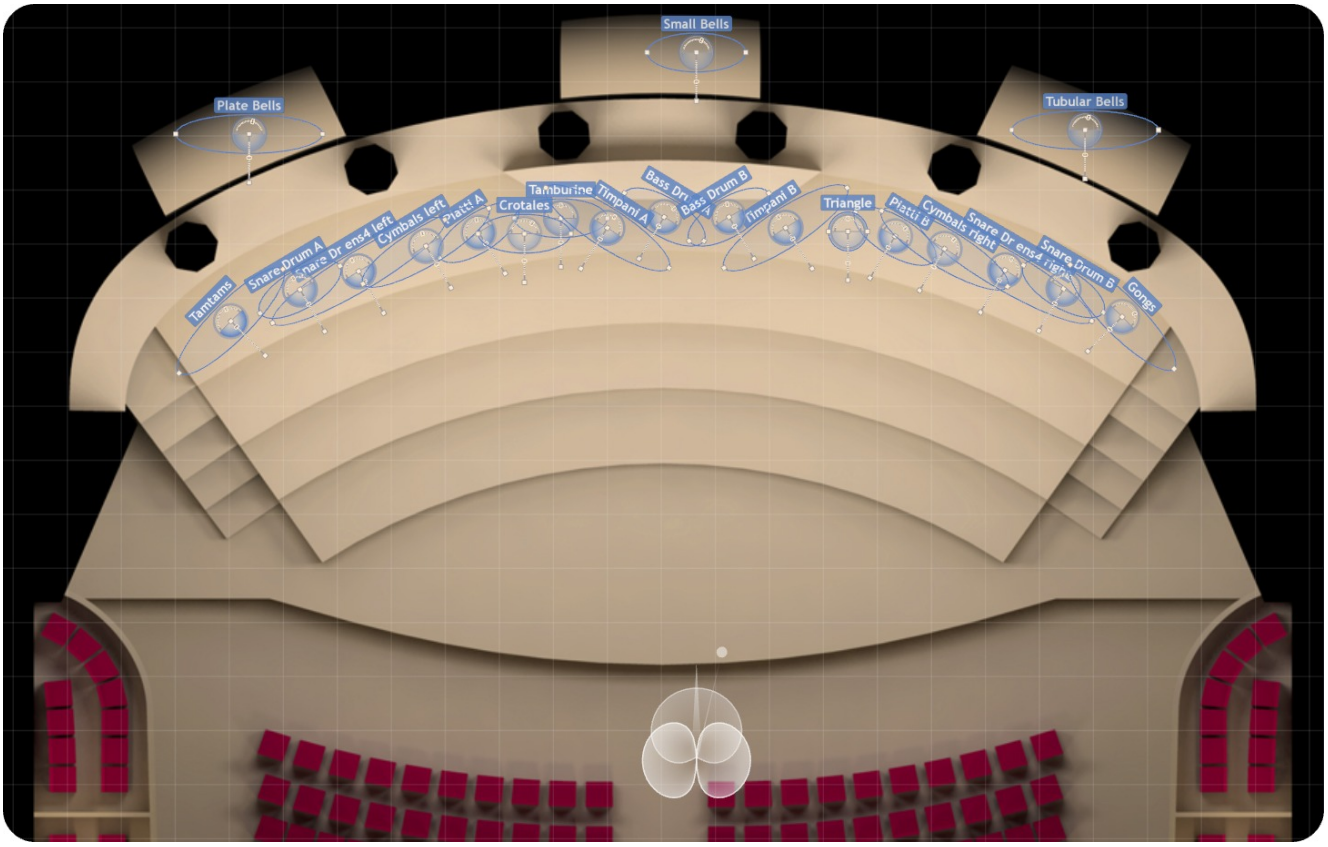
Brass



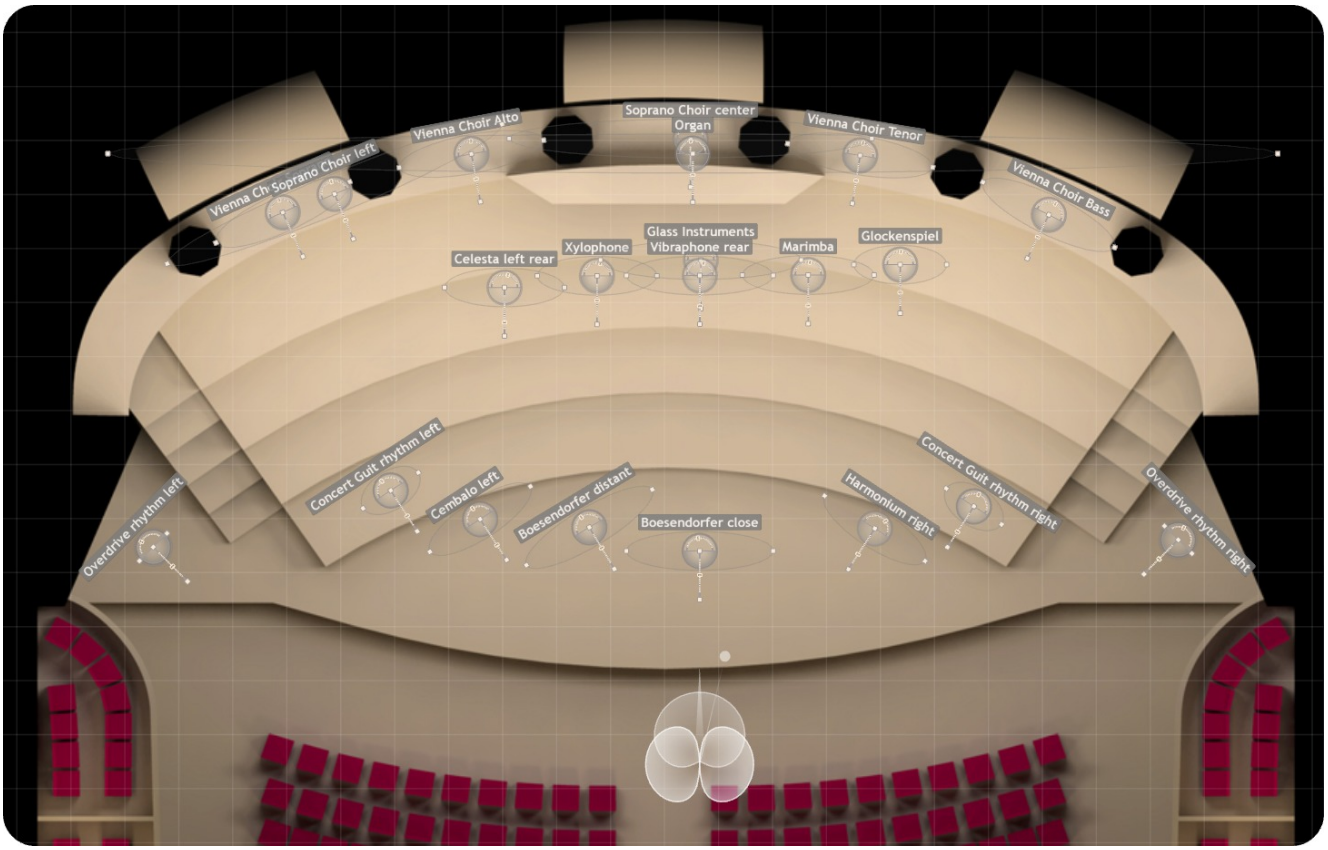
Woodwinds



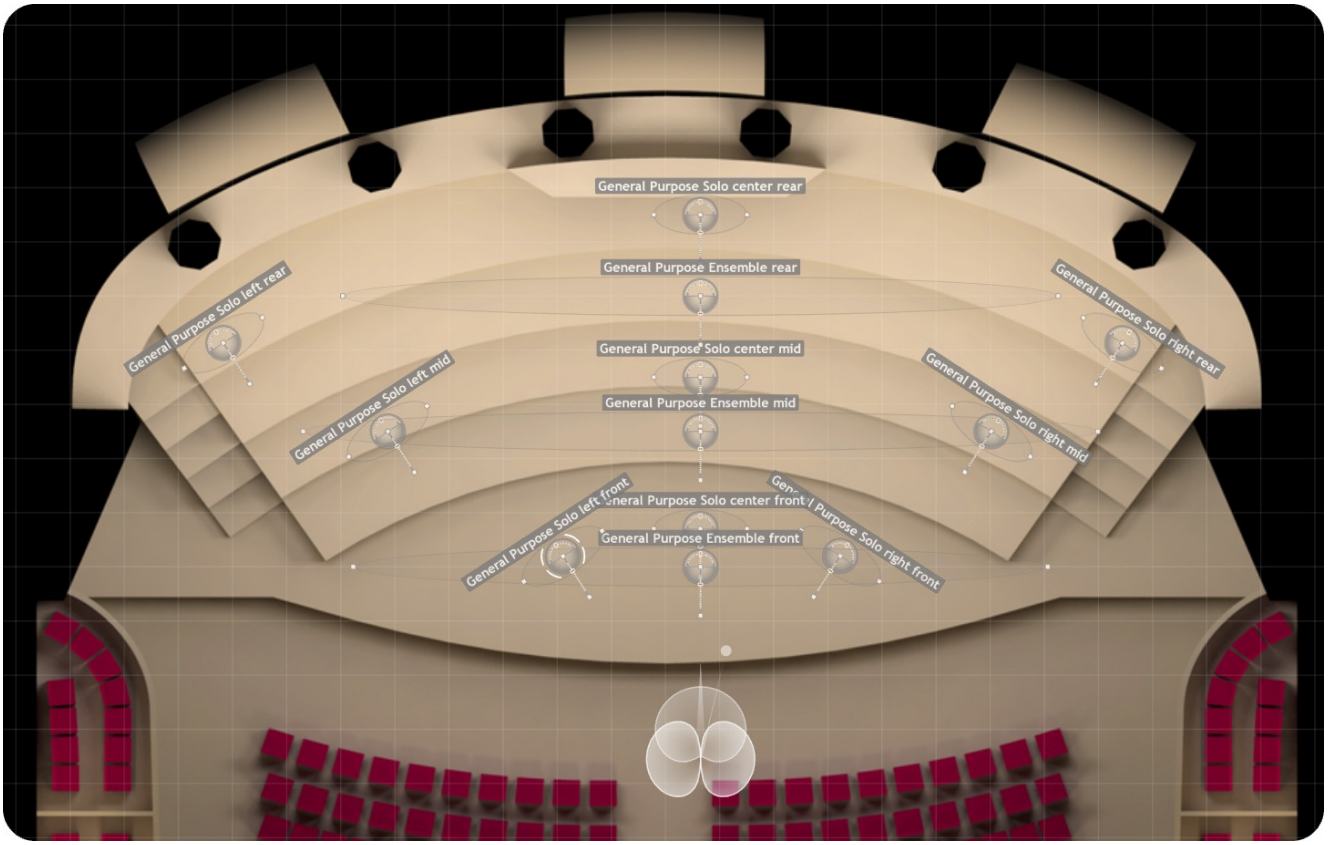
Percussion



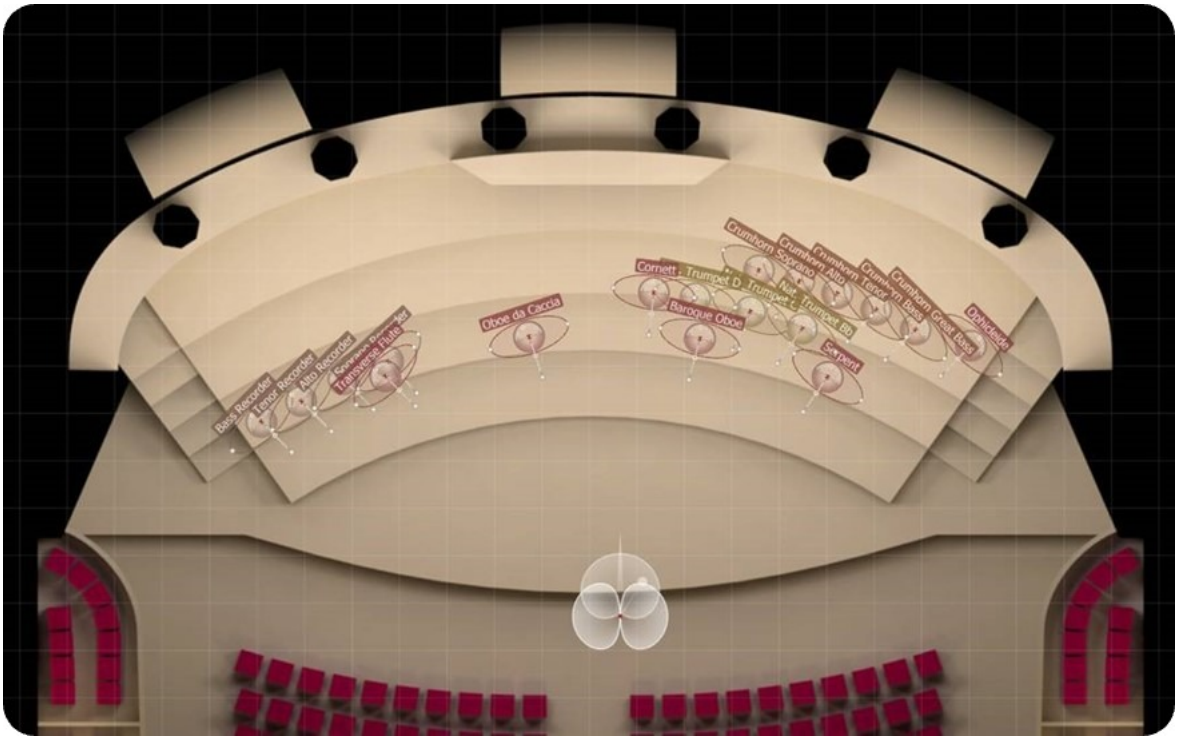
Additional Instruments and Choirs



General Purpose

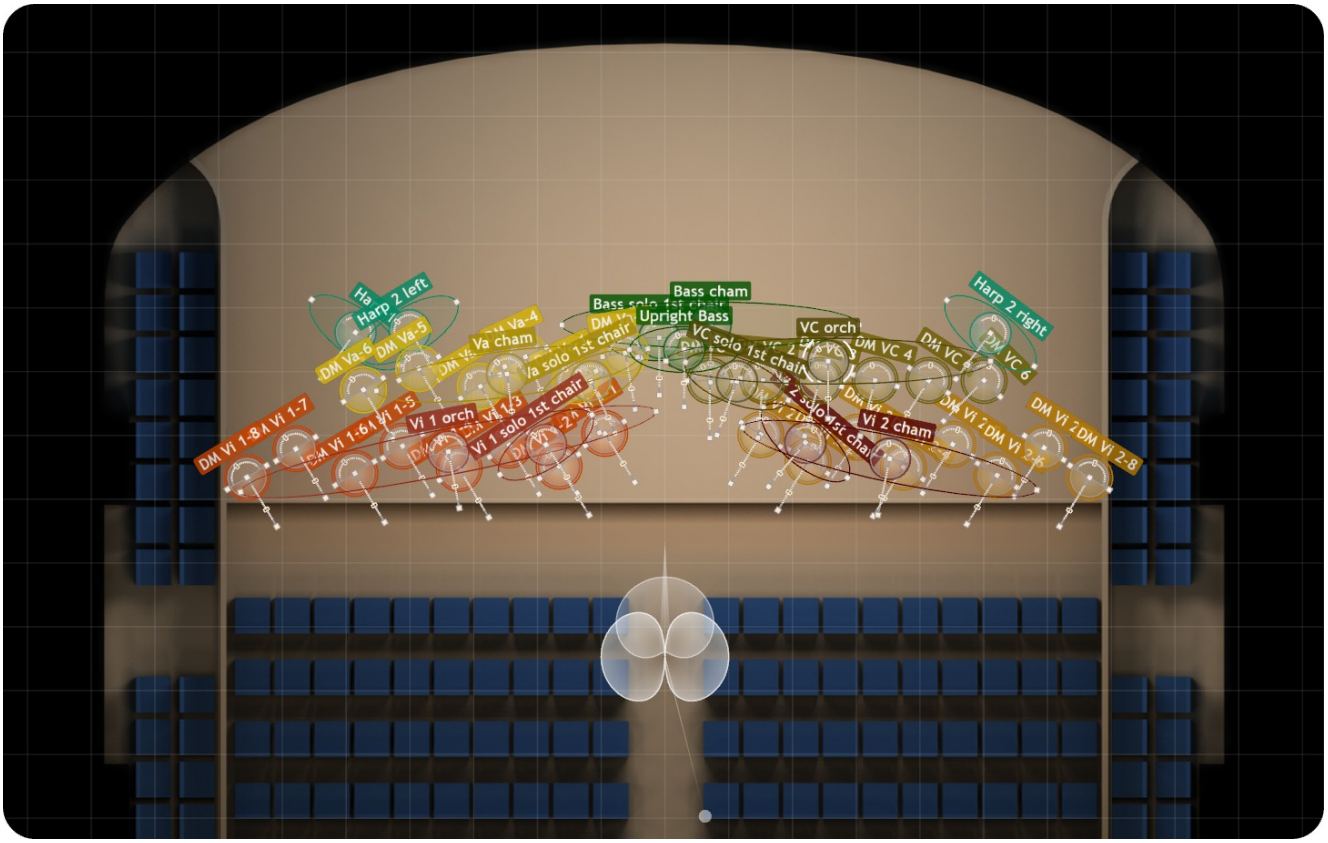


Historic Winds and Recorders

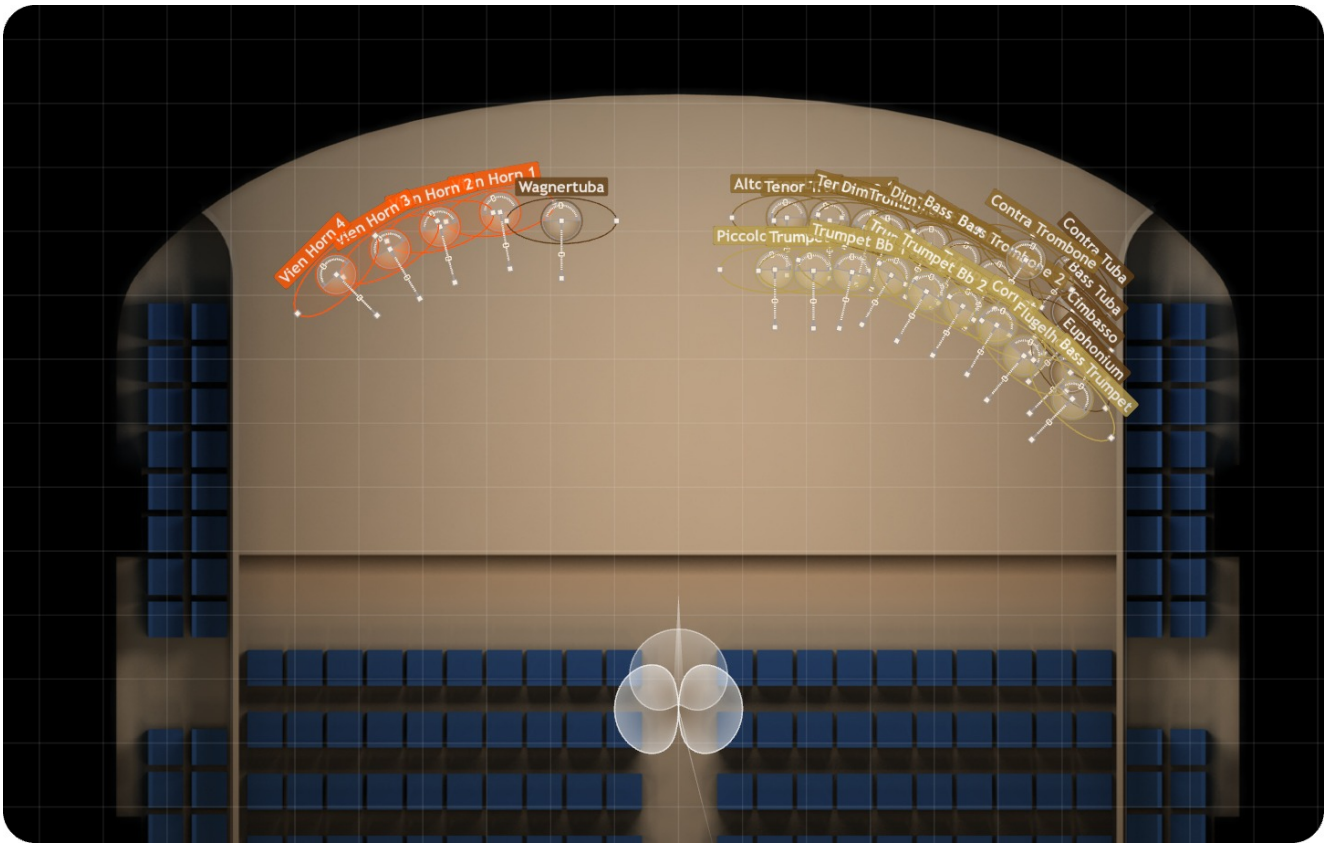


Konzerthaus Mozartsaal

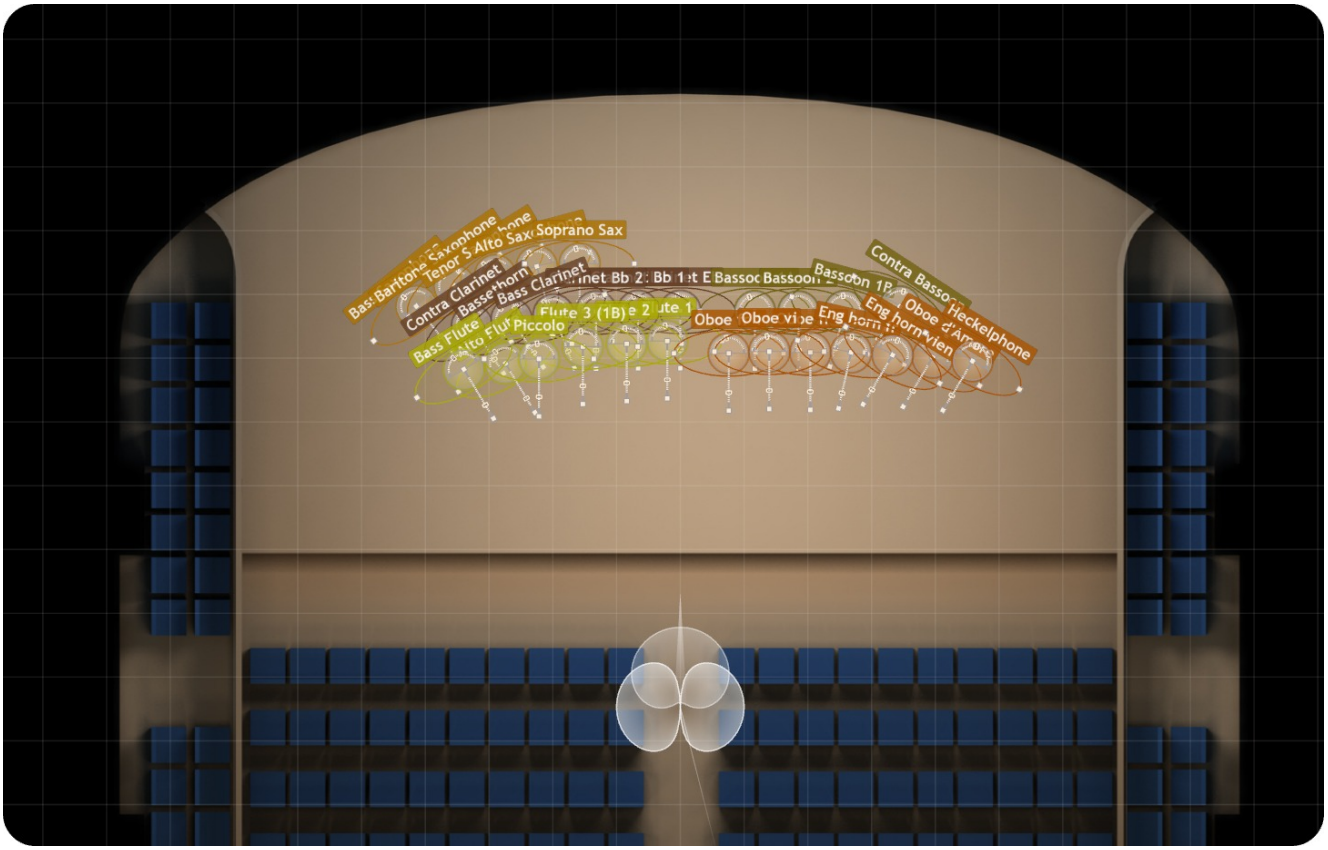
Strings



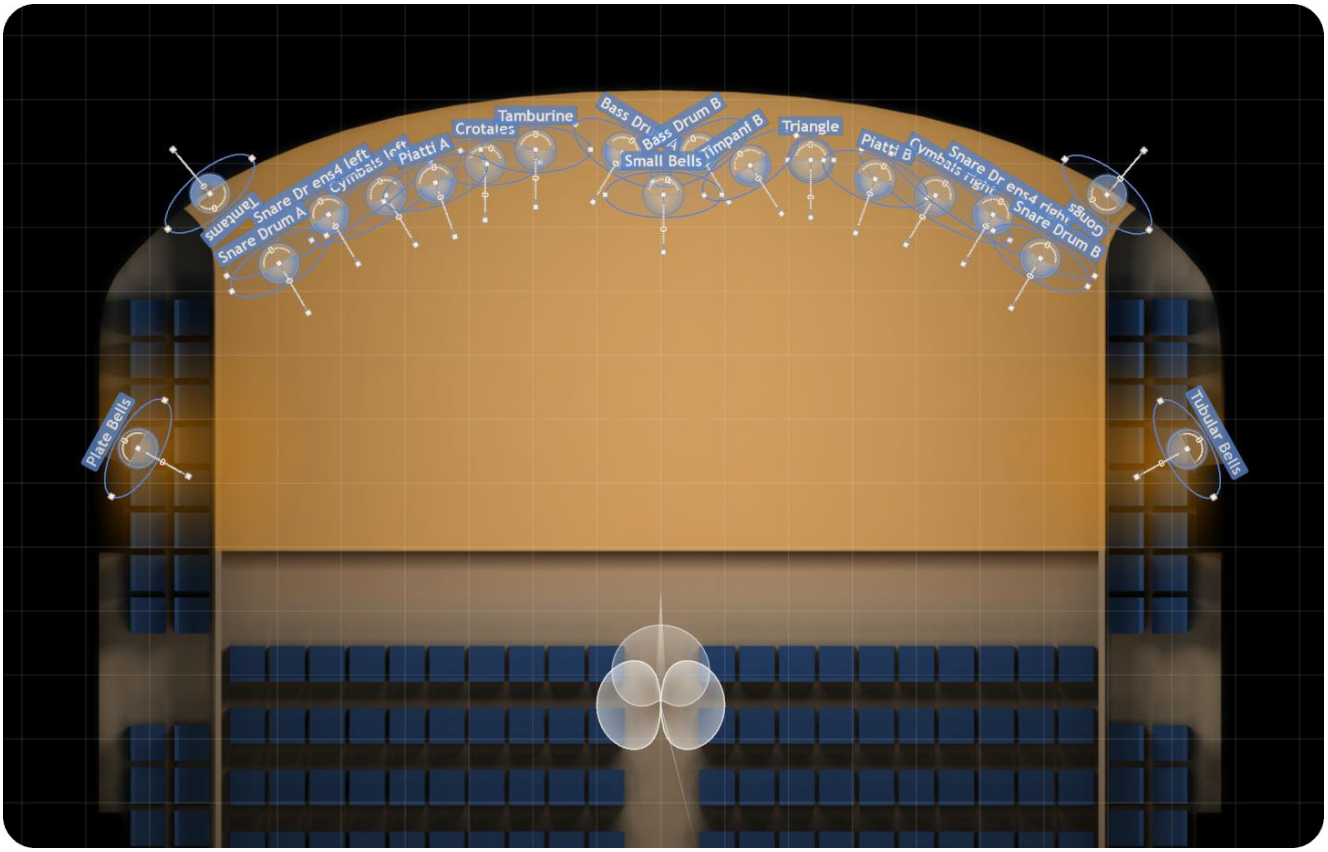
Brass



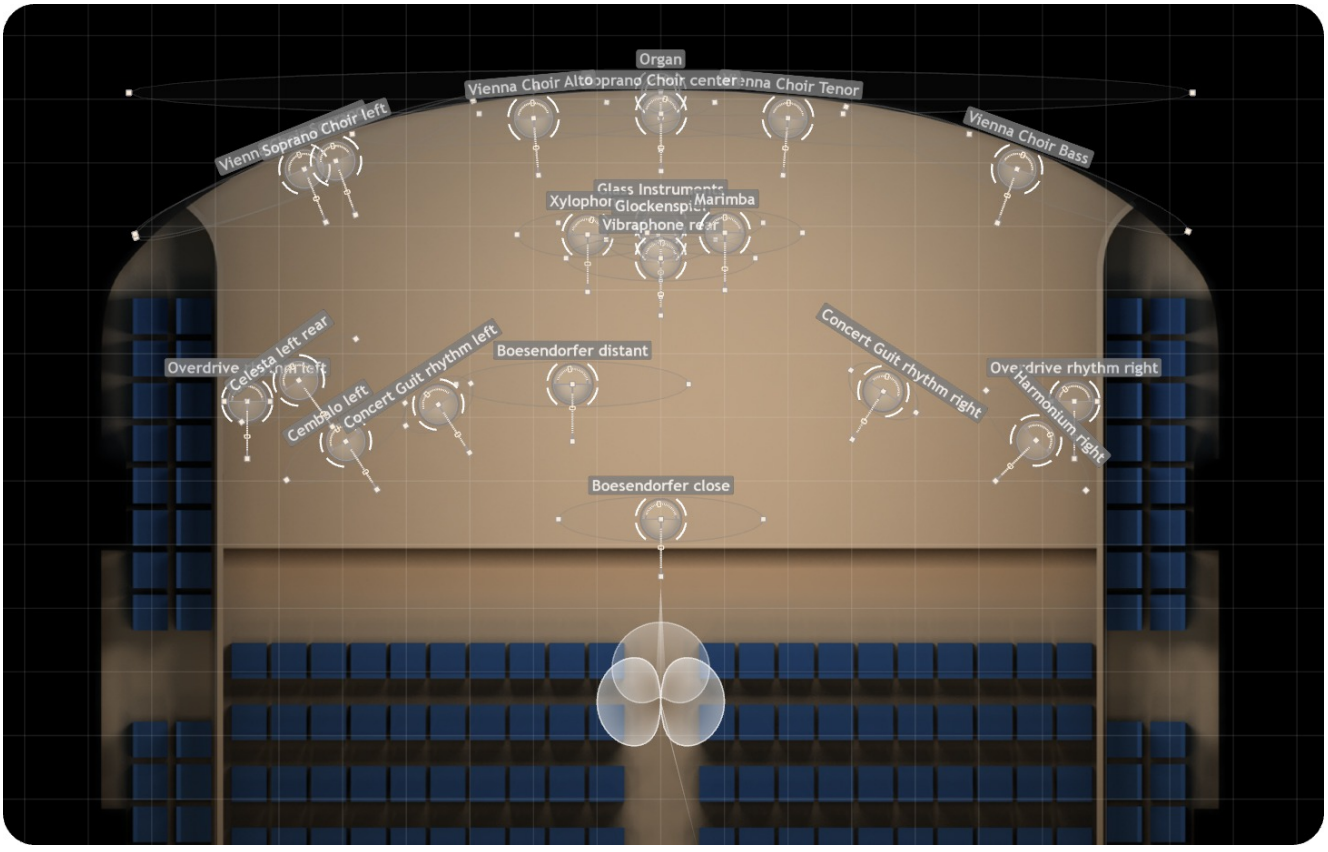
Woodwinds



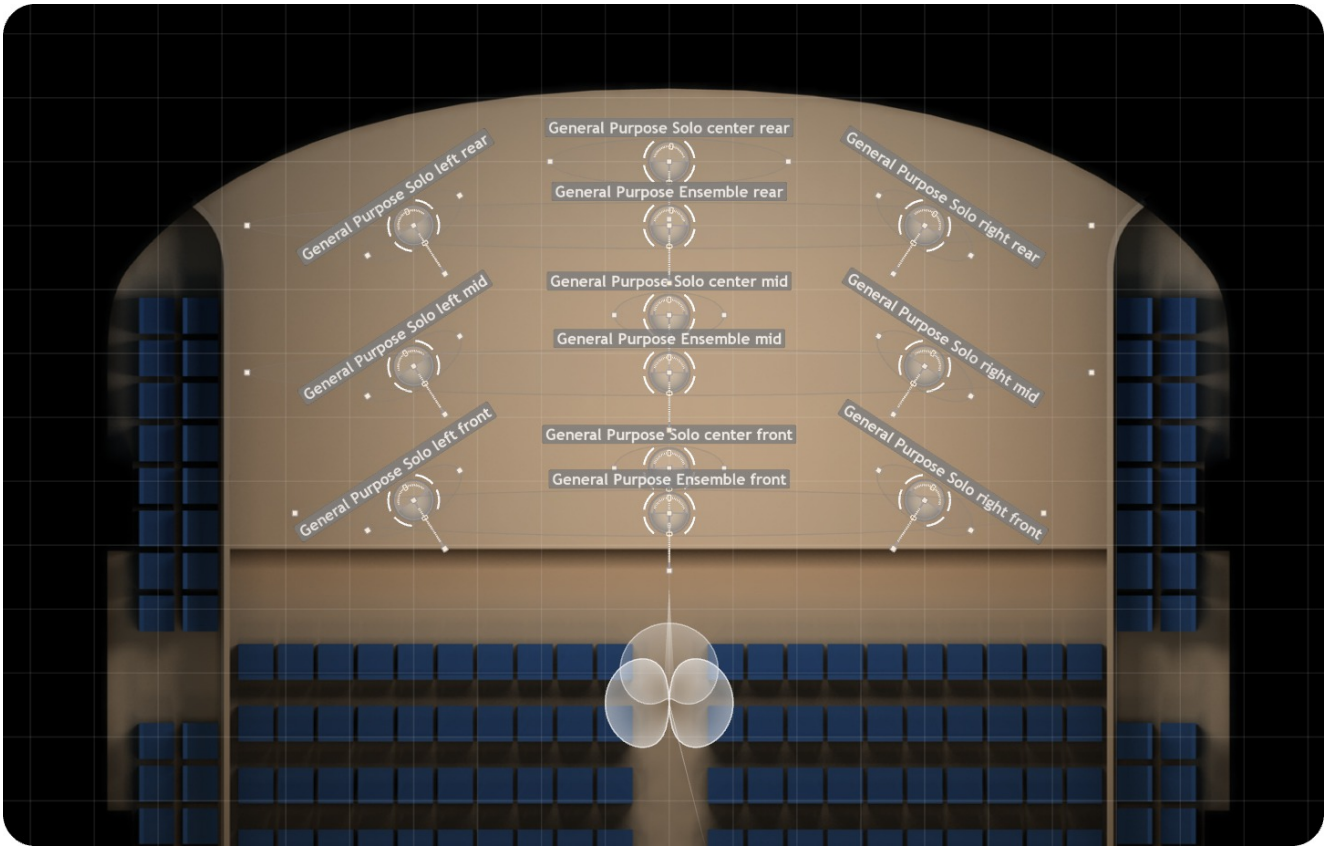
Percussion



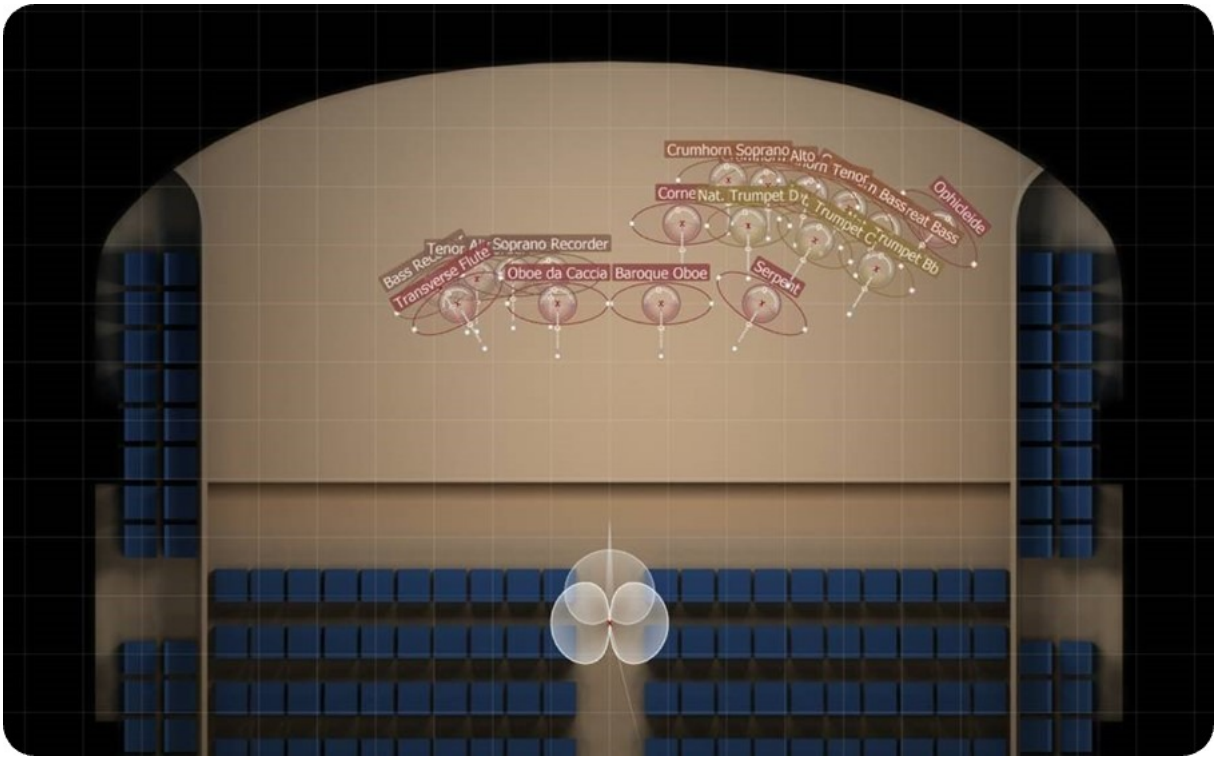
Additional Instruments and Choirs



General Purpose

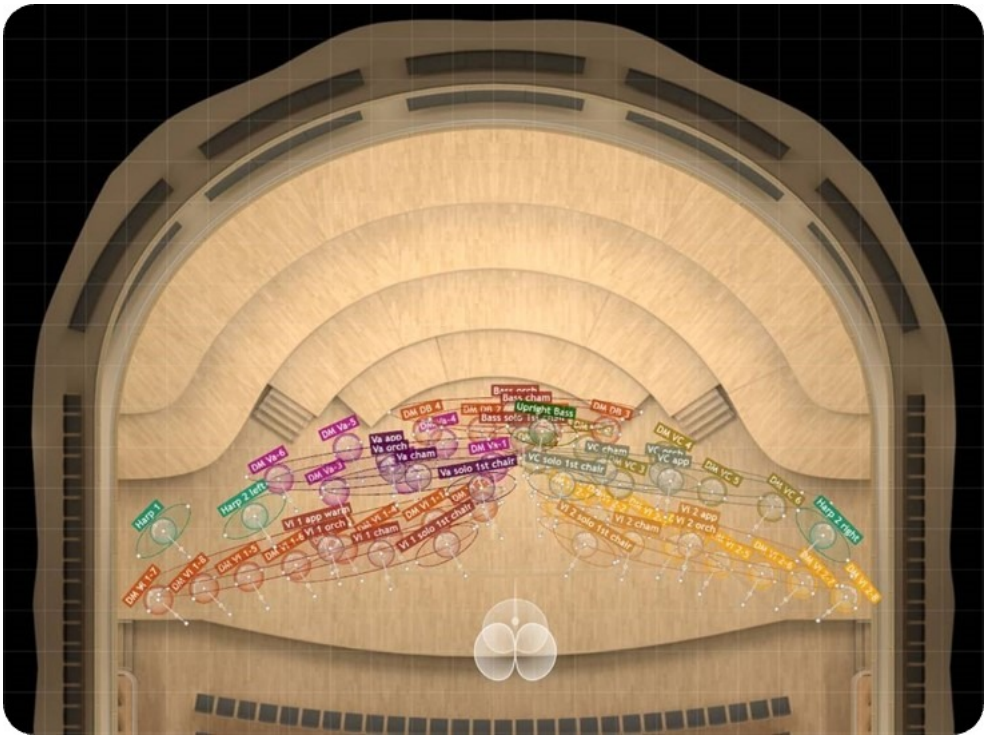


Historic Winds and Recorders

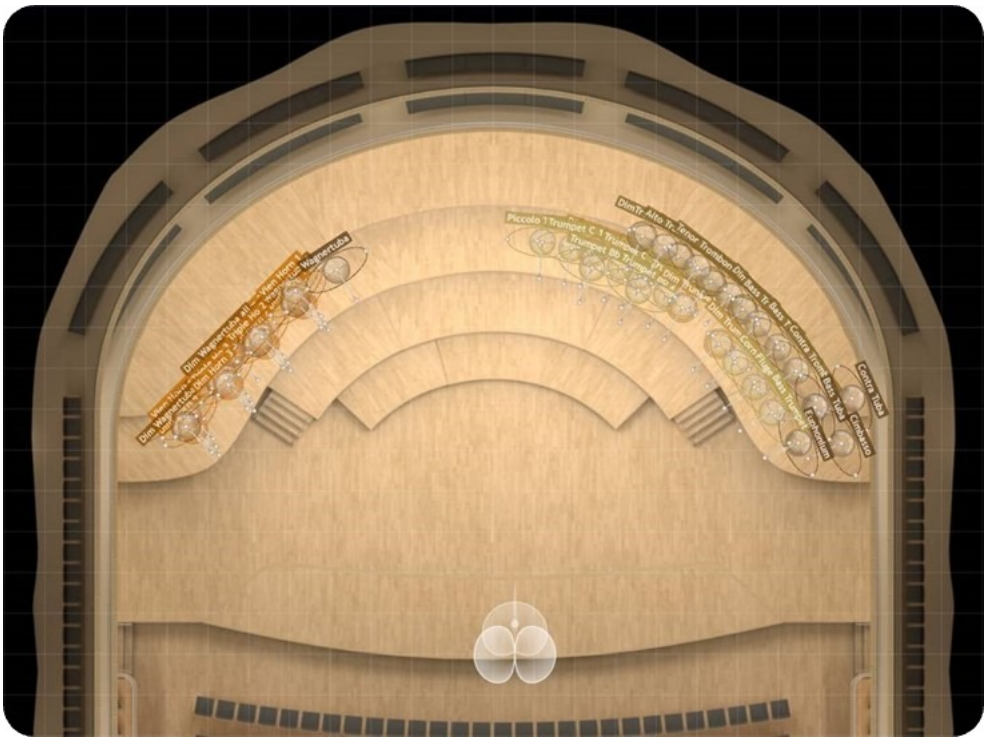


The Sage Gateshead Hall One

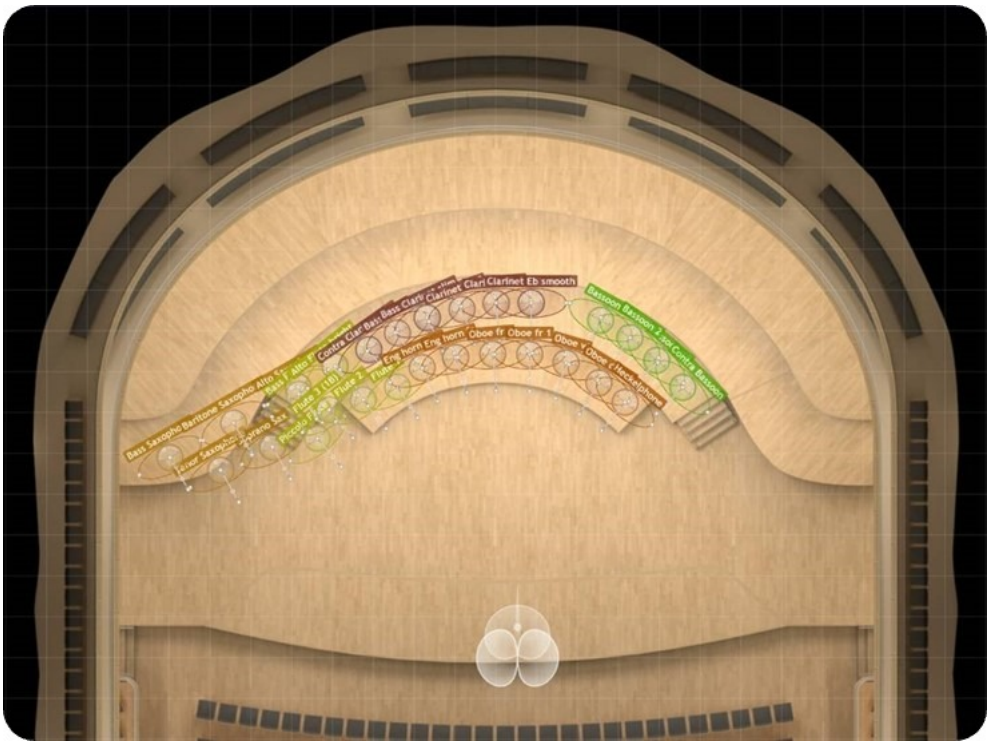
Strings



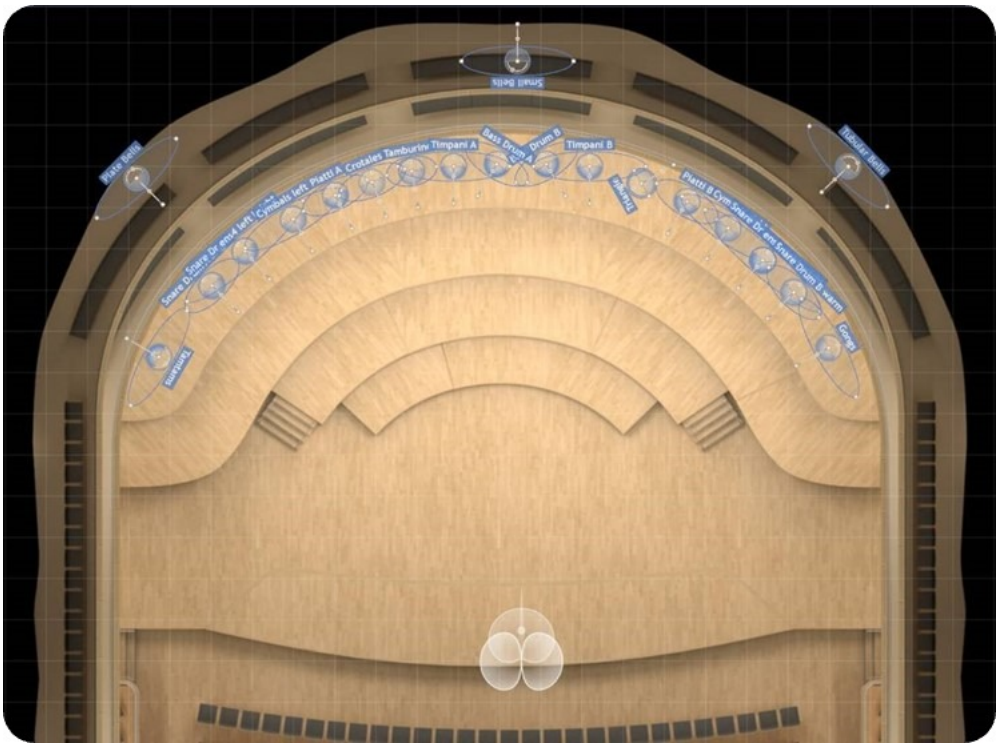
Brass



Woodwinds



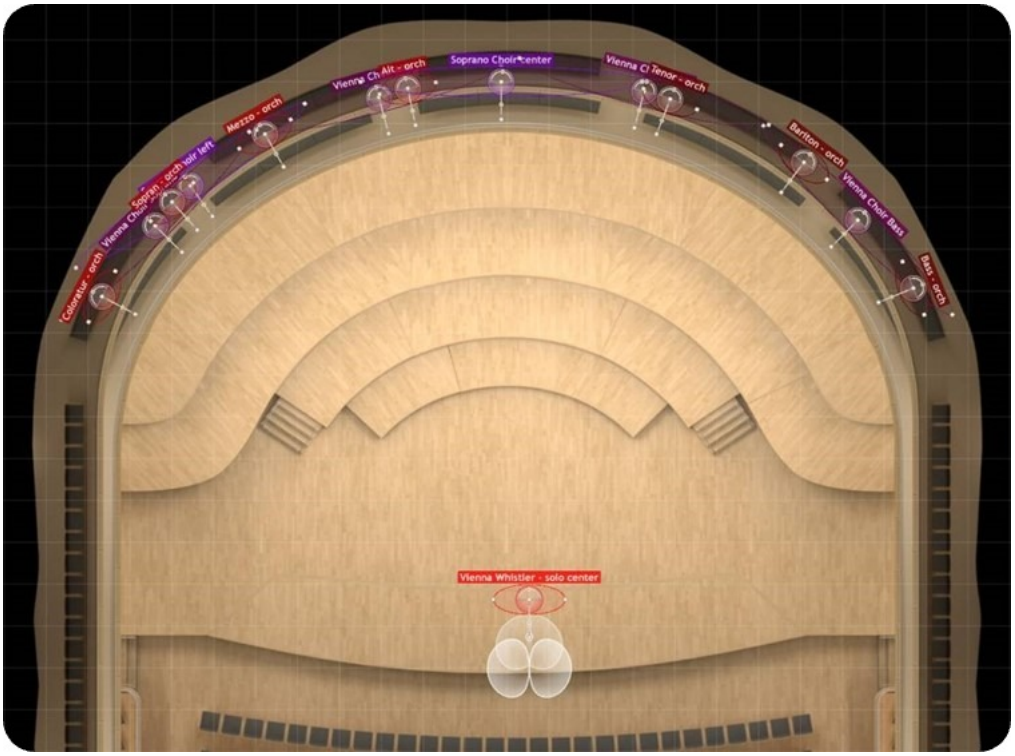
Percussion



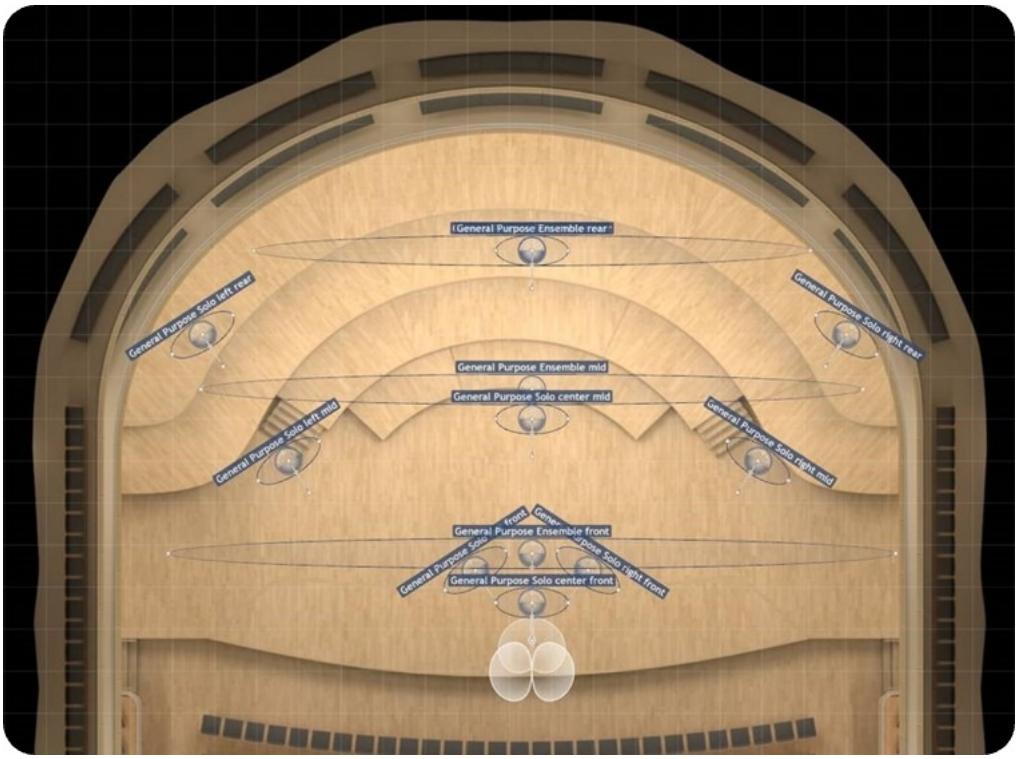
Keys, Mallets, Guitars and additional instruments



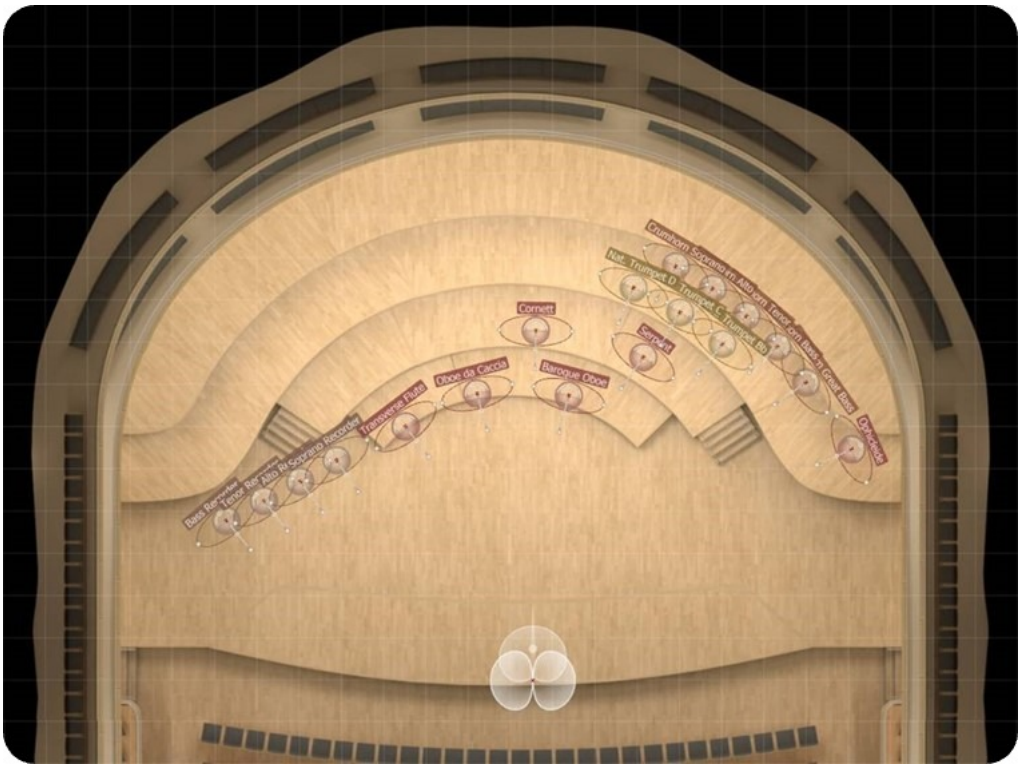
Choirs and Voices



General Purpose

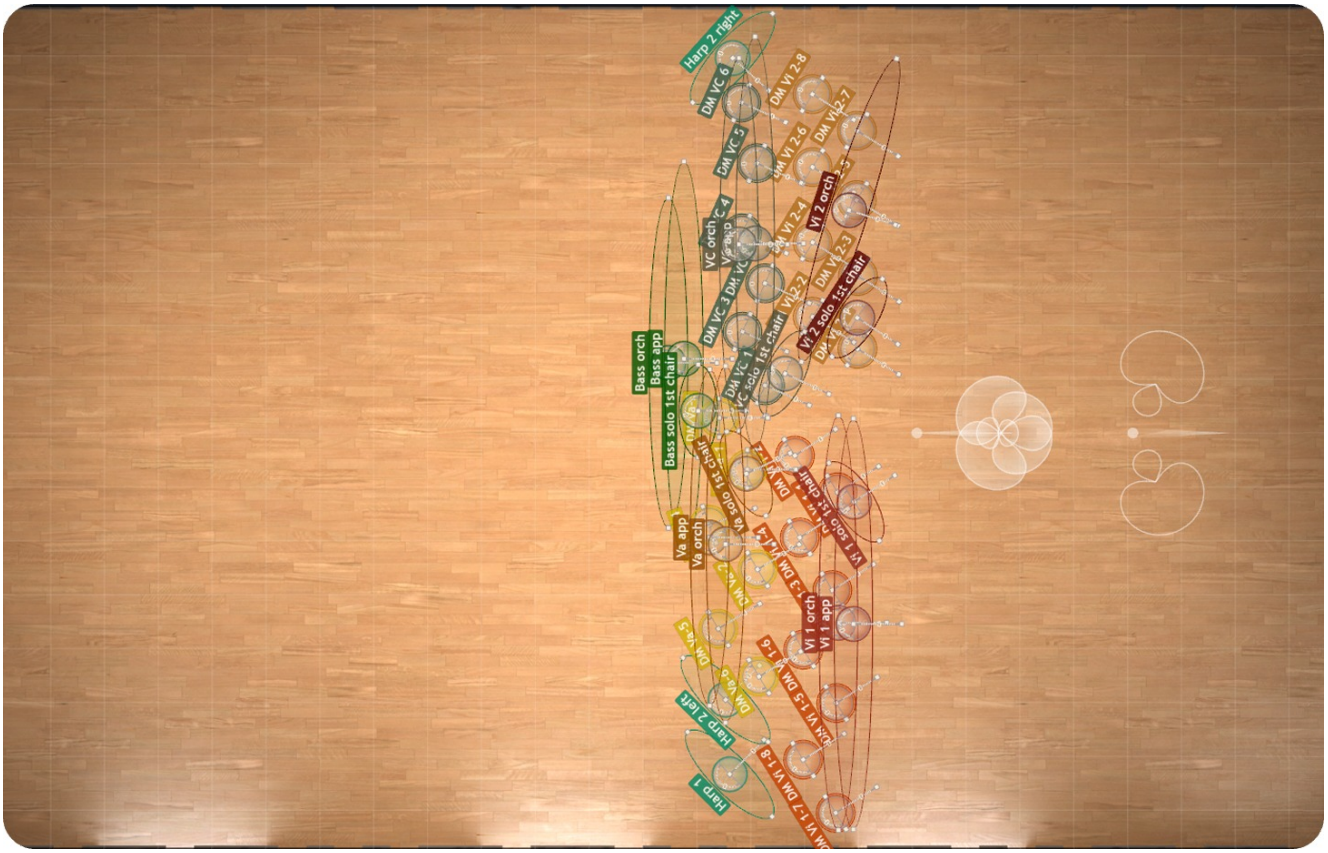


Historic Winds and Recorders

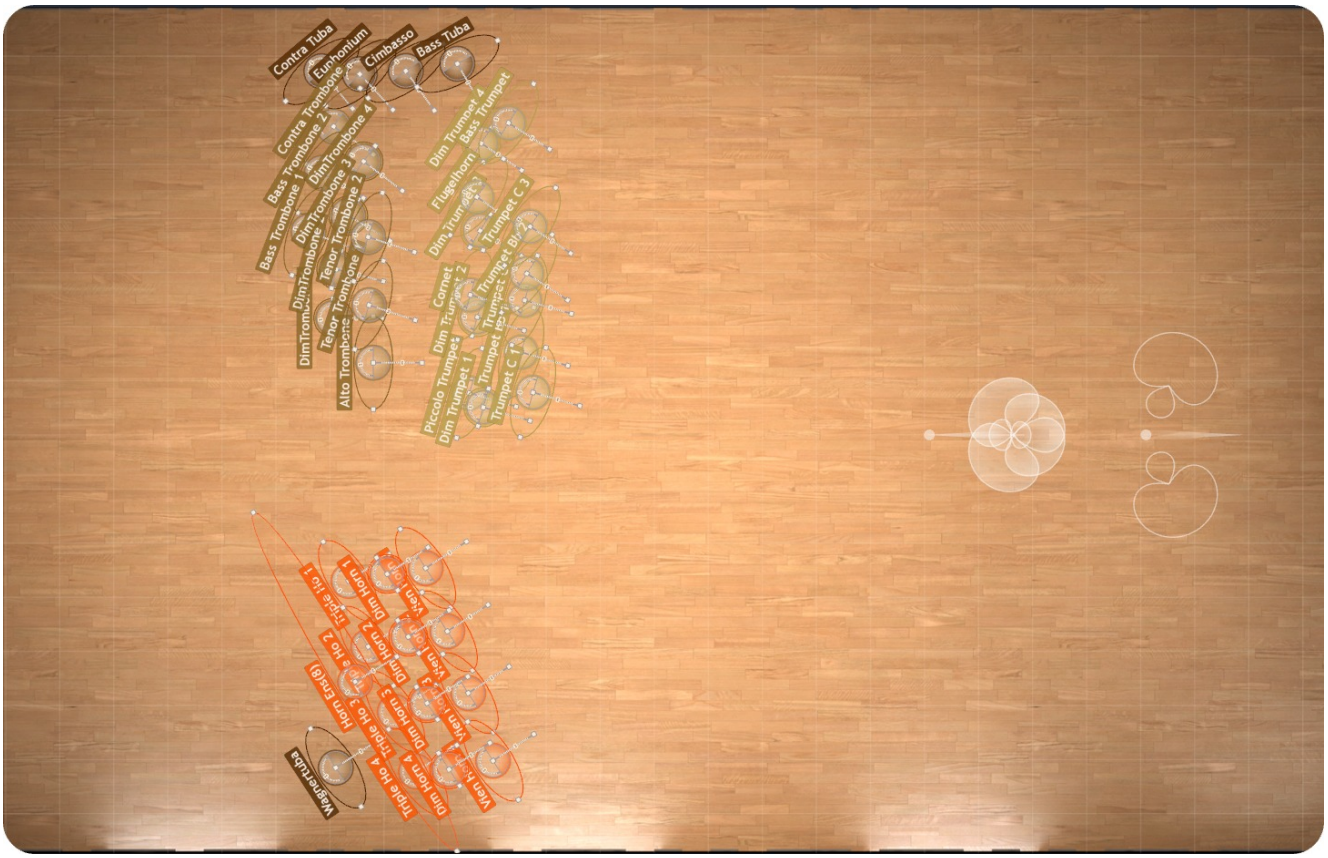


Teldex Studio Berlin

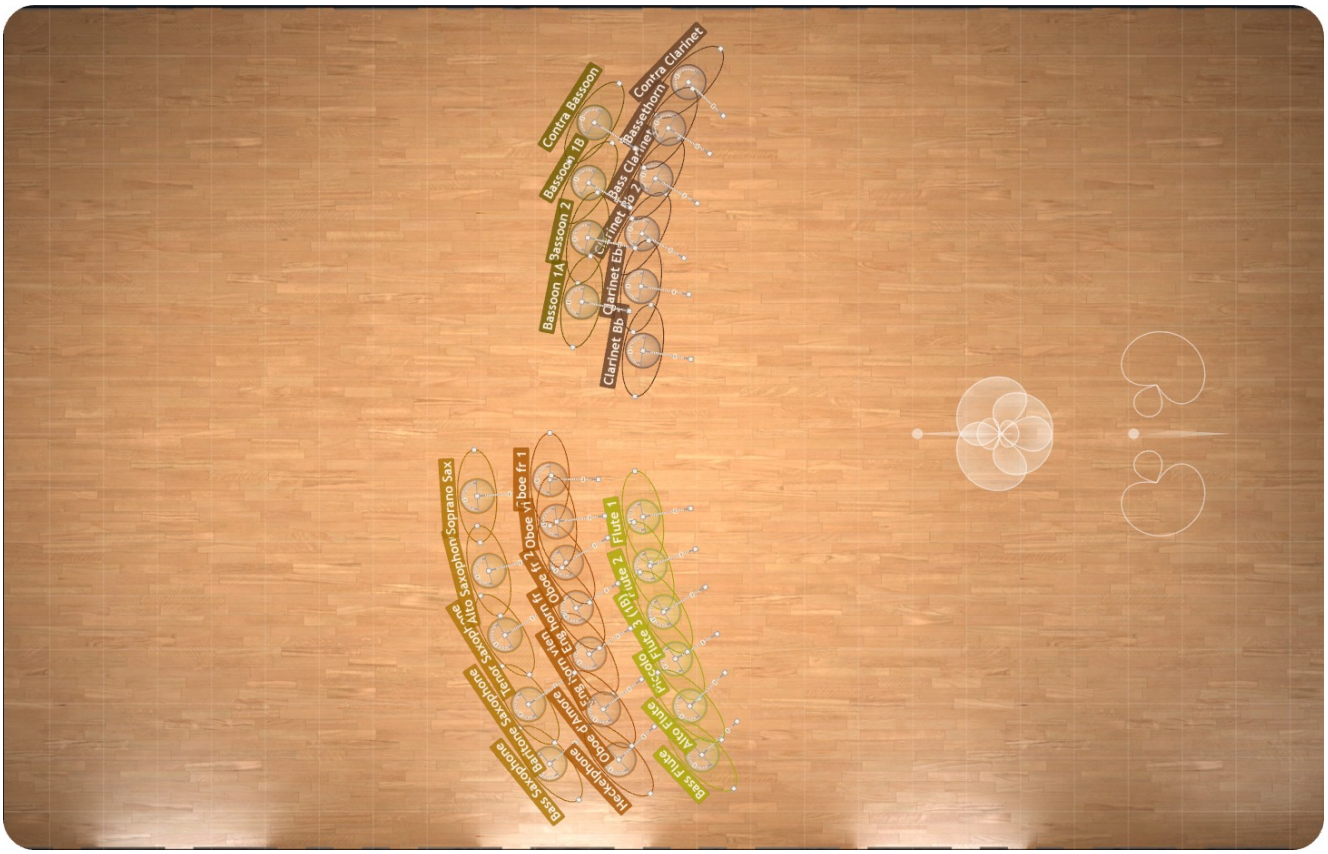
Strings(rotated 90°)



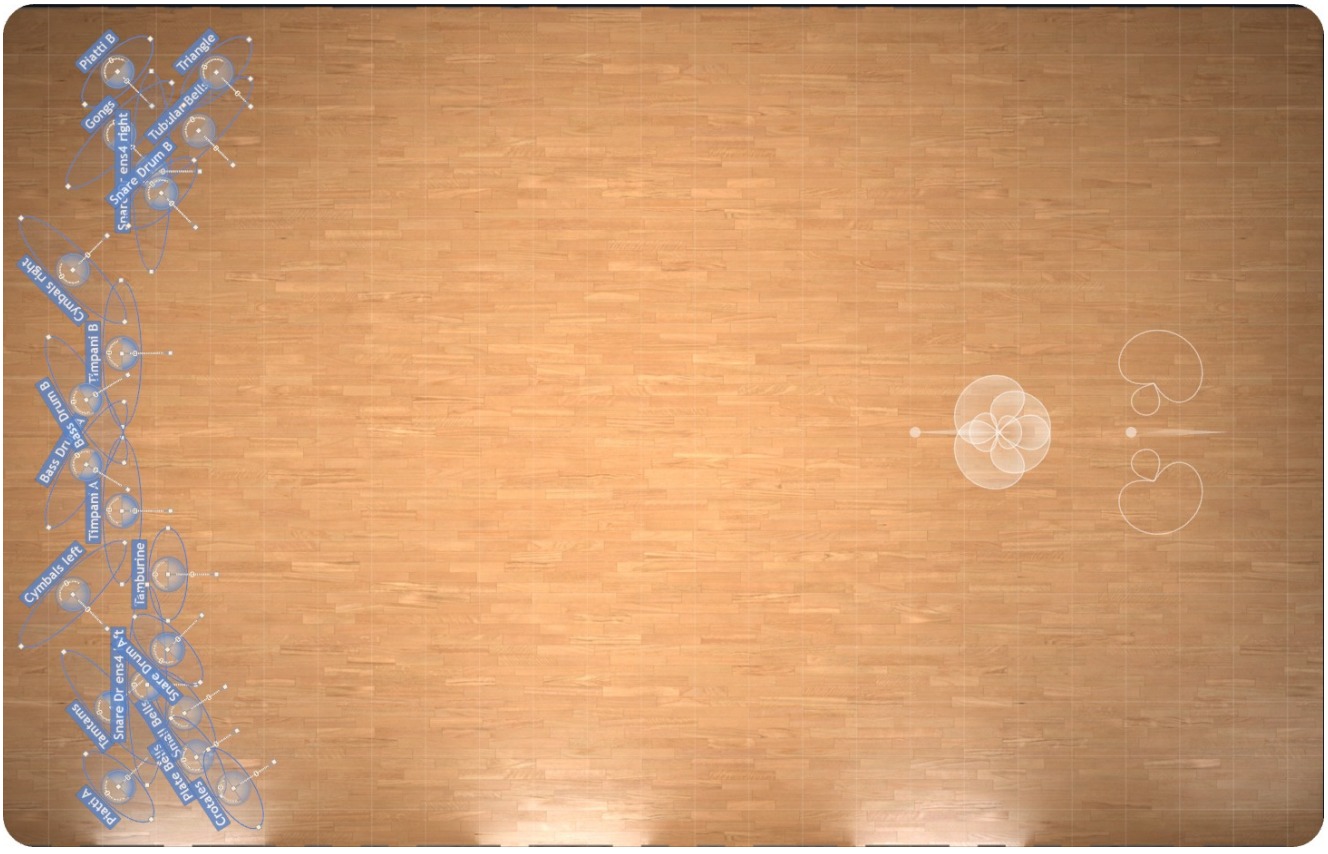
Brass (rotated 90°)



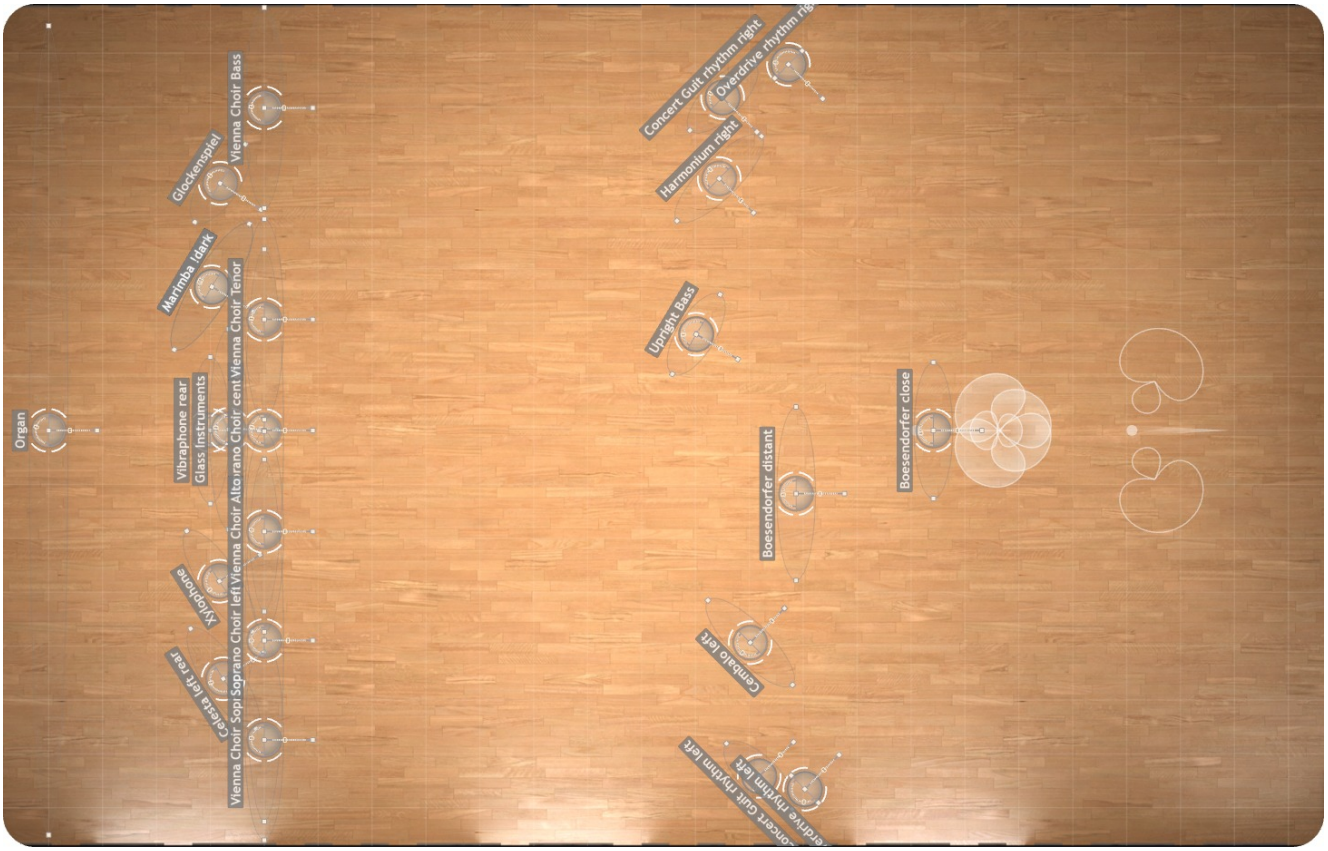
Woodwinds (rotated 90°)



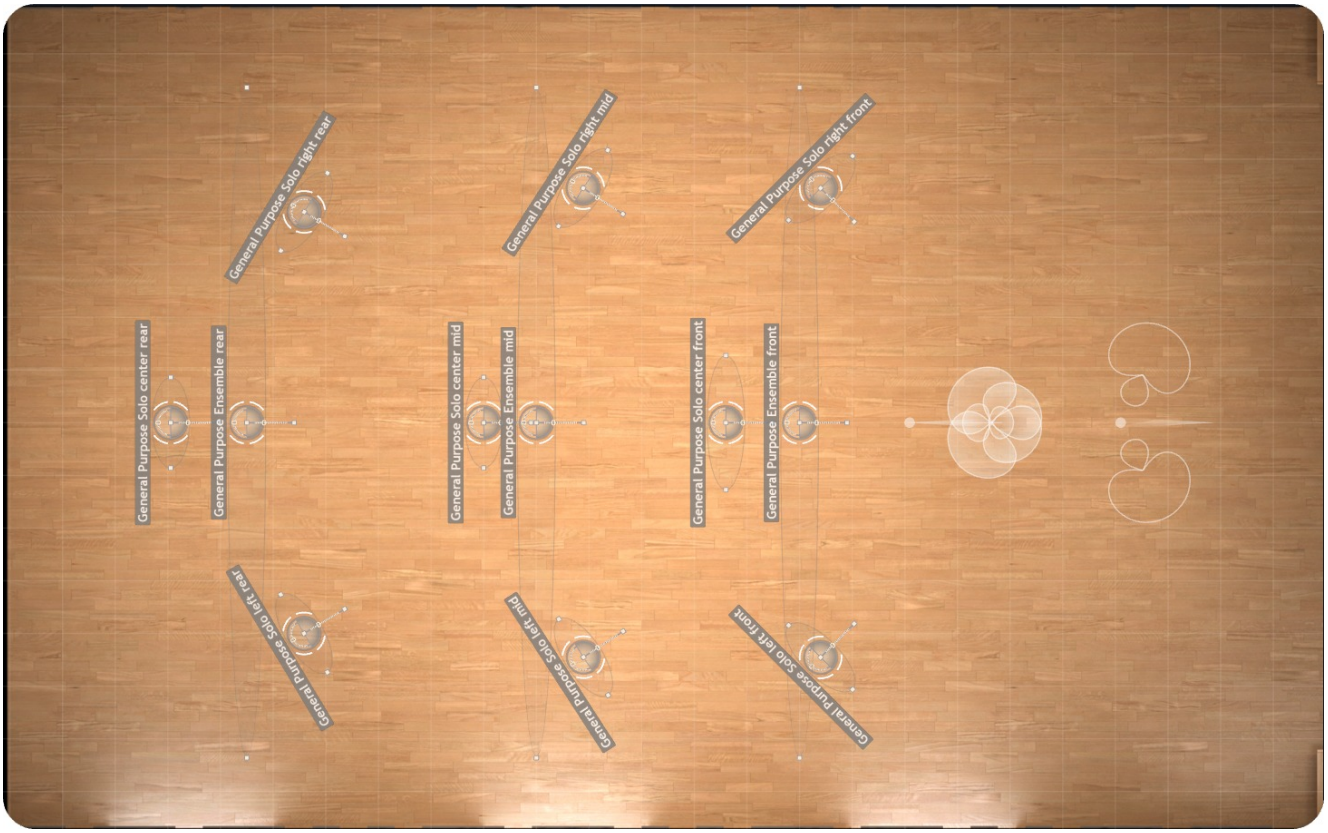
Percussion (rotated 90°)



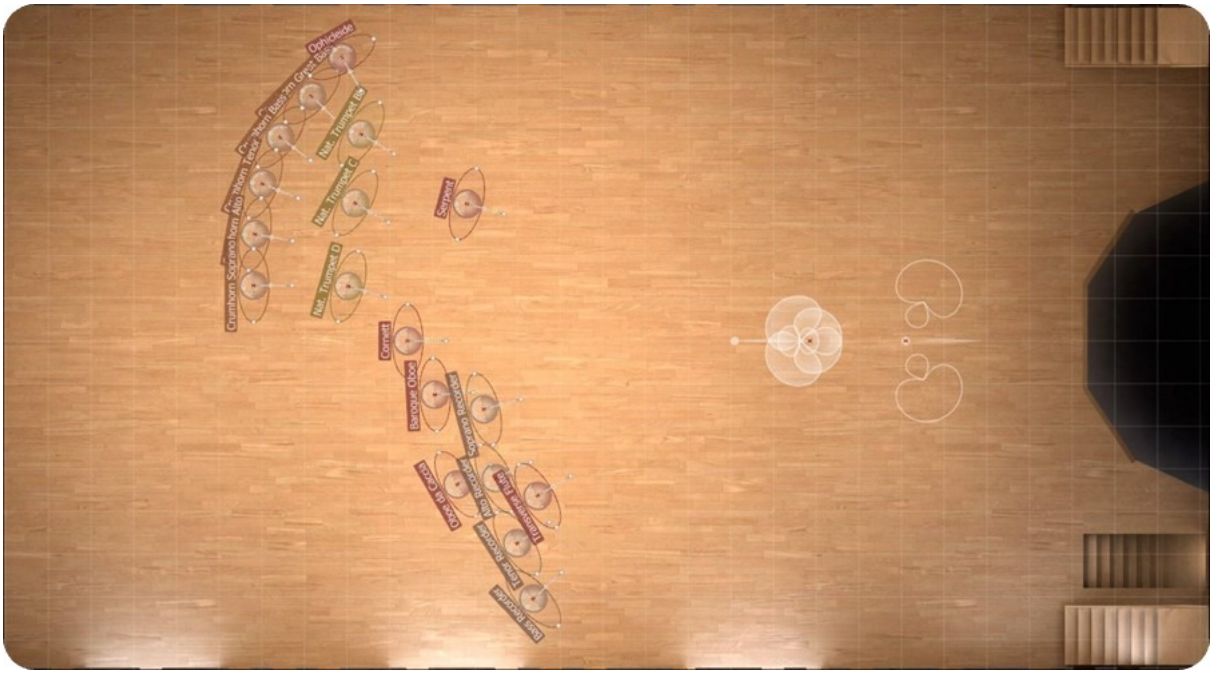
Additional Instruments and Choirs (rotated 90°)



General Purpose (rotated 90°)

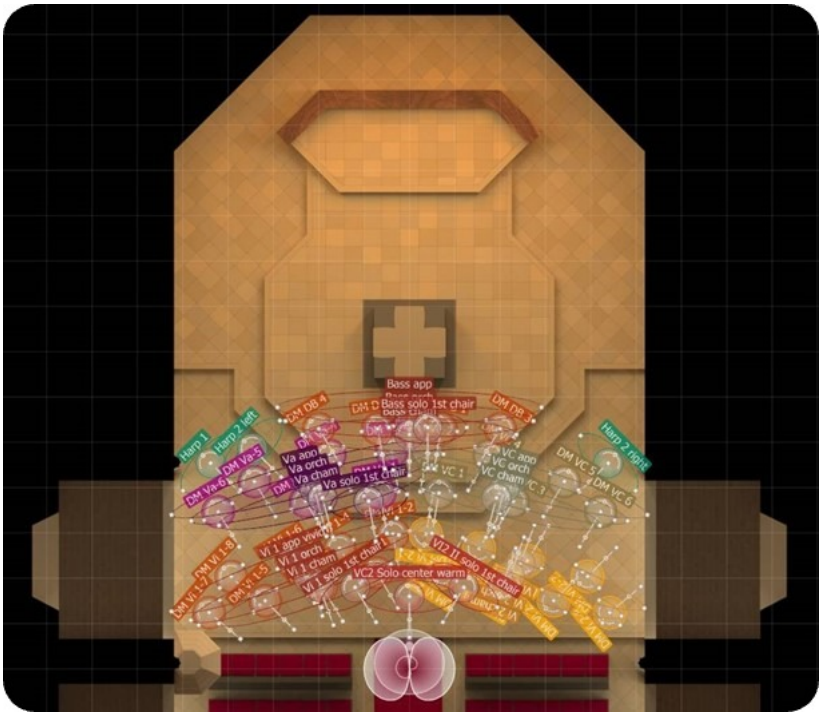


Historic Winds and Recorders (rotated 90°)

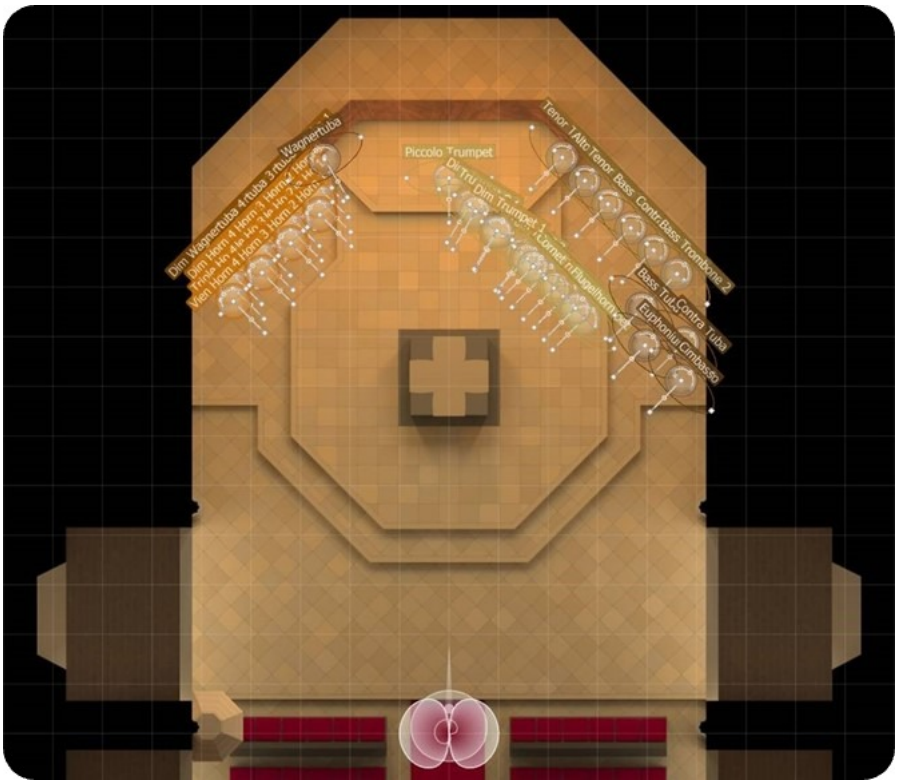


Pernegg Monastery

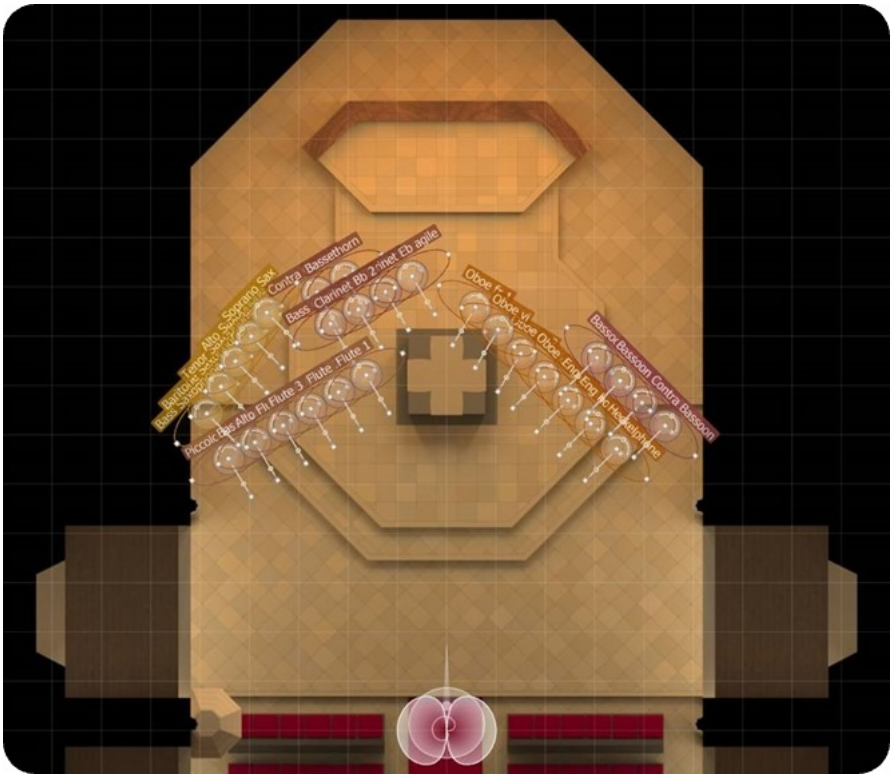
Strings



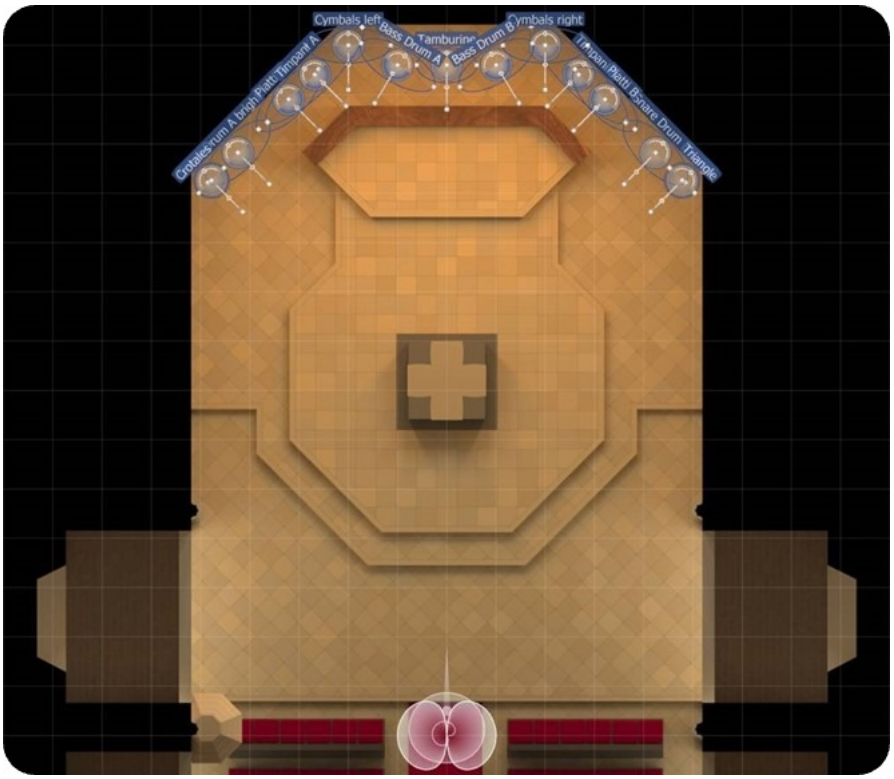
Brass



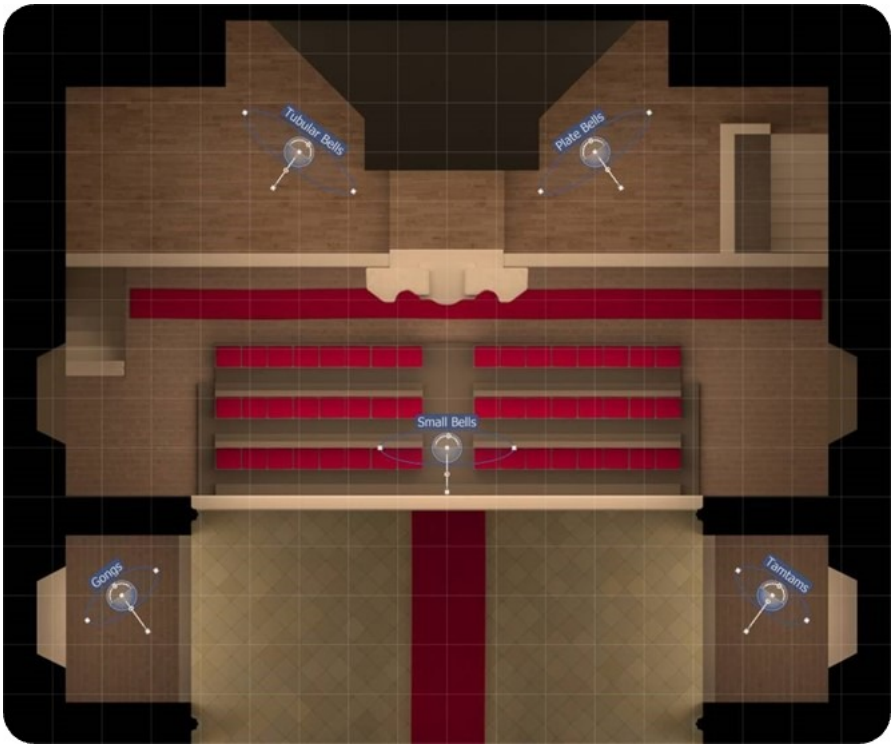
Woodwinds



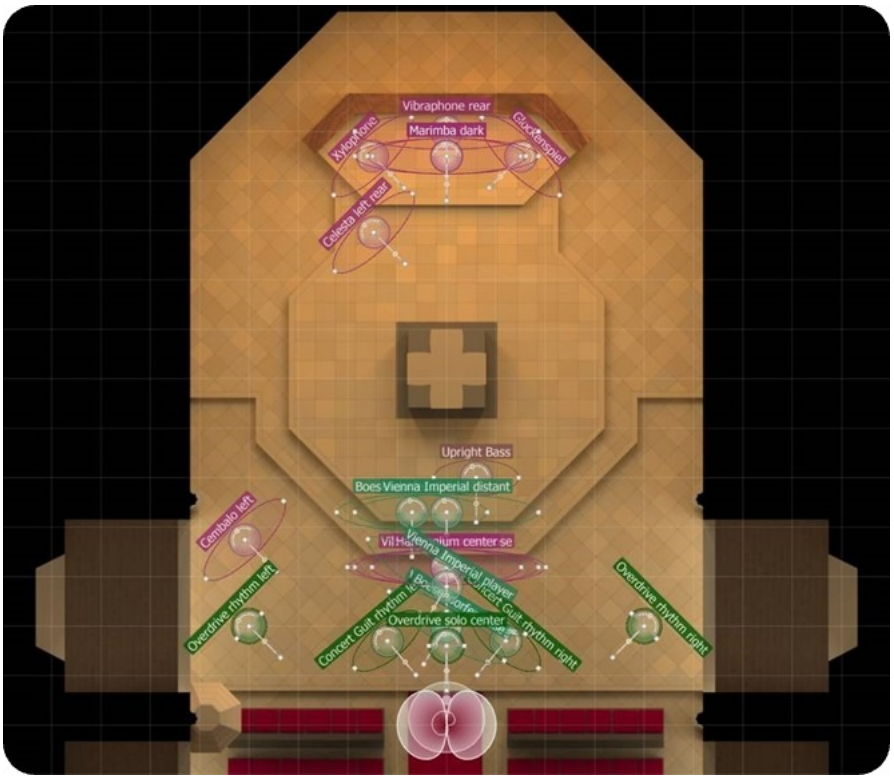
Percussion in the front



Percussion in the back



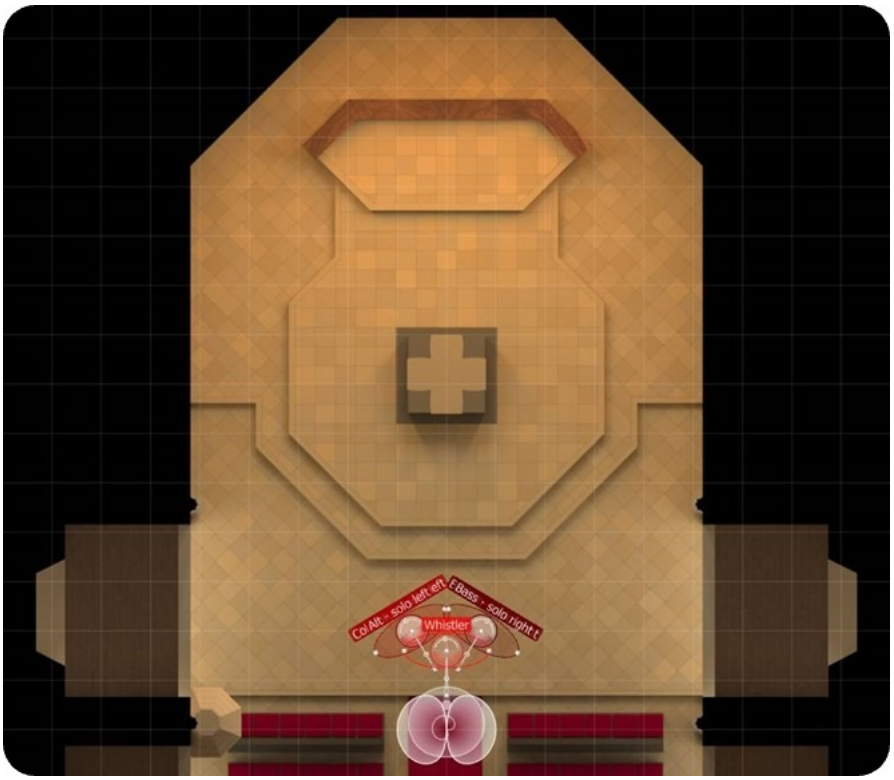
Keyed Instruments, Mallets and Additional Instruments in the front



Keyed Instruments, Mallets and Additional Instruments in the back



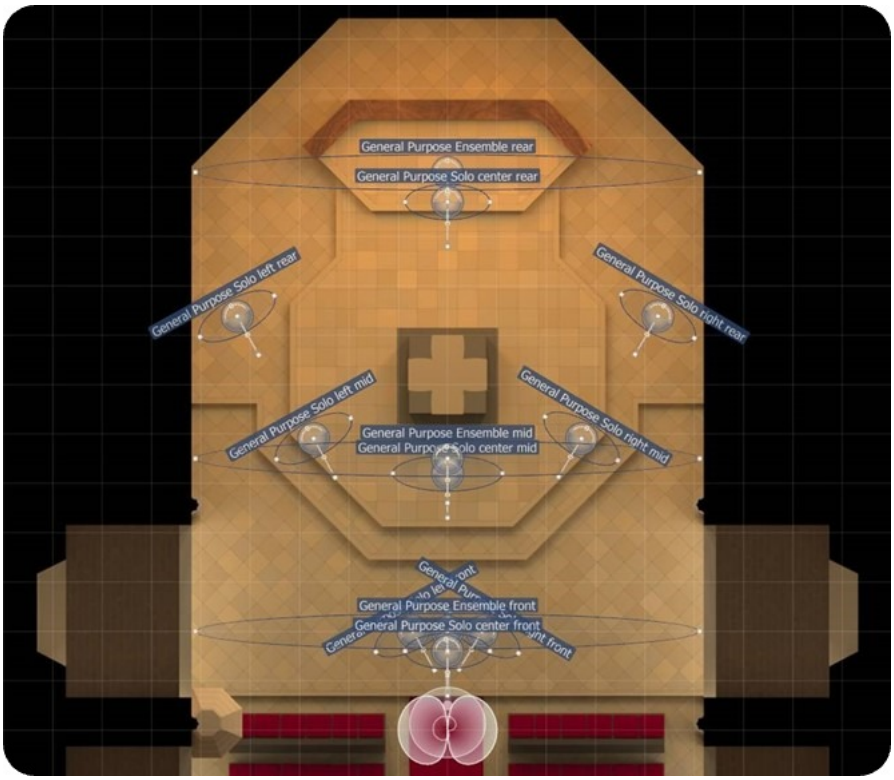
Voices in the front



Voices in the back



General Purpose

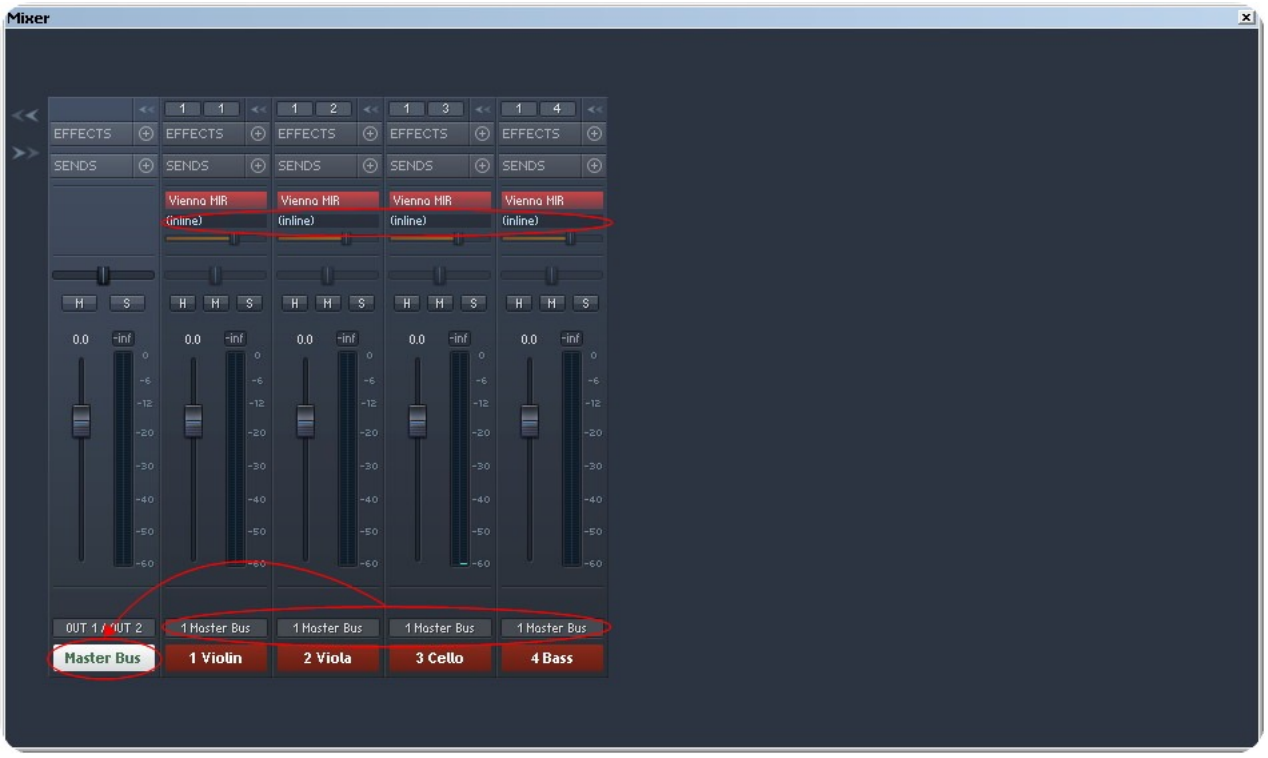


Historic Winds and Recorders



Tutorial: Routing to and from MIR Pro / MIR Pro 24 using the VE Pro Mixer

Basic MIR Pro Routing



This straightforward method will do for the majority of projects.

All Vienna Instruments (or 3rd-party virtual instruments) are hosted by VE Pro directly. Each instrument is connected to MIR Pro individually. MIR Pro sends back the complete spatialized signal resulting from its processing directly to the instrument's channel: The notion "inline" in the MIR Pro plug-in's routing panel indicates that both the instrument's readily placed dry signal and the resulting room information derived from the chosen MIR Venue are managed by each channel. – This is the default mode.

> **Tip**
>
> The routing panel may be hidden for less screen clutter (right-click context menu).

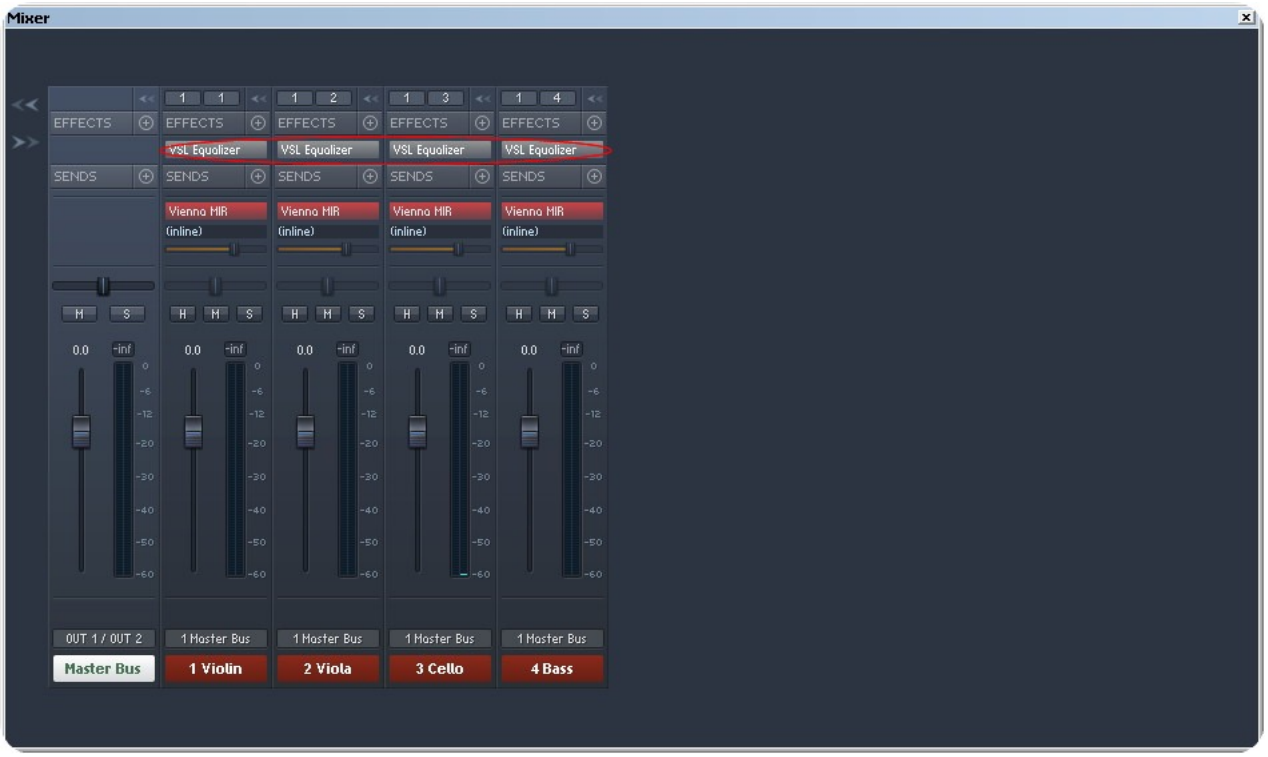
All signals are routed to a single master bus, which is assigned to physical outputs (which may be a sound card or a VE Pro Server connection, depending on your system).

The channel's Balance fader will be deactivated (and grayed out) as soon as a channel is connected with MIR Pro.

> **Tip**

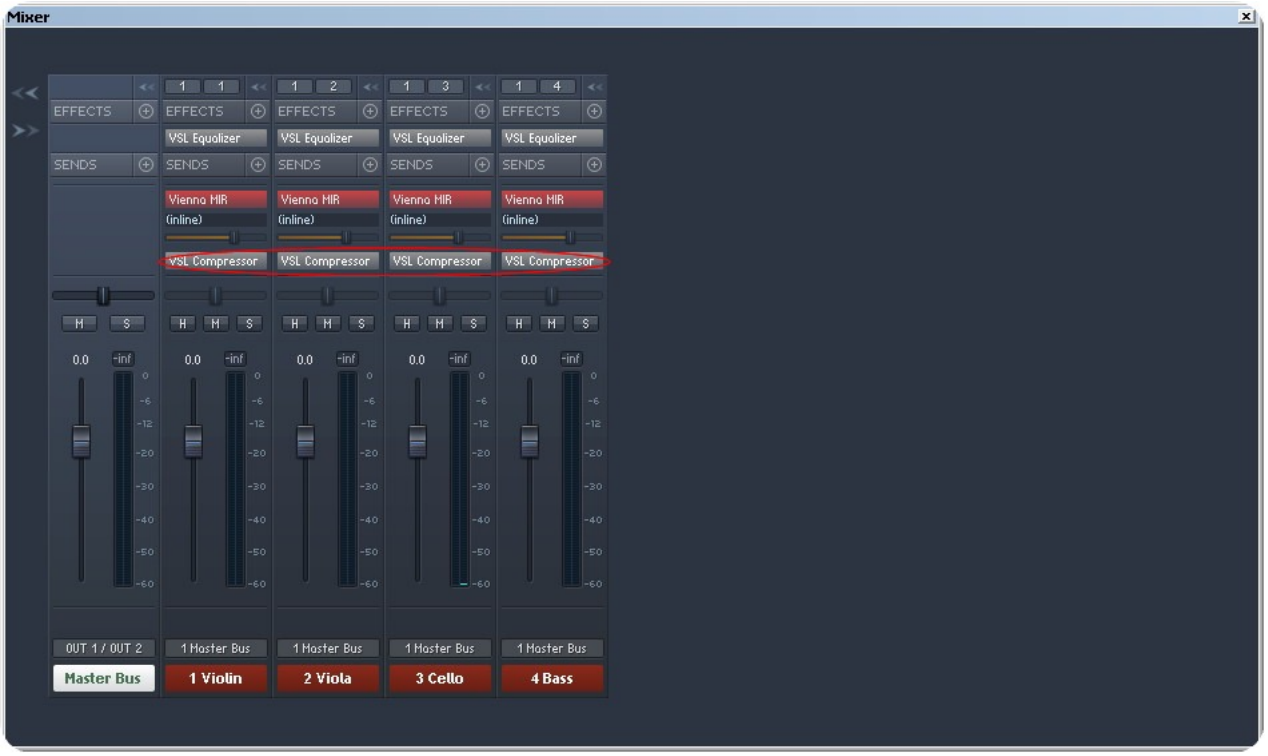
> In general it's a good idea to get rid of all Panners as soon as you work with MIR Pro; in VE Pro, they can easily be deleted (and re-instantiated) like any other plug-in.

Pre-MIR Audio Inserts



VE Pro's channels process the audio signal step by step from top to bottom. This means that any processing applied from plug-ins above the MIR Pro plug-in will consequently only affect the dry, unpanned signal before it is sent into MIR Pro.

Post-MIR Audio Inserts



Built upon the example given on the previous page, processing may also be applied after MIR Pro. Plug-ins in this position will consequently affect the panned and reverberated mixture of the dry and wet signals.

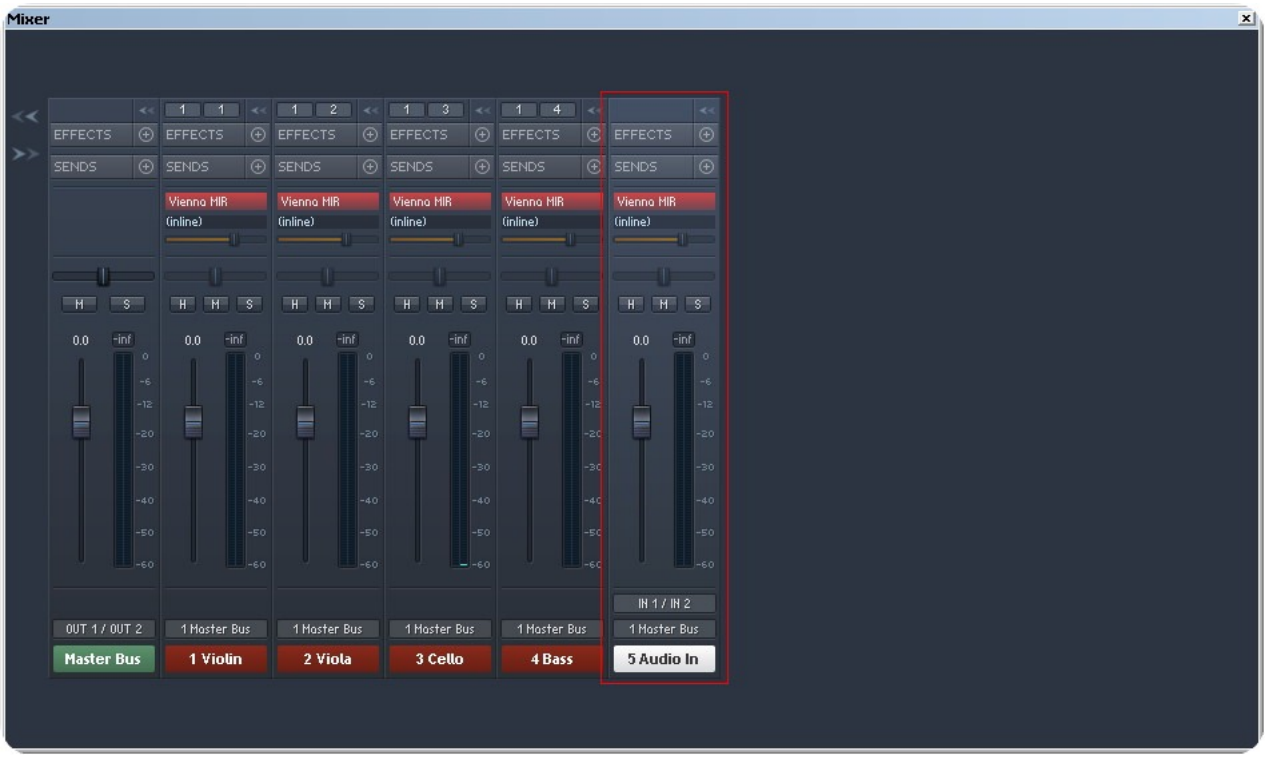
Plug-ins may be dragged to any position within a VE Pro channel, as well as moved or copied to another channel. This is also true for the MIR Pro plug-in itself, of course.

Excluding Channels from MIR Pro



Single channels can be excluded from any MIR processing by simply not connecting them to the actual MIR Pro engine. If the MIR Pro plug-in was already instantiated automatically, simply delete it with the help of the context menu.

Adding Audio Inputs or Bus Channels to MIR Pro



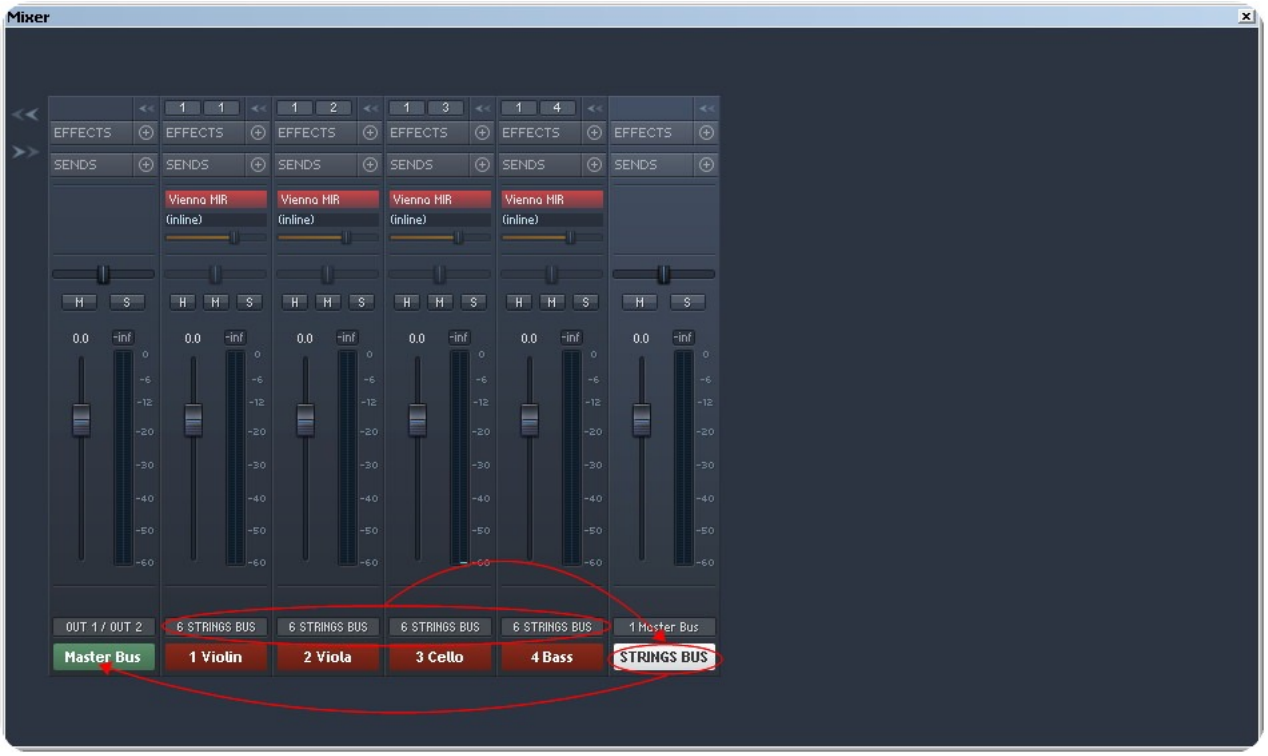
Any channel type may be added to MIR Pro with the help of the MIR Pro plug-in.

In this case, an audio-channel (which receives its signal from VE Pro's audio-inputs 1 and 2) is used for further processing in MIR Pro.

> **Important**
>
> You will have to instantiate an audio connection from your DAW to VE Pro first (please refer to VE Pro's manual for details).

Any signal source other than Vienna Instruments / Pro should be used with a "General Purpose Directivity Profile" within MIR Pro, otherwise the results will be unpredictable. (… please consult MIR Pro's manual for a detailed discussion of the concept of "Instrument Profiles".)

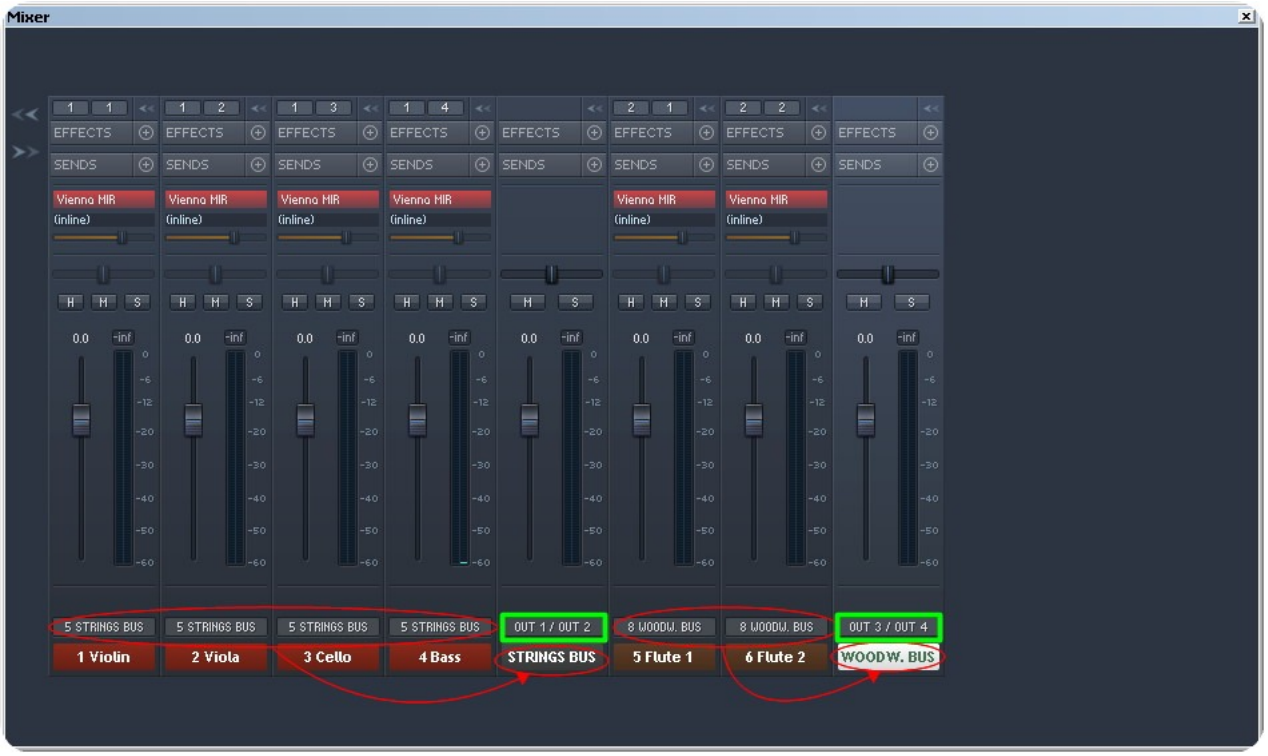
Routing Channels to Busses



All channels may be sub-mixed in Busses before routing them to the actual Master Bus. Bus Channels can be added and used like any other channel type.

Make sure that the bus channel is not connected to MIR Pro – otherwise the results will most certainly not be what you're after.

Stems and Direct Outputs



Taking the aforementioned concept of submixing one step further, it's of course also possible to connect busses directly to individual physical outputs.

A typical scenario would be a project that has to be mixed in "stems" for more flexibility in post-production.

Separating MIR's Dry and Wet Signals



In a very similar vein, but for different reasons, it's possible to separate the (readily positioned) dry and wet signals derived from MIR Pro.

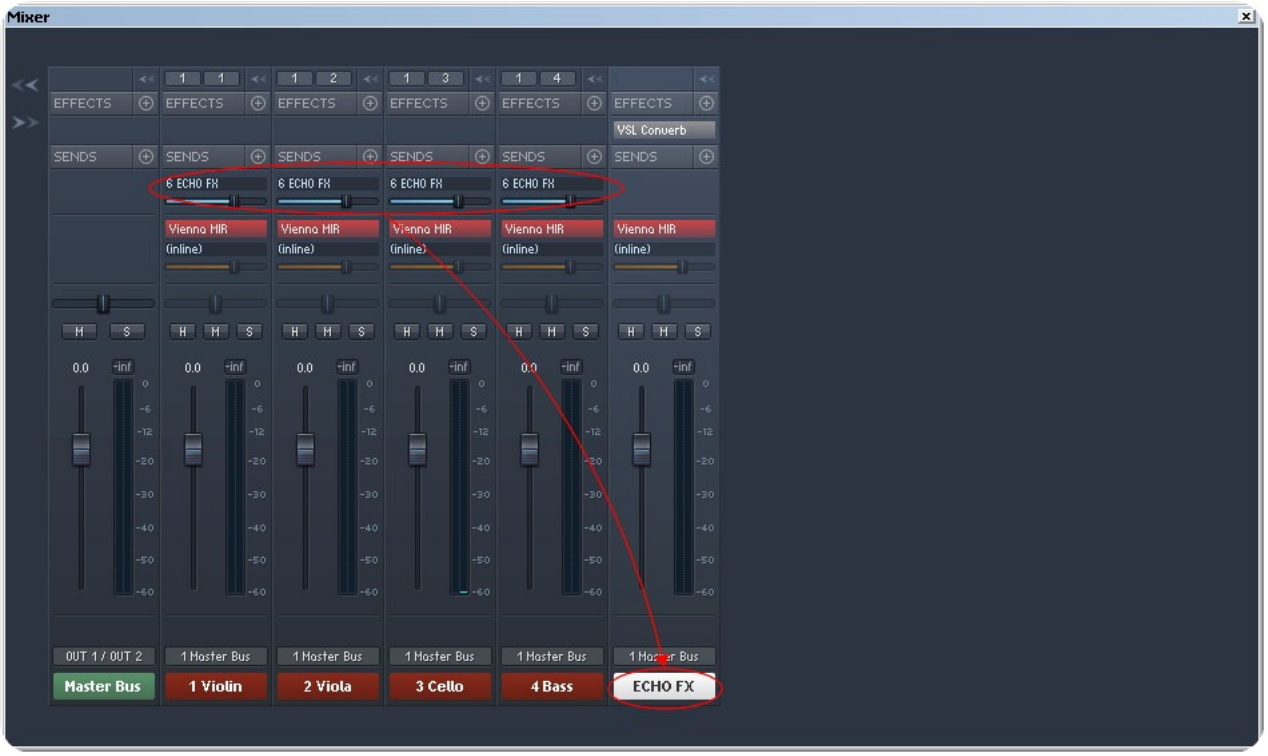
Click on the routing selection pull-down right below the MIR Pro plug-in's title bar and assign its output to a dedicated channel.

The original instrument channel will now only contain the MIR-positioned, but otherwise dry signal.

> **Note**
>
> The MIR Pro plug-ins' send faders are now active. They control the send levels of the wet signal only. Still, if you don't want to deliberately change the spatial impressions you have created on the stage of the chosen MIR Venue, it is advisable not to change the send levels of the separated wet signals.

A more advanced example which makes use of MIR's wet-signal send faders will be given later.

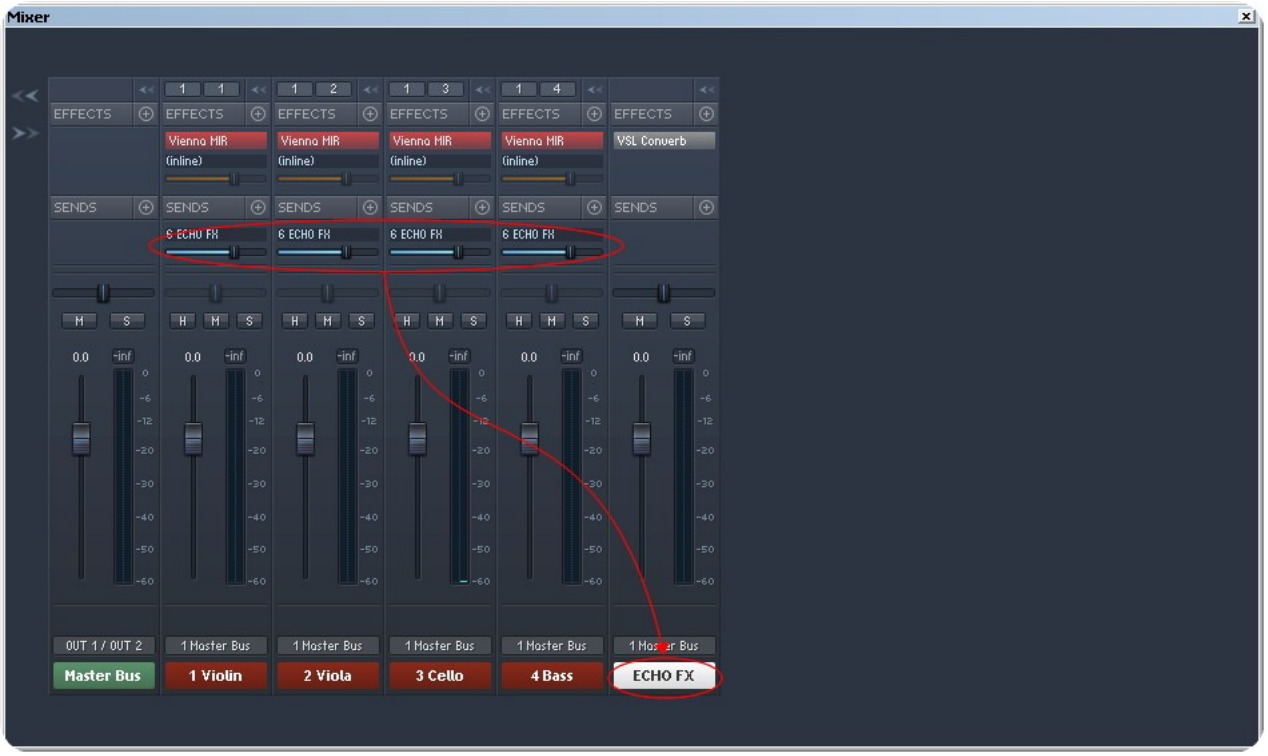
Effect Sends – Pre MIR Processing



Much like the insert plug-ins mentioned a few pages above, effect sends may be opened before or after MIR Pro.

In this example, all Vienna Instruments send a certain amount of their dry, unpanned signals to a bus channel with an FX processor instantiated as its insert. The resulting effect is then sent into a dedicated MIR Icon for an enhanced spatial impression. (… it's advisable to use one of the "General Purpose Instrument Profiles" for that.)

Effect Sends – Post MIR Processing



At first glance, this example might seem to be almost the same as the one presented on the previous page.

In fact, the main difference is that the effect sends are gathered from the MIR Pro processed signals. Depending on the chosen effect algorithms, the audible results will differ considerably from the one achieved by the previous routing concept.

As always, the actual choice will depend a lot on the context (and on personal taste, of course).

Collected hints for your daily work

Getting "that" sound

Working on virtual orchestrations we got used to the fact that changing an instrument's or ensemble's basic sound relies on plug-ins and the DSP processes they supply. Working with MIR Pro / MIR Pro 24, consider them to be the fourth-best solution only. If you are aiming for other tone colours than the one you hear already, try the following options first:

- Move the Instrument Icon to another position on the stage. Don't follow the visual impression of MIR Pro / MIR Pro 24's Main View slavishly! If the flute sounds better when it seems to sit right between the first violins – just do it. The orchestral arrangement doesn't have to look beautiful; it should sound good.
- Rotate the Instrument Icon away from the direction that seems to be the "logical" one for a real player. More often than not, a hall will react very differently when the main acoustic impact of a source

changes. For example: If you need more "splash" for a trumpet fanfare, turn their Icons away from the Main Microphone for more reflections from the rear walls. If you're longing for a more pronounced left-right positioning impression for a certain Instrument, turn it into the respective direction. Remember: The dry sound doesn't change as long as you don't switch on "Dry Directivity" in the Instrument Channel – Again: Don't be fooled by the fact that in reality the players always look at the conductor. Who knows how many times a seemingly "wrong" orientation of an instrument on stage would actually sound better?

- Try the different Character Presets. It's so easy, really. We have put enormous efforts into the creation of useful, individual timbre presets for almost each and every Vienna Instrument; there are sensible general settings for most other sources, too. HINT: Although it might be tempting to use similar Character Presets (e.g. "Air") throughout an arrangement over and over again, it is advisable not to overdo it. The (intended) colouring could become obtrusive. Try to differentiate sounds rather than to make them sound the same.

These should be the first steps in the quest for the sound you have in mind for individual instruments. That done, you can reach for additional processing options:

- A tried-and-tested trick when working with virtual instruments in general (not only in context with MIR Pro / MIR Pro 24) is the application of some soft compression to make the single sampled notes sound more connected. In addition, a bit of harmonic enrichment (technically spoken: distortion) will please our ears. Both types of processing can be achieved exceptionally well with the help of Vienna Suite Compressor – with the bonus that there are tailor-made basic presets for almost every Vienna Instrument. Add some "FAT" for subtle saturation, which will emphasise the overtones we usually associate with terms like "warm", "strong", or – uhm, well – "fat".
- If you can't find a Character Preset to fit your needs, then of course nothing is wrong with using full-blown equalizers for detailed sound sculpting. Again, there are literally hundreds of hand-made presets for Vienna Instruments available in the Vienna Suite.
- Above all, don't be shy to use any kind of processing, ranging from the obvious (like EQs, filters or exciters) across the strange (like echoes, delays or modulation effects) to the unusual and innovative (e.g., additional convolution-based effects, like Numerical Sound's unique sets available for the Vienna Suite Convolution Reverb). MIR Pro / MIR Pro 24 is all about creating the perfect illusion of three-dimensional space, so everything that helps to enforce this illusion is a valid option.

Keep in mind that real-world venues are never perfectly symmetrical – neither architecturally nor acoustically. It may happen that a certain position on the stage's left side sounds very different to the seemingly identical position on the right. Don't miss the chance to try unusual positions for single instruments, or even completely mirrored orchestral settings on a stage (e.g., first violins on the right side); if you like the sound better, you can always swap channels later.

Talking about space – you may run into situations where you want to change the sound of the Venue itself. Although the Multi Impulse Response sets MIR Pro / MIR Pro 24 relies on are huge collections of sampled data, you have more options for creating different spatial impressions out of them than you may be aware of:

- Needless to say, the best method for finding the optimum space for your music is to find the most appropriate room! Changing the concert hall in MIR Pro / MIR Pro 24 is as easy as clicking a button, so don't miss the sensation of having a totally new perspective on a well-known arrangement or orchestral

setup in a different room.

- Within a Venue, you have the choice between up to four discrete Main Microphone positions. In some cases switching from one position to the next is just a new perspective – in some cases it's almost a different hall.
- The possibly single most important influence on the sound of a chosen Venue within MIR Pro / MIR Pro 24 is the Output Format. As explained before, the use of Ambisonics as underlying audio format gives us the unique opportunity to select microphone characteristics after the actual recording process has already taken place. For starters, simply switching through the factory presets will give you an instant idea about the virtually endless possibilities. Later on, creating an individual, hand-tuned microphone setup could make all the difference between a good and a great mix.
- MIR Pro / MIR Pro 24 offers the possibility to scale the overall reverb length of Multi Impulse Response set. Just use the Reverberation Time trim fader to build a precise and defined acoustic environment from Venues that were originally laving in reverb.
- Finally, the Room EQ is implemented for the sole task to sculpt a room's signature sound to the needs of a certain arrangement or setup. The Room EQ gives you the possibility to get rid of annoying resonances or to enhance the treble with the same ease that a soloed instrument would give you: Using the Wet Solo button in the Output Channel you will hear no direct signals at all, giving you full control over the actual room.

If you like the overall acoustical impression you get from a certain Venue up to this point, but find yourself in the need of more spatial enveloping and stereo width ("decorrelation"), there are several options:

- Open the Output Format Editor and widen the angle between the left and right virtual microphones.
- In addition, you could try to change the polar pattern of individual virtual microphones to a higher directivity. By doing so the microphone will pick up more out-of-phase information coming from the back of the hall, thus enhancing the impression of being enveloped by reverb.
- The Distance parameter in the Output Format Editor allows for the virtual creation of non-coincident microphone arrays (which the Ambisonics microphone always is by definition). Using sophisticated decorrelation algorithms, the reverb produced by MIR Pro / MIR Pro 24 is greatly enhanced in perceived spaciousness, without sacrificing the all-important localization cues of the original impulse responses.
- Last but not least, moving the virtual microphone closer to the stage using the Microphone Position Offset will broaden the perceived stereo width for the dry signals, because the angle between the microphone and the far left and right borders of the achieved stereo image will increase. Just make sure to switch off (!) the Scale Direct Sound option – otherwise you would change the volume relations between the single instruments, too.

Strictly spoken, MIR Pro / MIR Pro 24 is meant to be used as an integrated spatial mixing front end, with the goal to achieve the complete and credible virtual image of a real room. But even in the Real World, orchestral recordings made in perfectly suitable rooms are sweetened with additional algorithmic (synthetic) reverb. So although it seems to be against the standards of purity, there's nothing wrong with doing the same to mixes derived from MIR Pro / MIR Pro 24. The main question is if you really want to put additional reverb on top of the one that's already there, or if you want to feed the additional reverb form the dry source-signals. – This will depend a lot on the characteristics of the chosen Venue, of course.

In any case: MIRacle – the algorithmic reverb add-on that comes with MIR Pro / MIR Pro 24 – is the perfect "first call" for these tasks, as it integrates perfectly with MIR Pro / MIR Pro 24 and comes with tailor-made presets. But there's nothing wrong if you prefer to use one of those trusty old machines you got used to, during the years. :-)

Keeping Track of What Is Where

Big orchestral arrangements need a lot of musicians. Don't be astonished when your MIR Pro / MIR Pro 24 stage looks really crowded when everybody is seated – it would be the same in Real Life. Things get worse as soon as you start layering sounds: For example, it's not uncommon to mix in a solo violin into a big violin ensemble in order to achieve an even more emotional expression. Huge percussion sets can pose a similar problem, as they require many instruments to stand on more or less the same spot on stage.

MIR Pro / MIR Pro 24 provides you with a few tools to keep everything under control. Using a thoughtful combination of the Zoom and Navigation tools together with list-based instrument selection, Selection Groups and the possibility to "Hide" an Instrument lets you conduct the crowd easily.

- As long as you're working with just a handful of instruments, it may be sufficient to select an Icon with the mouse. You will see that with an increasing number of employed Instruments it makes more and more sense to do this in the Channel List Window. Engaging the MIDI Activity Focus offers an even more elaborate way of instrument handling, as it simply selects the channel that received the most recent MIDI data input.
- Of course it may happen that the Icon belonging to the Instrument you selected from the list lies outside the displayed area of the stage. To avoid the constant repetition of zooming out, locating the Icon, and zooming in again, make sure to activate the Follow option in the Venue Navigation Bar just below the main Venue View window. That way, the Icon for the selected Instrument will always jump right to the centre of the display without changing the zoom level.
- Layering several instruments on top of each other is a good way to achieve certain timbres in an arrangement. To avoid the visual mess of piling up two or more icons on top of each other it is highly recommended to Hide those Icons that are used for colour only. Another criterion could be the Icons' stereo width: Just keep the one that claims the largest space on stage and hide the ones that are actually covered by the biggest one.

Keyboard Shortcuts and Special Mouse Commands

- **Open Project**: Ctrl+O
- **Save Project**: Ctrl+S
- **Save Project As...**: Ctrl+Alt+S
- **Quit**: Ctrl+Q
- **Start/stop audio engine**: Ctrl+R
- **Open Preferences**: Ctrl+P
- **Add Instrument Chan.**: Ctrl+N
- **Add VI Pro Channel**: Shift+Ctrl+N
- **Add MIR Room Tone**: Ctrl+Shift+M
- **Add Plugin Channel**: Ctrl+V
- **Add Bus Channel**: Ctrl+B
- **Add Audio Input Chan.**: Ctrl+I
- **Duplicate Channel**: Ctrl+D
- **Delete channel(s)**: Del
- **Select All**: Ctrl+A
- **Unselect All**: Ctrl+U
- **Undo**: Ctrl+X
- **Redo**: Ctrl+Y
- **Master Tuning**: Ctrl+T
- **Start/Stop Transport**: Space
- **View Channels**: F2
- **View Mixer**: F3
- **View Instrument**: F4
- **View Vienna MIR Pro / MIR Pro 24**: F6
- **Automation Mapping**: F5
- **Narrow channel strips**: F

Special Mouse Commands

- **Double-Click a Fader**: Reset to default
- **Shift-Drag**: Multi select
- **Alt-Drag**: Modify selected
- **Click'n'Drag anywhere in the Venue View**: Move the Venue Map into the desired direction
- **Alt+Left-Click anywhere in the Venue View**: Zooms in to the selected spot
- **Turning the Mouse Wheel upwards while the cursor is over the Venue View**: Zoom in
- **Turning the Mouse Wheel downwards while the cursor is over the Venue View**: Zoom out
- **Double Left-Click on an Icon**: Open the Vienna Instrument or VSTi GUI
- **Double Left-Click on the Main Microphone**: Open Output Format Editor
- **Double Left-Click in the Room EQ Overview**: Open Room EQ main window

(replace `Ctrl` with `Cmd` for MacOS)

MIR PRO Plugin

Dear Vienna MIR Pro Users,

After having received many requests about making Vienna MIR Pro usable more like an "ordinary reverb", we added a separate plug-in version: Unlike standard MIR Pro, it can be used in any sequencer capable of hosting AU, VST, RTAS, or AAX plug-ins, both on 32-bit and 64-bit Windows and OS X. That way it can be applied to any audio source most easily. This allows you to benefit from most of MIR Pro's features without using Vienna Ensemble Pro.

While this will make integration of Vienna MIR Pro much more straight-forward under most circumstances, some advanced features are not available in this new plug-in mode. This manual will point out all important differences between the two operational modes. Please refer to the dedicated Vienna MIR Pro manual for detailed coverage of all functions and the underlying concepts.

Installation

> **Important**
>
> First of all, please make sure that you have a valid license on your eLicenser. To transfer the licenses to your Vienna Key (or any other compatible eLicenser USB device), please follow the steps as presented on the VSL Product Registration page in your VSL User Area. You will also need the most recent version of the [https://www.elicenser.net](eLicenser Control Center).

While the original Vienna MIR Pro comes built-in with Vienna Ensemble Pro, the Vienna MIR Pro Plug-In needs to be installed separately. The installer is available for download in [https://www.vsl.co.at/MyVSL/

MyDownloads](your VSL User Area).

Download and run the installer that fits your operating system. Follow the on-screen dialogue, and you will be ready for some "spacious" action.

The MIR Pro Plug-In should now be listed in the plug-in menu of your DAW. Make sure that the path information points toward the folder that contains it.

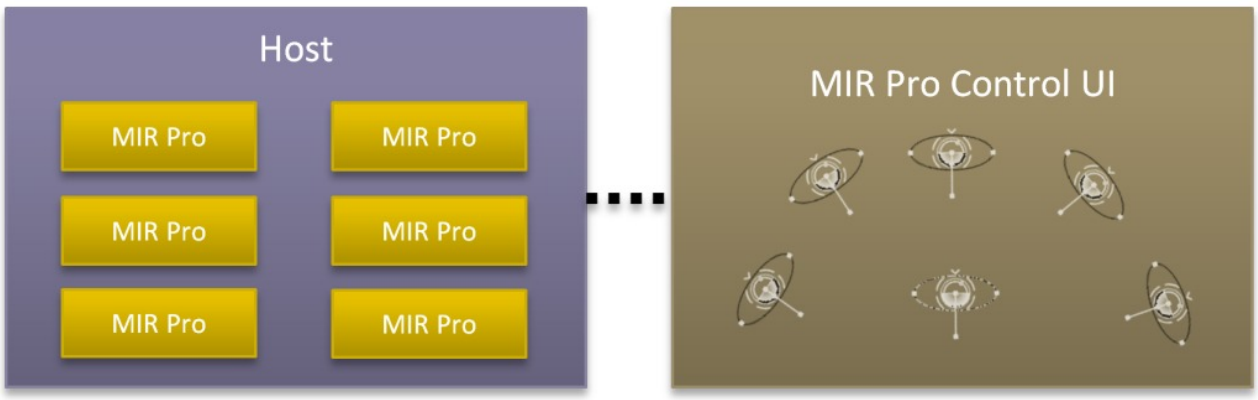
> **Tip**
> The MIR Pro Plug-In uses the same RoomPacks as the standard version. Please assign the path to the respective folder in the Preferences!

Workflow Changes

The workflow of MIR Pro Plug-In is similar to that of the standard version within VE Pro 5. There are however some key differences to how the MIR Pro Plug-In is operated.

Graphical User Interface (GUI)

Most importantly, the plug-in version of MIR Pro relies on two different parts, namely the actual plug-in, and a common control user interface (UI) shared by all instantiated plug-ins. The Control UI panel resembles standard MIR Pro's Main Window in its visual appearance as well as its usage, so that seasoned users of MIR Pro will be familiar with it from the very beginning.



This separation allows you to keep the MIR Pro Control UI at a fixed position, maybe even on a separate screen in full-screen mode, without interfering with the window management of your host application.

Wet signal routing

As opposed to the Vienna Ensemble-based version of MIR Pro, the plug-in does not offer dedicated wet signal routing. Please take into consideration that this makes it much harder (and in certain cases impossible) to do sub-grouped stem-mixing.

MIRacle

With MIRacle, MIR Pro introduced a dedicated, built-to-the-task algorithmic reverb plug-in for further sweetening the results achieved by the use of multiple impulse responses. This plug-in is now available in all conventional plug-in formats, too (VST / AU / RTAS /AAX for 32-bit / 64-bit Windows and OS X). It will get installed together with the actual MIR Pro Plug-In. You will find it in the plug-in menu of your DAW.

Room Tone

To enable the playback of the MIR Venues' unique Room Tones, you need to insert a MIR Pro Plug-In and activate Room Tone mode by pressing the "RT" button. Only one plug-in instance can be designated for Room Tone playback.

Venue Preview

The pre-rendered Venue Previews can be played back through any MIR Pro plug-in active in your host application. Instead of choosing an audio output for previewing, like done in Vienna Ensemble Pro, any selected MIR Pro plug-in instance is available as output for the preview sounds.

Instrument Profile Guessing

The feature that allows standard MIR Pro (as part of VE Pro 5) to "Guess" an appropriate Instrument Profile for a loaded Vienna Instrument on the same track are quite understandably not available within a foreign host. Instrument Profiles have to be selected manually by right-clicking on the MIR Icon's context menu.

Track Naming

The MIR Pro Plug-In has no way of knowing about the DAW's track name where it is inserted, so the name of the MIR Icon on stage has to be set either from the icon itself (right-click, choose "Rename") or from the plug-in's interface.

Channel Configurations

Inside of Vienna Ensemble Pro, the channel configuration is selected when creating the project. With the MIR Pro Plug-In the channel configuration is decided when inserting the first plug-in. In hosts that support different channel configurations per track, you should make sure that every track that uses Vienna MIR Pro has the same channel configuration. Inserting a MIR Pro plug-in on a track with a different channel configuration will disable that plug-in.

Please find some implementation hints at the end of this manual ("How To Use MIR Pro Plug-In").

Mute & Solo

The mute & solo functions in Vienna Ensemble Pro rely on the host's mixer channel. The plug-in now has this functionality implemented directly, in order to allow soloing and muting of plug-in instances directly from the Control UI.

Bypass

A dedicated Bypass button in the Instrument Panel of the Control UI allows for a quick check of the incoming dry signal. This will not bypass the plug-in inserted in your DAW's audio track!

Automation

The following parameters are available for plug-in automation: Volume, Dry/Wet, Hide, Mute, Solo. They will appear in your host's automation system and can be treated like any other available parameter.

> **Note**
>
> Due to the high CPU demands of MIR Pro's proprietary positional IR pre-rendering, neither Icon positions nor Main Microphone settings are available for automation.

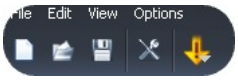
File Management

All data related to the plug-in will be stored inside your hosting DAW, so you never will have to worry about saving anything from the MIR Control UI itself. But of course you can build up a library of your preferred settings easily:

A preset saved with the MIR Pro Plug-In contains the full venue information, plus data specific to the instrument (position, width, volume, etc.).

If a preset is loaded when only a single plug-in is instantiated, the MIR Pro Plug-In Control UI will load the Venue data contained in the preset. This is how a sequencer project loads back the venue data on project opening.

If a preset is loaded in any other than the first plug-in instance, the Venue data will not automatically be loaded. If the Venue data is the same as current venue settings, nothing will happen. If Venue data in the preset differs, a blinking "Load Data?" arrow appears in the Control UI's Main Menu. Pressing this arrow will allow for loading the incoming Venue data, or for discarding the process. MIR Icon-specific data, on the other hand – such as position, with, dry/wet ratio etc. – will always be loaded from a plug-in preset.



Apart form that, the File menu in the Control UI's Main Menu will allow for saving and loading Venue-specific data (chosen Venue, Main Microphone Position, Output Format, Room EQ settings, etc.) independent of any settings saved with a plug-in's preset.

> **Note**
>
> MIR Pro settings from VE Pro-based projects (so-called VI-Frames) cannot be loaded into MIR Pro Plug-In!

The Plugin Interface

Instantiating the MIR Pro Plugin will subsequently start the Control UI and create a MIR Icon on the chosen

Venue's stage. Its controls are:



1. **Instrument Name**
   Names the instrument's MIR Icon.
2. **Color Picker**
   Click to open up a color palette allowing you to select a few preset colors for the MIR Icon on stage. Color selection (with more choice of colors) can also be done from the MIR Icon inside the Main Window (i.e., Control UI).
3. **Hide**
   Hides the MIR Icon from the Venue View.
4. **Mute**
   Mutes this instrument inside the MIR Venue.
5. **Solo**
   Solos this plug-in, also silencing all other MIR Pro Plug-Ins. Please note that the plug-in will only be soloed amongst other MIR Plug-Ins, your host might still have tracks producing sound.
6. **Bypass**
   Bypass will route the dry, but readily positioned audio signal through MIR Pro. This is not the same as bypassing the plug-in altogether!
7. **Dry/Wet Balance**
   Adjusts the balance of dry and wet signal. 100% means fully wet, 0% means fully dry.
8. **Volume**
   Adjusts the volume.
9. **Output Meters**
   Digital PPM meter with falloff, measuring levels from -96dB to 0dB. It shows the output after MIR Pro's processing.
10. **Raise Control UI**
    Raises the MIR Pro Main Window to the front. You might hardly ever need this function as soon as you use a dedicated screen for the Control UI.
11. **Focus Instrument**
    Focuses the MIR Icon connected to this plug-in on a MIR Venue's stage. Useful to locate a specific

instrument on stage.

12. **Room Tone Enable**
    Sets the plug-in in Room Tone mode. When a plug-in is set as Room Tone, most other controls will be disabled. Click on the button again to turn the plug-in into a normal instrument.

    ![IMPORTANT] There can only be one MIR Pro Plug-In set to Room Tone mode within one and the same project.



The MIR Pro Plug-In Control UI (Main Window)



Most of the controls in the MIR Pro Control UI remain exactly the same as in MIR Pro built into VE Pro 5. The most notable differences are:

1. **Instrument Panel**



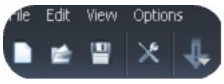
The Instrument Panel of the MIR Control UI replaces the VE Pro Channels List. Since MIR Pro is no longer the main mixer for your application, the Instrument Panel will only reflect the plug-ins you have inserted in your host. Typical mixer controls such as panning, effect inserts and sends are also not available from the MIR Pro Instrument panel. (See screenshot on next page.)

Each channel strip allows to control the Hide, Mute, Solo and Volume parameters of the respective MIR Icon. The Instrument Panel also provides a level meter, allowing to see the output level of each active plug-in.

The Instrument Panel orders plug-ins/instruments by the order which they were inserted in the host. Like in VE Pro, the Instrument panel allows reordering of channels by drag'n'drop.

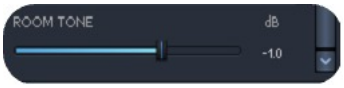
The panel can be detached from the main window or closed completely by means of the controls in the top right corner. A detached Instruments panel can be re-attached to the Control UI by double-clicking its frame at the top.

2. **Main Menu**



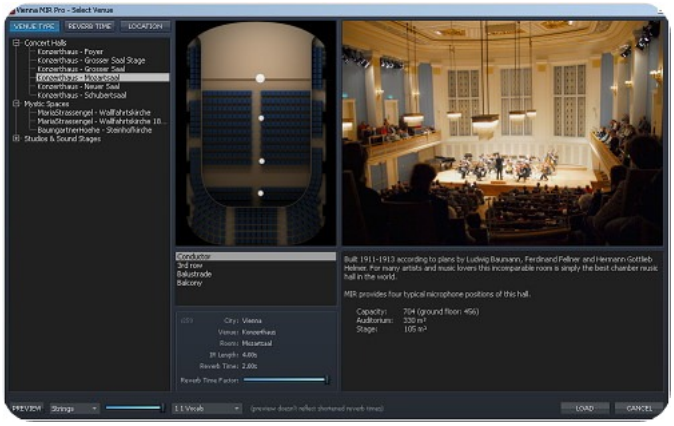
Since the MIR Pro Plug-In has no means to interact with Vienna Instruments directly (Vienna Ensemble Pro 5 is used for these tasks), many of the related entrances from the standard version's Main Menu were omitted.

3. **Room Tone Control**



The Room Tone Control is disabled by default. Like mentioned before, a MIR Pro Plug-In needs to be switched to Room Tone mode to enable the Room Tone Control in the Main Window.

4. **Venue Previews**



Since MIR Pro UI doesn't actually output any audio (only your host does), the playback of all Venue Preview in MIR Pro's Venue Selection Window is now routed to a Vienna MIR Pro Plug-In directly inside your host. Simply choose a instantiated MIR Pro Plug-In, and it will used for the playback of the pre-rendered Venue Preview examples in your host.

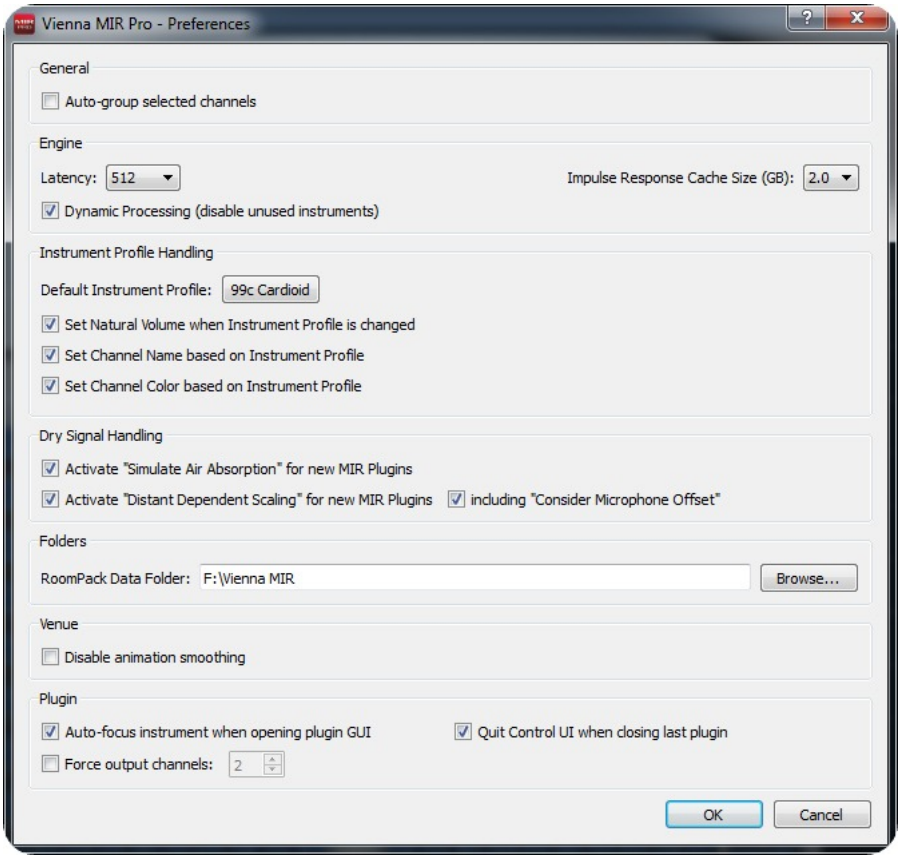
MIR Pro Plug-In Preferences

As you see, the MIR Control UI contains just a subset of the Preferences from standard MIR Pro / VE Pro. Three additional settings were added, though:

1 is for automatically focusing on the MIR Icon on stage when its corresponding plug-in GUI is opened in the host application.

2 will shut down the Control UI / Main Window when there is no MIR Pro Plug-In in the active project/song/session of your hosting DAW.

3 determines the convolution latency of all MIR Pro Plug-Ins.



> **Important**
>
> Please keep MIR Pro's latency setting higher than your host application's soundcard buffer setting. Alternatively, setting this to zero (0) will synchronize the convolution latency to the sound card buffer size. This gives a zero-latency convolution process, but especially in the case of small system latency settings it will increase the CPU load considerably.

For information about other available settings, please refer to the main MIR Pro manual.

How To Use The MIR Pro Plug-In

To use MIR Pro in your host application, simply insert a MIR Pro Plug-In on your track of choice. The MIR Pro Control application will start in the background, connecting to the plug-in once it has finished loading. When the control application is loading, a blinking "Connecting" button (1) will show at the bottom of the plug-in's interface.



Once the control application has opened and the plug-in is connected, the button will disappear and show the normal plug-in interface. Closing the control application will make the connect button reappear.

A MIR Pro Plug-In will not produce any sound if the Control UI / Main Window has not been started yet!

> **Important**

> Please remember that the channel-configuration of the first instantiated MIR Pro Plug-In will determine the number of output channels supplied by the MIR Pro engine. In other words: A mix using a stereo MIR Pro setup can not be converted to a multichannel format easily.

All tracks that contain a MIR Pro Plug-In will have to have the same basic channel configuration. Inserting a MIR Pro plug-in on a track with a different channel configuration will disable that plug-in.



This is especially important for hosts like Cubase and Nuendo which do not allow for automatically converting a track to another channel-configuration by inserting a plug-in (e.g. mono>stereo). You will either have to create a stereo track and move the mono audio-data to it, or you re-route the mono track to a dedicated stereo-group, where you will insert the MIR Pro Plug-In.

Other DAWs like Logic or ProTools offer the possibility to insert configuration-changing plug-ins (mono>stereo, or stereo>surround), thus you may mix and match mono>stereo and stereo-stereo plug-ins freely.

- We hope you enjoy the new possibilities of MIR Pro!
Your Vienna Symphonic Library Team.

Venue Presets

Dear MIR Pro user,

thanks for your interest in this collection of Venue Presets for Vienna MIR Pro. For now, we provide **over 150 of these hand-crafted settings**, for each and every Venue available. This number will increase constantly in the future.

> **Important**
> These Presets are *not* compatible with legacy Vienna MIR!

1. How to get them

You can download the collection of MIR Pro Venue Presets for free from your User Area on the VSL

website.

Venue Presets are very small files, so we decided to pack all the Presets for all RoomPacks into one ZIP archive. If you don't own licenses for one or more of the additional RoomPacks for MIR Pro, feel free to delete the Presets you don't need at the moment. You can download the whole package again whenever you decide to add new RoomPacks to your arsenal.

2. What they are

Venue Presets are meant to be used as **starting points for your own arrangements and mixes** in Vienna MIR Pro. Think of them as empty stages which are set up readily by a team of professionals for recording an orchestra or ensemble of your choice. Ideally they will also inspire you to use MIR Pro in ways you didn't think of previously. Each Venue Preset is **built around one Main Microphone position** in one of MIR Pro's Venues (… please refer to the Vienna MIR Pro user manual for a detailed discussion of the technical terms used in this ReadMe). They are roughly divided in "typical" setups and setups that were created with more specific sounds in mind, or for certain instruments.

In general, all Presets contain

- **dedicated Output Formats**, in many cases created specifically for the task
- fine-tuned **Main Microphone / Secondary Microphone positions and settings**
- optimized **Room EQ settings**, mostly to get rid of room-inherent resonances or similar peculiarities
- suggested **RoomTone Levels**.

Much care has been taken to achieve **perfect stereo balance** and all-embracing **stereo width**. Some Venue Presets are set up as **5.0 and 5.1 surround configurations** from the very beginning, though – all marked clearly so that they won't be confused with stereo Presets. Quite a few Venue Presets make use of the brand-new **Secondary Microphone feature** of MIR Pro. In these cases, both microphone positions are specified in the Preset's name. In case of a surround setup the chosen configuration is mentioned, too. – Venue Presets that don't make use of the Secondary Microphone will contain meaningful settings for the switched-off secondary array nonetheless, just in case you want to give it a try. Several Venue Presets make use of MIR Pro's unique **MIRacle Algorithmic Reverb Add-on**, partly in a "hybrid" approach, partly as a synthetic enhancement of MIR's natural spatial enveloping. The settings used for MIRacle in these Presets were hand-crafted in every single case.

> **Tip**
>
> If you see a "**MIR Wet Bus**" in VE Pro's mixer, take it as a suggestion to use MIR Pro's wet signal routing instead of the conventional "In-line"-routing! In these cases, MIRacle is meant to process MIR's wet signals only. You will have to take care of that with each added Instrument.

You will also find some **additional built-in effects like MIR Pro EQs or VE Pro's Matrix Mixer** in some more demanding setups, or for reasons of sound design. Speaking of sound design: Some Presets rely on shortened overall reverb times (which can be achieved easily with the help of **MIR Pro's Reverberation Time** feature). This option multiplies the possible uses of one and the same Venue – which is what those Presets are meant to demonstrate. Some few Presets also make use of MIR Pro's option to present a Venue from **another acoustic perspective than the usual 0° main axis**. These files are marked accordingly.

> **Tip**
>
> Keep in mind that you can rotate a Venue visually in 90° steps by Ctrl+Alt-click (MacOS: Cmd+Alt-click) anywhere in the Venue Map! Getting the right perspective will make handling those setups much easier.

Usually, a Venue Preset will contain just **one or two "empty" Vienna Instruments** to give you an idea where to start with your own setups. There are several examples **built around specific instruments**, though, e.g., the Vienna Imperial Piano and the Vienna Konzerthaus Organ. While you will have to own the licenses for these instruments to make full use of the provided settings, you can of course employ these Venue Presets for other signal sources, too. For lack of other equally obvious means of adding written notes to a Venue, some MIR Icons' **title bars serve as memos** aimed at the prospective user – just make sure that the blue "Titles" option is switched on below MIR's Venue Maps to see them.

3. How to install & how to access

Technically, MIR Pro's Venue Presets are just VI-Frames with fine-tuned parameters. (*VI-Frames contain all the settings of one VE Pro 5 instance, including MIR Pro-specific settings*). Once you have unpacked the downloaded archive, just **copy it to any location on your system's hard drive that's convenient for your workflow**. Load any Preset from VE Pro's "File ..." menu. Don't get confused by the fact that the files are actually labeled as **64-bit VI-Frame** (*.viframe64). They will open quite happily in a Vienna Ensemble Pro 5 instance in 32-bit mode, too. As mentioned before, **you can download the whole package again** whenever you feel the need to do so.

4. How to use

First of all: please keep in mind that **these Presets are meant to be used as starting points**. That said, not a single setting must be seen as the one and only solution for a specific purpose. No matter if you need just slight adaptations or radical changes to achieve the sound you have in mind – just go for it. You may have noticed already that the **Venue Presets are sorted by RoomPack**. We've also tried to supply **meaningful names** for each of them, but if you're unsure what to expect there's nothing wrong with simply loading a Preset to actually hear what it does. Don't worry if you inadvertently overwrite the original file – you can download the whole collection of Venue Presets again (or keep the .zip file handy on your computer). Plus there's always a chance that new Presets were added in the meantime. :)

Still, it might be a good idea to create a new version of a loaded VI-Frame using the "Save as..." command from VE Pro's File menu.

Once you've loaded a Preset, just **start adding as many instances of Vienna Instruments (VI), VI Pro, virtual instruments from 3rd-party manufacturers, audio inputs and/or buses** you need for your arrangement. If you want to make use of an existing template you've created before, just save a single channel as a **Channel Preset**, or a group of channels as a Channel Set (the respective commands are available from the right-click context menu). You can import them into the new Venue Preset-based project then. Don't forget that you can convert a whole VI-Frame using the basic Vienna Instruments player to a new project that uses VI Pro 2 ("**File**" > "**Convert Project to Vienna Instruments Pro**"). The same is true for cases where you want to work in different channel configurations – just load the Venue Preset using the "**File**" > "**Convert Project Channel Configuration**" command and select the desired format. – You will be

reminded to select an appropriate MIR Pro Output Format then. If you find certain settings within a Venue Preset that you would like to use in another context (e.g., Output Format, MIRacle settings, etc.), **just save them as a User Preset and reload the patch** in the other project.

5. Enjoy!

We hope that these Presets will serve you as a convenient source of inspiration. Thanks for using Vienna MIR Pro!

*- **Dietz Tinhof** - MIR Project Leader*

Think MIR!

What is Vienna MIR Pro?

Vienna MIR Pro is an innovative, highly integrated software package for mixing, spatialization (distribution in space) and reverberation of virtual orchestral instruments or any other kind of audio signal. Vienna MIR Pro is meant to be used as mixing front-end, much like you would use a mixing console in the analogue world. Vienna MIR Pro offers integrated sample players, advanced stage positioning possibilities, sample-based reverb (so-called impulse responses), and individually assignable signal processing.

Its main goal is a fast and intuitive, yet highly realistic approach to the realization and mixdown of virtual orchestral music as well as any other kindof digital audio production.

Vienna MIR Pro's main components and core technologies are:

- a host and MIDI interface for Vienna Instruments (Vienna Ensemble Pro)
- unique instrument-conscious (signal dependent) directivity handling
- a mixing and spatialization tool for any kind of digital audio sources on detailed virtualizations of real halls and stages
- a host for 3rd-party VSTi's (virtual instruments adhering to the VST and / or AU standards)
- a host for VST / AU effect and signal processing plug-ins with full latency compensation
- a convolution-based reverberation tool, derived from world class orchestral venues
- an advanced multi-format mixing engine with instrument-specific, hand-tuned presets
- an inviting, hands-on graphical user interface
- LAN capabilities and direct DAW integration
- a built-to-the-task algorithmic reverb add-on for hybrid reverberation and sound design

Philosophy and underlying concepts of Vienna MIR Pro

Vienna MIR Pro is designed to be self-explanatory. In spite of the underlying complex technology, you can simply look onto a stage and interact with the musicians you invited to play on it, without the need to use any technical abstractions like faders, buttons, numbers or editors.

Of course, on certain occasions it may be helpful to have all the means for detailed manipulation of parameters. In these cases, a bit of background information may be helpful.

This little add-on to MIR Pro's main manual supplies you with the ideas and technical concepts of Vienna MIR Pro, for a more profound under-standing of what is going on behind the curtain - and why.

> **Tip**
>
> You may skip reading this add-on manual if you are eager to start making music in beautiful virtual rooms right away. But make sure to come back later, because knowledge is power. :-)

Welcome to Reality

The former New York Times film critic, Vincent Canby, wrote, "All of us have different thresholds at which we suspend disbelief, and then gladly follow fictions to conclusions that we find logical." Any recording is a "fiction," a falsity, even in its most pure form. It is the goal of the recording engineer and producer to create a universe so compelling and transparent that the listener isn't aware of any manipulation." (source)

The same is true for virtual orchestration, where the abstraction of a recording is even aggravated by the virtuality of its provenance.

In a nutshell: The beauty achieved by any recording - be it a "real" or a virtually created one - is in the eyes (in the ears!) of the beholder. Let's fool them.

The Idea of Vienna MIR Pro - Room is more than just "Reverb"

Music – and especially orchestral music – is more than just adding one single instrument to another. Of course, the proper mixture between them is crucial to making an arrangement work. But we still miss some decisive elements: The positions of single instruments on a stage, the size of the stage itself and its surrounding auditorium, and of course the spatial relationships between the instruments. Due to the nature of sound, all these components tend to interact with each other, and it's only after this interaction takes place that the human ear identifies a bunch of sound waves as "orchestral music".

An orchestra is all about space.

Unless we are locked in an anechoic measurement facility (a very unpleasant experience, by the way), any sound source will provoke reflections from any surface the soundwaves encounter while travelling through the air. Together with the direct signal, the human ear needs these so-called "early reflections" to gather information about the position of the sound source and its distance.

After a short time (a few hundred milliseconds), a myriad of those reflections join into a dense swoosh of sound – a phenomenon we perceive as reverb. Reverb enables us to get a distinctive auditory image from the enclosing ambience: its size, its form, and the kind of surfaces it encompasses.

Synthetic Reverberation?

The need to add an artificial sense of room to a recorded signal is at least as old as multitrack recording technology itself. Starting with the use of so-called "echo chambers" (real rooms equipped with a loudspeaker and a microphone), audio engineers soon invented "reverb out of the box". Mechanical devices like springs and plates paved the way for elaborate digital reverberation devices, starting with the early 1980ies. Those machines – still highly esteemed – finally came pretty close to generating believable acoustic equivalents to real rooms.

The algorithms those devices rely on are very advanced nowadays. Developers managed to get rid of dreaded phenomenons like metallic resonances and echo-like loops. The results are perfect – actually, they're too perfect for our needs. While this is good for "unreal" music production like it is considered to be state of the art in pop music, for example, synthetic reverb is not the final solution for virtual orchestration. No real room, especially no real orchestral hall would sound so uniform and character-free.

Every room has a voice of its own, with its own characteristics, its imperfections – one could even say: Its magic. Even more, this holds true for every spot on the stage, for every corner of its auditorium.

Therefore, what we are striving for is the "perfect picture of the imperfect world".

Sampling and Multisampling

As an avid user of the Vienna Symphonic Library's software instruments, Vienna Instruments and Vienna Instruments Pro, you are familiar with the concept of sampling: Based on recordings of either single notes or well-defined phrases of real instruments, it needs just a clever piece of software to re-combine these bits and pieces into a truly playable musical instrument. The more single samples the software can rely on, the higher the perceived realism will be.

Convolution

Similar to the sampling of instruments, it is possible to sample reverb and rooms (and actually any kind of linear acoustic system). A well-defined test signal (theoretically an impulse, practically a sine sweep) is sent into this room through a loudspeaker. The "response" of the room to this impulse gets recorded. This is the so-called impulse response (in short: IR). Consecutively, any signal can be put into the position of the original impulse, using a mathematical process called "convolution".

Impulse Responses

Ideally, this signal will now sound exactly as if it were recorded instead of the impulse from the very beginning! – In reality, there are a few problems, though:

First of all, convolution is an extremely demanding task even for the most recent computers – and even more so if it is done properly.

Secondly, "room" is all about three dimensions. Any signal source will sound different from any possible position within one and the same room; and it will sound different again from any of the possible listener's positions.

And thirdly, each signal source, i.e., every individual instrument, every sound source will act differently within a room.

How could one single IR cover all those aspects?

Multi Impulse Responses

Imagine the sound of a Bösendorfer Imperial Grand. Do you think it would be sufficient to record a single Middle C to make for a convincing virtual instrument? Of course not. As we already agreed upon, you have to go for individual samples from as many keys as possible, sampled in as many velocities as the human ear is able to distinguish. The same holds true for sampling a room.

What the industry has worked with up to now are single samples from an acoustic entity much larger than even the biggest instruments. There's no way you can "play" a room like that. But this is what great rooms are all about – they want to be played by musicians, conductors, and arrangers just like any other instrument.

This is the reason why the Vienna Symphonic Library started to record multi-samples from great musical venues: Multi Impulse Responses.

In fact, Vienna MIR Pro is much more than just "a multi-sample" of a hall – and this is where it surpasses any other convolution reverb available on the market by far. Vienna MIR Pro is multi-source, multi-directional, multi-positional, and multi-format.

Because, as we said before: every room has its own unique voice.

Technical Background – What works How and Why

Let's see (or should we say: let's hear!) what happens when you place a Vienna Instrument, e.g., the solo horn, on Vienna MIR Pro's virtual stage of a given concert hall. First of all, the stage position triggers the selection of one or more sets of 8 impulses (6 for horizontal directions, 2 for upward and downward directions). Equally important, the directivity characteristics of each instrument are applied before the convolution of impulses, so that the result depends on the frequency distribution and the volume an instrument is emitting in various directions. A horn, directed to the rear, obviously has a different spatial frequency profile than, e.g., the frontally blaring trumpet. The MIR Pro engine calculates all of this in real-time, and what you get is – a solo horn that sounds exactly as if it were playing on that very spot on the stage.

While all this should seem like a completely effortless procedure to the user, it wouldn't be possible without a unique combination of both audio and computing techniques. Some of those are entirely original developments implemented exclusively by the Vienna Symphonic Library.

These are Vienna MIR Pro's core technologies:

- Sampling
- Convolution
- Ambisonics
- Positional IR-Prerendering and Dynamic Processing
- Spatial Mixing
- Source-aware processing relying on Instrument Profiles, esp. Instrument Directivity Profiles

- MIDI controlled VSTi / AU Instruments hosting
- VST / AU plug-in hosting
- Audio input processing
- Innovative GUI solutions

As you no doubt are aware of by now, we are talking about a quite complex equation here:

> *Vienna MIR Pro = Virtual Instruments Host + Audio Mixer + Spatial Positioning + Multi-IR Based Convolution Reverb*

The following section will give you an overview how MIR Pro handles this very diverse tasks.

Sampling and Convolution

We've covered the basic concepts of sampling and convolution in the preceding paragraphs of this chapter. In short, sound sampling is used to virtualize instruments based on their actual recordings (see also). Convolution (in our context) is used to virtualize real rooms in which these virtual instruments are playing by way of "samples" gathered from these rooms. These samples are called IRs – Impulse Responses (see also [1]](http://emusician.com/tutorials/emusic_acting_impulse/), 2).

Convolution is the most CPU-intensive part of MIR Pro's engine. Only due to a proprietary method we call "Positional IR Prerendering" is it possible to hear the auditory effects of hundreds, sometimes thousands of convolutions in (close to) real time. We'll come back to this a few paragraphs below.

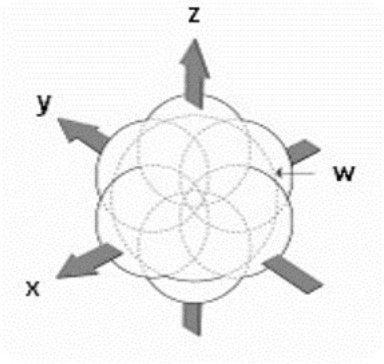
The sampled virtual instruments mostly tax the hard-disk's data throughput and of course the available RAM, which they have to share with the loaded impulse responses. IRs can't be streamed from disk like instrument samples; they have to reside completely in RAM.

Ambisonics

Ambisonics is the third cornerstone upon which MIR Pro is founded. Ambisonics is crucial for MIR Pro to work at all, which is why a basic understanding of this advanced audio format will help a lot to grasp MIR Pro's vast possibilities.

Ambisonics relies on a meta-audio-format which is not meant to be listened to directly. It allows for decoding of an almost limitless number of actual audio formats, be it broad or narrow stereo, different surround formats, or any other multi-channel format. By defining "virtual" microphones, a dedicated sonic behaviour can be assigned to each channel: The polar patterns as well as the angles of those microphones with regard to the input signal can be controlled after the actual recording.

To achieve this, an Ambisonics signal has to be based on four channels (W, X, Y, Z) (To be more precise, we would have to distinguish between Ambisonics A (the "raw" recording format) and Ambisonics B (the decodable audio format we are talking about here, derived from the raw Format A). If you want to learn more, please refer to the large amount of online literature concerning this topic [here]](http://en.wikipedia.org/wiki/Ambisonics), and here). The W channel is the signal's non-directional mono component, corresponding to the output of an omni-directional microphone. The X, Y and Z channels are the directional components in three dimensions. If you have an audio-engineering background, you might think of it as "three-dimensional M/S", or even better a "three-dimensional Blumlein" microphone array.



Ambisonics is a 360-degree, full-sphere sound recording, synthesis, and playback system. It is capable of accurately recording, processing, and playing back sounds from left/right, front/back, and up/down. Incorporating the vertical dimension makes Ambisonics a true periphonic, or surrounding, sound reproduction system instead of an artificial 2D representation spread out over multiple loudspeakers. Ambisonics creates the aural or sonic impression of a physical, three-dimensional space (quote).

To top it all, when using Vienna MIR Pro we are not limited to those spots that were used for impulse recording in the first place. Ambisonics allows for the seamless interpolation of each and every point within the covered area of a stage. Only the so-called off-stage "HotSpots" are limited to a single position.

Positional IR Prerendering and Dynamic Processing

Computers have become incredibly powerful over the years. But when it comes to intensely demanding tasks like convolution, it is still impossible to have more than a thousand of these processes computed in real time – which is a pity, because as we said before the whole MIR Pro concept relies on multi-sampled rooms.

Why that many convolutions, you might ask? Let's see: Assuming that we have decided to record 40 positions from a big stage, this number has to be multiplied by 8 for each direction we've sent the impulse to (0°, 60°, 120°, 180°, 240°, 300°, to the floor and to the ceiling), which adds up to 320 IR recordings. As we've discussed before, every IR is captured (and consequently processed) in 4-channel Ambisonics, which means that in our example the whole multi impulse response set from a single microphone position consists of 1,280 individual IRs.

To overcome the aforementioned limitations, Vienna MIR Pro introduces a proprietary method to take much of this burden off the CPU: Positional IR Prerendering. Cutting down the number of necessary convolutions to a bare minimum, it still allows for the same acoustical results one would achieve by using all those 1,280 IRs.

Without going into detail too far, the principle behind it is easy to understand. Each time an audio source is put on the stage using the MIR Icon, the MIR Pro engine looks up all actually necessary IRs in the complete set and prepares a momentary set of individual IRs for this very signal. The signal's exact position, stereo width and direction, as well as all instrument-specific meta-data derived from the assigned Instrument Profile and the chosen Output Format are all taken into account. Prerendering takes just a few milliseconds, so every move or change applied to an audio signal is almost instantly reflected in the again newly created impulse response characteristic.

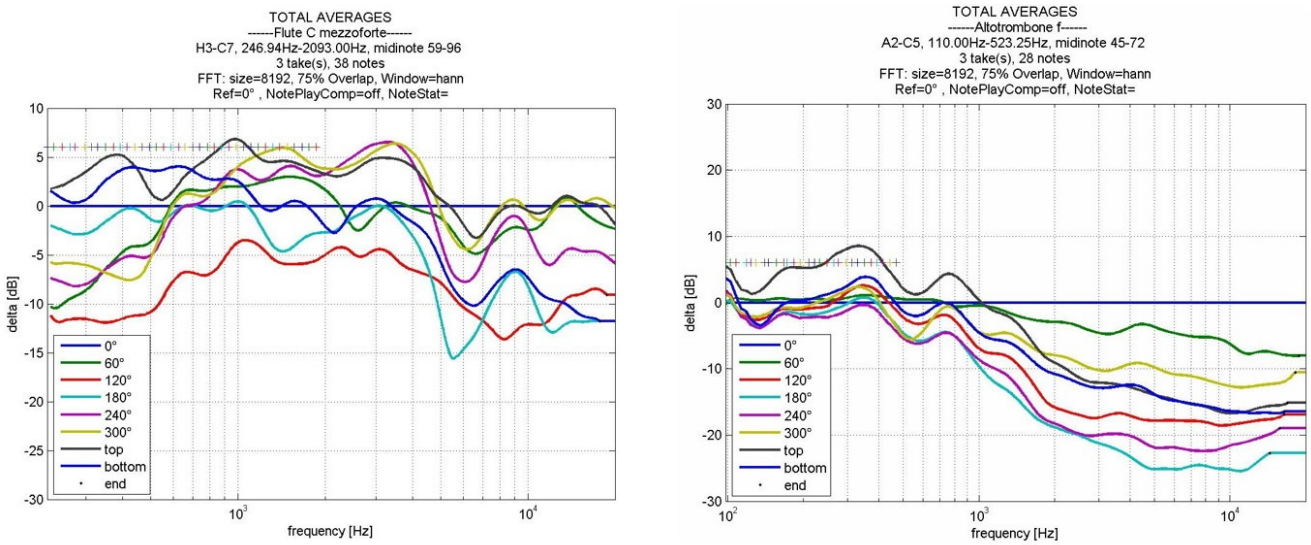
Large orchestral arrangements will still have to rely on some hundred IRs, but that is something the latest generation of CPUs is already able to handle. Combined with MIR Pro's Dynamic Processing feature, which switches off any unused convolution task as long as no signal has to be processed, we are able to use

today's computers as if they were coming from ten years in the future.

Instrument Directivity Profiles

Until now, most (if not all) approaches to virtual spatialization have taken it for granted that any signal could be regarded as an omni-directional source. This would mean that an instrument sounds the same irrespective of the direction it is heard from. In fact, quite the opposite is true.

MIR Pro covers directionality (i.e., "room") both from the listener's perspective (the microphone) as well as from the signal source's perspective (the instrument). We've already seen how Ambisonics is used for a completely flexible main microphone setup. The way to achieve the same flexibility regarding an instrument's position is partly covered by the Multi Impulse Responses themselves, of course – but the MIR Pro engine needs to know much more about the source signals to make full use of this huge amount of spatial information.



This is why we implemented detailed, individual Instrument Directivity Profiles for (almost) every Vienna Instrument. In addition we supply "General Purpose" Profiles for the use with any audio signal MIR Pro is able to process.

The underlying data was gathered over (literally) years of extensive research and development, and is now saved within so-called Instrument Profiles. They are not directly visible to the user, but selected from a list in accordance with the required Vienna Instrument's samples.

Why all the effort? Just look at the raw measurement results of two common instruments on the previous page – a flute and an alto trombone.

Each curve shows the instrument's unweighted frequency profiles as emitted by the instrument in 60° sectors in an unreflective measurement room (including ceiling and floor). It is clearly visible that the flute is anything but an "omni-directional" source. Now compare this profile with the trombone shown on the right. The differences are more than obvious – and of course this also holds true for any other instrument.

Measured with the aid of our newly developed method (based on sectorized microphone swarms), we gathered an enormous database of frequency profiles for all kinds of instruments (and other sources). Taking into account these directivity-dependent changes in sound, we can now supply MIR Pro with a direction-dependent acoustic fingerprint. This is made possible by the way we recorded the multi impulse

sets of each room: As mentioned before, the impulses were sent into the room in the same sectorized way we used for measuring the instruments – in 60° steps, plus the room's ceiling and floor.

To enhance the achievable authenticity even more, the raw profiles were weighted regarding an instrument's typical playing styles and the average distribution of pitches we gathered statistically from analyzing dozens of exemplary orchestral music scores.

Apart from directivity information, Instrument Profiles contain data about other aspects, too:

- Natural Volume
- The Stereo Width inherent in the original recording
- Instrument and / or ensemble size
- Natural timbres and possible changes to them
- Typical playing techniques and ways of sound production

In combination with all these aspects saved in an Instrument Profile, the directivity patterns greatly enhance the possibilities of MIR Pro, and thus the achievable realism of a virtual orchestral performance.

Spatial Mixing

Working with an orchestra in its natural environment may seem a self-evident task: A big stage in an acoustically suitable hall. Nevertheless, in our work with virtual orchestras we unintentionally have gotten used to accept all kinds of technical abstractions of this logical model. We're dealing with mixer channels, pan-pots and faders, equalizers, auxiliary sends and reverb engines – only to achieve an effect that "just happens" in the real world: The impression of depth and room, the perceptibility of the instruments' positions and their mutual relation.

Vienna MIR Pro reintroduces the "natural" environment to the virtual domain, so that we finally are in the lucky position to forget about most of the annoying (or at least tedious) detours. The MIR Pro engine offers a holistic approach to the spatialization of virtual orchestras, allowing the user to interact with the players more like a conductor than an engineer. MIR Pro is all about "room", and both the interface as well as the underlying processes serve this sole task only.

How Vienna MIR Pro Venues are created

Planning

A MIR recording session needs serious planning and logistics to work out properly.

When we decide to "sample" a hall for use within MIR Pro, there are quite a few things to consider. It may take up to two 24-hour days to capture a big hall in its full depth and glory, which is why rental fees are a major point – the best orchestral venues on this planet certainly don't come for free. Other things that have to be clarified in advance are legal issues as well as the actual pure logistics stuff, like vehicle access to the site, the availability of in-house staff, and so on.

The actual time we have to schedule depends on a very diversified set of factors: Obvious ones like the size of the stage (and thus the number of necessary IR-source positions on and off stage), or the

availability of the hall due to other bookings, as well as less obvious ones, like the isolation of the hall against environmental noise, weather conditions, or simply the availability of a good control room.

Once the equipment is set up, several experienced teams are needed to keep the recording process going around the clock. Usually, the whole MIR task force consists of about 10 high-profile recording engineers who are able and willing to work non-stop. (… please don't ask about the amount of coffee involved in sessions like that – it's about as many cups as the number of impulse responses recorded.)



The number of necessary IR positions differs from room to room. They are calculated in advance on the basis of floor plans, but it takes several hours to determine and align the real-world positions with the help of laser triangulation. Maybe it's hard to believe, but errors within a range of merely a centimetre may have devastating effects on the results in a complex system like Vienna MIR Pro. At the same time, every effort is taken to make the room as quiet as possible. Supported by the local staff, we try to get rid of any disturbing noise components, like air conditions, dimmers, lights, natural air flow or environmental noise through leaky windows, and so on. – There was a case where we had to hunt down a catering refrigerator humming along three rooms away.

Schedule-wise, there's always some overtime taken into account, just in case we would have to react to unexpected problems. More often than not, this eventually means that we have spare time at hand. We use it for recording acoustically interesting but not necessarily "important" positions (most of the off-stage "HotSpots" are the result of these "spare" sessions).

Setting Up The Equipment

The audio system we employ for recording our multi impulse responses has become highly refined over the years. It combines perfect audio fidelity with the highest possible mobility.



Up to four dedicated Ambisonics microphone arrays (hand-crafted prototypes built to the task by the specialists from AKG Acoustics GmbH in Vienna) are put into carefully chosen positions. They are connected to remote-controlled microphone pre-amps to keep the analogue signal path as short as possible. The signals are converted to 96kHz/24bit digital audio streams directly after the pre-amp. The

actual recording is done in 96 kHz/32 bit floating point, and all raw data are kept in this format throughout the entire post-processing until the final delivery in 44.1kHz/24bit.

The other decisive component is the loudspeaker which emits the impulse (actually a long sine sweep) into the hall. It has to fulfill special prerequisites since we're aiming for sectorized impulse responses, so that there are very few models on the market that comply with our demands. In addition to that, orchestral halls are huge, so we need considerable amplification power to guarantee distortion-free reproduction.



The loudspeaker is mounted on a unique moveable rack which can be rotated precisely by a stepper motor. This allows us to direct our impulses into the room in perfect 60° steps. Only the turns to the ceiling and the floor have to be done manually.

Depending on a hall's size and reverb length, the raw data we gather from one session goes into hundreds of giga-bytes. Every single recording pass is carefully monitored by two engineers. This means listening to sine-sweeps ranging from 40 Hz to 20 kHz for many hours – and staying attentive! An extensive log file is kept for every take, covering obvious parameters like position, angle and amplification factors, and less obvious ones like room temperature or the humidity of the air.

Post Processing and Implementation

Based on the aforementioned log file, the best takes are later chosen for further processing. This encompasses a multitude of sophisticated single steps which cannot be automatized completely. The final check is always done by ear; it's the most exciting moment when one hears the results from weeks of highly demanding work in their full glory for the first time.

We hope that you will share this excitement with us.

The MIR Pro / MIR Pro 24 Team

- **Herb Tucmandl** (Project Coordination)
- **AKG Acoustics, Wiener Konzerthaus** (Development Partners)
- **Dietz Tinhof** (Idea & Concept, Project Management)
- **Martin Rajek** (Program Architecture, Audio R & D)
- **Florian Walter** (Convolution Core)
- **Karel Bassez, Martin Saleteg, Florian Walter** (Software & GUI Engineering)
- **Jakob Winkler** (Venue Map Design)
- **Michael Haider, Gudrun Marquardt, Bernd Mazagg, Thomas Meitz, Andreas Olszewski, Martin Pauser, Martin Rajek, Dietz Tinhof, Markus Wallner, Florian Walter, David Ender, Hannes Breitschaedel, Martin Weismayer** (IR Recording)
- **Martin Rajek, Florian Walter, Thomas Meitz, Chryselda Pedarnig, Martin Weismayr** (IR Editing & Processing)
- **Martin Pauser** (Ambisonics research)
- **Friedrich Reining, Martin Opitz, Richard Pribyl / AKG Acoustics** (Microphone Prototyping)
- **Hannes Breitschaedel, Dietz Tinhof** (Instrument Directivity Research)
- **Hannes Breitschaedel, Markus Wallner, Martin Pauser** (Instrument Directivity Measurements @ Ribic GmBH)
- **Dietz Tinhof, Andreas Olszewski** (Instrument Character Presets)
- **Christian Marin, Bernd Mazagg** (IT Support)
- **Sound Art Service Vienna** (Audio Equipment Supply)
- **Heinz Zeggl, Roland Mittermüller / Zeggl Film, Sabine Tucmandl, David Ender, Thomas Meitz** (Video & Photography)
- **Georg Skerbisch / mvd, Karel Bassez** (Logo Design)
- **Dietz Tinhof, Paul Steinbauer, David Ender** (User Manual)
- **Sabine Seisenbacher, Martin Tichy, Johannes Becher** (Public Relations)
- **Special thanks to**: Sabine Seisenbacher, Markus Kopf, Michael Hula, Christian Teuscher, Maya Vinson, Marnix Veenenbos; Heinz Repper, Arjen van der Schoot, Ernst Stöttinger, Wolfgang Sauter, Peter Willensdorfer, Hans Löffler, Heinz Zeggl, Andreas M. Frei, Erwin Barta, Paul-Johannes Keiblinger, Teldex Studios Berlin, Pfarre Strassengel, Christian Sodl, Mario Reithofer, Zlatan Ribic, Erich Dorfinger, Jörg Sunderkötter, Ralf Kleinermanns, and all beta-testers.

Vienna MIR PRO – Version History

v5.4.16751c, macOS - October 28, 2019

Added

- macOS Catalina compatibility

v5.4.16751 - December 20, 2017

Added

- MIRacle presets for Synchron Stage

Fixed

- VI (Pro) guess instrument behaviour for a couple of patches

Attention macOS: Changed minimum requirement to macOS 10.10

v5.4.16181 - September 29, 2017

Added

- Natural horn profiles (Historic Winds III)
- Auto-guess for Natural horn

v5.4.15964 - May 31, 2017

Added

- Support for future RoomPacks
- Show MIRx presets in instrument context menu, even if there is just one preset available

Fixed

- Output matrix bug when loading projects with mismatching channel configurations

v5.4.15859 - March 21, 2017

Added

- Missing position information for General Purpose MIRx profile in MIRx Pernegg

Fixed

- MIRx presets in instrument context menu were not shown, if there was just one preset available

v5.4.15843 - March 15, 2017

Added

- Instrument Profiles for Historic Winds I & II, Recorders and new MIRx presets
- MIRx presets for an additional MIRx Venue
- Consider channel groups when editing a MIR instrument parameter via edit box: holding ALT while pressing Enter sets the value for all selected instrument icons (if "Automatically edit selected channels as a group" is not activated in Preferences, and vice versa)

v5.4.15500 - November 17, 2016

Added

- Instrument Profiles for Violin 2 and Cello 2

v5.4.14074 - February 3, 2016

Improved

- Mixdown performance with Cubase Asio Guard 2

Fixed

- Defaults for air absorption

v5.4.13888 - November 9, 2015

Fixed

- Hide button in MIR PRO Server Interface plug-in GUI being active when toggling "directivity filtering"
- Crash when toggling visibility of MIR Pro EQ plug-in
- Room Equalizer Index editing bug (when changing instruments in groups)
- Instrument width sometimes not properly clamped (when changing instruments in groups)

v5.4.13881 - November 2, 2015

Added

- Air absorption simulation
- New "Dry Signal Settings" section to instrument panel, "Dry Signal Distance Dependent Scaling" is now an instrument specific parameter.
- Preference settings to set default settings for the new parameters "Simulate Air Absorption", "Distance Dependent Scaling" and "Consider Microphone Offset" for new instruments

v5.4.13845 - October 1, 2015

Added

- MIRx presets for venue 'The Sage - Hall One'
- Instrument profiles for Dimension Brass II

Fixed

- Possible fix for random crashes in MIR PRO user interface
- File names being made lower case when loading from Windows Explorer
- A bug causing slow saving of MIRacle plugin
- A possible bug causing crashes when closing or loading a MIR PRO project

v5.4.13670 - February 25, 2015

Added

- Instrument Profiles and MIRx-Mode Presets for Vienna Whistler and Vienna Solo Voices

Fixed

- Slow GUI responsiveness while drag-selecting instruments
- Broken microphone rotation offset undo/redo
- Rare crashes during impulse response background loading

v5.3.13407 - October 16, 2014

Added

- OS X 10.10 Yosemite compatibility

v5.3.13333 - September 10, 2014

Optimized

- Increased loading speed for MIR Roompack files

Fixed

- 'Auto-group selected channels' could not be changed via Preferences Menu
- Crashes when closing a host project
- Storage of MIR metadata (grid, hotspots, etc) in a host project was not working
- Wrong MIR instrument profile mapping for Appassionata Strings (ALL strings patches)
- MIR Stage position and size not saved with projects
- Broken RoomEQ bank assignment in MIR Pro

v5.3.13234 - May 30, 2014

Added

- Missing output matrix when loading old output formats

Fixed

- Broken RoomEQ bank assignment in MIR Pro
- Minor fix for impulse response envelope processing

v5.3.13122 - March 5, 2014

Added

- Instrument Profiles for Dimension Basses
- Instrument Profiles for Trumpet Bb muted
- Auto-guessing when adding MIR Pro plug-in to existing VE PRO channel

Removed

- Automatic numbering in MIR titles / VE Pro channel names

Fixed

- MIRx Mode: If a VI is changed but Instrument Type cannot be set automatically (Percussion, etc), Instrument Profile 'MIRx General Purpose' is set, ignoring the default instrument type
- Room Equalizer index mismatch in automation mapping
- Grouping logic for room equalizer assignment was improved

v5.3.13043 - January 28, 2014

Fixed

- CPU performance issue with MIR plugins in previous version

v5.3.13036 - January 27, 2014

Added

- added MIRx mode (including all sound settings of MIRx) => see seperate MIRx for MIR PRO Manual
- added RoomEQ busses (to allow for individual wet signal settings for different signal sources)
- automatic auto-guessing of Instrument Profiles for Vienna Instruments (VE Pro version only)
- Instrument Profiles for new Dimension Violas

Fixed

- incorrect selection behavior of instrument icons
- broken Instrument Profiles for two instruments and several auto-guessing entries
- issues with MIR/VEPro selection synchronization
- several potential crashes
- Mac Rare "installation not allowed, minimum OS version required" problem

v5.2.12808 - October 18, 2013

Fixed

- Some Konzerthaus Organ Patches were not matched to the correct instrument profile

v5.1.12684, Windows & OS X - September 2, 2013

Added

- Microphone Flowers can now be rotated by dragging the Microphone Flower Pointer or by setting a rotation offset in the Output Panel

Improved

- bouncing when used as VST plug-in in Digital Performer 8

Fixed

- Problem in Output Format Editor which occurred when a previously changed Output Format was saved

- Problem with stereo imaging, which occurred in setups with lateral instrument positions
- Error dialog from automatic update check
- Using MIRacle in surround configurations with Nuendo/Cubase could lead to crash
- Windows dll showing version number 0.0.0.0
- Windows Installer now has better detection of redistributable, allowing for quicker installation

v5.1.12337, Windows & OS X - June 26, 2013

Added

- RTAS-AAX migration

v5.1.12331, Windows & OS X - June 22, 2013

Added

- full support for Pro Tools 11 (please note: AAX version now requires ProTools v10.3.5 or later).
- AAX known issues: RTAS plugins will not automatically be converted to AAX-64 plugins.
- support for Dimension Violas, Cellos & Basses
- new MIRacle presets

Improved

- loading performance of client plugin in some cases
- Increased brightness of equalizer graph for extra clarity

Fixed

- hangs and unwanted loading related to incorrect default instrument profile handling
- Room Tone not always loading properly
- Possibly fixed: erratic behavior causing incorrect parameter linking

v5.1.12219, Windows & OS X - May 23, 2013

Fixed

- Show message about RoomPack 2 Studios & Sound Stages update only once, even if several server instances are started (only relevant when used in connection with VE PRO 5).
- Crash which occured when loading a Metaframe with RoomTone channels activated in several VE PRO 5 instances (only relevant when used in connection with VE PRO 5)

v5.1.12195, Windows & OS X - May 7, 2013

Fixed

- MIRacle Fixed crash with buffer sizes larger than 2048 samples
- MIRacle Fixed noise problem when switching between certain presets
- MIRacle Changed dry/wet meters to post-fader
- MIRacle Fixed graphical bug in meters

Added

- New Preferences option: "force plugin output configuration" (to fix problems with certain hosts like Reaper)
- Only load RoomPack 1 data if license "Vienna MIR Roompack 1" is available

v5.1.12159, Windows & OS X - April 1, 2013

Added

- Save/Load feature for MIR PRO Room EQ settings
- multithreaded loading of MIR PRO Impulses for improved loading speed after changing instrument positions or microphone settings
- controls to set a MIR PRO Impulse Cache size in MIR options
- licenses for Roompack 1 and Roompack 4

Improved

- handling of long venue names (tooltip)

Fixed

- reset Natural Volume button when instrument type is changed and Natural Volume option is not activated
- Windows Added crash dump writing in the event of an unhandled exception

v5.1.11925, Windows & OS X - December 17, 2012

Added

- "Select All" command

Fixed

- Pro Tools Pressing the yellow "load data" arrow was required after project loads
- Logic Changing track selections could cause reverberation to be deactivated
- Logic, Digital Performer Mono-Stereo plug-ins could sometimes be silent on load
- Rare crash in OpenGL View

v5.1.11849, Windows & OS X - November 22, 2012

Added

- Progress indicator for impulse loading in status bar

Fixed

- Rare crash on engine startup
- MIR Pro 24 only allowing 23 inputs
- Crashes due to conflict with old VE Pro Default.vmi
- MIR Pro plugin shows the name "Audio Plugin" in Reaper
- MIRacle graph not updating when processing is disabled
- Minor graphical bug in secondary volume offset slider