Documentation
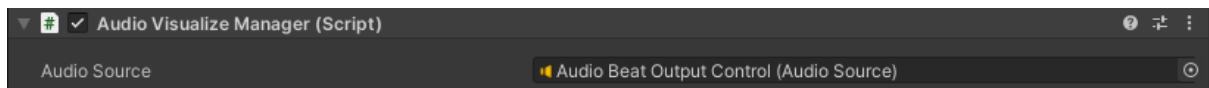
Audio Visualize manager
Inspector view:

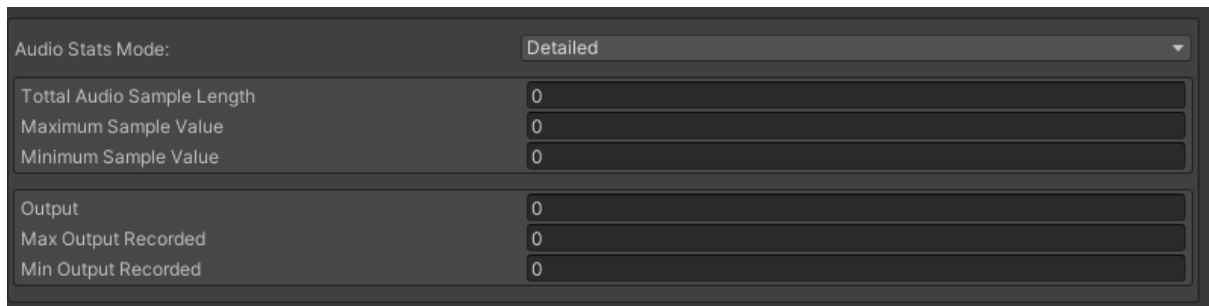Use this Video-Link for a short guide on how to use this asset.
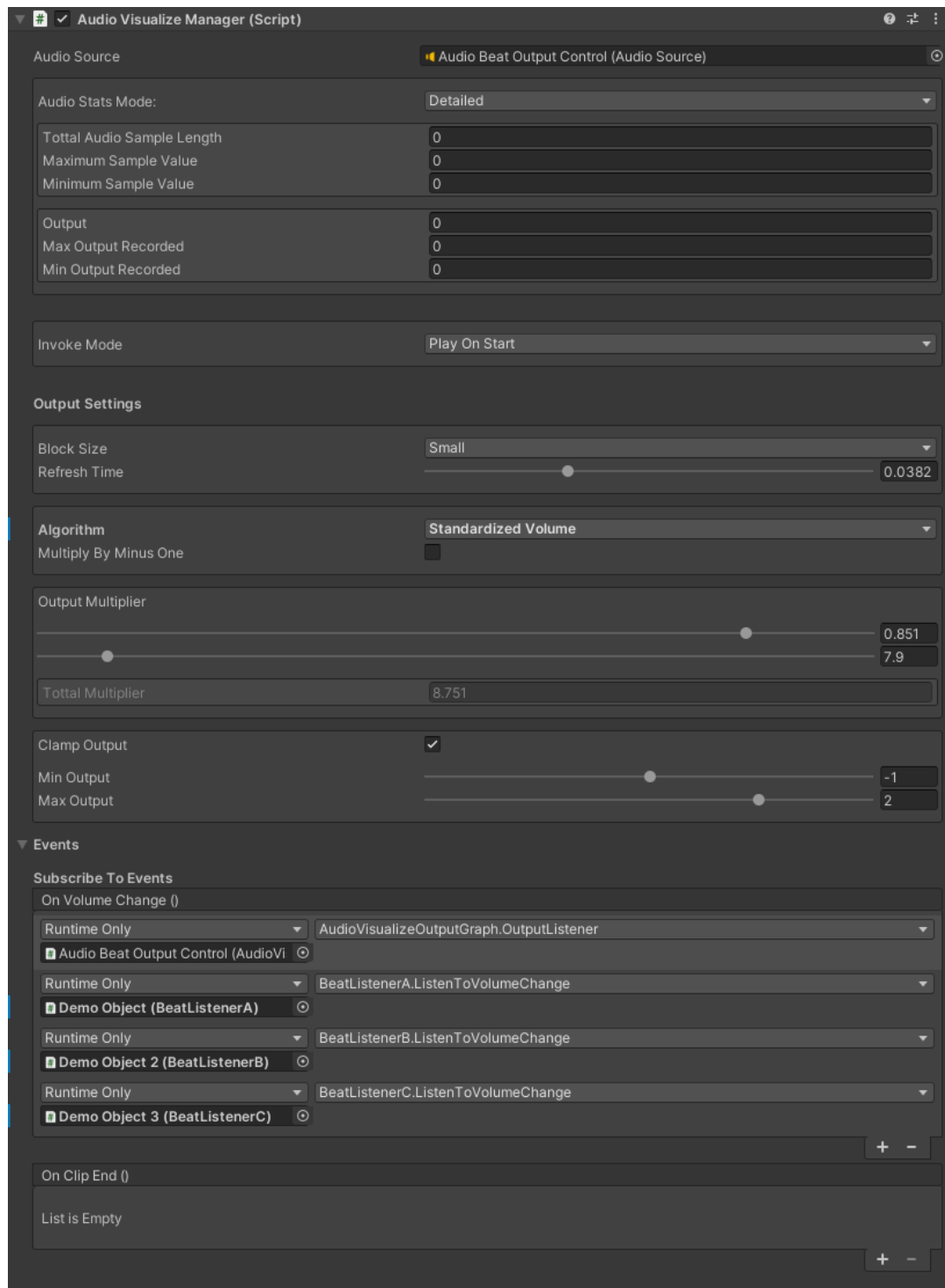
Audio Source

- Drag and drop the audio source of interest into:

Audio Source Stats

- **Total Audio Sample Length**: this is the Number of samples that exist throughout the entire audio source track.
- **Sample value**: each sample value has a different Intensity.
- **Maximum sample value**: 1;
- **Minimum sample value**: -1;
- **Output**: is the value for the current sample Block size (more on blocks below)
- **Max Output Recorded:** is the Max Output Value so far, starting at 0.
- **Min Output Recorded**: is the Min Output Value so far, starting at 0.

Output
- This asset function by using the output data mentioned above, and using these values to manipulate you objects, weather its Manipulating transform sizes, Opacity or whatever you want to apply it to.
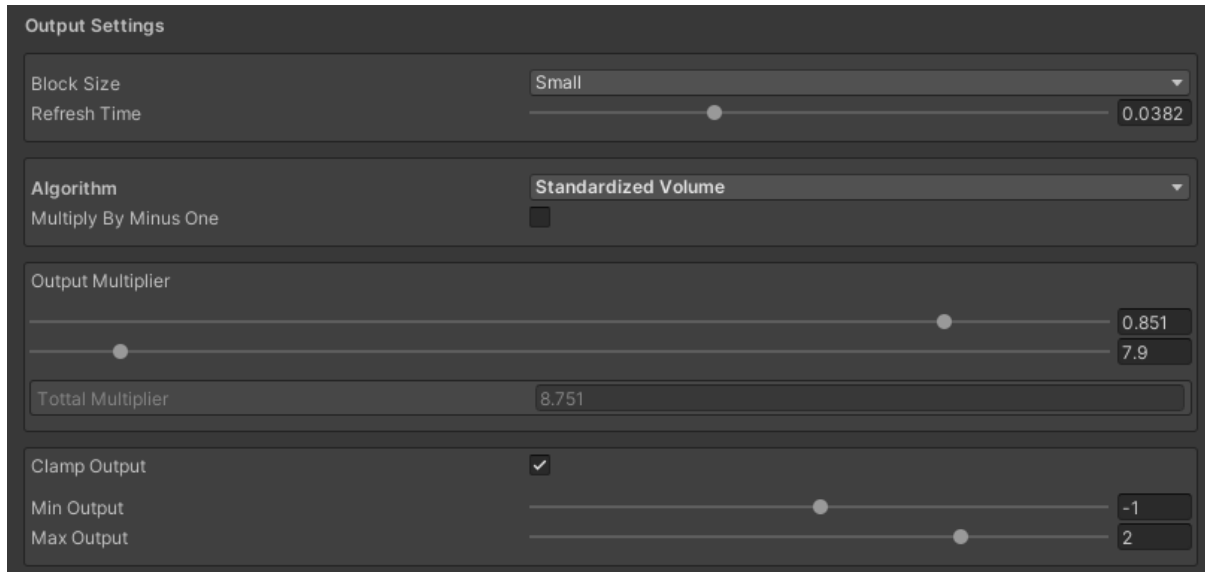
There are two ways to access the Output:

- **By referencing:** Reference the audio visualization manager, and use the **Output** float in your own listener script. Note: 3 examples of listener scrips are provided in the demo.
- **By using the Static float:** use **AudioVisualizeManager.**`Output_Volume` in your listener to get the Output. This is the method used in the demo examples.

Invoke Mode
Comes with 2 modes:

- **Play On start:** self-explanatory.
- **Invoke:** Using API, you can invoke start and stop Output. Note: this does not stop the audio, but just the output data from refreshing.

Output settings

Block Size

Block size, is the sum of "Samples values" based on block size divided by the block size. In essence, a block is what we Output, we do not output individual Sample values. We offer 4 Block sizes, Small, Medium, Large and X-Large. As explained earlier, Sample values range from 1 to -1, and on average, a single audio file will have an average Sample value of close to 0, because on average the positive will cancel out the negative.

To create a beat, we take smaller Sample values per period time, represented by the "**Refresh Time**", the lower the refresh time (meaning higher refresh rate), the smoother and more detailed the output will be (however this may not look good).

On the other hand, the large the Block size, the less defined the beat will be, because the large the beat, the closer the net value would be to 0.

Block Sizes:

- **Small** = 256 sample values
- **Medium** = 512 sample values
- **Large** = 1024 sample values
- **X-Large** = 2048 sample values

You would need to use trial and error between these options and the refresh time, to find the sweet spot for your project.

Algorithms

We have provided you with 8 sets of algorithms, the first one being the raw un-manipulated data. These algorithms can save you time depending on how enhanced or supressed you would like the Output value to be. Generally speaking, we personally like to use the "Standardized volume" or "Actual volume", followed by manipulating the effects using our own customs algorithms within the listen script. 3 examples of this has been provided in the demo.

Algorithm Types:

- **Actual Volume:** This is the Raw Output Data, Ranging from -1 to 1; but do note, because these are Block output values, they would be much closer to 0 in reality relative to individual Sample values.
- **Absolute Volume:** The same as the above, however, any number that is less than 0, will be reflected to positive values.
- **Actual Plus One:** This is the raw value "Plus One", On average, the X-Axis's would be around 0 for the Raw Actual volume, this simply shifts the X-Axis's to one, meaning max Min range for the Output will be 0 to 2.
- **Actual Min Zero:** This is the Raw Output Data, but anything less than 0 will be converted to 0
- **Standardized Volume:** This will standardize the Individual Sample values, before they are added to the Block.
- **Standardized Block Volume:** This will Make and estimated Block Standardization, it is estimated because its time dependant.
- **Squared:** Simply, squared the Outcome value. Note: Squaring will only provide positive outcome.
- **Squared with Direction:** Same as the above, however, if the Outcome was negative, this will keep the negative direction while having a squared intensity.
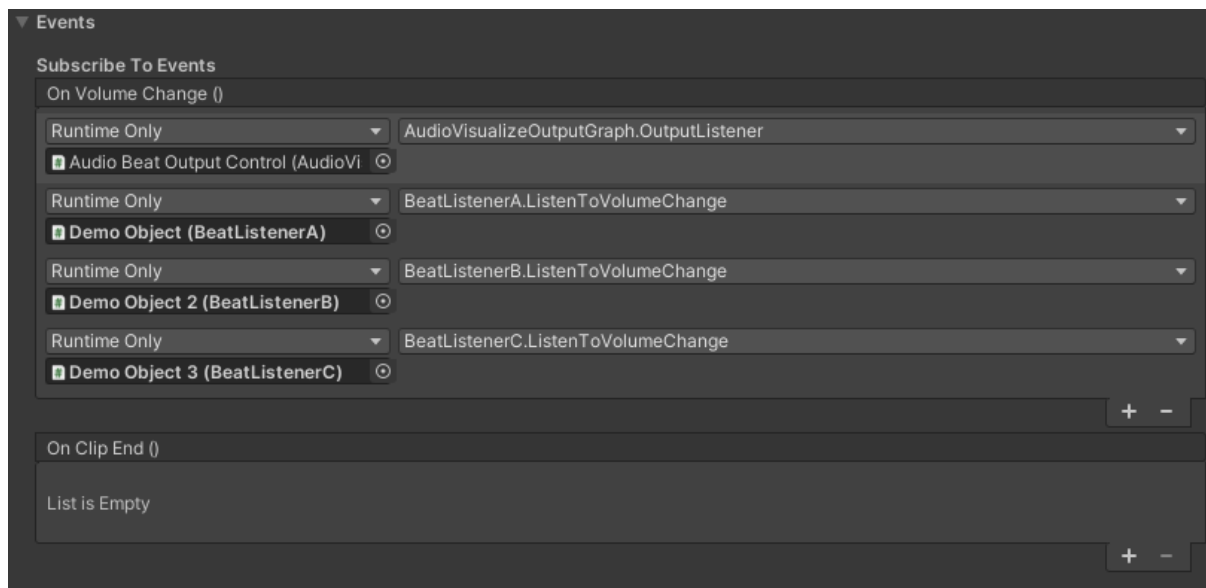
Output Multiplier

This is simply to either dampen the Output, or increase the Output value, Keep in mind, there are 2 ranges provides, the total sum of the two ranges is what will be used.

Clamp Output

This will clap the Maximum and Minimum Output, generally, you should always trial with these to find the sweet spot for your project.

Events

AS shown in the example: this is how you Listen to the Beat, every time a beat (Output) is produced, any event listen to "On Volume Change", will trigger the specified function of interest. We recommend you research into Unity-Events if you don't know how to use these.

API Functions

- **BeatToggleOn();** This will Start the beat
- **BeatToggleOff();** This will Stop the beat
- **BeatToggle();** This will toggle beat-On/beat-Off

Output Access

- Via referencing the Visualizer script and using public float variable : `Output`
- Via Static float variable : `Output_Volume`

Audio Visualize Output Graph

The use of this graph is optional but highly advised, as it will help you visualize the range and behaviour of your Output beat.
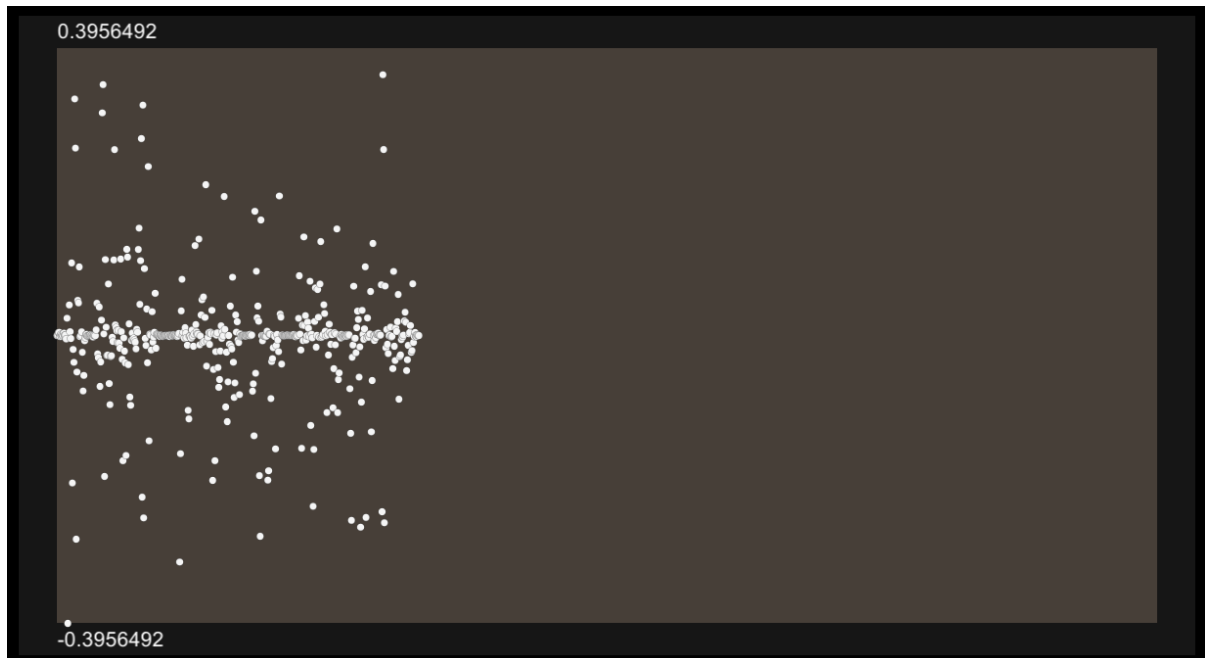
You can enable and disable the graph once you are satisfied with our outcome. From the Inspector:
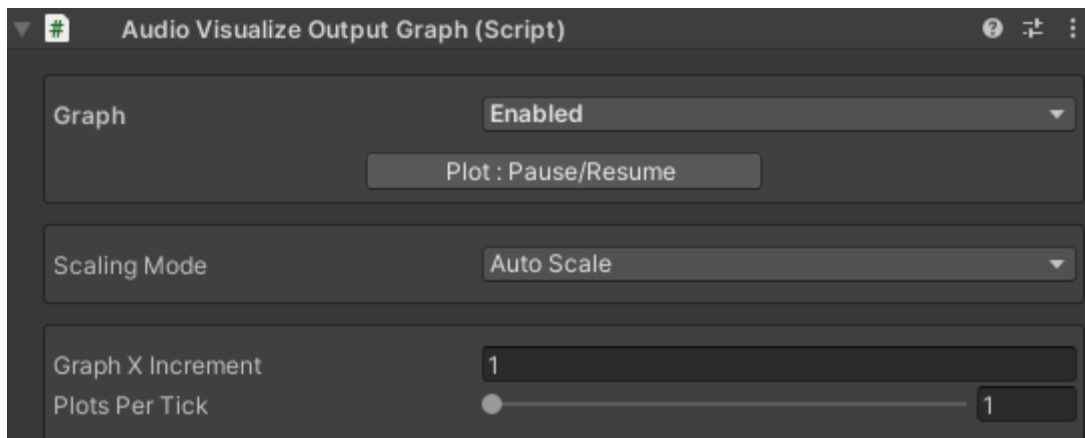
Thank you for the Support

Contact Smitesoft:

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