



Motion Blur

Animation Pro can generate a form of translational motion blur, designed to help smooth out the motion of figures moving large distances from one frame (or tween) to the next. It simulates what happens in a film when fast moving objects are shot at a low frame rate, causing them to be blurred on any given frame.

But please be warned! Motion Blur can be a really **really REALLY** expensive operation in terms of CPU utilisation and memory. To create motion blur for any given figure, Animation Pro needs to render that figure multiple times and then blur the result. So please don't be surprised if your device starts to display memory warnings and/or takes MUCH LONGER to export animations. In other words, please use this feature sparingly.

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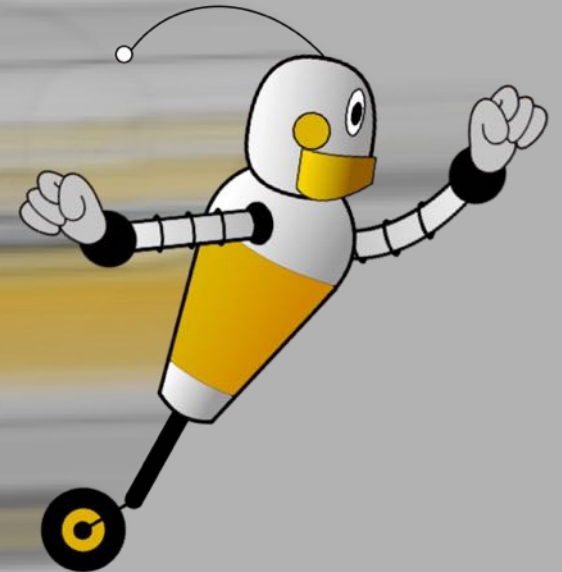
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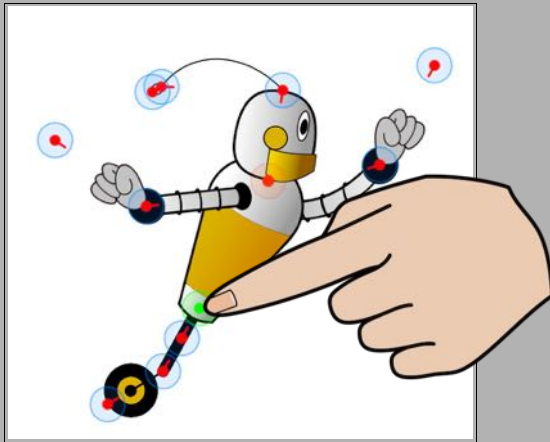



Adding Motion Blur

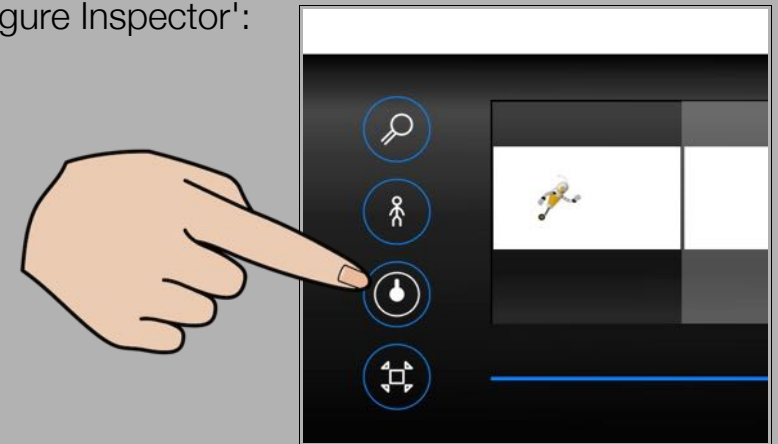
Motion blur is applied via the 'Figure Inspector' just like all of the other figure effects in Animation Pro and, just like the other figure effects, it has a number of properties that define what it is going to look like, all of which may be animated from frame to frame. But unlike the other figure effects, motion blur will **not** be displayed on the animation screen. To see motion blur, you will need to either preview the current frame of your animation, or export it.

Steps

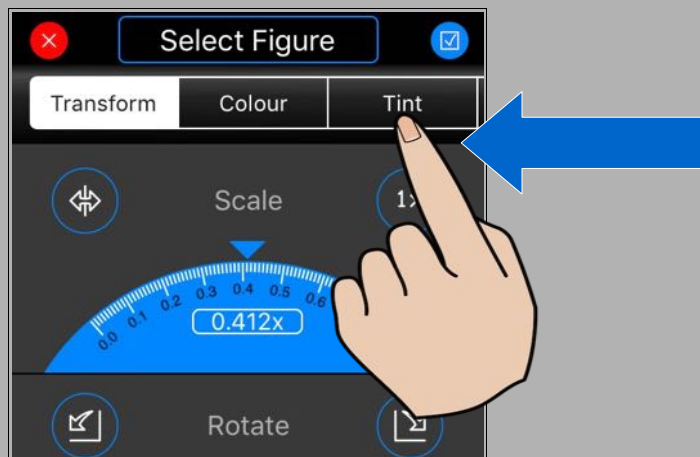
1. Select a figure by tapping on its anchor point:



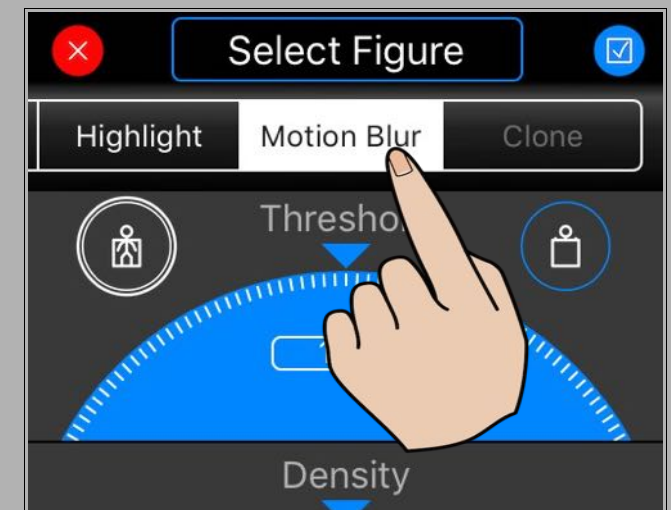
2. Press the  button (at the bottom left of the screen) to open the 'Figure Inspector':



3. Scroll the categories (at the top of the 'Figure Inspector') to the left to reveal the 'Motion Blur' category:



4. Tap on the 'Motion Blur' category:



Motion Blur Property Overview

The following properties define whether motion blur will be displayed and what it will look like (on the currently selected frame):

The image shows a 'Select Figure' panel with four sliders and two toggle switches. Callouts provide detailed instructions for each control.

Top Left Callout: Press to display the motion blur behind the figure.

Top Right Callout: Tap here to see a preview of the motion blur.

Threshold Callout: The 'threshold distance' defines the distance a figure must move before motion blur is applied. Please note that the distance is calculated as the difference between the figure's current position and its position in the previous frame or tween. Press the button in the middle of the dial to finely adjust the value.

Density Callout: How many times the figure should be rendered to produce the motion blur. Press the button in the middle of the dial to finely adjust the value. Turn off motion blur by setting this value to zero.

Blur Callout: How much 'blur' should be applied to the effect. Please note that a minimum of 10% is required for this effect to work. Press the button in the middle of the dial to finely adjust the value.

Opacity Callout: The overall opacity of the effect. Press the button in the middle of the dial to finely adjust the value. Turn off motion blur by setting this value to zero.

High Quality Callout: Defines the quality/resolution of the motion blur. **WARNING: 'High Quality' will use more memory and will take longer to render!**

Fall-Off Callout: Defines whether the opacity should be reduced towards the 'tail' of the motion blur effect. The density must be set to 2 or more for this setting to have any effect.

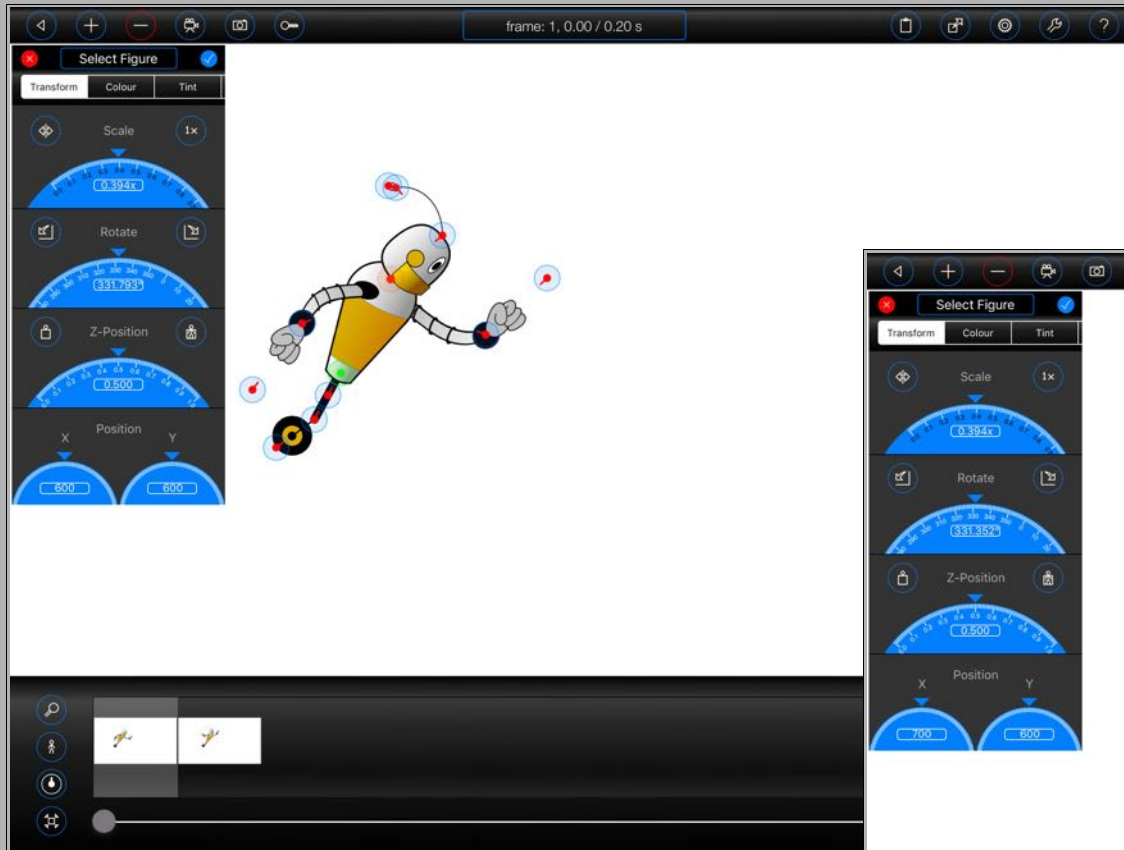
Substitution Approximation Callout: Defines whether motion blur should be approximated across figure substitutions.

Panel Labels: Select Figure, Highlight, Motion Blur, Clone, Threshold, Density, Blur, Opacity, High Quality, Fall-Off, Substitution Approximation.

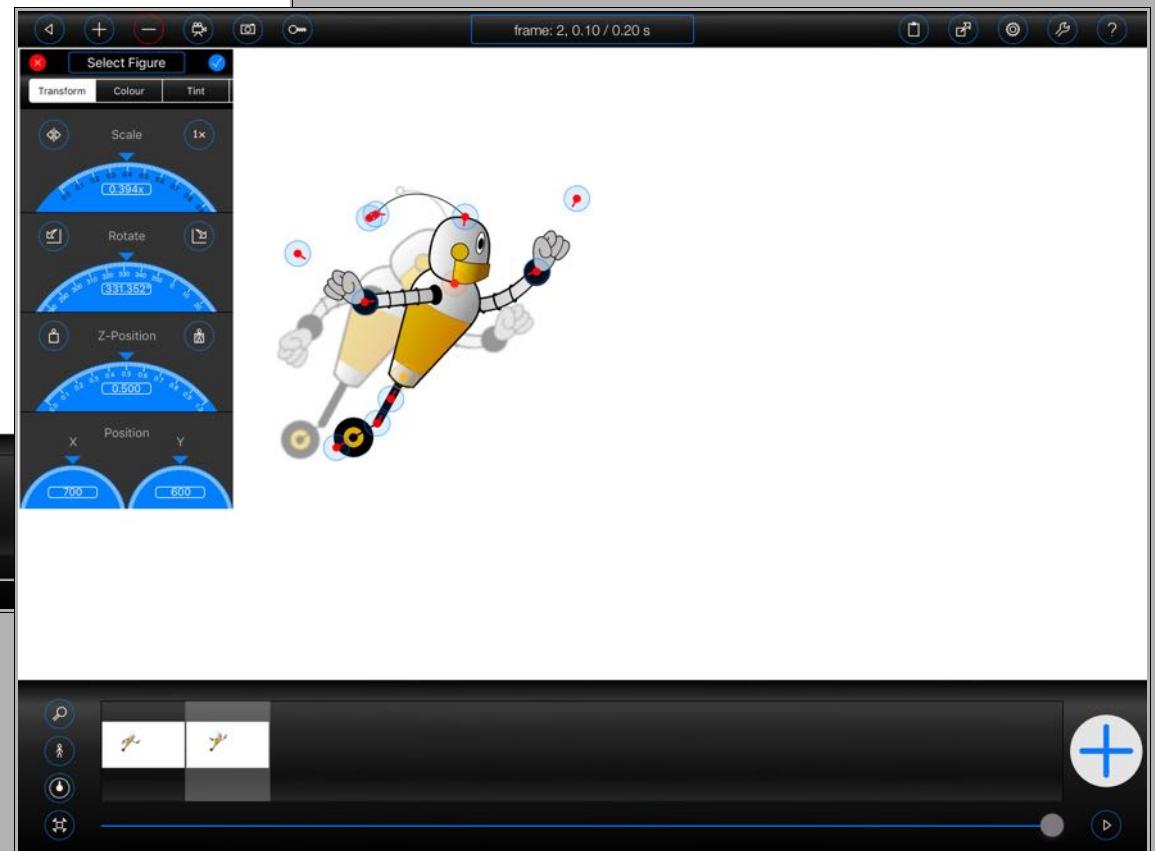
Threshold Distance

The threshold distance defines how far a figure must move before motion blur will be applied. Let's take a look at an example:

1. Let's say that I set the threshold distance to 200.
2. In the first frame of my animation (assuming no tweens), the figure is positioned at 600,600:

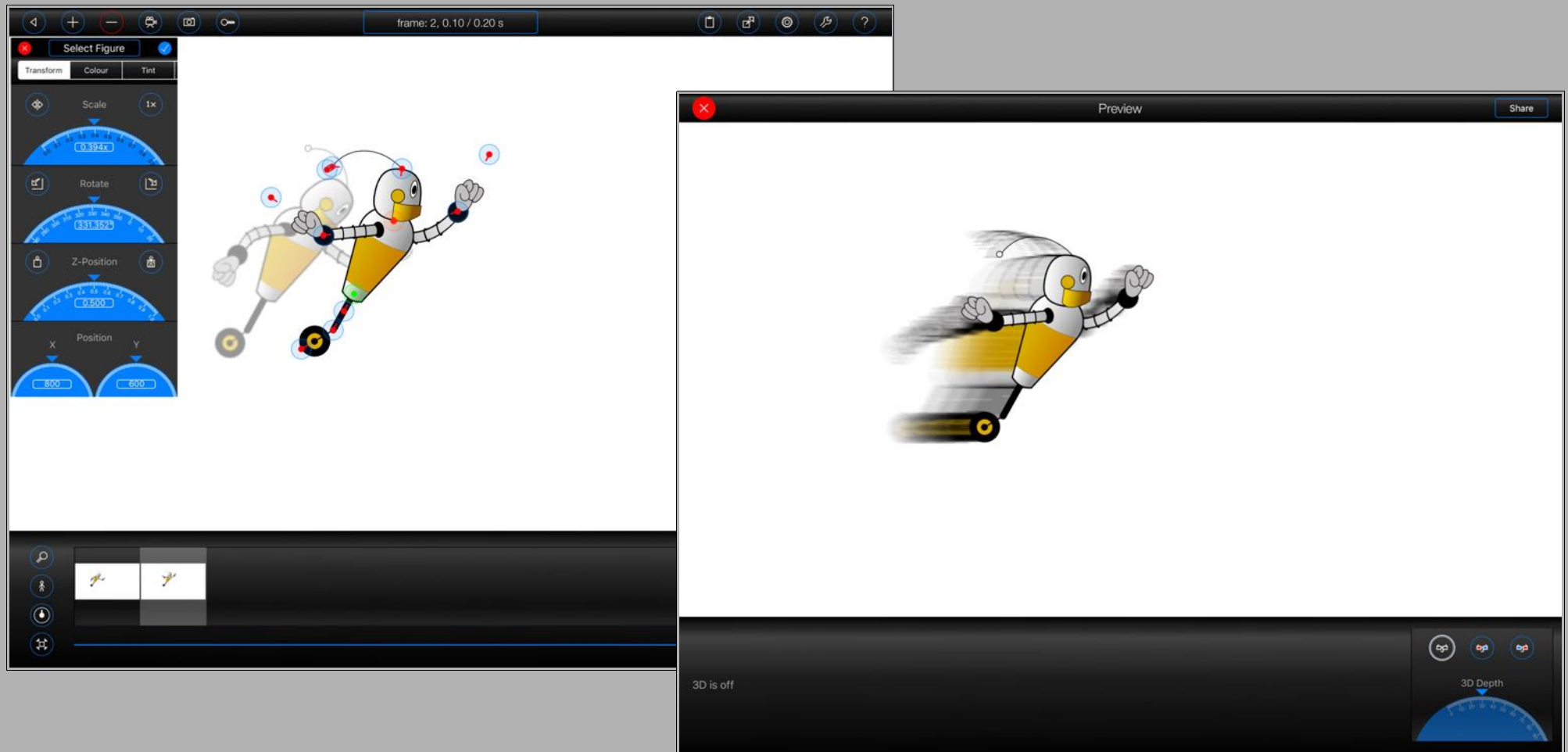


3. In the second frame of my animation (below), the figure is positioned at 700,600:



No motion blur will be applied because the figure only moved 100 pixels!

4. If, however, I move the figure to 800,600 in the second frame then motion blur will be applied:



Motion blur is applied because the figure moved (at least) the threshold distance!


Please note:

The distance a figure moves is calculated from its position in the current frame or tween relative to its position in the previous frame or tween. So you may find that motion blur does not readily appear where a large number of tweens are used in combination with a high threshold value (see next page).

Tweens

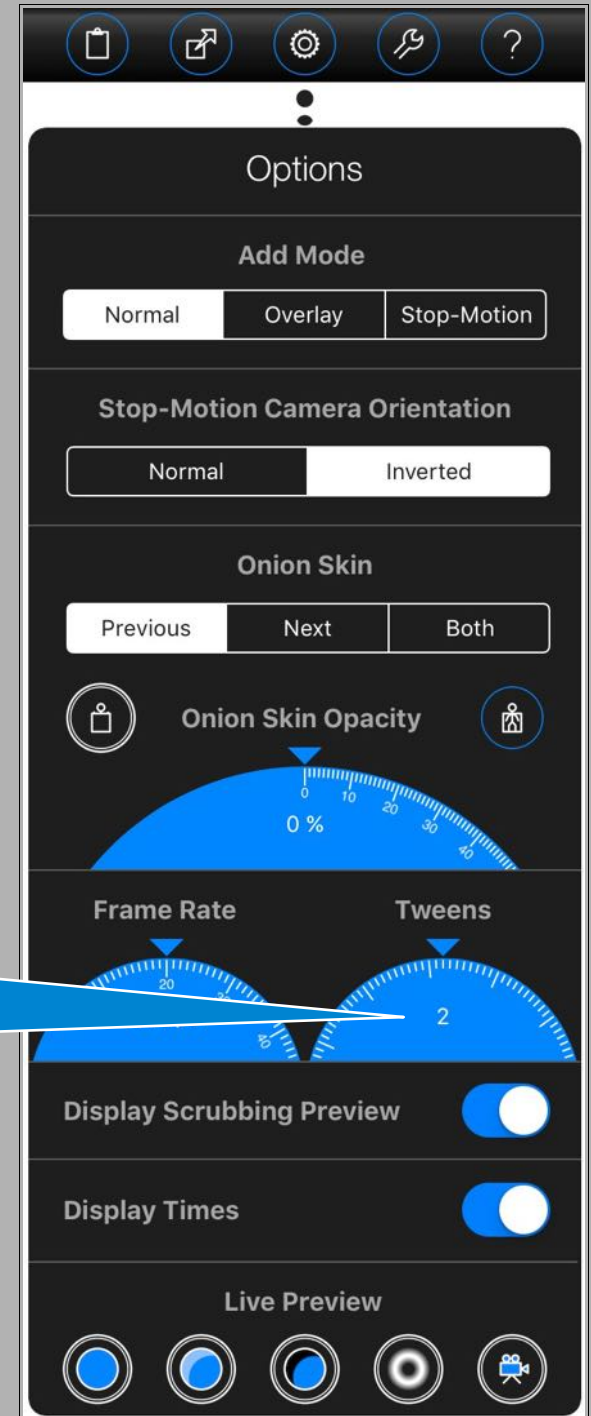
As mentioned on the previous page, the distance a figure moves is based upon its position in the current frame or tween relative to its position in the previous frame or tween. So if motion blur does not appear, or does not blur as far as you expect, it may be because your project is using tweens.

To view or modify the number of tweens your project is using:

1. Press the  button at the top of the main animation screen to open the 'Options' menu
2. View or modify the number of tweens as shown right:

The number of tweens being used in your project is displayed here.


Rotate the dial to change the value.




Please note: The 'Tween' dial may be disabled if you have 'user tweens' in your project.

Z-Order

Motion blur may be applied either behind, or in front of, the figure:

1. Press the  button to place the motion blur behind the figure:



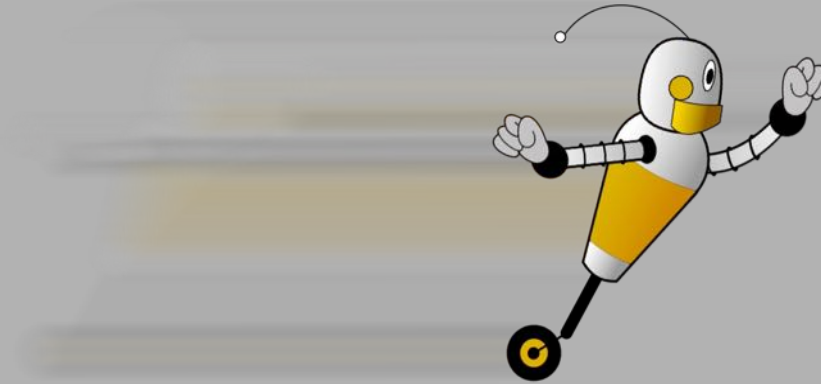
2. Press the  button to place the motion blur in front of the figure:



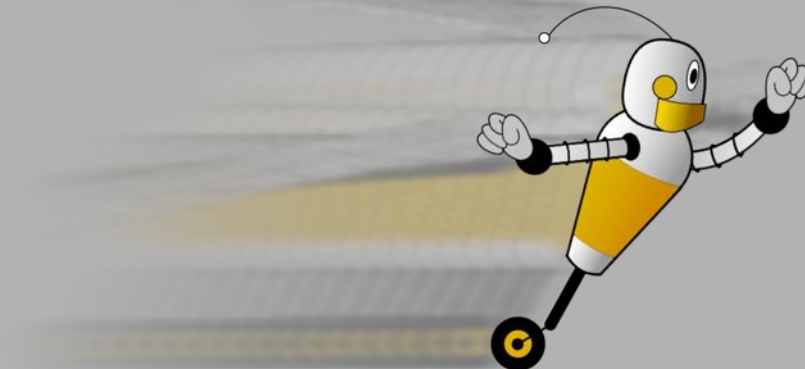
Density

The density defines the number of times a figure will be rendered to produce the motion blur effect. For the best performance, use the lowest density value possible (please note that a value of zero will turn motion blur off). The general 'rule of thumb' is this:

1. Use lower values where your figure is not changing much as it moves across the frame:



2. Use higher values where your figure is changing significantly:



Warning: High density values **WILL** result in **MUCH** longer export times, especially where your figures have other effects applied, such as blurs, highlights, accents etc.

Blur

The blur percentage defines how much directional blur will be applied to the effect (a minimum of 10% is required). Please note that the density and blur values will effect the overall opacity of the final motion blur effect:

1. The higher the density, the more opaque the motion blur effect will be
2. The higher the blur percentage, the less opaque the motion blur effect will be

So you will need experiment with all of the settings, in combination, to achieve the desired results. Here are a few examples:

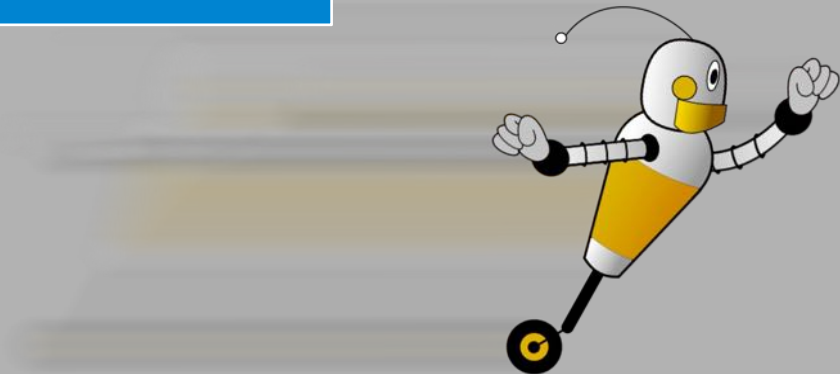
Density = 1, Blur = 10%



Density = 5, Blur = 10%



Density = 1, Blur = 100%



Density = 5, Blur = 100%

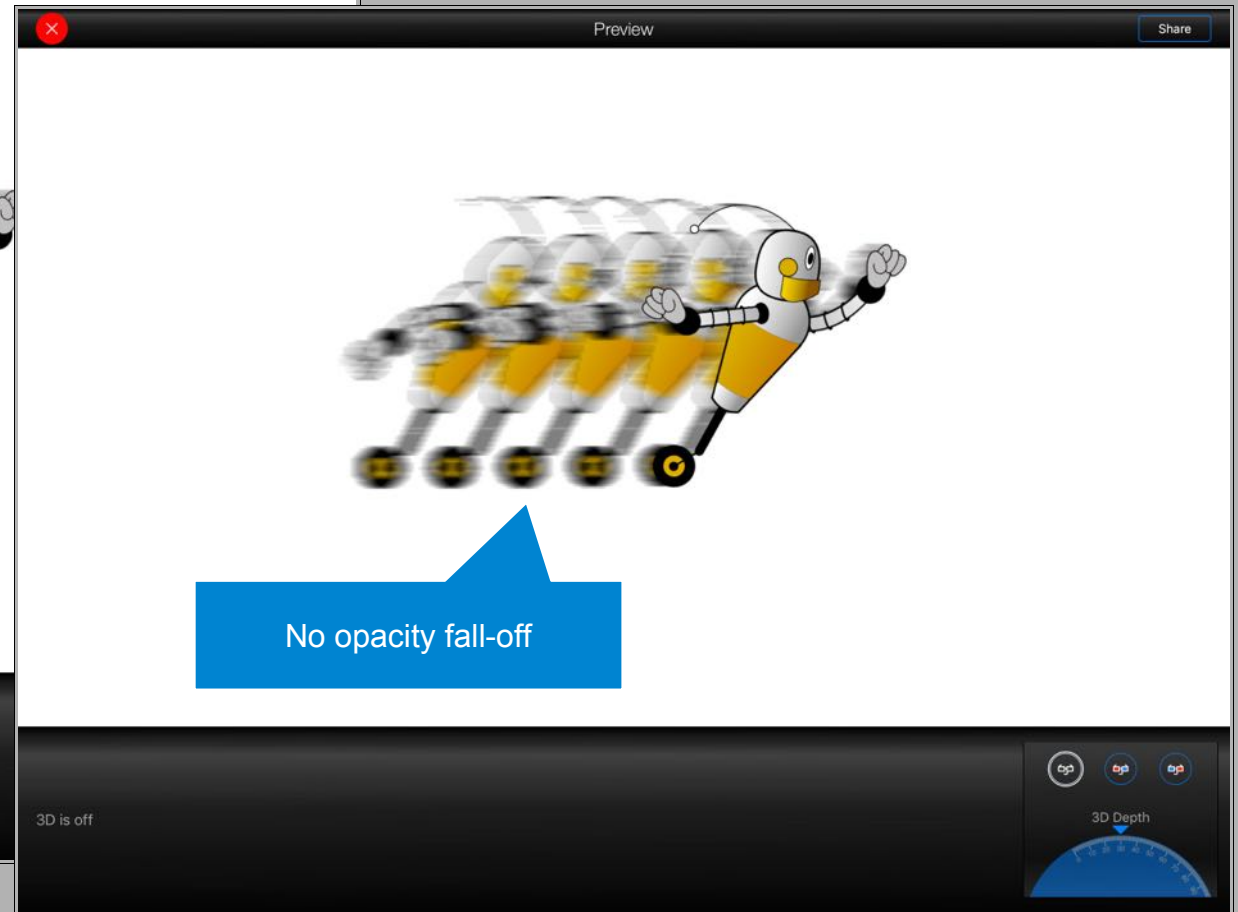
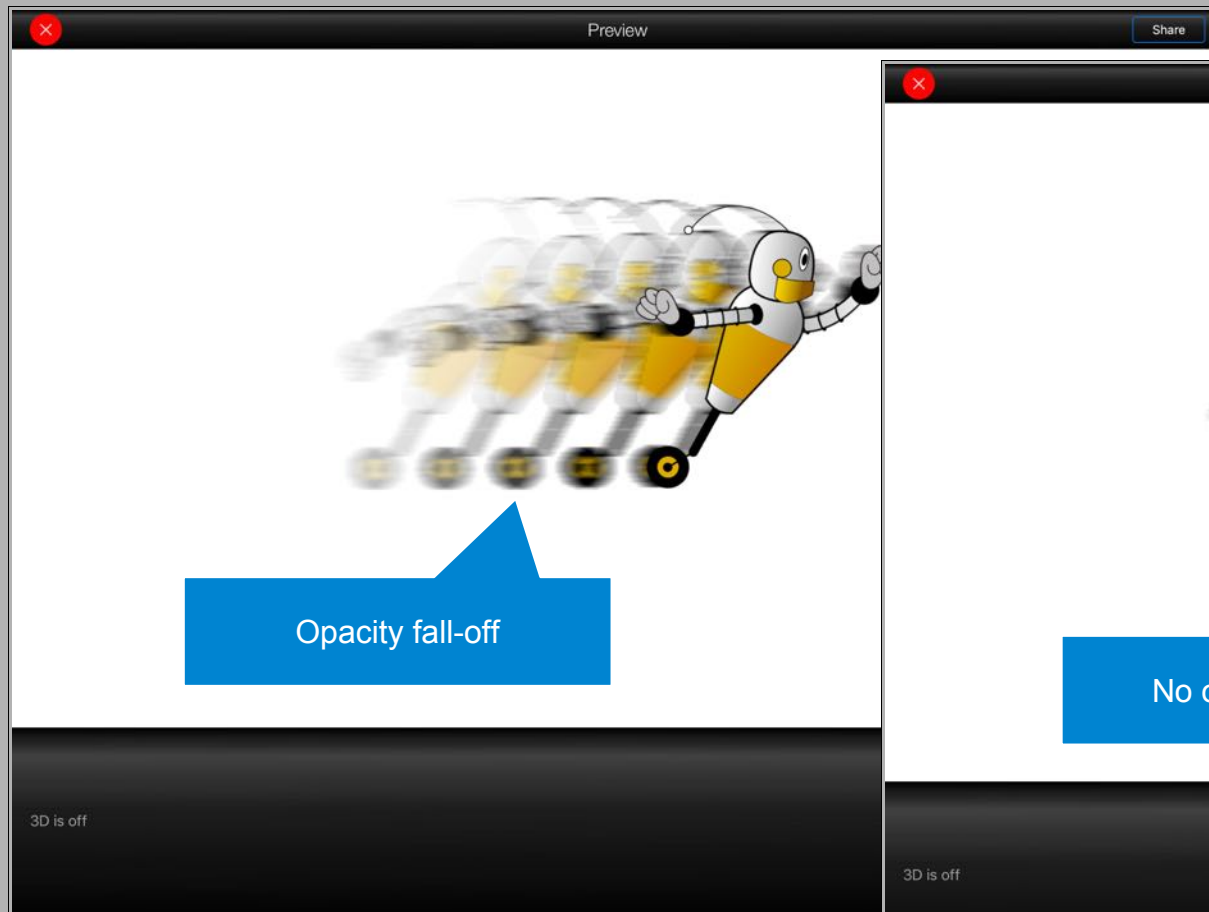


Opacity

The opacity defines how opaque or transparent the overall motion blur effect will be. At a value of 0%, the motion blur will be completely transparent (in fact, it will be turned off). At a value of 100%, the motion blur will be completely opaque; well, that's not quite true, at 100% the motion blur effect may still appear translucent if a high blur percentage has also been applied!

Opacity Fall-Off

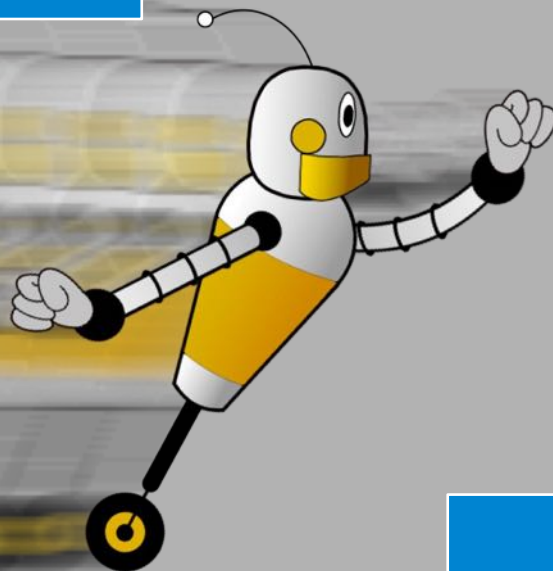
This setting determines whether the opacity of the motion blur effect should decrease towards its tail. Please note that this setting will only apply where the density is set to a value greater than 1.



High Quality

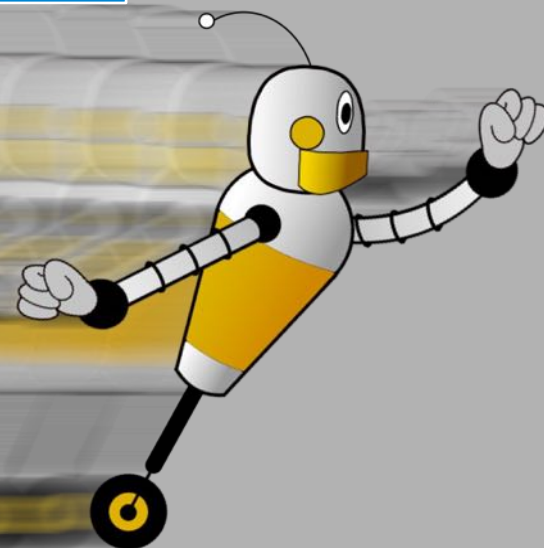
When turned on, the 'High Quality' setting (at the bottom of the 'Motion Blur' panel) produces a higher resolution motion blur image.

Normal Quality



As shown here, the difference is often negligible, especially when motion blur is generally only displayed for a fleeting moment in the exported video.

High Quality



WARNING:

High Quality motion blurs **WILL** use a lot more memory and **WILL** take much longer to render!

Substitution Approximation

Animation Pro simply cannot determine transitions between figure substitutes because it doesn't know which item changes have been made for the purpose of creating the substitutes vs. animating them (you can find more information on this within the 'Tweening' topic, see left).

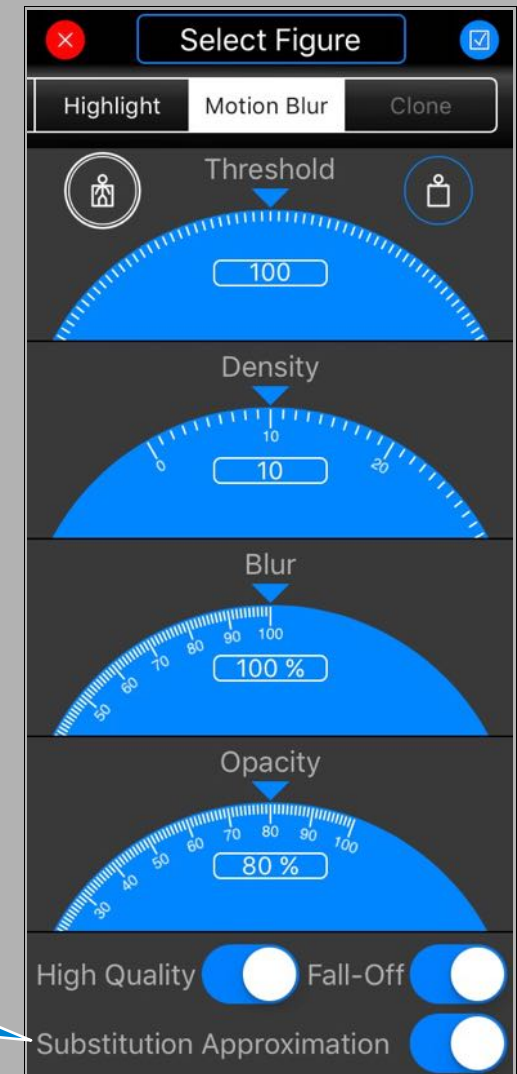
So Animation Pro will NOT produce motion blur for any geometric changes made to the individual items in a figure (such as item movements, rotations, alterations in scale) across a figure substitution.

It can, however, approximate figure-level motion blur across a substitution.

Please note, however, that this may produce undesirable results. So Animation Pro provides the ability to turn this feature on or off from frame to frame (as shown below/right):

Turn this switch on to have Animation Pro approximate motion blur across a figure substitution.

Turn this switch off where Animation Pro is unable to produce desirable results.



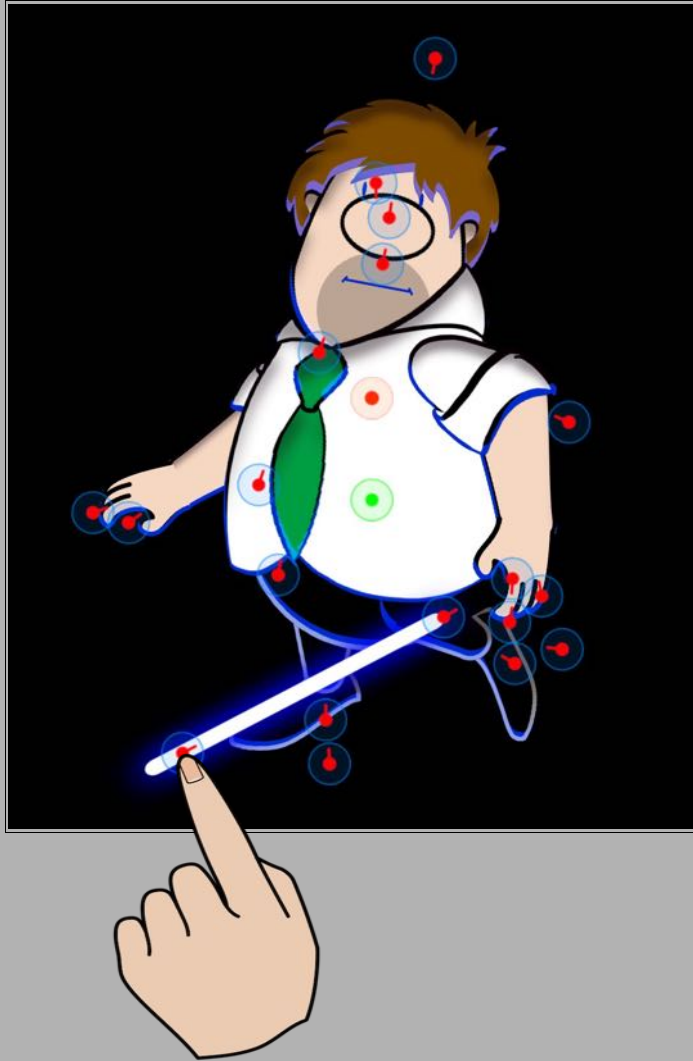
Item Participation

Individual items in a figure may selectively participate in motion blur. This can be used to produce effects such as that shown below i.e. where only one item in the figure is producing motion blur:



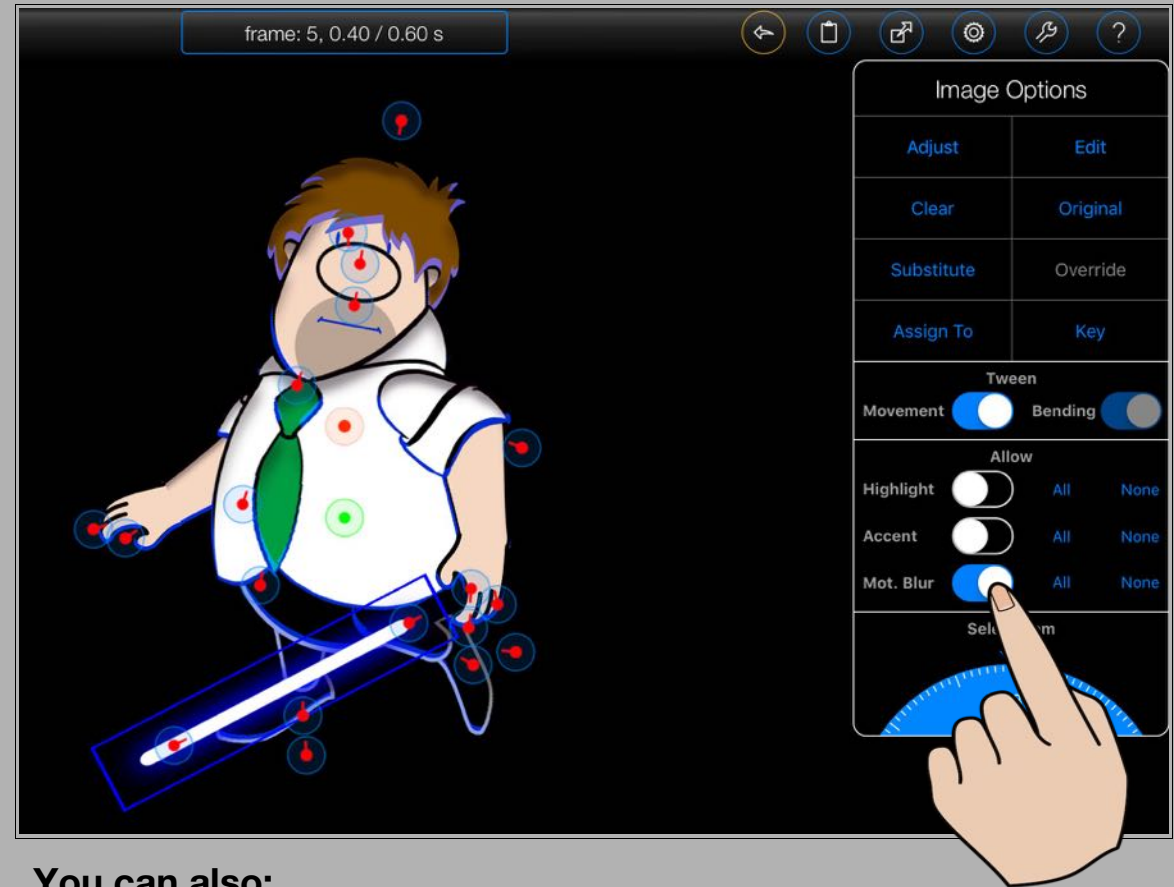
To specify which items in a figure participate in motion blur:

1. Tap on the handle of the item that should participate (to open the 'Image Options' popover*):



* You may need to tap twice if the item is bendable.

2. Toggle the 'Allow' switch as shown below:



You can also:

1. Press the 'All' button (next to the 'Mot. Blur') switch to turn on motion blur for all of the items in the figure.
2. Press the 'None' button (next to the 'Mot. Blur') switch to turn off motion blur for all of the items in the figure.

Limitations

1.

Strictly speaking, this is 'translational motion blur' i.e. it produces the best results when applied to figures that are moving large distances from frame to frame. It will not produce great results for other transformations, such as rotations. In those cases you can, however, achieve reasonable results by setting the density to a higher value:



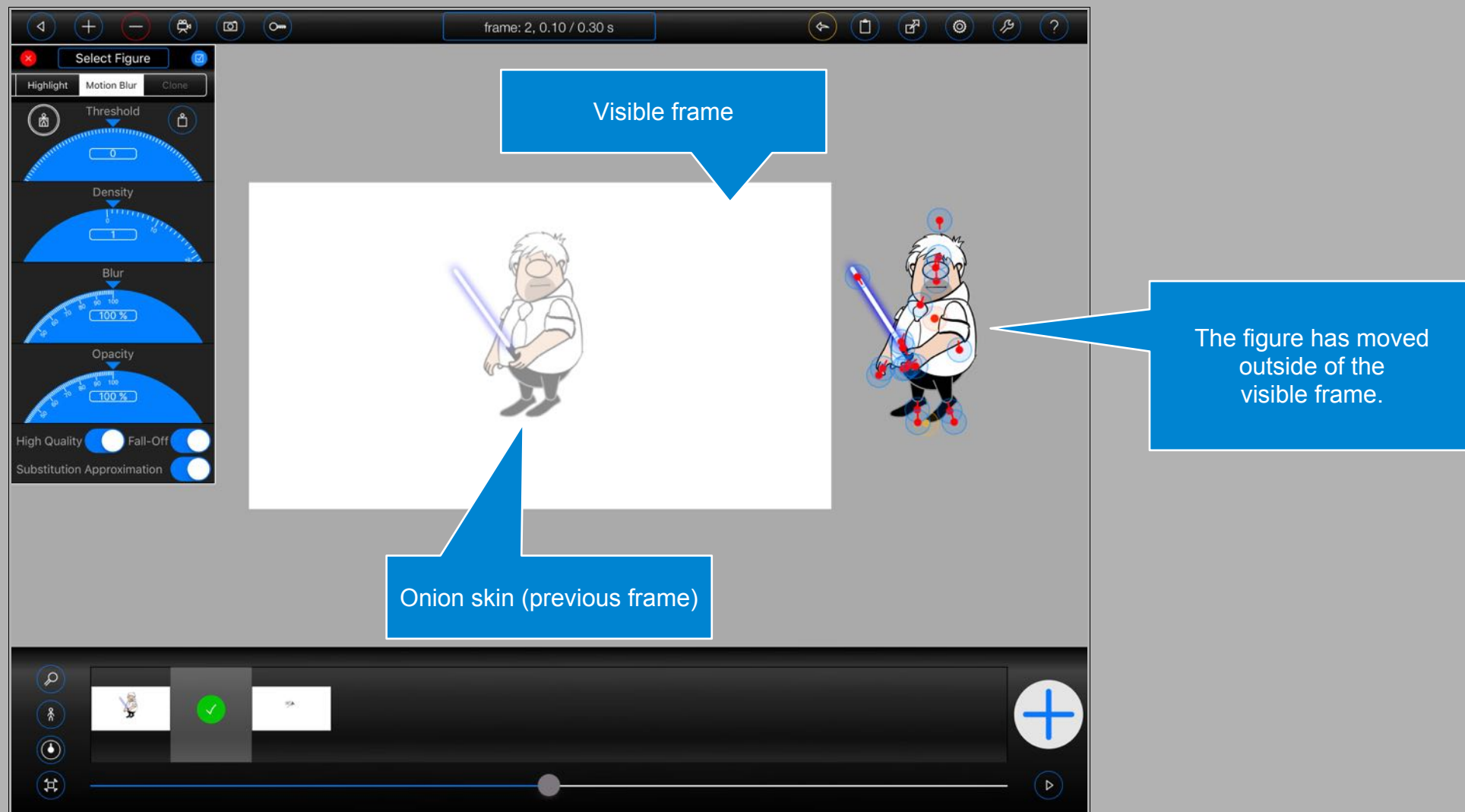
Rotation only, Motion Blur Density = 2



Rotation only, Density = 10

2.

Animation Pro will not produce accurate motion blur for figures that move outside of the visible frame:

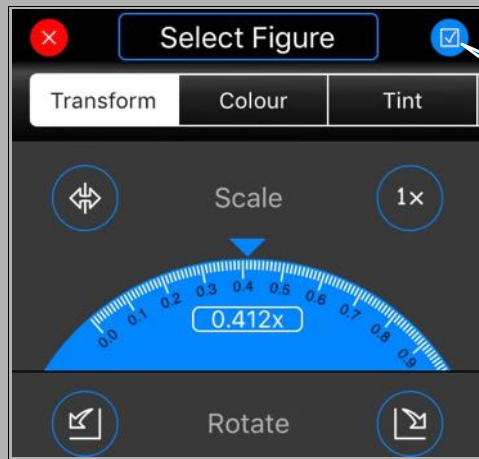


In these situations, however, you can achieve a better result by increasing the motion blur density.

Previewing Motion Blur

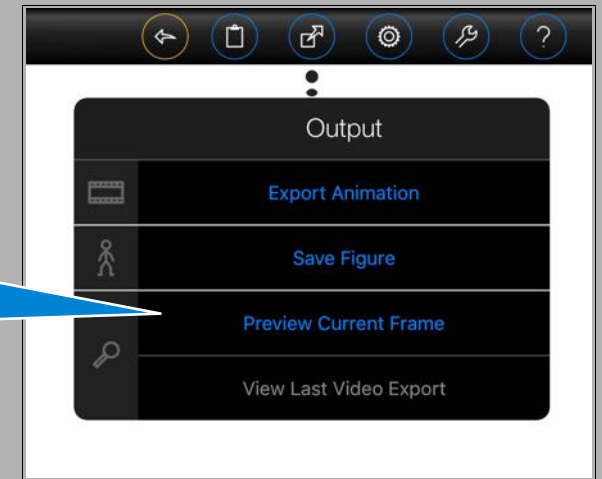
Because motion blur is very CPU intensive and may take a long time to render, it is not shown on the main animation screen as a 'live preview' or during a 'Quick Preview'. To see the motion blur effect, please 'preview' the current frame of your animation or, alternatively, export your animation:

1. To preview the current frame of your animation, either:



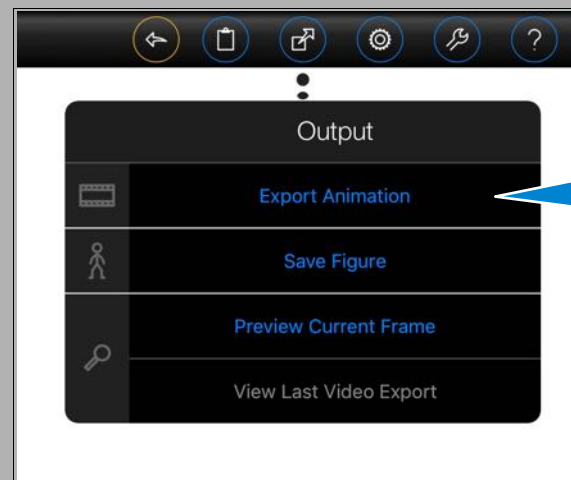
Press this button at the top of the 'Figure Inspector'

OR



Select this option from the 'Output' menu

2. To export your animation:



Select this option from the 'Output' menu