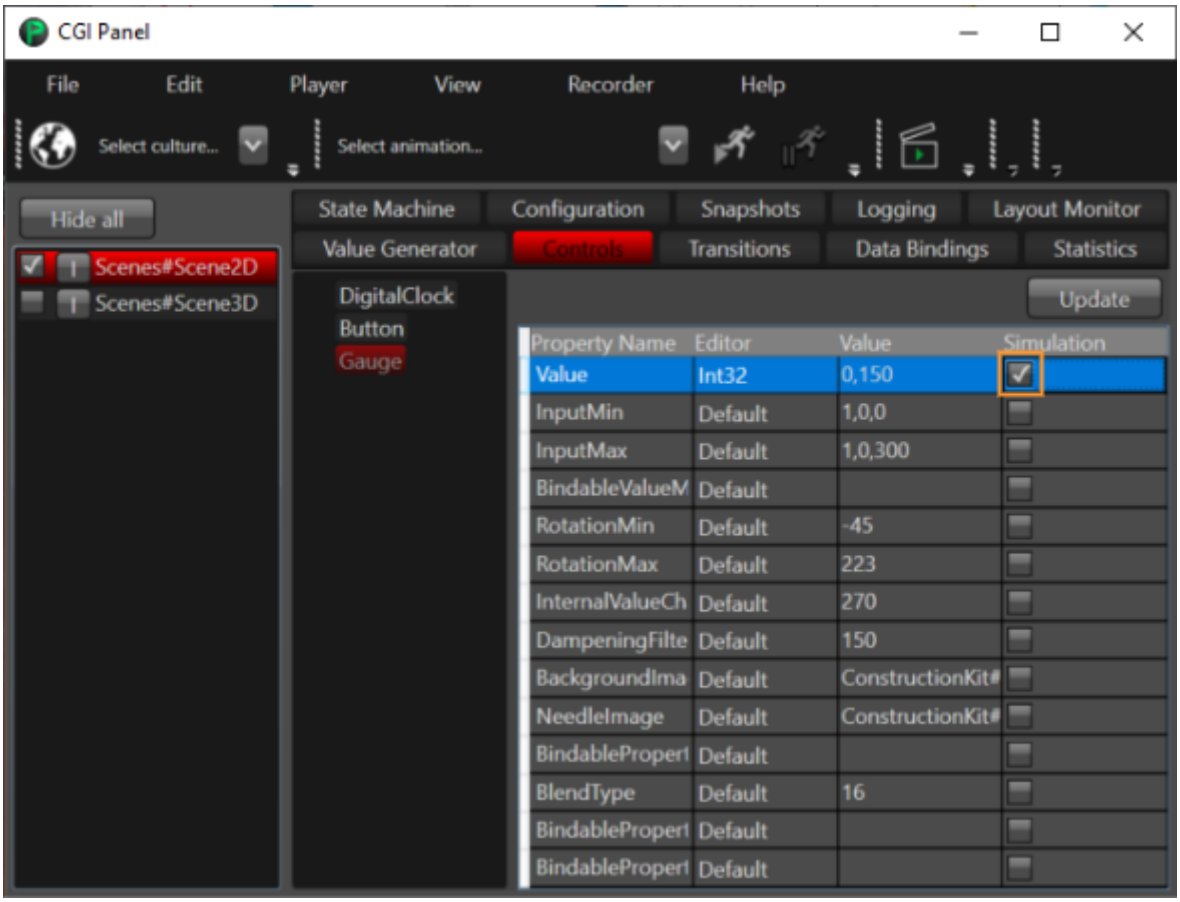
Value Generator

This feature provides the possibility to simulate the change of values on view elements. With this, view elements can be simulated without logic implementation.

Selecting a property to simulate

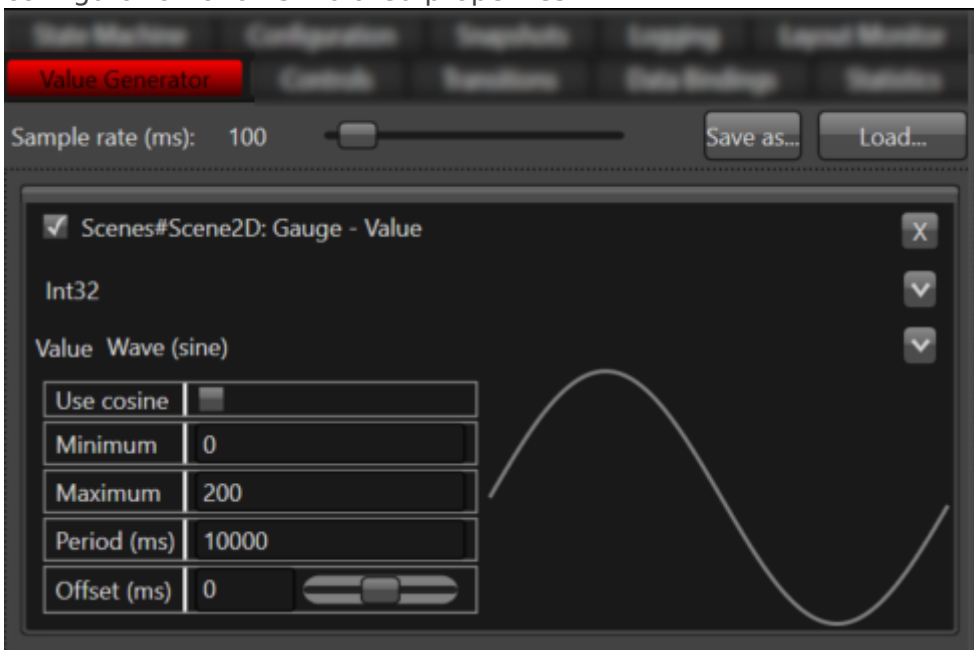
In the CGI Panel, select a scene and click on the Controls tab. This will display all controls and their properties.
Checking the Simulation checkbox of a property will create a simulation entry inside the Value Generator tab.
The Editor column defines the type for the property. Based on the Editor, the simulated value will be calculated.



Modifying simulation properties (of a selected property)

The properties which have been selected in the Controls tab, are created in the Value Generator tab.

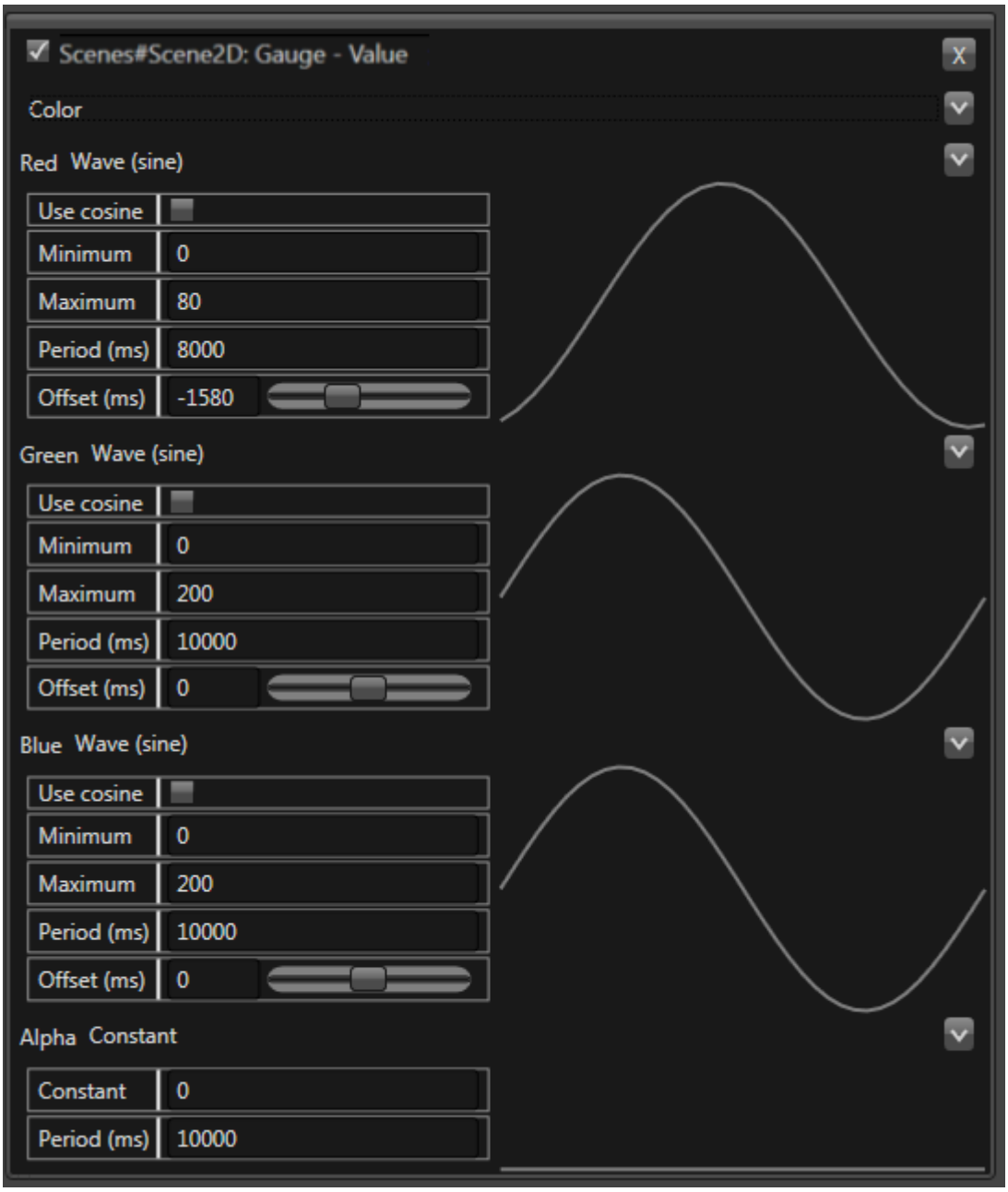
- The Value Generator tab contains general configurations, serialization and the configuration of all simulated properties.



  - The **Sample Rate** defines the update rate of the simulated properties. This sample rate is applied to all simulated property entries.
  - Each simulated property entry has a predefined set of configurations.

    - **Data type**
      The simulation supports different datatypes. This includes double, float, all int types and special datatypes like size/coordinates and color.
      If default editor is selected, it will try to guess the datatype based on the property name. Each value of a complex datatype can be set individually.

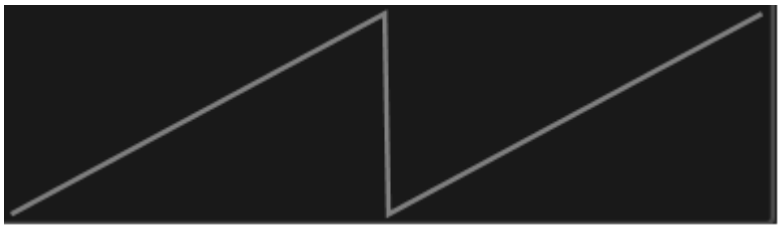
      The sample below simulates a color:



- **Value Simulation**

  This represents the simulation algorithm that will be used to calculate the value.
  The following list shows the different graph types and and some variants when modifying its configurations.

  1. **Constant (Updates the value with the same value)**
  2. **Saw Wave**



3. **Triangle**



4. **Power (Power of 1 - linear, Power of 3)**

Power 1

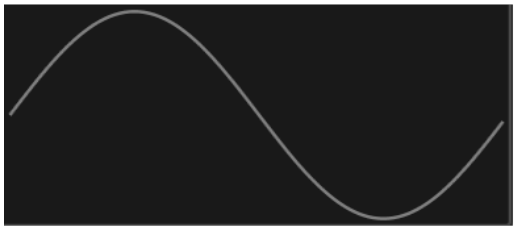


Power 3

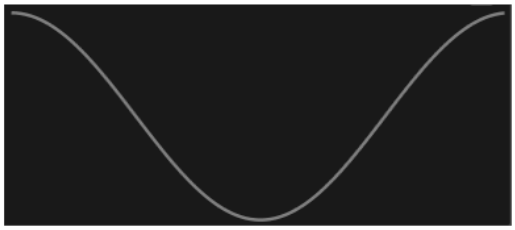


5. **Sine Wave (Sine, Cosine)**

Sine wave



Cosine wave

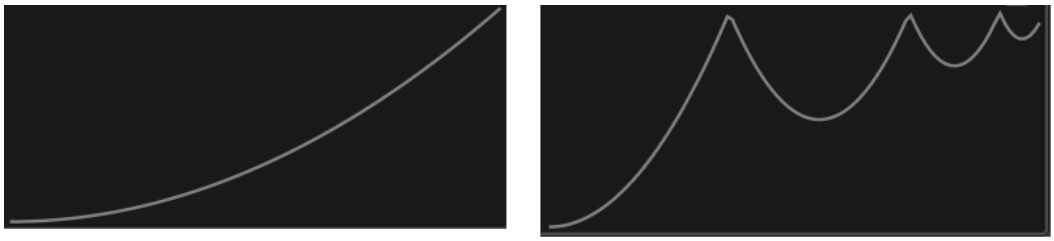


6. **Random (No Visualization available)**

7. **Toggle (Toggles between 0 and 1)**



8. **Bounce (Bounces 0, Bounciness 0.5; Bounces 3, Bounciness 0.20)**



- **Minimum and Maximum range**

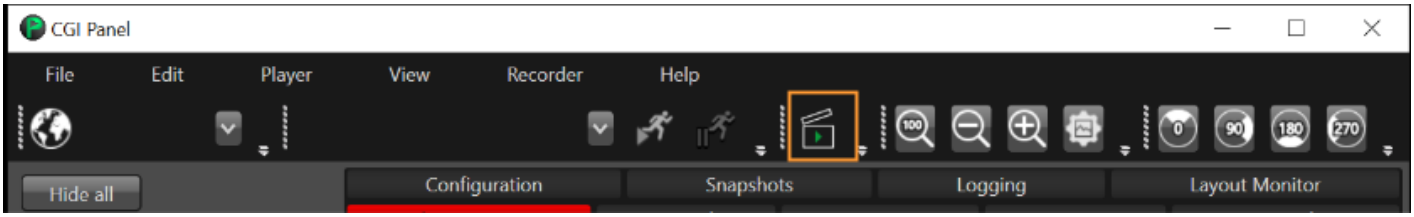
  The minimum and maximum range of values.

- **Period and Offset (ms)**

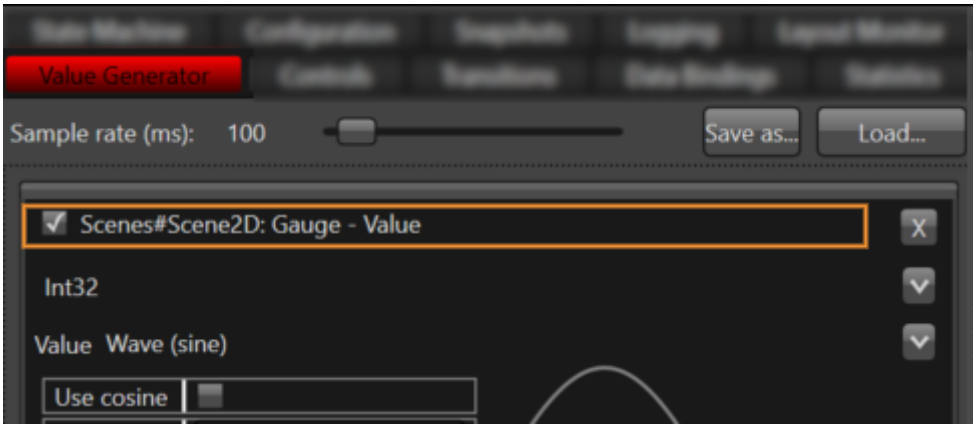
  The x value into the function is shifted by the offset. It shifts the graph, therefore the output value is also shifted. However, currently, offset is only supported in Sine wave. (limitation)

Starting the Value Generator simulation

Pressing the clapperboard icon will start and stop the simulation.

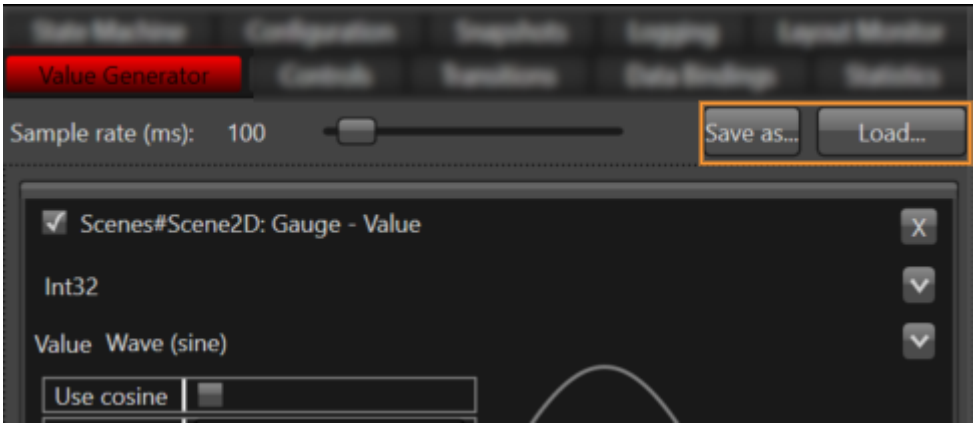


The simulation of a single property can be paused by the checkbox next to the property name. It can be completely removed by pressing the X button on the right side of the name.



Serialization

The simulation configuration can be saved as an xml file and loaded again.
It is possible to load a simulation file when loading an asset.



It can also be loaded at Panel startup by using the command line:
`--sim <filename>`
In this case, the simulation will be directly started.

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