Grapes - 3D Audio Control
User Guide

v1.3.0

This guide will be updated regularly as the software is improved and developed further. Be sure to check for updates and additional information at
https://www.grapes3d.com/

1. Introduction

Grapes is a universal tool designed for effortless mixing, performing and operating 3D audio across music, film, theater, AR/VR, games and arts.
Grapes is available as VST3 and standalone versions. It talks OSC natively to leading immersive audio processors such as: SAD, IEM PlugIn Suite, L-ISA, d&b soundscapes, Spat Gris, Auralite, ADM and many more.
Grapes does not do any audio processing but sends your choreographies of movements to the 3D audio engine of your choice.

2. System requirements

Windows	10 and later, 64 bit
Mac OS	12 and later, 64 bit

3. “Installation”

Get the latest Grapes - 3D Audio Control Version from www.grapes3d.com

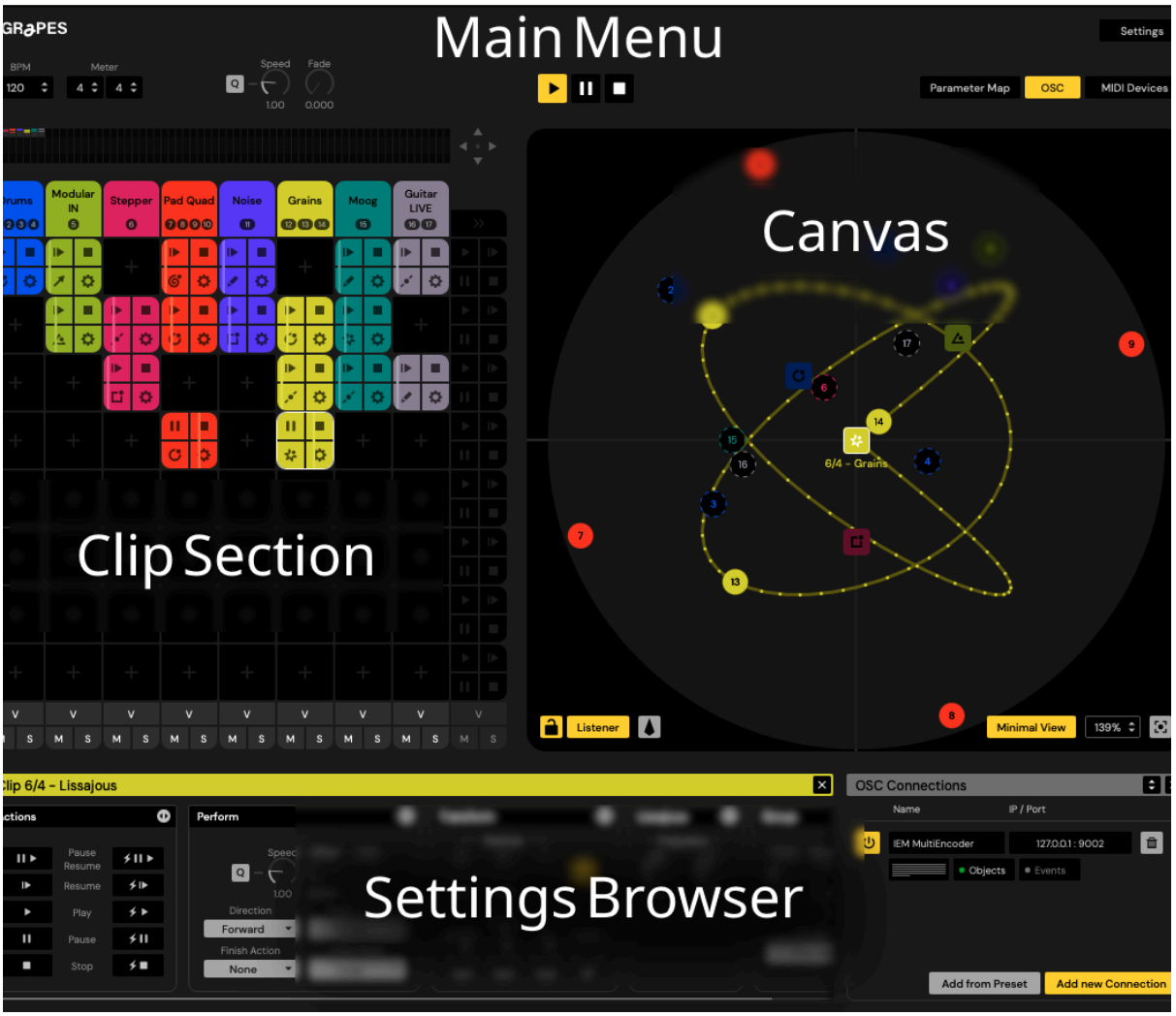
Windows

VST3	Copy Grapes VST3 file into your preferred PlugIn directory and rescan PlugIn directories in your DAW
Standalone	Double-click the Grapes 3D Audio Control installer. Follow the setup assistant's instructions to complete the installation process. Directory: C:/Programs/Grapes

Mac OS

Standalone + VST3	Double-click the Grapes 3D Audio Control installer. Follow the setup assistant's instructions to complete the installation process. Directory VST3: /Library/Audio/Plug-Ins/VST3/Grapes.vst3 Directory Standalone: /Application/Grapes.app

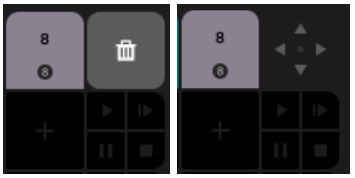
4. GUI Overview



5. Clip Section

The Clip Section is a Clip based Sequencer for movements and trajectories and displays a matrix of 8x8 clips. In total 64 (horizontal “Tracks”) x 32 (vertical “Rows”) clip fields are available.
Here you can start choreographing your sound objects in space.
To navigate through the full clip field you can either use the navigation arrows or the mini map on top of the Clip Section.

Interactions in the Clip Section

Interaction	**Description**	
create	click + symbol on empty field and select a movement	
move	drag&drop	
duplicate	alt + drag&drop	
delete	drag&drop clip onto the navigation arrows which will transform into a trash can	

5.1. Clips

Create a Clip by clicking into an empty field and choose a Movement or Behavior preset from the dropdown menu. Each preset provides a basic geometric shape or concept on how to move your object or groups of objects. Once a Clip is created you can customize and manipulate the movement or behavior in the Clip settings.
Each Clip defines the movement or behavior of a single object or a group. Objects or groups are assigned to Tracks (see also Track Settings).

5.1.1. Movement and Behavior presets

To create all kinds of movements for single objects or groups you can choose a movement or behavior from the preset list and create a clip in the clip grid or remove and copy/paste clips.

Drag
Use the Drag behavior to move your object by simply dragging and dropping it on the canvas. When the Drag Movement is applied to a group, you can adjust the position slots of each object on the canvas via the ‘Edit Slots’ button in the clip settings.

Follow
With the Follow behavior you can make one object or a group follow another one. Choose the leader and use flip x / y to generate synchronized, mirrored movements

Line, Triangle, Square, Circle, Spiral
Create trajectories of the respective geometric shape with these presets

Random
Make your object or group move randomly and tweak the power, speed or area within your object will wander around

Lissajous
Lissajous figures are curve graphs created by superimposing two harmonic oscillations of different frequencies at right angles to each other. Create all kinds of Lissajous curves as a trajectory for your object or group

Waveshaper
With the waveshaper you can create Sine, Cos, Triangle, Saw and Rectangular curve graphs as trajectories for your object or group

Swarm
By applying swarm behavior to a group of objects, you can create a wide range of decentralized, self-organizing collective behaviors, inspired by naturally or artificially occurring swarm dynamics.

Draw
Draw your own trajectories directly on the canvas. Your self-drawn path can be scaled and edited within the Clip Settings as well.

Read
Use the read behavior to read your recorded midi automation from the DAW. How to write the parameter automation see here: Write, Solo Mute, Show.

5.1.2. Clip Buttons

Play / Pause combi button
Triggers play / pause for Clip (+ctrl: forces play / pause regardless of any clip trigger mode settings)

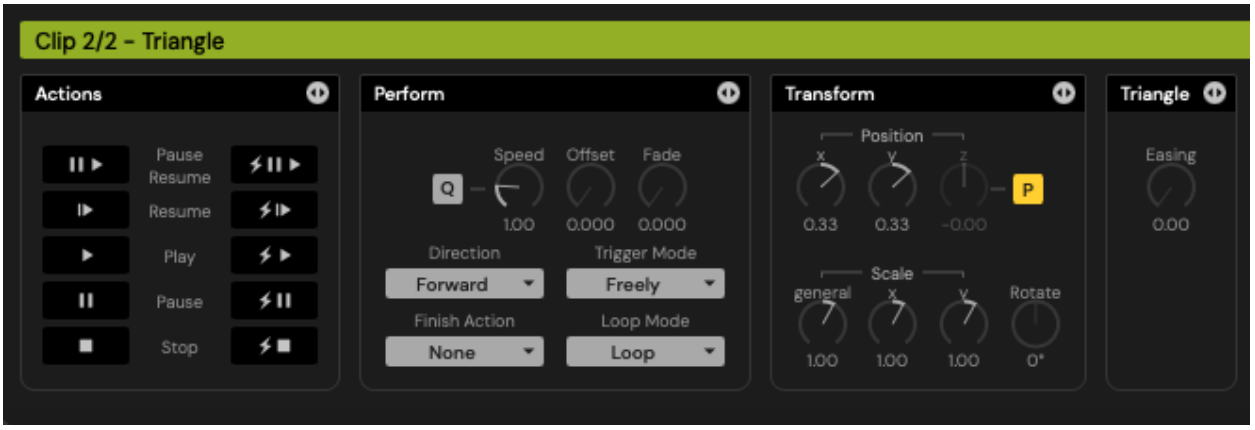
Stop button
Triggers stop for Clip (+ctrl: force stop regardless of any clip trigger mode settings)

Select button
Change trajectory / behavior preset of clip

Settings button
Opens Clip Settings Browser -> 4.1.3

5.1.3. Clip Settings

The Clip Settings Browser offers a range of parameters for each clip, allowing for customization and adjustments, such as the speed, direction and scale of movements and behaviors.



5.1.3.1. Actions

The Actions-Tab in the Clip Settings is an expansion of the play, pause and stop buttons on the Clip itself. Here you can also control, map and send “pause resume” and “resume”.

Each Action Button also has a thunderbolt variant, which stands for “instantly”. With these you’re able to interrupt any queues from Trigger Modes. So, instead of waiting on the Beat or Bar to finish, it starts directly.

5.1.3.2. Parameter Sections

All parameters are categorized in sections and organized in tabs, which can be collapsed or expanded.
Perform and Transform are the common parameter sections which provide common parameters (same for each clip).
Additionally, there are parameters specific to the selected movement / behavior, and group settings.

5.1.3.3. Perform

Parameter	**Description**
speed	controls the speed of the movement / behavior
speed ‘Q’	toggle on/off quantisation of speed to the bpm (either internal bpm or external, when sync mode set to DAW)
offset	set the starting point for your object / group on the trajectory
fade	set the fade to control hardness / smoothness of the fade between clips fade 0 = hard cut fade 5 = longest transition between clips
direction	choose between forward, backward and two alternating options
trigger mode	choose between free, bar and beat freely: clip is played immediately when triggered bar: clip is scheduled when triggered and plays on next bar beat: clip is scheduled when triggered and plays on next beat
finished action	choose which clip triggers, when its trajectory is finished: next previous first last — plays last available clip random (any) — including current clip random (other) — excluding current clip jump — jump to specific clip

loop mode	one shot — plays ones, then triggers finished action loop — plays continuously - as long as there is no finished action repeat — repeats a set amount of times

5.1.3.4. Transform

Parameter	**Description**
position x	set the position of the center handle of the trajectory on the x-axis
position y	set the position of the center handle of the trajectory on the y-axis
position z	set the position of the center handle of the trajectory on the z-axis **(Note:** Currently, adjusting the z-axis does not provide visual feedback.)
position z [P]	P stands for "project". When activated, the z-axis is locked and projected onto a dome surface. When deactivated, you can adjust the z-axis freely.
scale general	scale the trajectory in general
scale x	scale the trajectory in the x-axis
scale y	scale the trajectory in the y-axis
rotate	rotate the trajectory around the center handle

5.1.3.5. Movement / behavior specific parameters

Movement / Behavior	**Parameter**	**Description**
drag	friction	adds inertia to the reaction of the object / group to your drag&drop movement
follow	delay	sets a time delay on the following object
	leader	select the leading object
	flip x / y	mirror x / y
line, triangle, square	easing	adjust the density of points along the trajectory, thereby altering the speed rate.

circle	easing #	adjust the number of easing spots—areas where the point density increases based on the Easing Depth
	easing depth	adjust the density of points along the trajectory, thereby altering the speed rate.
spiral	rotations	adjust the amount of rotations for the spiral
random	vivid	adjust how vibrant and lively your object behaves
	power	adjust the strength
	uniform	choose how consistent, homogeneous your object / group behaves
lissajous	frequency x	modulate lissajous figures in x-axis
	frequency y	modulate lissajous figures in y-axis
waveshaper	wave mode	choose between the following waveshapes: Sinus (Sin), Cosinus (Cos), Rectangular (Rect), Triangle (Tri) or Sawtooth (Saw)
	frequency	adjust the frequency for the selected waveshape
	phase	adjust the phase
swarm (for groups)	force min / max	set the range of force by defining the minimum and maximum values
	speed min / max	set the range of speed by defining the minimum and maximum values
	perception	defines the range or scope in which an individual in the swarm senses and interacts with other members
	separation	specifies the degree of separation between the objects
	strength	controls the intensity of interactions between individuals in the swarm
	alignment	controls how individuals adjust their direction to match the average direction of their neighbors, leading to more cohesive group movements
	desire	indicates how strongly an individual is motivated to move towards a target or goal
	cohesion	refers to the tendency of individuals to move towards the average position of their neighbors, leading to group unity and reducing dispersion
	leader	define a leader source that the swarm will follow
draw	draw new path	press the button to clear the existing path and draw a new one

5.1.3.6. Group Parameters

Group parameters are accessible for clips on tracks that contain more than one object (a group).

Parameter	Description
offset	sort or rearrange objects to alter their order along the trajectory
spread	spread the objects along the trajectory based on the Spread Mode
spread modes	one sided
	two sided
	alternate
scatter	small, rapid variations of the spread

5.2. Tracks

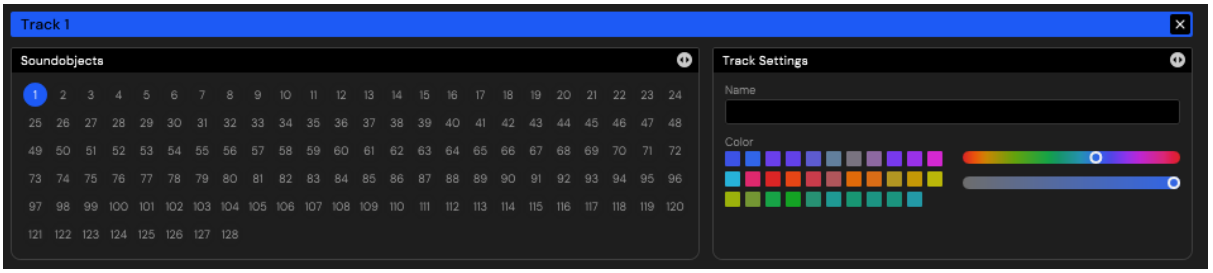
A single vertical column is called a "Track," which can have up to 128 assigned objects. Each Clip within the Track always refers to the object or group of objects assigned to that Track.

5.2.1. Track Header

Displays the assigned sound objects controlled by clips in this track, along with the track name and the track color. Click on the clip header to access the Track Settings Browser.

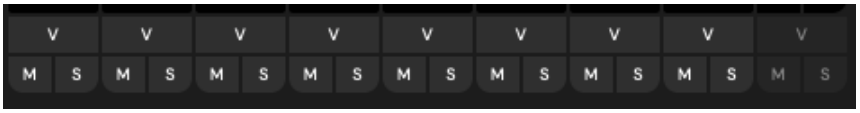
5.2.2. Track Settings

Assign one or multiple objects to the Track with the Soundobject Selector. Edit the track color and name in the Adjustments Section.



5.2.3. Track Footer: View, Write, Mute, Solo

Each track features View, Write, Mute and Solo buttons in the track footer.



Button	Description
view	select to only show active Clips Trajectories and handles of selected Track(s)
write	arm / disarm parameter writing to the DAW (note: the DAW track must be armed or set to write/latch mode). This feature is not available in the Standalone version. To read an automation, add a read movement clip to your track and play it.
mute	send the mute command to your 3D audio engine, to mute the object or group of objects assigned to the track
solo	send the solo command to your 3D audio engine, to solo listen to the object or group of objects assigned to the track

To arm/unarm all View, Write, Mute, and Solo functions; Use the row buttons on the right side.

5.3. Rows

A row is a horizontal line of clips. All clips in a row (up to 64 clips) can play simultaneously with the row play-buttons. There are 32 rows available.

Row Buttons

Play button
Triggers all clips in a row from the beginning

> All clips in a row are triggered sequentially from left to right.
> As a result, objects assigned to multiple tracks may be "stolen", with the most recently triggered clip taking control of the object(s).

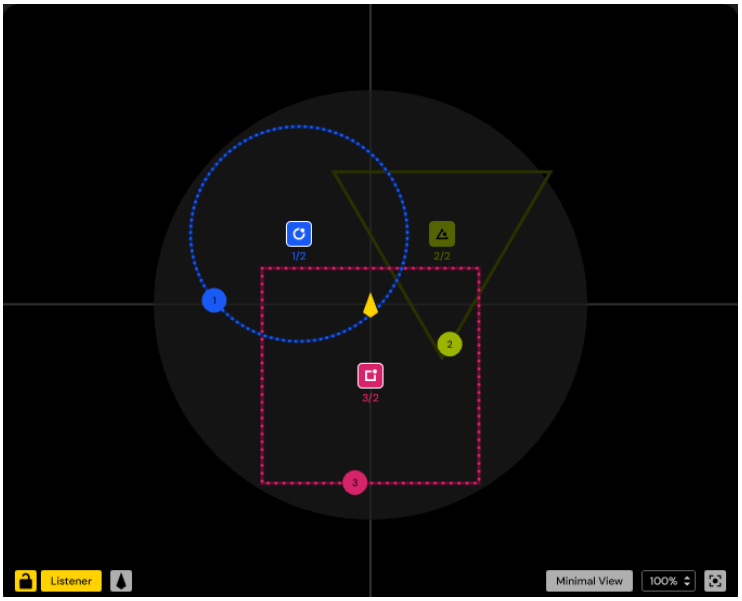
Resume play button
Triggers play for all clips not yet playing in a row. Already playing clips keep on playing (+ctrl: forces play regardless of any clip trigger mode settings)

Pause
Triggers pause for all clips in a row (+ctrl: forces pause regardless of any clip trigger mode settings)

Stop button
Triggers stop for all clips in a row (+ctrl: force stop regardless of any clip trigger mode settings)

Thunderbolt variant
All Action-Buttons are available as an “instant” variant.
With these you can interrupt Trigger Modes like “on Beat” or “on Bar” bypassing their queues.

6. Canvas



The canvas displays all objects, trajectories, and handles for all active clips. A clip is active when it's either playing or its settings browser is opened. With quick edit options for clip

settings and the draw mode, the canvas allows for fast interaction and a clear overview of your entire arrangement and choreography of objects.

6.1. Trajectories and Quick Edits

Once a trajectory is created for a single object or group within a clip, it is displayed as a dotted line on the canvas. Each trajectory includes a central point, called the 'handle,' which can be grabbed and moved with the mouse.

Quick edits on the canvas allow for basic adjustments to clip settings using mouse modifiers on the handle:

Clip Settings	**Modifying mouse action on handle**
scale general	ctrl + mousewheel
position x / position y	drag&drop
rotate	shift + mousewheel
open clip settings	click on handle
trigger play / pause	doubleclick on handle
display trajectory (in Minimal View only)	mouse over

6.2. Minimal View

For a better overview you can enable Minimal View. In this mode, only the trajectory of the clip with an open Clip Settings Browser is shown, along with the handles and objects of all other playing clips. Hovering over a handle will display the trajectories of the respective clip.

Another possibility to completely solo the view for one object or group and the active clips trajectory is the solo view option in the track footer.

6.3. Zoom

To zoom in or out on the canvas, enter the desired percentage in the zoom field or click the arrows and move the mouse up or down. Alternatively, you can zoom directly on the canvas using the mouse wheel.

6.4. Navigation

To navigate the canvas, click&drag the mouse in the desired direction.

6.5. Center View

Press the Center View button to recenter the Canvas view.

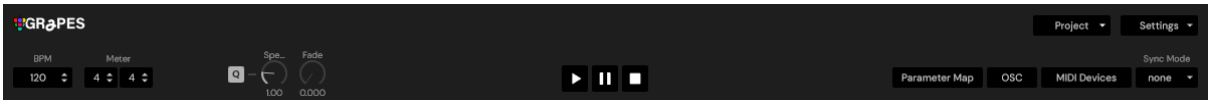
7. Listener

The listener defines the point and direction of view and has a scalable listening area that determines the scale of the entire scene or room. Use the Listener Button to show or hide the listener area on the canvas, and the Listener Settings Button to access further options.

Listener Settings

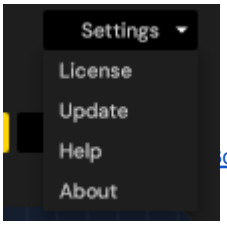
Parameter	Description
position x	move the listener and the listener area along the x axis
position y	move the listener and the listener area along the y axis
scale	scale the listener area
rotate	rotate the listener's point of view

8. Main Menu



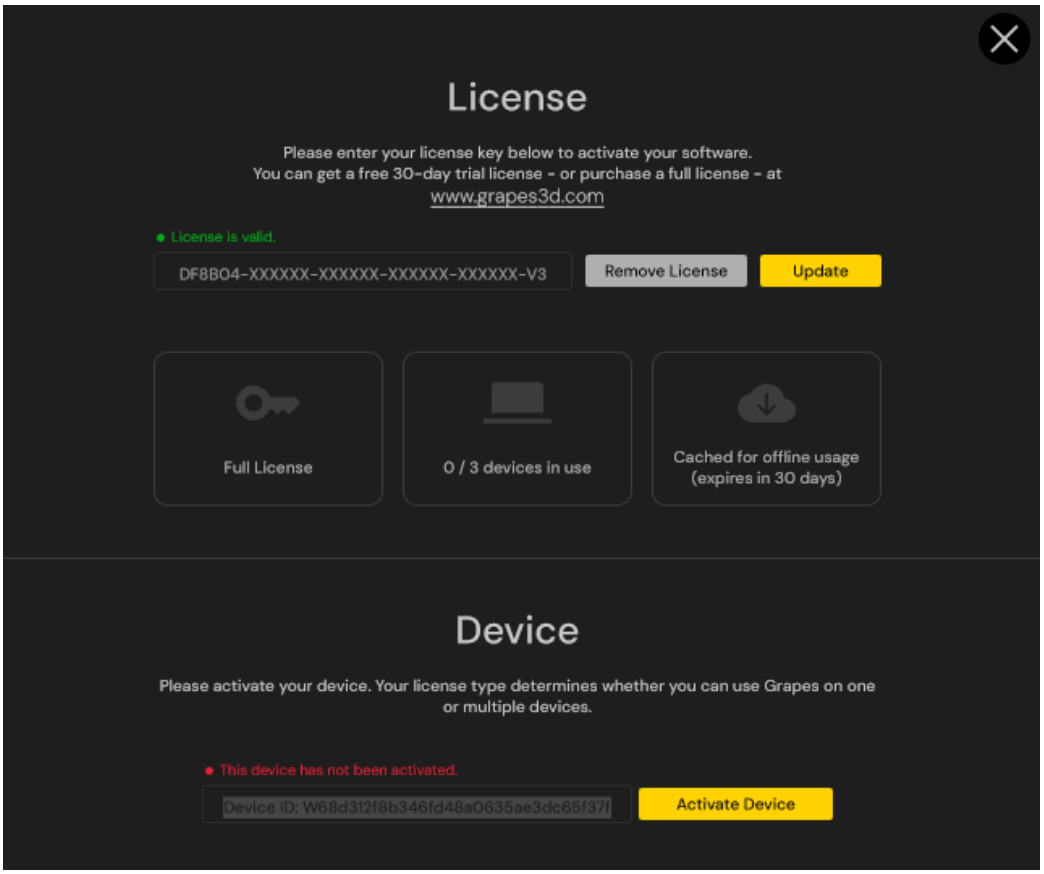
The main menu bar provides global settings, the global transports, access to browsers for Parameter Mappings, OSC and Midi Devices and to global controls such as speed, fade, BPM, sync modes and meters.

8.1. Settings



Here you can manage your license, check for updates, access Help resources, and view About information.

To activate Grapes enter your licence and activate your machine afterwards under Device



8.2. Project import / export (VST3 only)

To transfer Grapes 3D Audio Control projects between standalone version and VST3, proceed as following:

- In the **Standalone Version**, save and open projects as usual via **File > Save Project** or **File > Open Project**.
- In **VST3**, import and export projects using the **Project Import/Export** function.

⚠ **Note:** When transferring a project from VST3 to the standalone version, **Read Clips** and **GP Mappings** will be lost, as these features are not available in the standalone version.

8.3. BPM

The BPM field displays the internal speed in Beats per Minute (BPM). To adjust the BPM doubleclick into the field to type exact numbers or click&drag up/down. Alternatively you can set Grapes to sync modes.

8.4. Sync Modes

Grapes can run in the following sync modes:

- none: Grapes uses internal set BPM
- DAW: synchronizes Grapes to your DAW and receives transport commands play and pause (when DAW is paused or stopped)
- Ableton: Ableton sync mode is coming soon to sync Grapes and Ableton Clip transports such as play, pause, stop, clip length etc.

8.5. Meter

The meter displays the global time signature for all Clips.

8.6. Global Speed

Set the speed for all Clips globally in relation to their individual Clip speed. The individual Clip speed settings remain. Press ‘Q’ to quantify.

8.7. Global Transition

Set the global fade to control hardness / smoothness of the fade between clips
fade 0 = hard transition
fade 5 = longest transition between clips

8.8. Global Transports

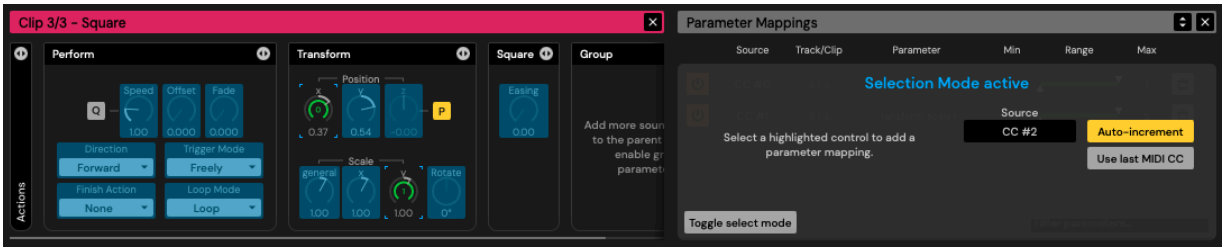
Transport	**Description**
play	triggers all clips in its current states global play is triggered automatically, when first clip is played
pause	pauses all clips

stop	stops all clips

8.9. Parameter Mappings

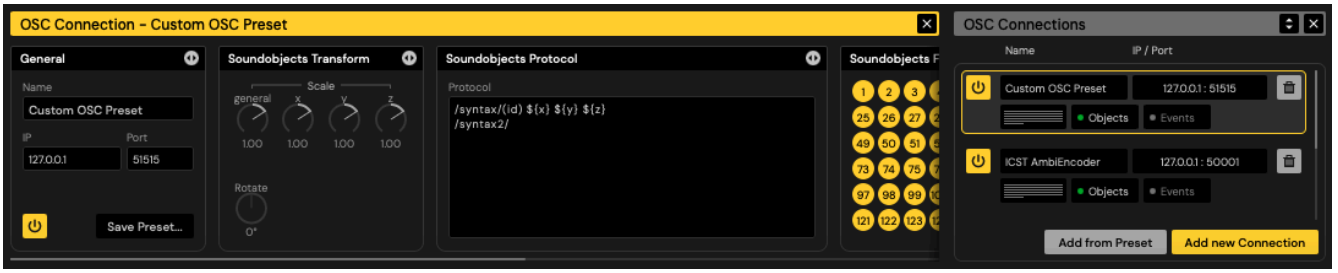
In the Parameter Mappings Browser, you can map parameters to MIDI inputs and General Purpose Parameters (VST3 only). Grapes VST3 provides 128 General Purpose (GP) Parameters, which can be freely assigned and are available in the DAW for automation

To open the Parameter Mapping Browser, click the **Parameter Map** button in the main menu bar. Then, press the **Select Mode** button. You can either manually choose a source from the dropdown or select the last incoming MIDI CC from your controller. Next, add the parameters you want to map— all available mappings will be highlighted. If you want to automatically assign parameters to the next MIDI CC or GP value, enable **Auto-Increment**.



Once you have finished mapping, exit **Select Mode** by pressing the **Select Mode** button again. All mapped parameters will appear in the **Parameter Mapping List**, showing their **Parameter Name**, **Track/Clip**, and **Source** information. Here, you can modify the source assignment, adjust the range, deactivate (yellow power button), or delete mappings as needed.

8.10. OSC Connections



The **OSC Connections Browser** is a core feature of Grapes, allowing you to connect to your OSC receiver(s) and transmit all positioning data for your sound object choreography.

To open the OSC Connections Browser click on the OSC Button in the main menu bar.

To add an OSC Connection, you can either:

- Select a preset from the list with “Add from Preset” to include an OSC module with predefined syntax, or
- Create a custom OSC connection by pressing “Add New Connection” to add an empty OSC module where you can enter your own syntax.

OSC modules can be activated, deleted or stored as user presets.

Each OSC module has further configuration options that **only** apply to that specific module:

Soundobjects Transform scales your OSC Output, which won’t be shown on the canvas. You can apply scaling to individual axes and uniformly to all axes. The scaling is always relative to the scene displayed on the canvas. In addition, you can rotate the entire scene.

Within the Soundobjects Filter, you can choose which objects are sent and which are not.

Use Events to transmit play-commands to the receiving software.

global	/global/play /global/pause /global/stop
row	/row/play (id) /row/play/instantly (id) also: resume, pause and stop
clip	/clip/started 1 1 0. /clip/stopped 1 1 0. 1 1 0. → corresponding to the first clip in the first row The last digit tells on which time frame the event occurred in relation to the clip length. (0.5 = halfway done)

8.11. OSC Input

8.11.1. clip, row and global events

Clip, row and global transports, such as play, pause, and stop, can be triggered via incoming OSC messages. The messages should be sent in the following format to **Port: 54103**

/Grapes/track/<index>/clip/<index>/<command>	resume forceresume play forceplay stop forcestop pause forcepause
/Grapes/row/<index>/<command>	
/Grapes/global/<command>	play pause stop

8.11.2. ADM OSC Input

The positioning of individual objects can be controlled by other softwares with the commands below:

/adm/obj/<n>/x
/adm/obj/<n>/y
/adm/obj/<n>/z
/adm/obj/<n>/xy
/adm/obj/<n>/xyz

example: /adm/obj/1/1. 1. 0.

Note: When positioning data is received while Grapes is playing, Grapes will take priority in resolving the conflict.

8.12. Midi Devices

The MIDI Devices Browser allows you to manage all connected MIDI devices and displays a list of added devices. Once a connected device is added to the list, you can set it to be used for parameter mappings, select a control surface (currently only a preset configuration for Launchpad Mini, with more options coming soon), and activate, deactivate, or delete devices from the list.