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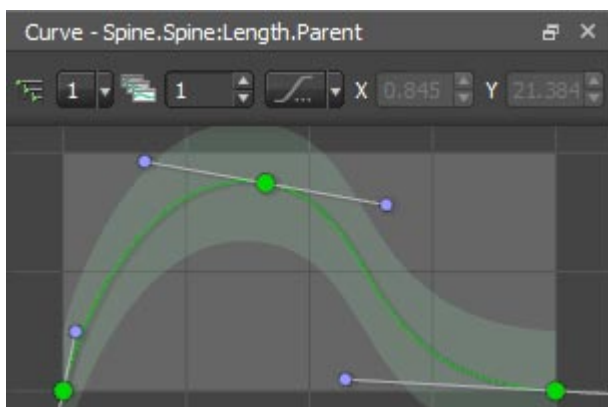
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Curve Editor

The Curve Editor is used to control values across ranges.

Overview

Curves are used to control how parameters vary over a distance range. Most parameters on generators have at least one curve associated with them.



Editing Curves

Curves to be edited can be sent to the 'Curve Editor' by clicking on them in the 'Property Editor' or by editing their associated values in the 'Property Editor'. Note this requires that the application-level preference "Send curves on any edit" enabled. The same curve from multiple selected objects can be edited simultaneously.

The Curve Appearance

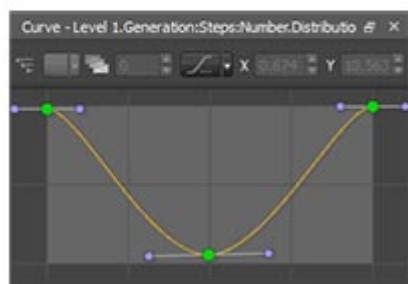
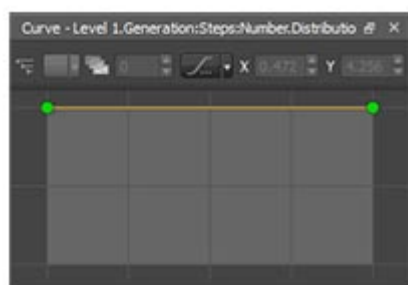
The 'Curve Editor' shows the shape of the curve (solid middle line), the boundaries of the possible variance (semi-transparent green area), the control points (green circles), and their handles (smaller purple circles). Right-clicking in the curve window will bring up the contextual menu, where much of the functionality of the curve editor exists.

Keyboard Shortcuts

To view a table of the keyboard shortcuts for the Curve Editor, view [this page](#).

Types of Curves

There are five types of curves assigned to properties. Most properties have either a green curve and cyan curve, or a green curve and an orange curve. To learn about each curve type in depth, go to the following pages: [Profile Curves](#), [Parent Curves](#), [Distribution Curves](#), [LOD Curves](#), [Pruning Curves](#).



An example of a green "parent" curve

Select all control points	Ctrl-A
Copy curve	Ctrl-C
Paste curve	Ctrl-V
Zoom all	A
Zoom selected	Z
Cannot collapse/expand handles	H
Make cyclical	
Flip curve horizontally	
Flip curve vertically	
Scale curve	▶
Delete selected control points	DEL
Insert pulse to here	
Insert step here	
Insert point here	
Insert collapsed point here	

Curve Editor Controls

The curve editor comes with many control options. Most are housed under the contextual right-click menu. A few are on the Curve Editor toolbar.

Pan & Zoom

Panning (moving) the curve around is accomplished by clicking and holding the middle mouse button while moving the mouse around. Zooming the curve is accomplished by using the scroll wheel, or by clicking and holding the left and middle mouse buttons while dragging the mouse up and down.

Double clicking in the window will zoom all, as well as hitting the “A” key, or choosing the “Zoom All” option from the contextual menu. You can also zoom to just the selected points by hitting the “Z” key or choosing “Zoom Selected” from the contextual menu.

Select & Move Points

You can select points on the curve by clicking on them. You can also draw a selection box around multiple points. Holding control while clicking on them will also allow you to select/deselect multiple points.

Once you have points selected, you can move them by clicking and holding the left button while dragging. The control points themselves or their handle points can be selected and moved to change the shape of the curve. The first and last control points are restricted to be at X values of 0 and 1, respectively. The curve must remain functional and will freeze in a functional position if the user drags a control point or handle into a state that would produce a nonfunctional curve.

Holding SHIFT while dragging control points will lock the movement to the longest traversed axis (either X or Y).

Adding & Deleting Points

To add a point somewhere on the curve, right click where you want it to be and select “Add new control point here” from the contextual menu. If adding a point in that location would create a non-functional curve, the option to add a point is grayed out. To delete points from the curve, select them and hit delete. Or you can choose the “Delete selected control points” from the contextual menu.

Adding control points by double-clicking

To quickly add a control point, double-click on the curve line at a place where there is enough room for the point to be generated.

Collapsing Control Points

Control points can be “collapsed” into a point without handles. This type of control point is used to make sharply changing curves or curves with a lot of precision. Control points can be collapsed/expanded in 3 ways:

- By double-clicking on an existing control point
- By right-clicking on a control point and selecting “collapse control point”
- By selecting a control point and pressing the “H” key

Copy & Paste

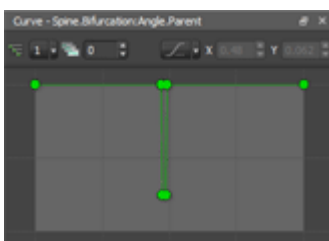
Copying the curve and pasting it into another curve editor is possible. Either press Ctrl+C or Ctrl+V for copy and paste, respectively, or choose the corresponding option from the contextual menu.

Copy/Pasting Curve Thumbnails

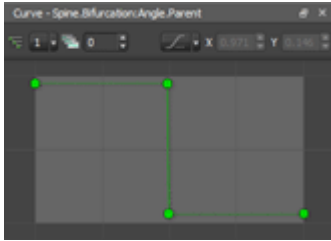
Curves can be copied and pasted by right-clicking on the small thumbnail previews to the right of each property in the property editor.

Pulses and Steps

Located in the right-click menu, the “add pulse” and “add step” options provide operations for editing the curve in these two manners. A “pulse” is a quick and tight drop composed of four points. A “step” consists of leveling the Y value between two points with a sharp transition between the two sections.

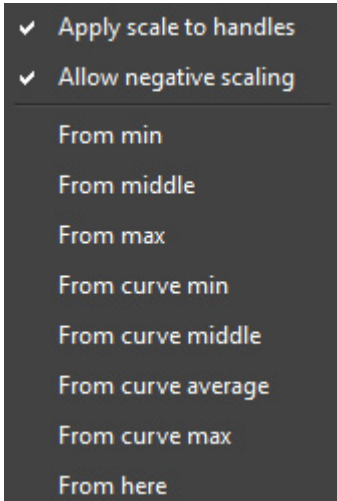


The result of adding a “pulse”



The result of adding a “step”

Scale



Scaling the curve will adjust it in the vertical direction. The scale options are located on the right-click menu. Enabling “Apply scale to handles” will also flatten out the handles while scaling the curve, effectively making a flat line if the curve is scaled all the way down. Enabling “Allow negative scaling” will allow the curve to become inverted rather than being limited by the “scale from” position.

To perform the scaling, select any of the “From” options in the contextual menu. The available options are: min, middle, max, curve min, curve middle, curve average, curve max, and here. Once one of these is selected, moving the mouse up and down will scale the curve. Clicking the mouse finishes the scale, and hitting the ESC key will cancel the scale. The original curve is depicted as a faded gray line while scaling.

Flip

Selecting “Flip curve horizontally” will invert the curve's X component. For example, a linear growth will become a linear decay. Similarly, selecting “Flip curve vertically” will invert the curve's Y component.

Curve Editor Toolbar



Parent Level

Sets the “parent” used for green curve look ups. The 'parent level' option is only available on green

parent curves. The 'parent level' is also indicated on curve thumbnails in the lower left hand corner. Visit the link below for much more info on "Parent Level".

In depth - Parent Level

Cascade

When the parent level is set greater than 1.0, "cascading" refers to how much the curve is re-evaluated for every branch level between the "parent level" and the node itself. Visit the link below for much more info on "Cascade".

In depth - Cascade

Presets

Use this combo box to select any of the preset curve shapes: Constant, Linear Growth, Linear Decay, Max, Min, Rise, Droop, Round, Bell, S-Curve, Conical, Fade In/Out, Steps, and Segment Reduction.

X & Y

The X and Y edit boxes let you manually enter position values for any point that is selected in the curve window. These boxes will also reflect the position of currently selected items in the window.

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