

# Smooth Shake Pro

Documentation  
Made by mardt

You can now also find the most recent version of the documentation online with the following link:  
<https://mardt.dev/#tools#smoothshakepro#smoothshakepro-doc>

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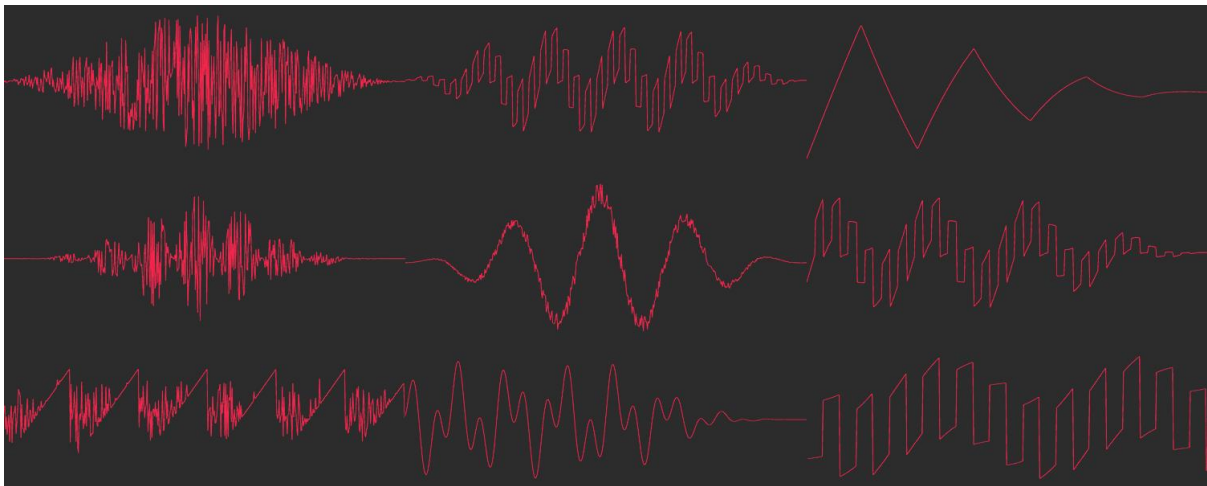
## Introduction

Thanks for purchasing Smooth Shake Pro! This document lists all the functionality included.

With Smooth Shake Pro you can make any camera, object, rigidbody, light, audio source, material property and gamepad, shake in any way or pattern you want. With 7 blending modes and 10 noise types you can layer shakes to make various effects from simple to very advanced in a matter of minutes!

Includes a custom preset system, and a custom timeline track to easily create and use shakes in cutscenes or sequences.

It also includes a previewer to help understand the different blending modes and noise types and visualize the outcome.

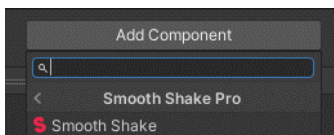


(If you have ideas for other outputs, blend modes, noise types or have other feature ideas, email me at [itsmardt@gmail.com](mailto:itsmardt@gmail.com))

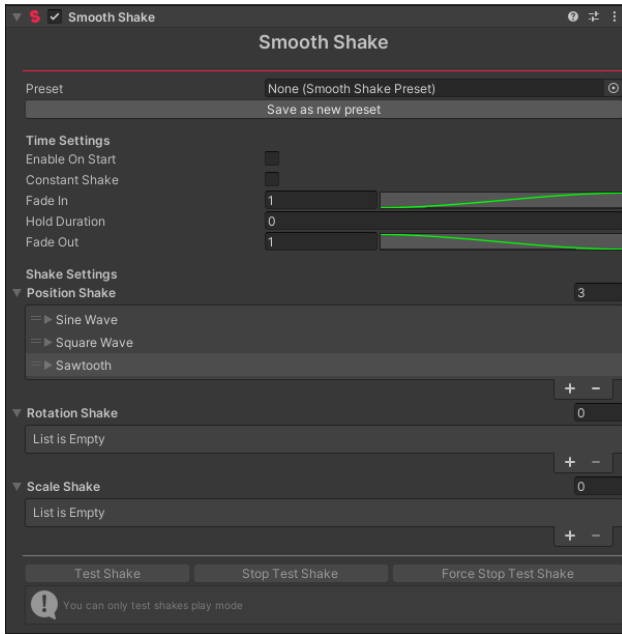
## How to start

For a quick start guide you can also watch [this video I made explaining the tool](#)

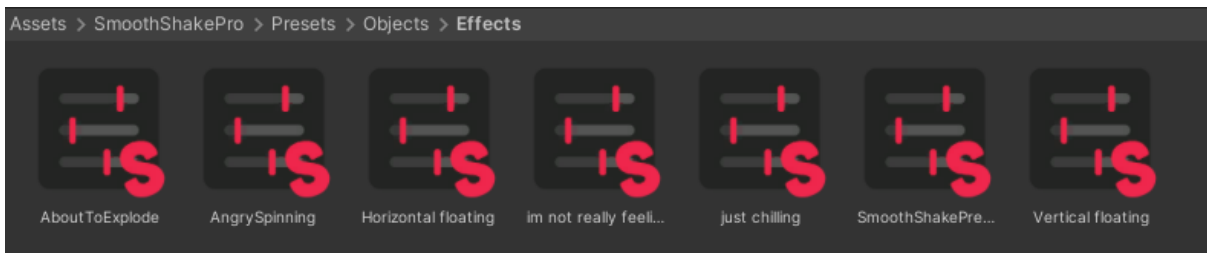
For starters, let's say you want to shake a camera or an object. All you need to do is add the SmoothShake component to the object you want to shake.



The inspector will show the available shake settings. With a regular object that's Position, Rotation & Scale and with a camera it's Position, Rotation and FOV.



If you want to quickly try different effects try the presets! Inside the preset folders there are many examples of object and camera shakes. Otherwise, try playing around with the settings and see what happens.

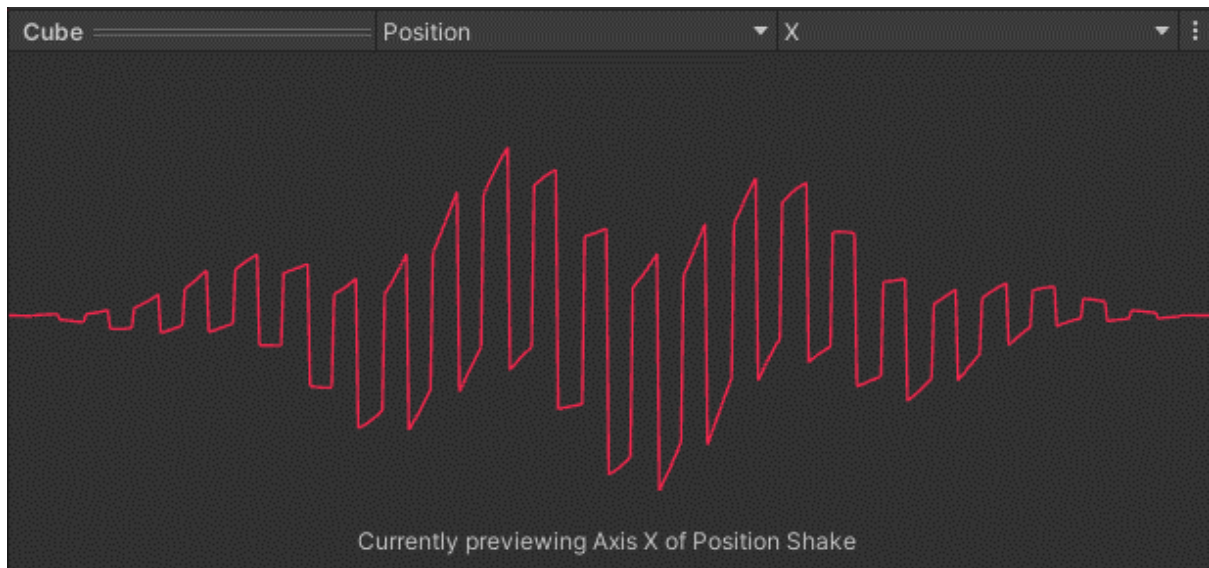


Drag a preset into the preset slot and you're done! (More info on creating and using presets further down.)

To open the preview, click or drag up the bar at the bottom.

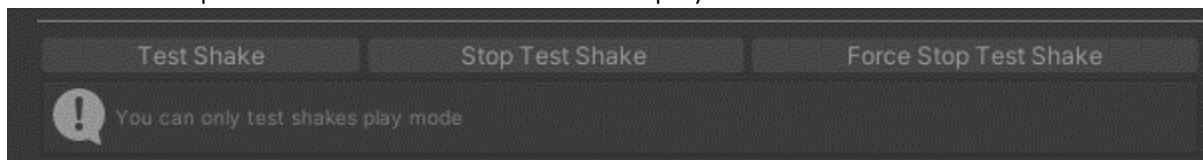


It will show you the preview as well as which axis of which shake you are previewing. You can switch shake or axis with the dropdown buttons in the header.



In Smooth Shake Pro, testing does not work in edit mode (unless you're working with the smooth shake timeline track).

The test and stop shake buttons will become active in play mode.



Test shake simply calls **StartShake()** to start the shake, stop test shake calls **StopShake()** to fade out a currently active shake. Force Stop Test Shake calls **ForceStop()** and forcefully stops it immediately.

Changes you make in play mode aren't automatically saved, unless you are using a preset. Preset changes are always saved locally in the preset and will be saved after exiting play mode.

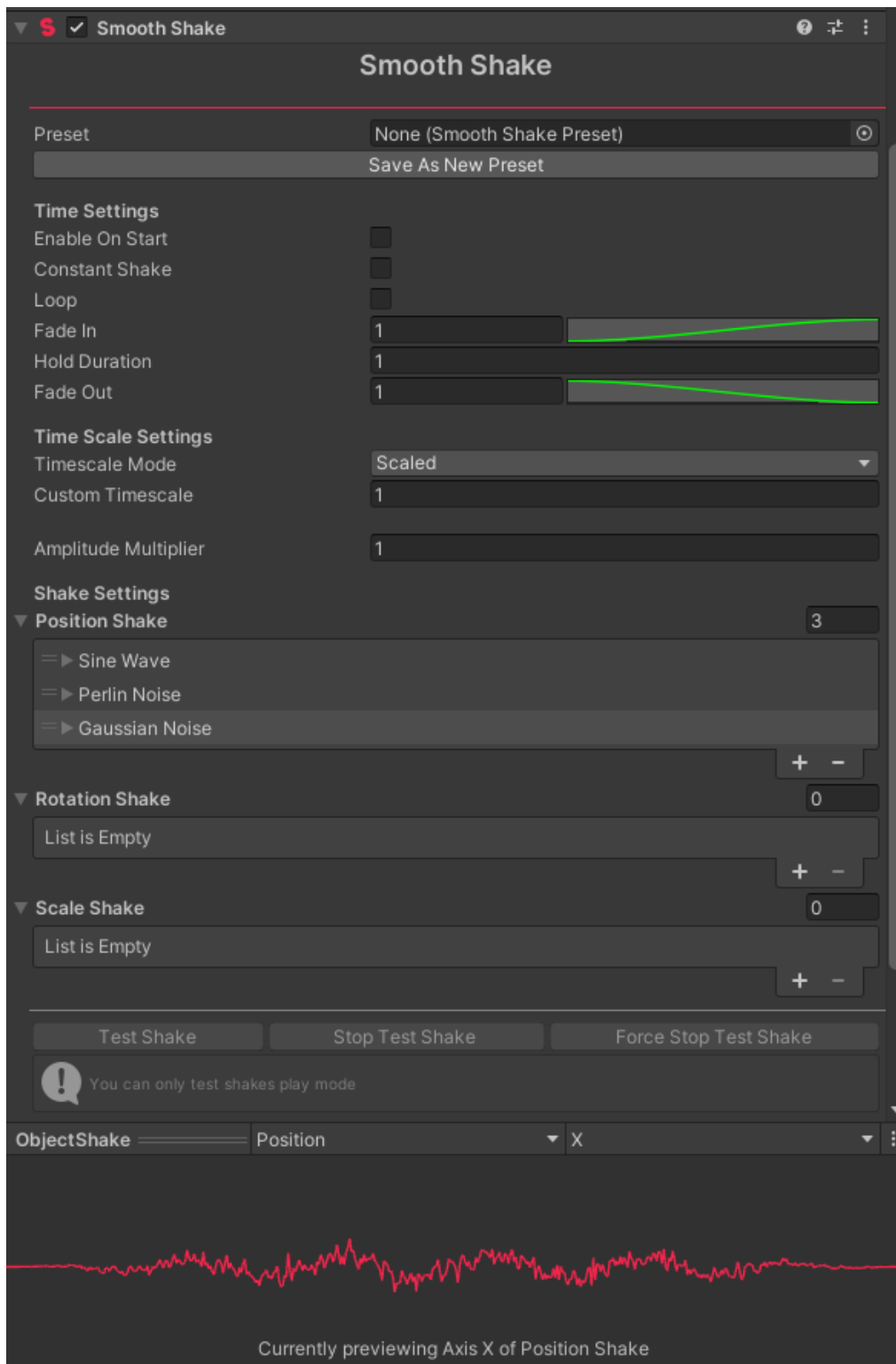
## Main Functionality Explained

Smooth Shake Pro (1.5.0) currently has 7 main types.

- Smooth Shake (for any regular transforms (objects, cameras, UI))
- Smooth Shake Cinemachine (cinemachine cameras)
- Smooth Shake Rigidbody (for physics sequences)
- Smooth Shake Material (to shake custom material properties)
- Smooth Shake Light (to shake 3D & 2D lights (2D lights are URP only))
- Smooth Shake Haptics Gamepad (to rumble controllers)
- **(EXPERIMENTAL)** Smooth Shake Haptics XR (to rumble VR controllers)
  
- **(FUTURE EXTENSION)** Smooth Shake Post Processing (to shake URP and HDRP volume override settings, including custom effects like RGB Split & Screen Warp)

They are all used pretty much the same, they only have a different output.

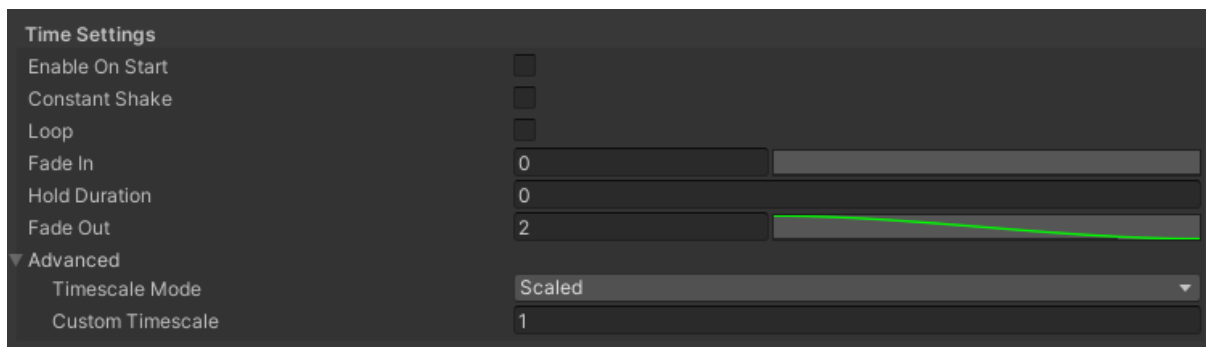
They all have a preset slot, time settings, one or more lists of shakers that allow you to layer and blend them, test and stop shake buttons and a preview window.



All settings should have tooltips when hovering over them explaining their function.

## Time Settings

Underneath the preset slot you first have the time settings.



This consists of the following:

Name in inspector	Variable name	Description
Enable On Start	<code>bool timeSettings.enableOnStart</code>	Play this shake on start.
Constant Shake	<code>bool timeSettings.constantShake</code>	Use an infinite hold duration (until stopped).
Fade In Duration	<code>float timeSettings.fadeInDuration</code>	How long the shake fade in should last.
Fade In Curve	<code>AnimationCurve timeSettings.fadeInCurve</code>	Animation curve to control fade in over time.
Hold Duration	<code>float timeSettings.holdDuration</code>	How long the shake should hold at full strength .
Fade Out Duration	<code>float timeSettings.fadeOutDuration</code>	How long the shake fade out should last.
Fade Out Curve	<code>AnimationCurve timeSettings.fadeOutCurve</code>	Animation curve to control fade out over time.

Functions:

<code>float timeSettings.GetShakeDuration()</code>	returns the full duration of the shake (ignores constant shake if used)
--	---

## Time Scale Settings (new)

Underneath the advanced drop down you have the time scale settings. After hearing users had problems with using smooth shake during pause screens, after the 1.4.0 update, you now have the ability to set the timescale to scaled, unscaled or custom scale time.

Timescale Mode	<code>TimescaleMode timeSettings.timescaleMode</code>	Selected timescale mode for this shake.
Custom timescale	<code>float timeSettings.customTimescale</code>	Custom timescale speed if timescale mode is set to custom.

Available timescale modes:

<b>TimescaleMode.Scaled</b>	Shake uses the default Unity time scale. Making changes to the Unity time scale will affect this shake.
<b>TimescaleMode.Unscaled</b>	Shake uses unscaled time, meaning it will continue animating even if unity time scale is altered (useful for pause screens).
<b>TimescaleMode.Custom</b>	Shake uses unscaled time and speed can be customized using given custom timescale float.

## Amplitude Multiplier

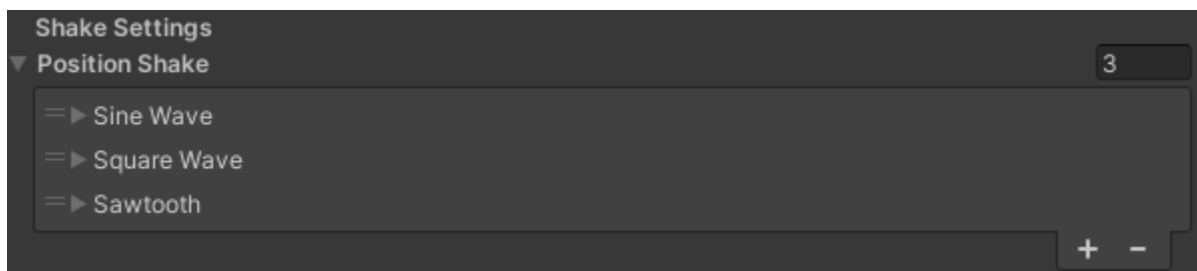
Single float value to quickly modify the global intensity of this shake.

This can be particularly useful for quick iteration.

It also works independently from presets, allowing you to modify the global intensity of a shake using a preset for a single object without directly having to modify the preset.

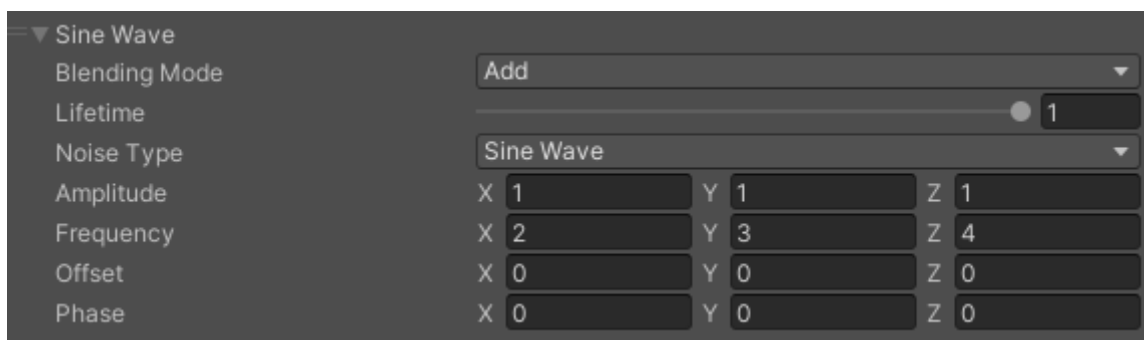
## Shake Settings

Next up you have a list of shakers. With the + and – button you can add or remove shakers. (You can also remove one by pressing delete when you have one selected.)



They are automatically named after the noise type selected.

You can reorder them by pressing and holding the two lines in front and dragging up or down.



Inside you see various settings (which vary depending on the noise type).

Settings that all noise types share:

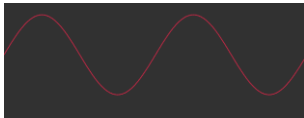
Name in inspector	Variable name	Description
Blending Mode	<b>BlendingMode</b> <b>blendingMode</b>	The blending mode to use for this shaker.

Lifetime	<code>float lifetime</code>	Relative lifetime of this shaker (Range .00001-1). A lifetime of 1 means the full duration set by the Time Settings.
Noise Type	<code>NoiseType noiseType</code>	The type of noise to use
Amplitude	<code>Vector3/float amplitude</code>	Strength / intensity of the shake
Offset	<code>Vector3/float offset</code>	The offset of the shake

**Note:** these aren't easily accessible from code as they are stored within shakers within lists, but there is a function to tweak settings easily explained under Smooth Shake scripting at the end)

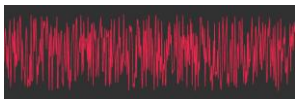
## Noise Types and Noise specific settings

### Sine Wave



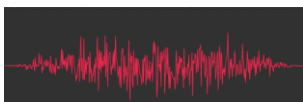
Name in inspector	Variable name	Description
Frequency	<code>Vector3/float frequency</code>	The frequency (speed) of the wave
Phase	<code>Vector3/float phase</code>	The phase of the wave (essentially changes the wave start position)

### White Noise



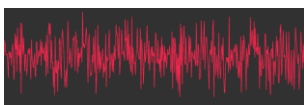
(Adds no additional variables)

### Gaussian Noise *(new)*



(Adds no additional variables)

### Brownian Noise



Name in inspector	Variable name	Description
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Step Size	Vector3/float <b>stepSize</b>	The accumulation size
Maximum	Vector3/float <b>maximum</b>	The accumulation limit

The following three noises all introduce the same variables as the sine wave does

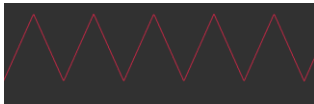
### Square Wave



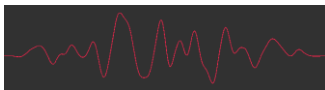
### Sawtooth



### Triangle wave

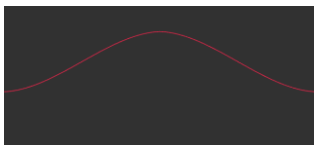


### Perlin Noise (new)



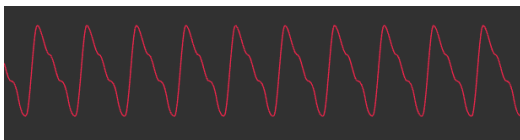
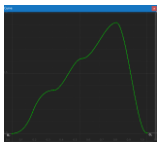
### Constant

This can be used to simply animate objects linearly (introduces no new variables)



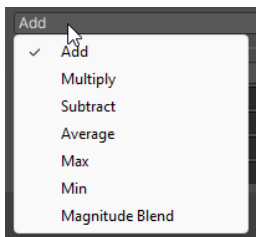
### Custom

Allows you to set a custom curve that can be used as shake noise.



Name in inspector	Variable name	Description
Frequency	Vector3/float <b>frequency</b>	The frequency (speed) of the wave
Phase	Vector3/float <b>phase</b>	The phase of the wave (essentially changes the wave start position)
Curve	AnimationCurve <b>curve</b>	Custom curve to use for the noise

## Blending Modes explained

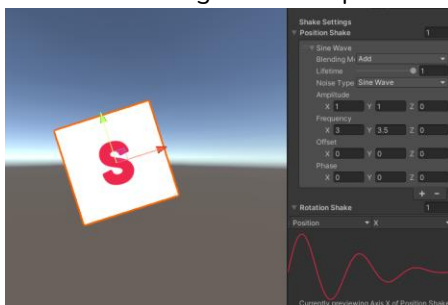


The currently available blending modes are as follows:

Add	Add the shake (+)
Multiply	Multiply the shake (*)
Subtract	Subtract the shake (-)
Average	Get the average of this and the previous shake
Max	Use the highest value when comparing this and previous shake
Min	Use the smallest value when comparing this and the previous shake
Magnitude Blend	Use the value with the highest magnitude when comparing vectors between this and the previous shake

## 2D or 3D use

All smooth shake types can be used in 2D or 3D (or UI) use cases. You are free to use any axis you want after all. The only thing you need to pay attention to is that in 2D use cases, you most likely only want to shake the X and Y of the position and just the Z of rotation. (You are free to break these rules with 2.5D games or experimental games of course.)



## Smooth Shake



The Smooth Shake component can be used in any situation where you want to affect the transforms. This works with for example, GameObjects, regular Unity cameras or UI elements. (Tip: you can also use this in combination with something like the Animation Rigging package from Unity to shake bones.)

Smooth Shake will automatically detect if the object has a camera or not, and depending on that it will either show Position, Rotation and Scale shake settings or Position, Rotation and FOV shake settings. (In some cases such as in the timeline or in presets, it always shows all settings, it will just not use the unavailable ones).

## Smooth Shake Cinemachine



This feature should automatically become available as soon as you install the Cinemachine package from the package manager.

The Smooth Shake Cinemachine component can be attached to any Cinemachine camera to make it shake. It requires a Cinemachine recomposer and Cinemachine camera offset component (which it automatically adds if they aren't already attached). It shakes the offset values for a position shake and the recomposer values for a rotation shake.

You can also shake the FOV.

## Smooth Shake Rigidbody

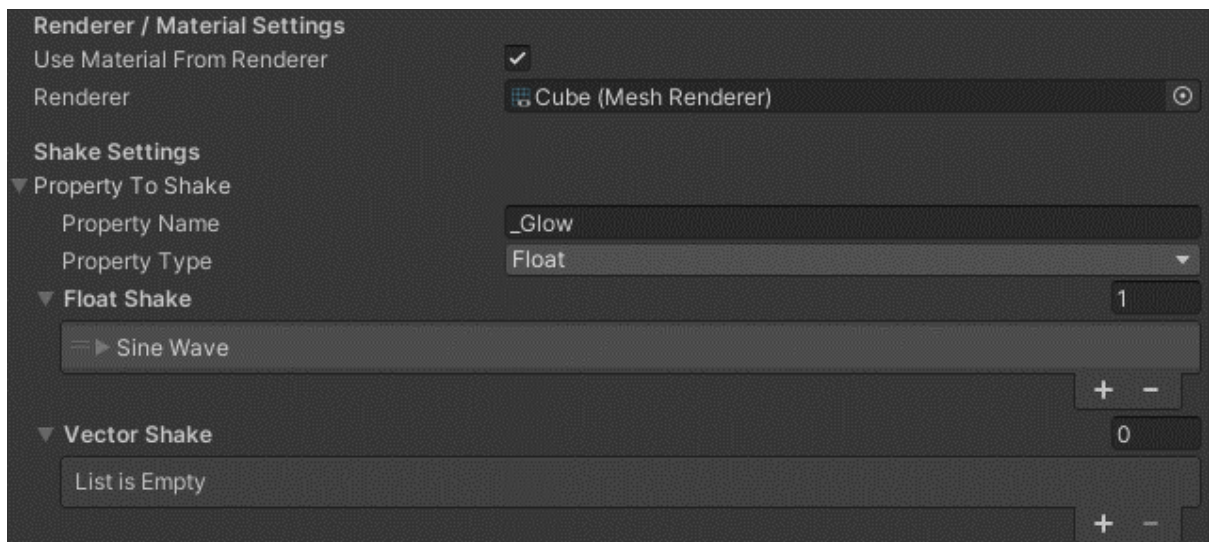


The Smooth Shake Rigidbody component can be used to add force (position force) or torque (rotation force) to a GameObject with a Rigidbody based on the shake settings. This way you can freely make any kind of simple or advanced physics sequence using the shakers and time settings. Make sure to add either a Rigidbody or Rigidbody2D to the object for it to work. (With Rigidbody 2D specifically, torque shake only uses the Z axis).

## Smooth Shake Material



The Smooth Shake Material component allows you to shake any custom material float or custom material vector. If you expose a float or vector in a shader, simply select the type and exposed name of the property to make it shake.



If “use material from renderer” is enabled, it will automatically get the renderer from the current object and it’s material. (Renderer can also be assigned manually).

If disabled, you can assign a material manually, but this will affect the material locally meaning all objects using this material will be affected.

If you want to affect a material from a renderer with multiple materials, you have to assign a material along with the renderer so it knows which material to pick.

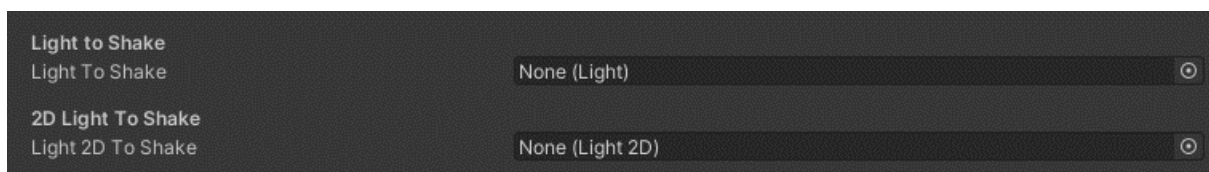
There are two lists, one for float shakers and vector shakers. Depending whether you choose float or vector as the property type, just one of the two will be used.

## Smooth Shake Light

The Smooth Shake Light component allows you to shake any light (point, directional, spot). You can shake the intensity and / or the range.

Since the (1.4.1) update you can also shake 2D lights (only in URP).

Simply drag a light into the inspector of Smooth Shake Light for it to work.



## Smooth Shake Audio

The Smooth Shake Audio component allows you to shake any audio source. You can shake the volume, stereo pan & pitch.

Simply drag an audio source into the inspector of Smooth Shake Audio for it to work.

Audio to Shake  
Audio To Shake

None (Audio Source)

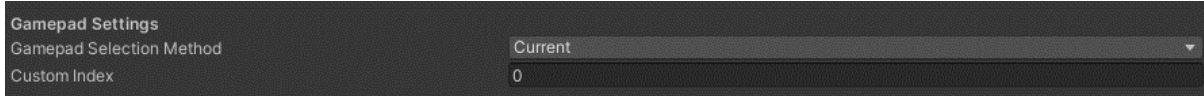
## Smooth Shake Haptics Gamepad



The Smooth Shake Haptics Gamepad component allows you to shake the low frequency & high frequency motors of gamepads. Depending on which gamepad you are targeting, you can either use both or a combination of them.

**Note:** Smooth Shake Haptics Gamepad requires the unity input system package to be installed.

Under “Gamepad Settings” you can select which gamepad to use.



The options are as follows:

First Connected	The gamepad that was had the earliest connection with your device (as detected by unity)
Last Connected	The last gamepad that made connection with your device (as detected by unity)
Current	The latest gamepad where interaction is detected by Unity.
Custom Index	Unity automatically creates an array of gamepads if multiple are connected, use this to decide which specific index you are trying to target.
All	All connected gamepads.

The custom index integer underneath allows you to decide which index you want to use if set to “Custom Index”.

## Smooth Shake Haptics XR (EXPERIMENTAL)

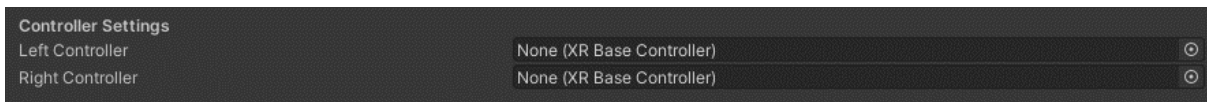
**Important note:** this feature is still work in progress and a low priority. Due to not having a VR headset consistently available, I have not been able to test this thoroughly.

If this feature is a priority to you and you are experiencing issues, please contact me at [itsmardt@gmail.com](mailto:itsmardt@gmail.com)

The Smooth Shake Haptics XR component allows you to shake left and right VR controllers individually, assuming they have 1 available motor.

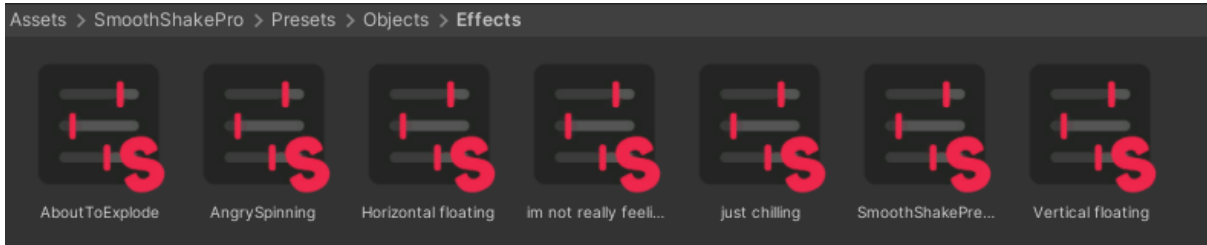
It should automatically become available when the Unity XR Interaction Toolkit package is installed.

Now you can simply drag in the left and right controller into the right slots in the inspector.



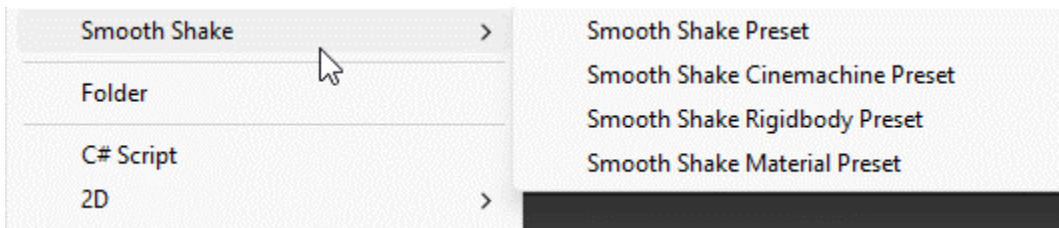
## Presets

Smooth Shake Pro comes with a bunch of presets. They can be found in SmoothShakePro/Presets.



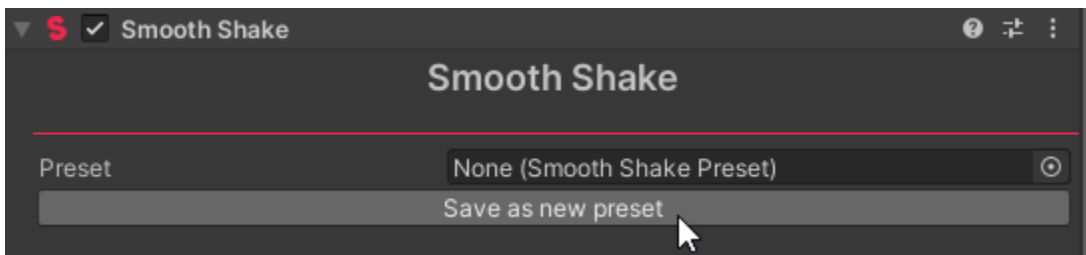
But besides using the existing presets, you can also easily make your own.

There are 2 ways to create presets. The first is to add it through the create menu (right click in project window) :

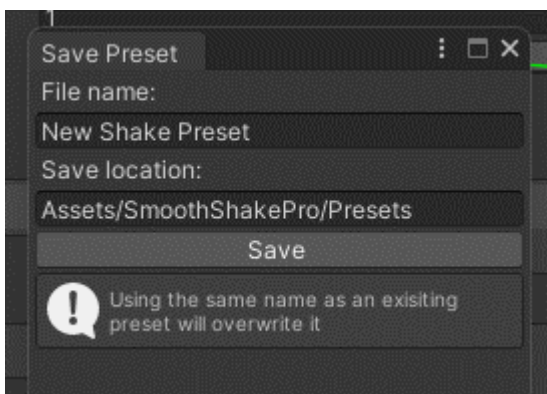


(All available Smooth Shake types will show up here)

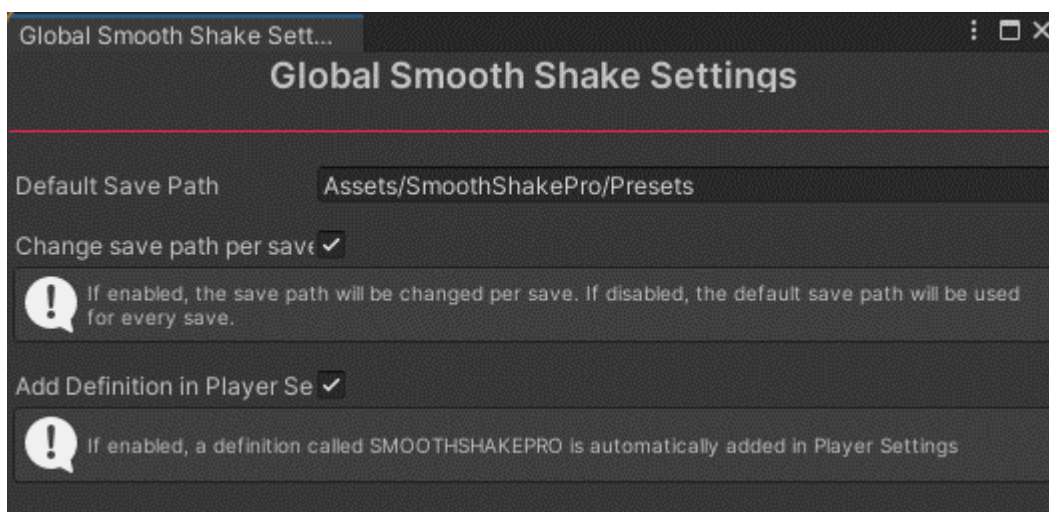
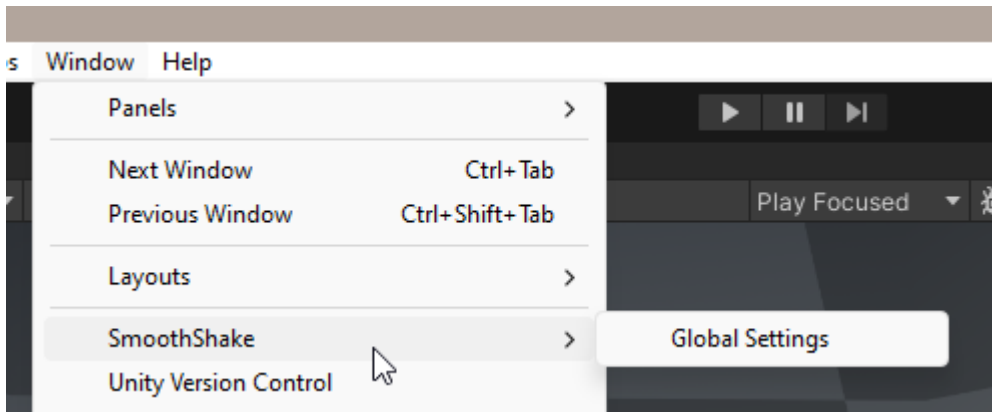
The second is directly from a Smooth Shake component with the Save as new preset button.



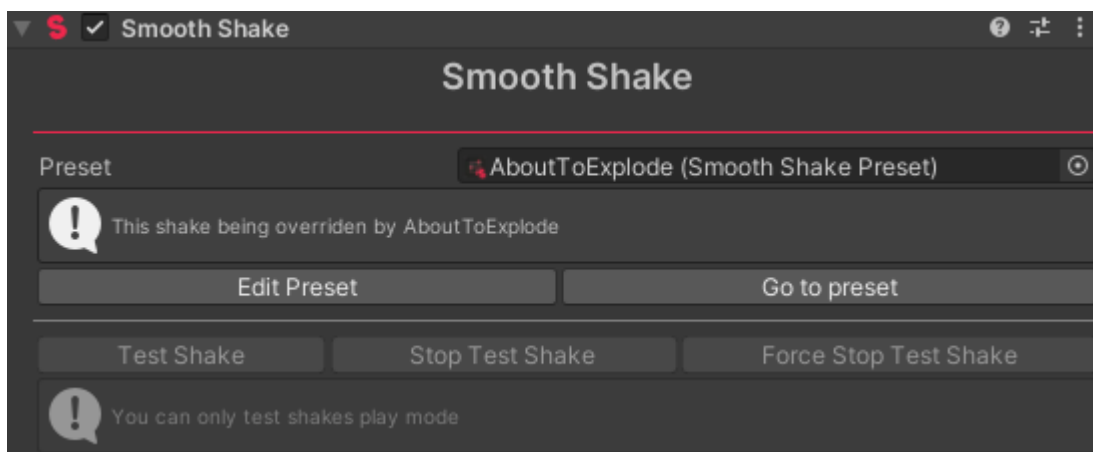
This will open up a window allowing you to give it a name and save path.



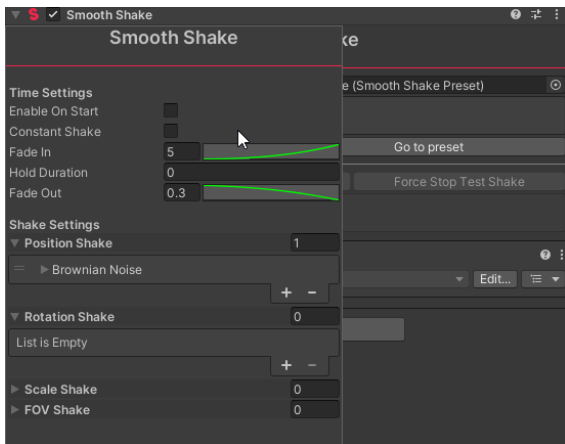
You can change the default save location in the global settings.



When you drag a preset into the preset slot, the inspector changes.



You don't directly see all the settings anymore, but you can press the "Edit Preset" button to edit the settings from within a popup window.

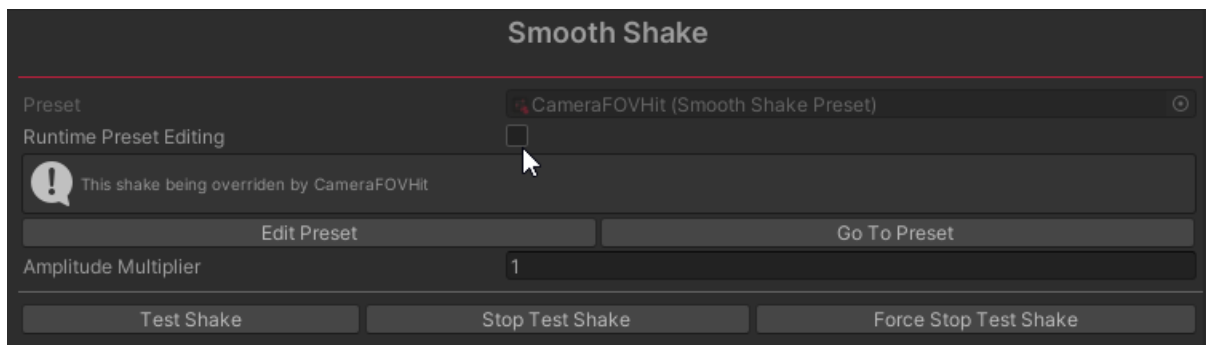


Note that with the regular Smooth Shake, this allows you to edit both scale and FOV (either scale or FOV just won't have any effect depending on whether a camera is attached.)

You can also press the “Go to preset” button to directly go to the preset and edit the settings there (or find it in your project).

**Important note:** working with presets means all changes are now saved locally in a preset file. This means changes you make in play mode are saved and will affect all objects using this preset. This is ideal when you have multiple objects with the same shake and you want to change settings for all of them at the same time and make changes while testing in play mode, but you should be aware of this and don't unintentionally change settings of a preset. If you want to use a preset, but only change intensity in one specific use case, use the amplitude multiplier.

If you have issues with editing presets in runtime, try enabling “runtime preset editing”.

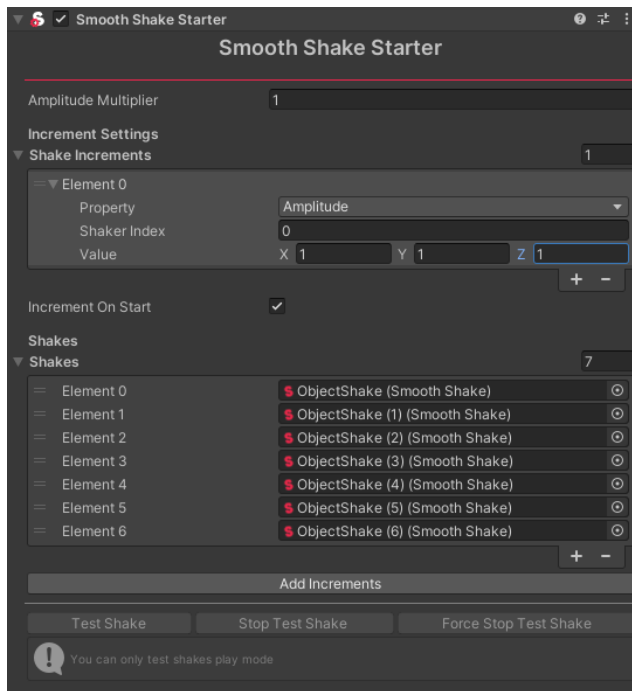


This will apply preset changes every frame, so this is useful for tweaking in play mode, but should be turned off in your final project for better performance.

## Smooth Shake Starter

Often you're going to have multiple shakes that are part of a 'shake group' (for example all the separate letters in the title screen demo.) With the Smooth Shake Starter component you can simply add all them here and start and test them all at once.





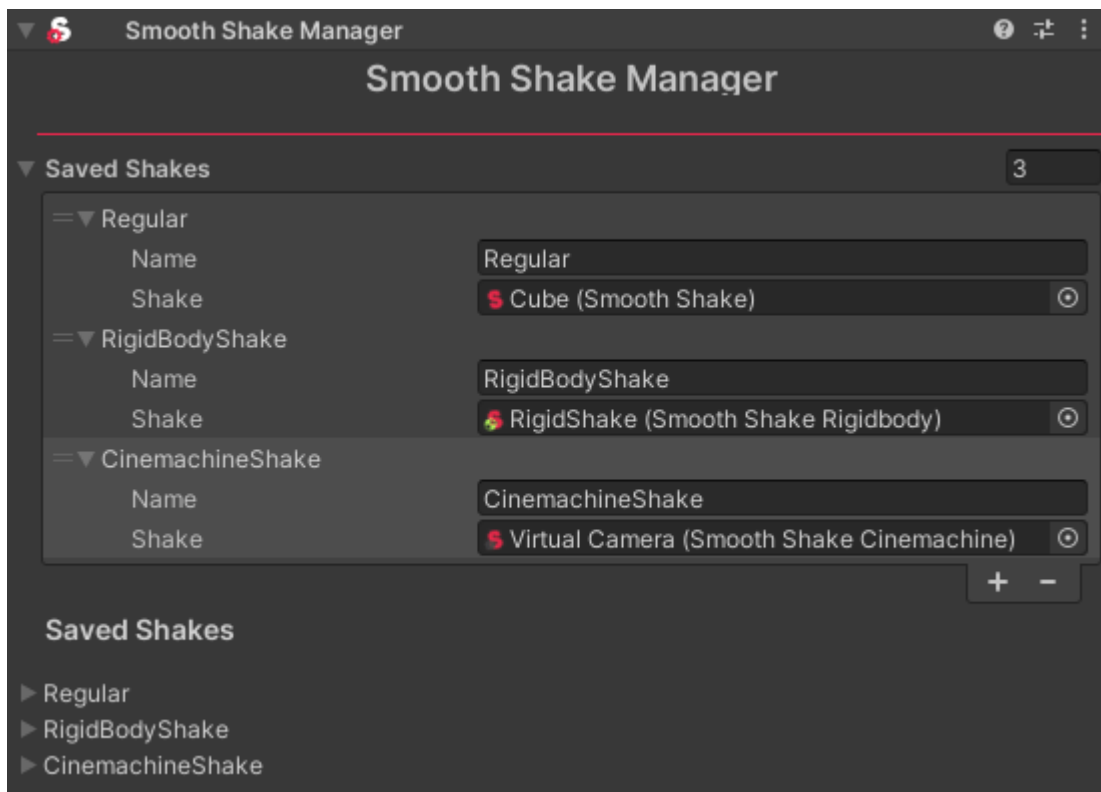
### Adding values in increments (new)

In the latest update (1.3.1) you can add Shake Increments (either the amplitude, frequency, offset or phase) and press the 'Add Increments' button (or call **AddIncrements()** via code) to incrementally increase or decrease a value of all shakes in the list.

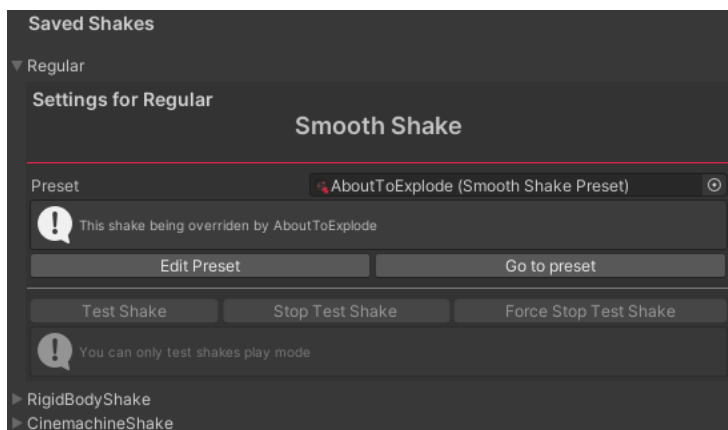
This is useful to create a 'wave' effect where you want several shakes to behave similarly but each one incrementally different.

## Smooth Shake Manager

The Smooth Shake Manager script allows you to store as many shakes as you want and give them a name.



You can also change the settings of the saved shakes directly from the manager by opening up the foldouts.



The main benefit of the manager is that from script, you don't have to gather references for every specific shake anymore, you only need one to the manager.

From there you can call `StartShake(string name)` to start any certain shake.

Tip: SmoothShakeStarter components are also compatible with the Smooth Shake Manager, so you can organize shakes into sub-groups.

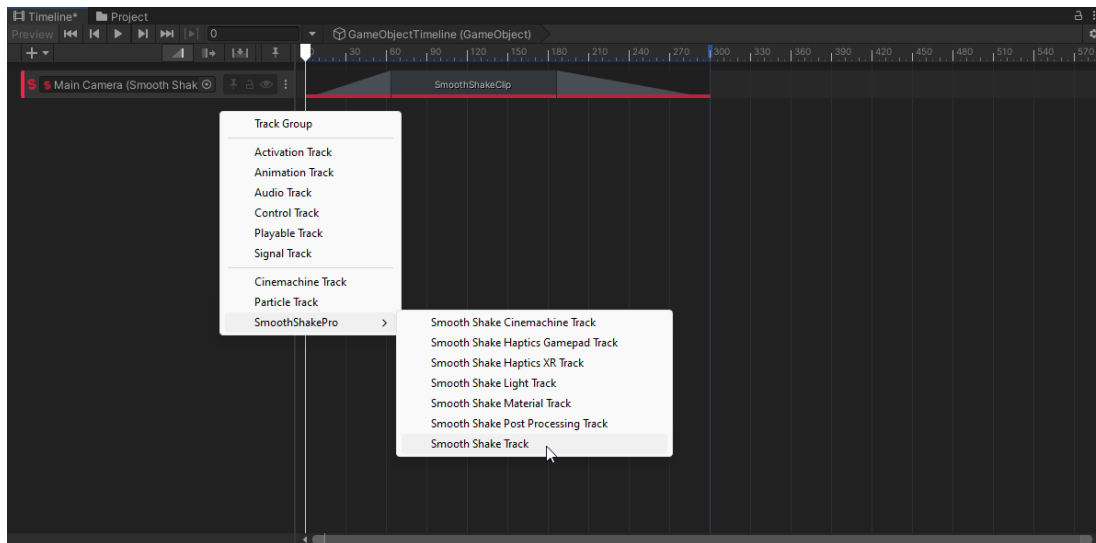
## Smooth Shake Timeline

You can also easily create, preview and use shakes in the timeline.

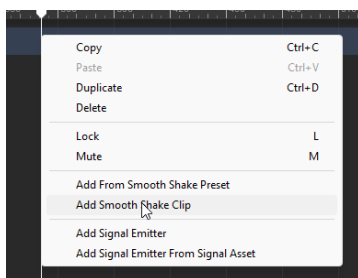
Currently supports (1.5.0 version):

- Smooth Shake
- Smooth Shake Cinemachine
- Smooth Shake Haptics Gamepad
- Smooth Shake Haptics XR
- Smooth Shake Light
- Smooth Shake Material

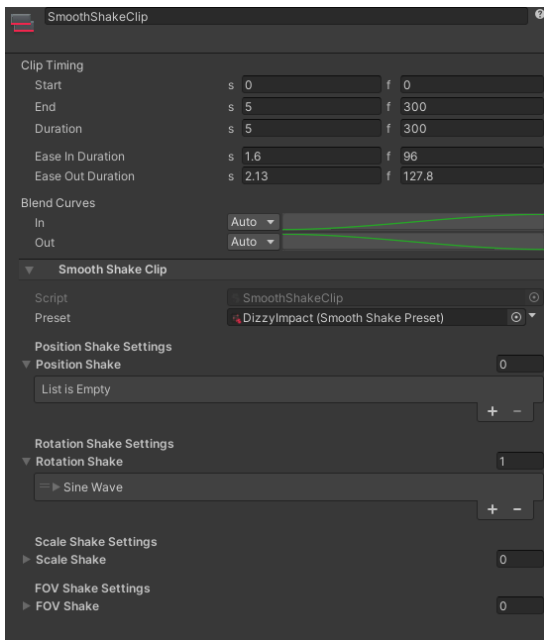
Inside the timeline, simply press right click and select the Smooth Shake track you want.



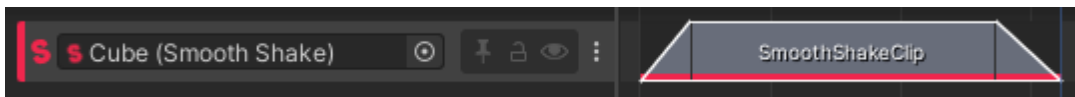
Now you can right click in the track to add a SmoothShakeClip (or directly drag an object with smooth shake attached into it.)



When selecting a Smooth Shake Clip you get the following settings.



You get the regular settings for timeline clips Unity provides, a preset slot and the available shake settings. These work the same as with regular Smooth Shake components. Only there are no time settings, because you control the timing and fading directly within the timeline.



You can also blend multiple shakes together.

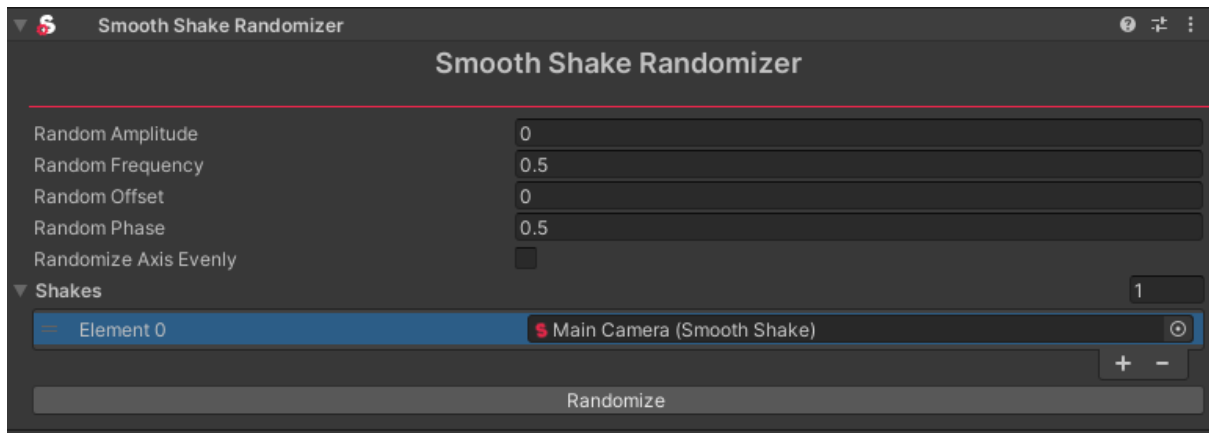


If you scrub through the timeline even in edit mode you can see that the shake is being simulated and you can preview it frame by frame.

**Note:** for smooth shake material tracks, you still have to set the property and type of property on the Smooth Shake Material component itself.

## Smooth Shake Randomizer

Smooth Shake Randomizer is a component that allows you to randomize the frequency and / or phase of any given amount of Smooth Shakes.



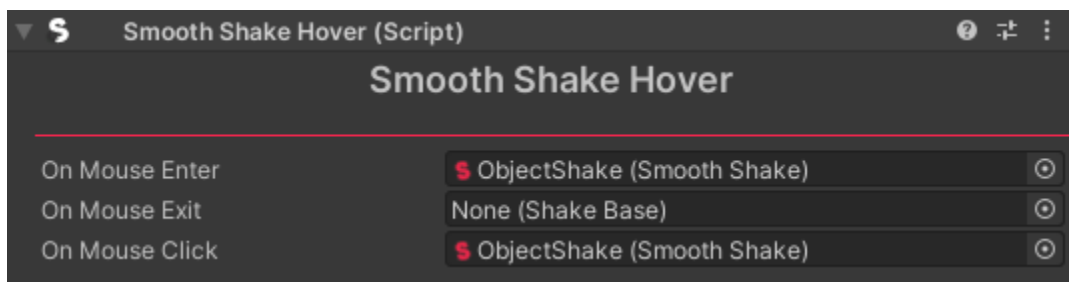
Simply set a random value to add, select whether you want to affect the phase and / or frequency, add smooth shakes to the list and press randomize.

This is particularly useful if you have a bunch of shakes with the same settings but you want them to be slightly different from each other.

## Smooth Shake Hover & Pointer

Smooth Shake Hover & Pointer provide a straightforward method to initiate shakes during mouse cursor interactions with an object. To activate this feature, simply attach either a Smooth Shake Hover or Smooth Shake Pointer component to your object. Smooth Shake Hover works better for objects equipped with colliders, while the Smooth Shake Pointer is better for UI elements. Simply drag shakes into the open slots in the inspector.

You can leave empty what you don't need.



## Smooth Shake Scripting

From any script, make sure you are using `SmoothShakePro`; to start.

### With Smooth Shake Components

Here are all the available functions for all Smooth Shake components:

Function	Description
<code>StartShake()</code> or <code>StartShake(preset)</code>	Start a shake. (You can also start it with a custom preset)

<b>StopShake()</b>	Stops fade in or hold duration and directly goes to fade out
<b>ForceStop()</b>	Forcefully stops a shake and resets the values to the default values
<b>SetShakerProperty(int shakerIndex, Vector3 value, ShakerProperty property, bool overwrite = true)</b>	<p>Override or add to either shakers Offset, Phase or Amplitude</p> <p>The Shaker Index represents which shake settings to affect, look at the table below to see which values are which</p> <p>The value is the value to change it to (or to add to it)</p> <p>To select which property to affect, simply write <b>ShakerProperty.Offset</b>, <b>ShakerProperty.Phase</b>, <b>ShakerProperty.Amplitude</b> or <b>ShakerProperty.Frequency</b></p> <p>And lastly you can make it add to the value if you don't want it to overwrite it by setting <b>overwrite</b> to false</p>
<b>SetShakerProperty(int shakerIndex, float value, ShakerProperty property, bool overwrite = true)</b>	Same thing as the function above, but with a float as a value

<b>Smooth Shake</b>	<b>Shaker Index</b>
Position Shake	0
Rotation Shake	1
Scale Shake	2 (if no camera is attached)
FOV Shake	2 (if a camera is attached)

<b>Smooth Shake Cinemachine</b>	<b>Shaker Index</b>
Position Shake	0
Rotation Shake	1
FOV Shake	2

<b>Smooth Shake Rigidbody</b>	<b>Shaker Index</b>
Force Shake	0
Torque Shake	1

<b>Smooth Shake Material</b>	<b>Shaker Index</b>
Float Shake	0
Vector Shake	1

<b>Smooth Shake Haptics Gamepad</b>	<b>Shaker Index</b>
Low Frequency Motor Shake	0
High Frequency Motor Shake	1

Smooth Shake Haptics XR	Shaker Index
Left Controller Shake	0
Right Controller Shake	1

Smooth Shake Light	Shaker Index
Intensity Shake	0
Range Shake	1

Smooth Shake Audio	Shaker Index
Volume Shake	0
Pan Shake	1
Pitch Shake	2

It is recommended to only change offset, amplitude, phase or frequency from script with the SetShakerProperty function because otherwise variables aren't easily accessible.

*For advanced users, if you want to change variables directly or change other variables from script, you can access the lists from a Smooth Shake script which are either lists of MultiVectorShakers or MultiFloatShakers. (Most are vector shakers, only things like FOV shake are for example float shakers) and change them from there.*

### Smooth Shake Manager scripting

Function	Description
<b>StartShake(string name) or StartShake(string name, preset)</b>	Start a shake from the manager with a specific name. (Can also be started with a custom preset.)
<b>StopShake(string name)</b>	Stop a shake from the manager with a specific name. Stops fade in or hold duration and directly goes to fade out
<b>ForceStop(string name)</b>	Stop a shake from the manager with a specific name. Forcefully stops a shake and resets the values to the default values

### Smooth Shake Randomizer scripting

Function	Description
<b>Randomize()</b>	Randomize frequency and / or phase values based on settings set in inspector.