



## Animating in Inventor Studio – the basics

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### Assembly Model

First Rule: K.I.S. – keep it simple to start with. I suggest doing this because you then begin animating from a known set of circumstances - no variables to confuse things.

This tutorial discusses animation basics. It does not discuss other aspects such as lighting, surface styles, and so on. The model units are inch and the tutorial reflects that. If using metric values, substitute an approximate equivalent.

1. Create two blocks (block1, block2).
2. Start a new assembly and place two block1 and one of block2 in the assembly.

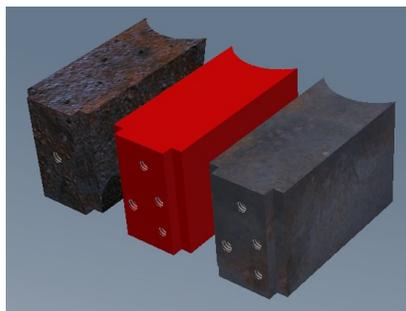


Figure 1 Assembly model

3. Create constraint relationships between the components. See Fig. 2.

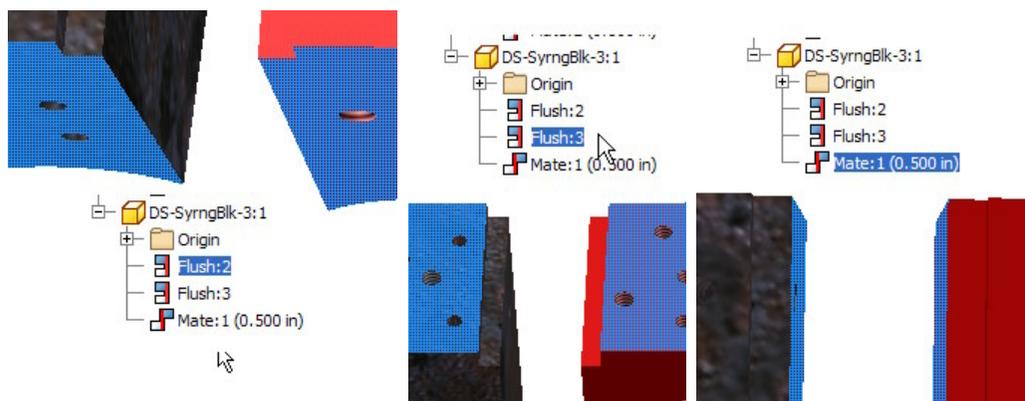


Figure 2 Add constraints

- Save the assembly to a name you will remember.

## Studio Animation

- Enter Inventor Studio (Fig.3)

Note: When you enter studio for the first time, there is no lighting style activated.

The assembly is in the Model State and no animation is active. The model state reflects the condition of the model when you entered Studio. This is a **KEY** concept to keep in mind. If you return to the assembly environment, change the model or component positions, those changes affect the animation and its results.

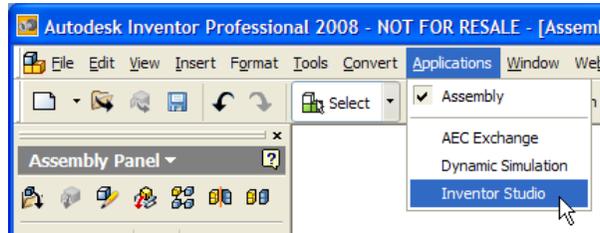
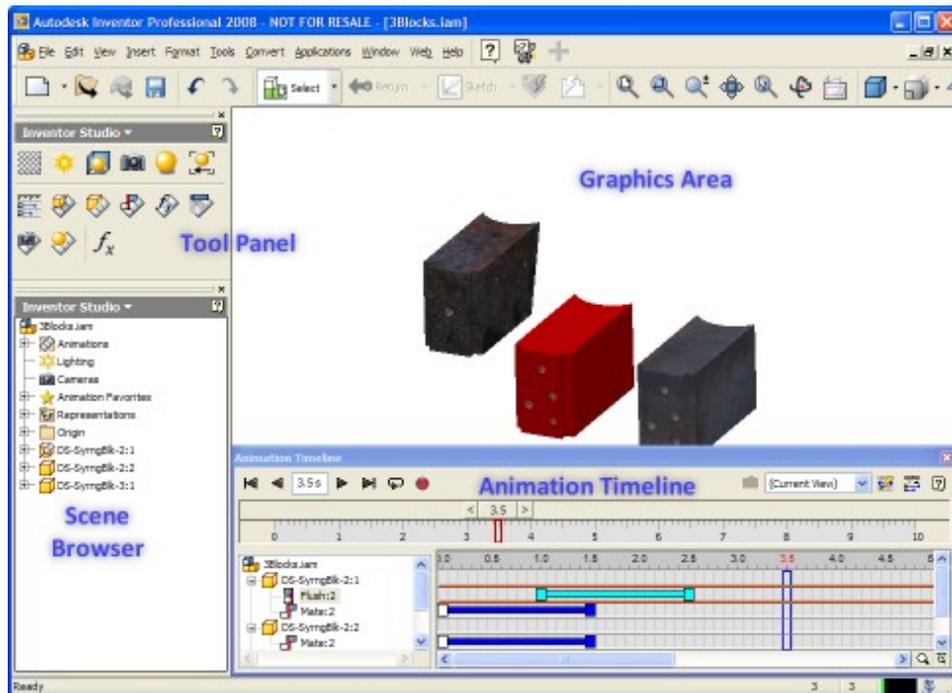
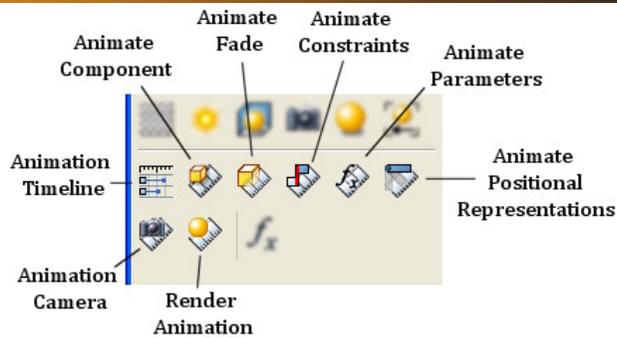


Figure 3 Enter Inventor Studio

## Studio Environment layout



## Animation commands



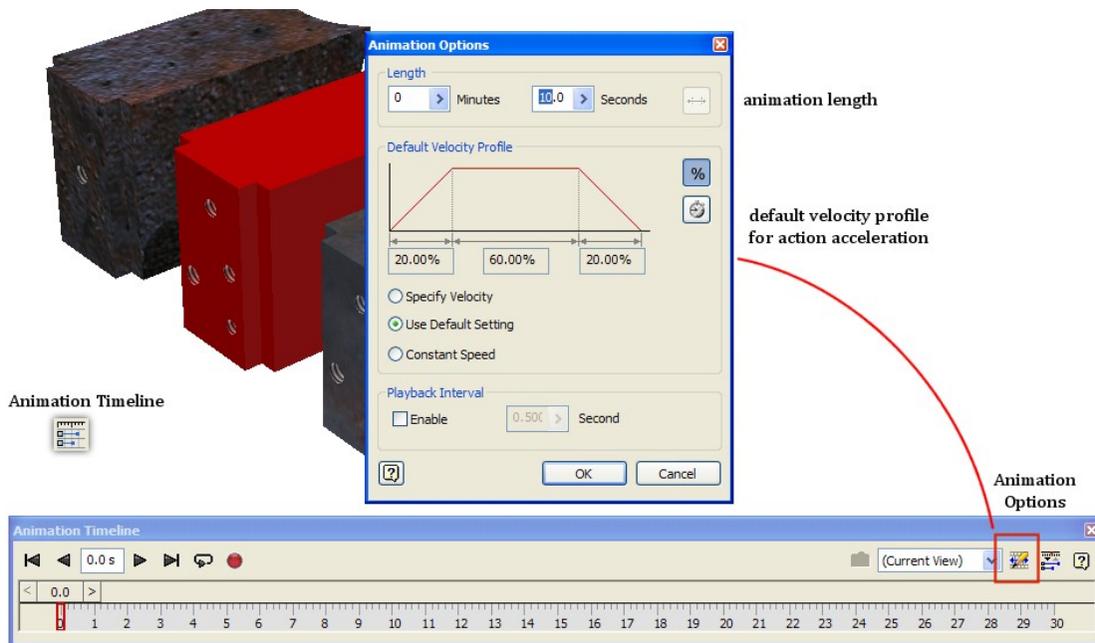
When you activate an animation command or the timeline, Animation1 is activated automatically. You may also receive a message that you must have an active animation to use the commands.

You can have as many animations as needed in the assembly. The same is true for cameras, and surface, lighting, and scene styles.

To switch between animations, right click the browser node and activate the animation you want to work in, or double click the node.

## Animate Constraints

1. Activate the Animation Timeline. Click on Animation Options to set the length of the animation.

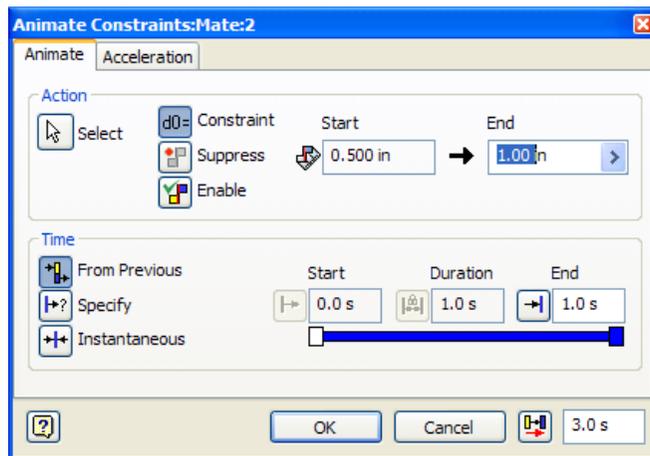


**Tip:** You can drag the timeline window anywhere you want in the desktop. To “reset” it in the Inventor Studio window, double click the title bar.

2. In the Animation Timeline, set the timeline slider to 1.0 seconds.
3. In the scene browser, expand instance block1:2 to expose its list of constraints.

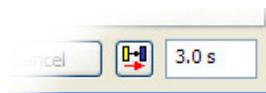


- Right click Mate constraint and select Animate Constraints to display the dialog box. In the Action section, set the **End** value to 1.00 in.



Because this is the first action for the constraint, and the **Time** setting is “From Previous” the action goes from 0.0s > 1.0s.

The other **Time** settings are used to specify an explicit Start/End time and an **instantaneous** action. You can change the values for start, duration, or end.

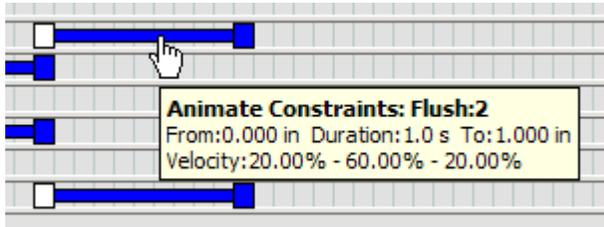


The button and edit field in the lower right corner completes the action and keeps the dialog box open so you can create another animation action using the same constraint. The input field advances the slider by the specified amount for the next action.

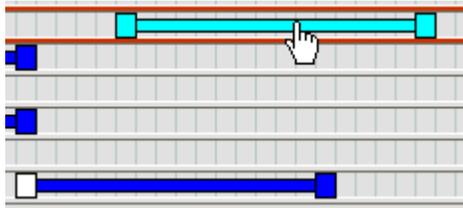
- Expand the Scene Browser node for Block2:1.
- Right click a Flush constraint and select Animate Constraints.
  - Set the Action **End** value to 1.0 in.
  - In the Time section click **Specify**.
  - In the Start input field, specify 1.0s and in the duration field specify 1.0s. Click OK.

You now have two animation actions that occur in the first two seconds of the animation. Click the Expand Animation Timeline button next to the Animation Options button. This expands the timeline so you can see the actions and when they occur. It also gives you access to interactive editing capabilities.

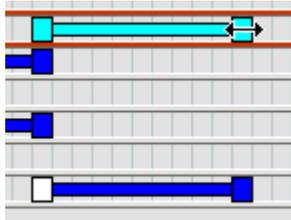
- With interactive editing you can do the following:



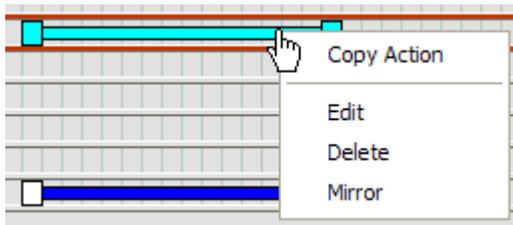
Place the cursor over the action bar to display the action parameter settings.



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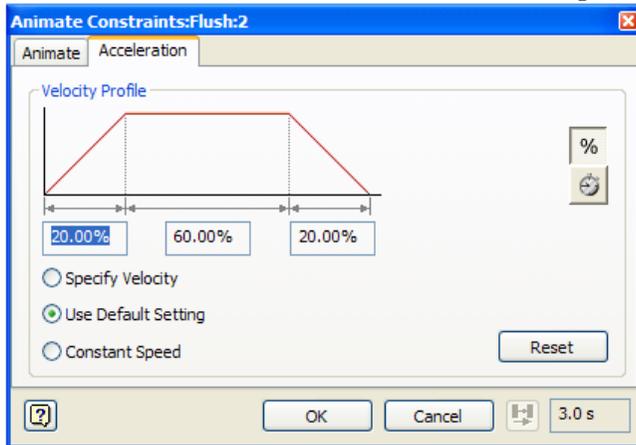


Click-drag the start/end handles to change the time period over which the action takes place.



Right click the action to Copy/Paste, Edit, Delete, or Mirror the action. Paste & Mirror place the copy immediately after the last action in the row. Mirror reverses the Action parameters for the placed action. Edit displays the action definition dialog Delete does the obvious, deletes the action.

8. The Acceleration tab controls the action speed response over the duration of the action.





Specify how you want acceleration applied to the action. It can be constant, use the default 20/60/20, or you can specify something different.

Think of it like the acceleration an automobile goes through, coming up to speed, continuing at a specified speed, and then winding down to a stop. The percentages you provide dictate how fast/slow this occurs. As you change one value the others update to total 100%.

9. Once you've set the parameters for the constraint animation, use the controls in the timeline to preview the results.

Then, experiment by moving the actions around on the timeline to see what you can achieve.

This tutorial gives you a basic understanding of how to animate with Inventor Studio. It was not designed to be a comprehensive discussion, rather, the basics for animating. The principles described in the tutorial apply to the other animation commands. As you use them you will begin to get the hang of it.