

Animate with TrueSpace

Usage of CLIPS

by Emmanuel Asset

By default all new animation of an object resides in a default CLIP. It is not necessary to create additional CLIPS to perform simple animations, **but if we want to benefit from greater flexibility or perform more complex animations** using CLIPS is essential.

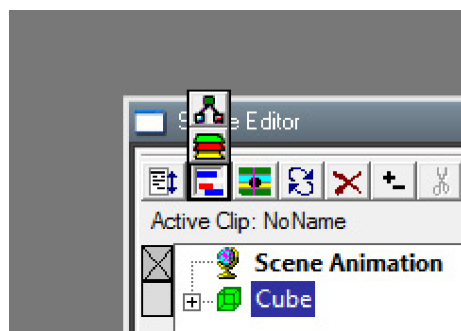
First, what art is a CLIP? **A CLIP is an encapsulated animation associated with a given object.** The interest to encapsulate a particular animation of a given object is to be able to apply another animation, which will result in an animation-parent.

The most telling example is the aircraft propeller: an airplane propeller rotates on itself, but it also moves in space.

In trueSpace, if you start by animating the rotation of the propeller then forwarding a Path to the propeller, you will see the rotation movement disturbed by the movement in 3D space. If by cons, you start by creating a CLIP to record the movement of rotation, you can then, outside the CLIP, animate the movement of the propeller in the space properly.

This feature was added to the Scene Editor during the development of trueSpace 6 but it is not as intuitive as the rest of trueSpace tools. CLIPS are rather a sort of plugin that was integrated into the Scene Editor through 4 icons and a new menu. To benefit, you must first become familiar with its icons and options.

The first icon is used to display CLIPS. It is located in the Scene Editor toolbar. Here we find 3 different display modes that changes the way animation is shown in the main window of the Scene Editor. In addition to the normal view that displays the objects with their hierarchy (the icon has three cubes connected by lines), and the display by layers (three superimposed planes), the icon for CLIPS has blue stripes, red and white. We will call this mode as "Clip View" mode in this manual.



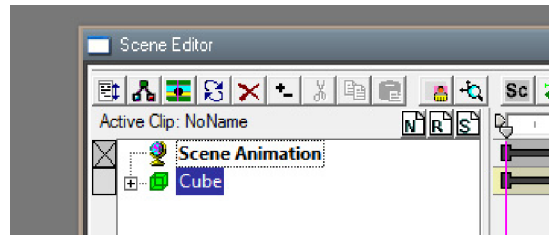
The three display modes

The other three icons relative to CLIPS are visible only in the normal and by layers display modes and are represented by the letters N, R and S. These three icons open dialogs:

N : to create a new CLIP.

R : to rename the current CLIP.

S : to select the current CLIP for the selected object. This icon is important because the Scene Editor only show the animation of the current CLIP ; and since each object may have different CLIPS associated with it, you will use that S icon to switch to the desired one



Tools N, R and S

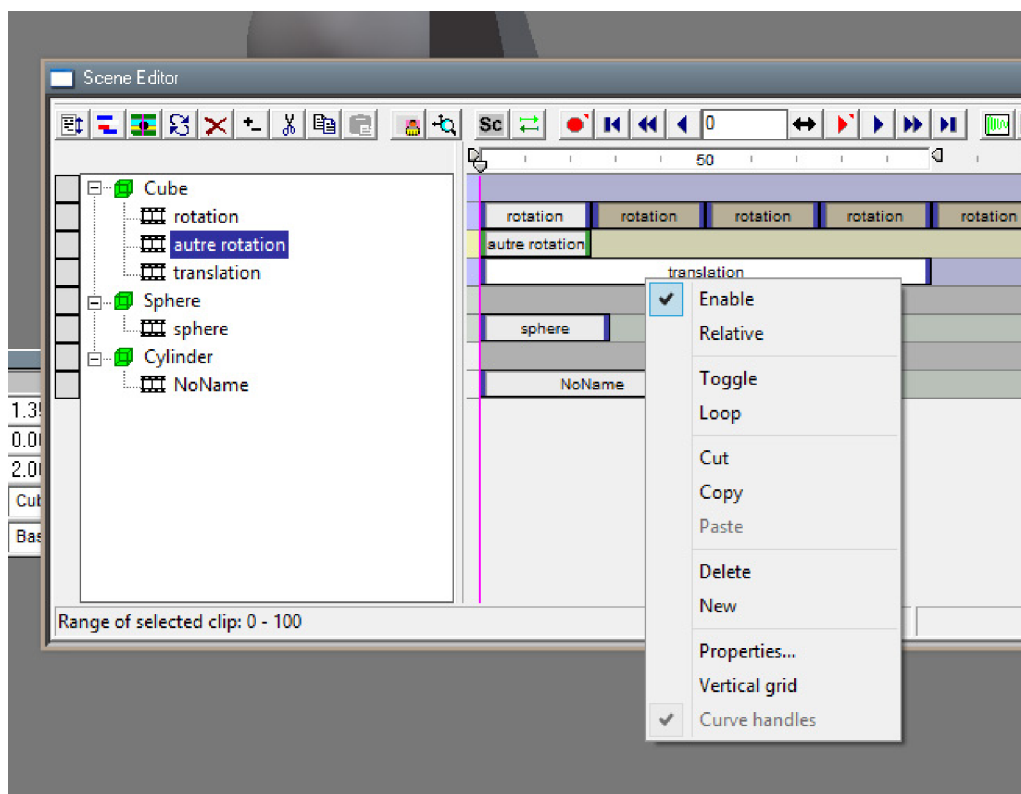
To **create a new CLIP**, we must first ensure that we are in the display mode by hierarchy or the display mode by layer, so that the icons N, R and S are visible.

Select the object you want to animate, and then click N to create a CLIP and give it a name. Other objects will disappear from the Scene Editor: only remain visible children objects in the case of a hierarchy.

At this stage, if you select another object in the Scene Editor, you will notice that the animation of the object to which was applied a CLIP disappears from the timeline of the Scene Editor. This is normal because a CLIP is always associated with a given object.

To have a vision of all CLIPS assigned to one object, choose the CLIP View Mode from the Scene Editor. This is a nuance that must be kept in mind because outside the CLIP View display mode, the Scene Editor displays **only the current CLIP** !

Another subtlety that may lead to confusion : **the name of the current CLIP is never displayed anywhere** ! Therefore, don't hesitate to clic the S icon often, to check if you are working in the good CLIP !



Clip View of the functions accessible via the context menu

Now let's set the CLIP View Mode of the Scene Editor to explore the functions it provides. The CLIP View Mode makes it possible to view all the CLIPS and to apply four different functions: Enable, Relative, Toggle and Loop. While trueSpace tools are almost all accessible via icons, the tools related to CLIPS are themselves present only in the context menu. Let's see them in detail.

- **Enable** is enabled by default. If you uncheck it, the animation CLIP is still recorded but it will not play in the scene. This disables an animation without deleting it. When Enable is unchecked, the band representing the CLIP in the timeline becomes grayed.

- **Relative** is disabled by default. When multiple animations are assigned to the object, trueSpace performs a merge of these animations: if the animation involve different position values, rotation or size, the average of these values ??will be calculated automatically. If we want to preserve each animation, and somehow add the values, we can select this option.

This mode is particularly useful to build complex animations.

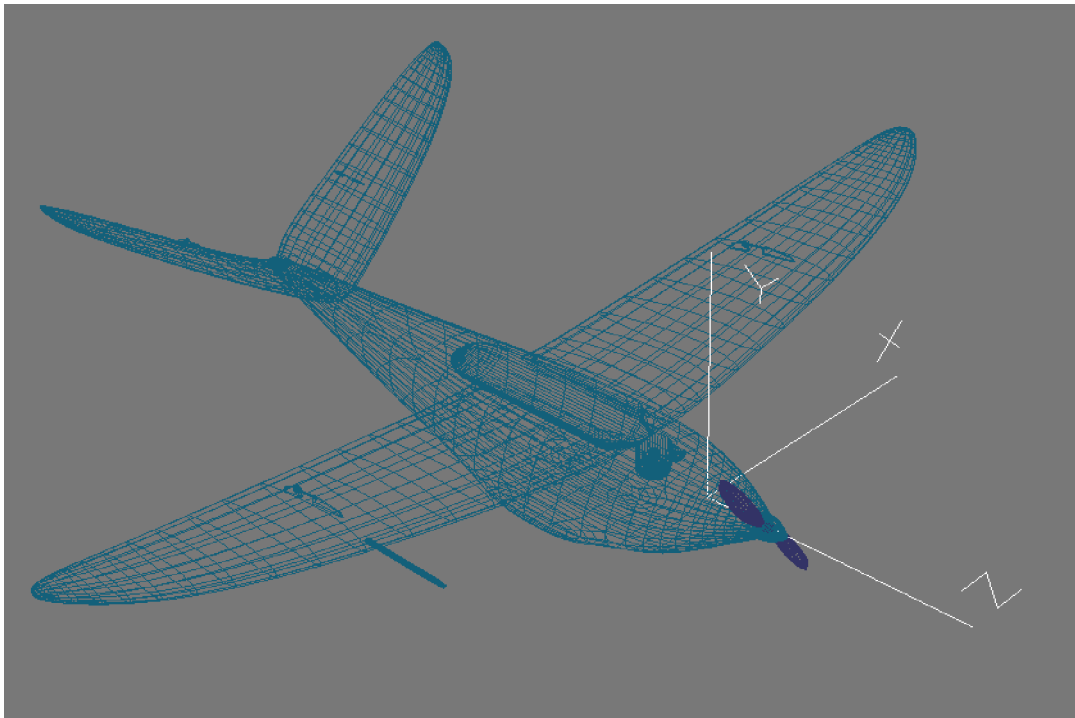
- **Toggle** to repeat the animation once, reversing its motion.

- **Loop** to repeat the animation indefinitely. If Toggle is also selected, these are the two movements will be repeated.

Let's see the case of the propeller to practice all this information in a particular case:

If you try to animate an airplane moving through the air, with its spinning propeller attached to his nose, without the use of clips, it will get completely erratic behavior. For example the propeller will remain in place while the aircraft is moving, or the propeller stops turning when the plane changes direction, the Look_Ahead function will not work, etc ...

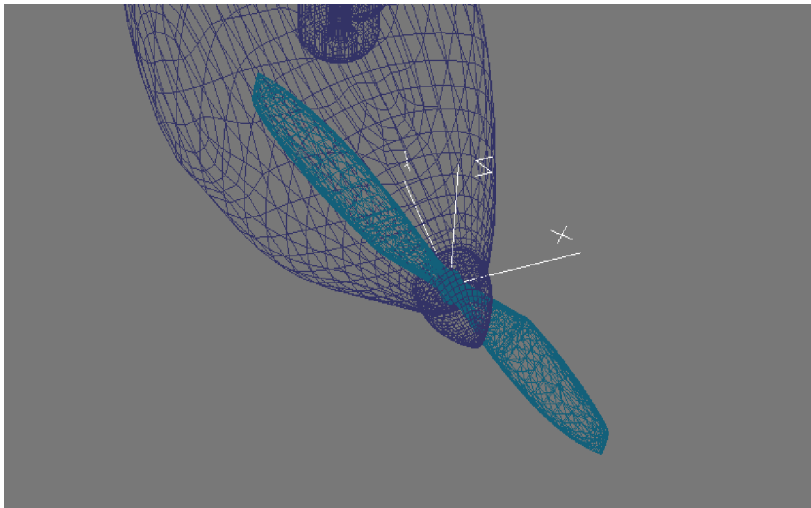
To achieve this type of animation, use of CLIPS is absolutely necessary.



Start by importing an aircraft with its propeller. Naming the aircraft "aircraft" and propeller "propeller" in order to easily identify them in the KFE (Keyframe Editor).

Make sure that the axes are oriented as in the picture above. Indeed, the Z axis is the axis to which the tip movement when using the Look_Ahead tool. If the Z axis is not oriented as here, the nose of the aircraft will not be in the axis of the path!

The orientation of the axis of the propeller does not matter, on the other side since this item will be "child" of the aircraft. In our example, we left the axis by default axis. See below :



As the aircraft must be secured to the propeller, the two objects must be glued together. To do this, select the aircraft, then choose the Glue_As_Sibling tool, and click the propeller. This will create a new object called "aircraft 1" that includes the "aircraft" and "propeller" objects.

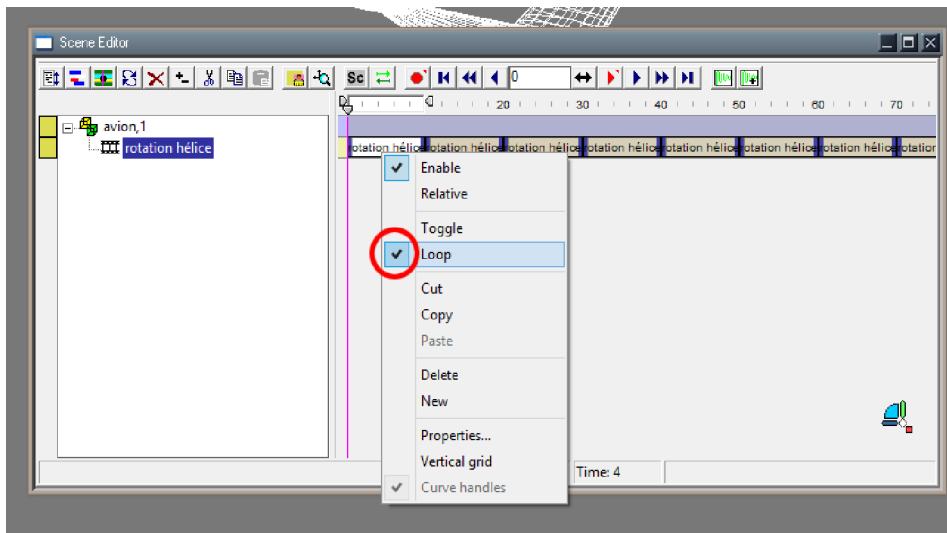
We will now animate the propeller.

We open the KFE, we develop the tree hierarchy whose the aircraft is made, the propeller is selected and a new CLIP is created by clicking on N, then we will name the clip "propeller rotation" .

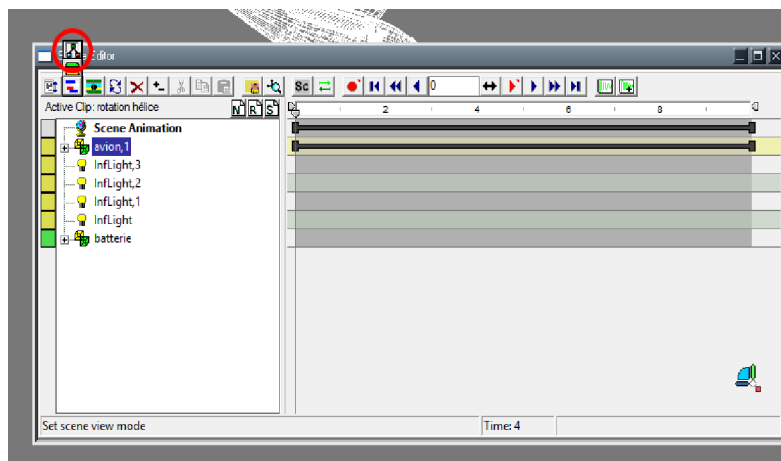
Select the frame # 10, and in the Object Info panel, we will indicate 180 in the Y-rotation button. This rotates the propeller to 180 degrees (half turn) in 10 images.

Warning, by default trueSpace's animation curves are defined with a certain softness in the beginning and end of the movement. So we will, for both the start keyframe and end keyframe, define the right angle with no softness. To do this, select the keyframes, right-click to open the context menu of Keyframe Properties and in this panel, select the right angle, which will automatically assign a Continuity value of -1 instead of 0 by default.

Now, still displaying the CLIP Mode of the Scene Editor, you will use the context menu and select Loop to repeat the animation of the propeller. This will effectively turn the propeller perpetually.



Now we can return to the display Mode by hierarchy of the KFE where you will notice that an animation is now assigned to the aircraft.



Now we can make the airplane to fly around. First select the object "aircraft 1" which includes both the body of the aircraft and the propeller, and we will animate it in a new CLIP: click N, name the new CLIP " fly ", then click the Look_Ahead tool and then, using the path tool, simply draw a path to follow. Watch the result: the propeller will stay glued to the plane nose and will do its rotations while the plane follows its path.

