

QuickTime Sprite Editor

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The QuickTime Sprite Editor is a simple program that allows editing of QuickTime movies with sprites. You can create new movies or read existing ones. In the movies, you can manipulate sprites and sounds. You can also work with Hyper-Sprites, a new graphic type that allows reflective and refractive sprites.

A sprite movie is one that has a “sprite track”, a new feature in QuickTime that animates image information. The movie can have a solid color background or a PICT image for a background. There can be an arbitrary number of sprites that roam over the background.

A sprite consists of one or more images that are animated over time. The simplest sprite has a single image and does not animate. However, it is possible to change the sprite's position, scale, and even rotation over time. In addition to these transformations, each sprite has a layer (for ordering, relative to other sprites), a visibility factor (on or off), and an image index (for selecting which PICT is displayed). All of these other factors can also be animated. For example, it is possible to have a series of PICT images that are selected over time, causing the sprite to change appearance.

Hyper-Sprites are like PICT sprites with the addition of special pixels that distort the background image. For example, a “magnifying glass” Hyper-Sprite has refracting pixels in the glass area that appear to magnify the background image. A “mirror” sprite has reflecting pixels that show the foreground image (the foreground image is also new to QuickTime and can be taken from a camera that points out at the user).

The VCR Controller

The VCR controller allows you to control the animation in the movie. When you run the QuickTime Sprite Editor, it will be the only window that you see. This is because there is no current QuickTime movie. The VCR controller looks like this:



The buttons along the bottom control the current time. From the left, the buttons are: *rewind*, *play-backward-fast*, *play-backward*, *step-backward*, *stop*, *step-forward*, *play-forward*, *play-forward-fast*, *advance-to-end*, and *record*. The *stop* button is currently pushed. The *advance-to-end* button moves to the highest time in the movie (initially this is 0:0:0).

The **Frame** field shows the current time in the form MINUTE:SECOND:FRAME (there are 30 FRAMEs per second). To change the time, type a new value and click the **Set** button. You can also change time by clicking on the VCR buttons along the bottom.

The **Record** field specifies what will be recorded when the *record* button is pushed. Initially, only sprite animations are recorded, but you can also record sound with the sprites, or just sound.

If this dialog is closed, it can be restored with the **Show VCR Window** command of the **Options** menu.

Movie Manipulation

Only one QuickTime movie can be active at a time. Initially there is no movie. You can create one or read one. The File menu contains all of the relevant commands:

To create a new movie, choose one of the **New** commands. The **New (PICT Background)...** command prompts for a PICT file and uses that as the background for a new movie. The **New (Solid Background)...** command prompts for a background color and creates a new movie with that background. Note that solid-color backgrounds are faster than PICT image backgrounds.

To read an existing movie, use the **Open...** command, or drag-and-drop the movie onto the program's icon. As a special debugging feature, the **Debug Movie Input** command of the **Options** menu allows you to see a detailed dump of the contents of the movie file while it is being read. Uncheck this menu entry to restore quiet movie reading.

File	
New (PICT Background)...	⌘N
New (Solid Background)...	
Open...	⌘O
Close	⌘W
Save	⌘S
Save As...	
Get Info...	⌘I
Quit	⌘Q

Before working with a second movie, you must close the current one with the **Close** command or by clicking in the close box of the movie's window. You will be prompted to save the movie if it has changed.

The **Save** and **Save As...** commands save the movie to disk.

The **Get Info...** command displays a dialog with information about the current movie. This is a "live" dialog: it updates as the movie is edited. More information about this dialog is provided later in the section on "Advanced Sprite Editing".

To exit the program, use the **Quit** command.

Sprite Editing

The Edit menu contains all of the commands for manipulating sprites in the movie:

There are many ways to create sprites in a QuickTime movie:

- You can use the **Paste Sprite** command to create a new sprite from the PICT in the clipboard.
- You can use the **Read PICT Sprite...** command to create a new sprite from a PICT file.
- You can use the **Read Hyper Sprite...** command to create a new sprite from a Hyper-Sprite file.
- You can use the **Read Animated Sprite...** command to create a new sprite from a QuickTime movie. The sprite will cycle through each of the images in the movie as time advances.

Edit	
Cut Sprite	⌘H
Copy Sprite	⌘C
Paste Sprite	⌘V
Clear	
Select All	⌘A
Read PICT Sprite...	⌘P
Read PICT Image...	
Read Hyper Sprite...	⌘H
Read Animated Sprite...	

All of the commands that deal with PICT images (i.e. everything except for the Hyper-Sprite command) presume that some of the pixels will become “transparent” and not be displayed. By default, all white pixels are presumed to be transparent. Use the **Transparency Color...** command of the **Options** menu to change the color that is used to determine transparent pixels.

Once a sprite appears in the window, you can click on it to select it. A selected sprite has a box drawn around it with four square handles in the corners. To move the sprite, click inside of the box and drag the sprite. To scale the sprite, click on one of the sides of the selection box and drag that. To rotate the sprite, click on one of the square handles in a corner and drag that (be warned that none of the QuickTime codecs can handle rotation, and so this operation has no effect).

Multiple sprites can be selected by holding the Shift key when selecting or by dragging a selection rectangle around a series of sprites. You can also use the **Select All** command to select all sprites in the movie.

The **Cut Sprite** and **Copy Sprite** commands copy a PICT image of the selected sprite to the clipboard (and the **Cut Sprite** command also deletes the sprite). Only one sprite can be selected for these operations. The **Clear** command removes the contents of the clipboard. Remember that when copying sprites to the clipboard, only the PICT image is copied, and not any of the animation or Hyper-Sprite information. Therefore, if you copy a Hyper-Sprite or an animated sprite and then paste it back, information will be lost.

Sprite Animation

When a sprite is first created, all of its attributes (position, scale, rotation, layer, visibility, image) are defined at the current time shown in the VCR dialog. Any changes that are made to the sprite change its appearance at this time only.

To animate the sprite, change the current VCR time and then modify the sprite. This works because all actions are linked to the time at which they were made, so a change to a sprite at a new time defines a new attribute value at that time.

For example, if a sprite is on the left side of the screen at time 0:0:0, you can make it move across the screen by advancing the time to 0:2:0 (2 seconds) and moving the sprite to the right side of the screen. To preview this animation, click on the *rewind* button (the time will return to 0:0:0 and the sprite will jump to the left) and click on the *play* button. The sprite will move across the screen, taking 2 seconds to make the journey.

You can define an intermediate position by setting the time to 0:1:0 and moving the sprite elsewhere (say to the bottom of the screen). Note that when you first set the time to 0:1:0, the sprite will move to the middle of the screen, because that is the computed position, given the animation that has been defined so far. When you then move the sprite from this computed position, the system now has three “keys” that define the sprite’s motion. The sprite animation will now start on the left, pass through the bottom, and end up on the right.

Another way to create an animation is to use the *record* button. Once pushed, the VCR is primed to record any actions that occur while the mouse is pushed. So, after pushing this button, drag a sprite across the screen to define specific motion. The VCR time counter will advance only while the button is pushed, so multiple animation segments can be strung together easily.

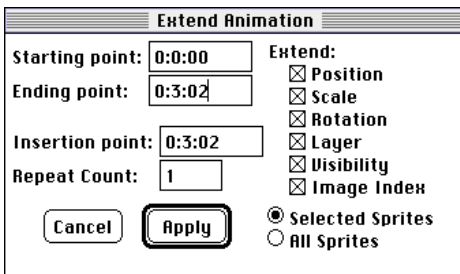
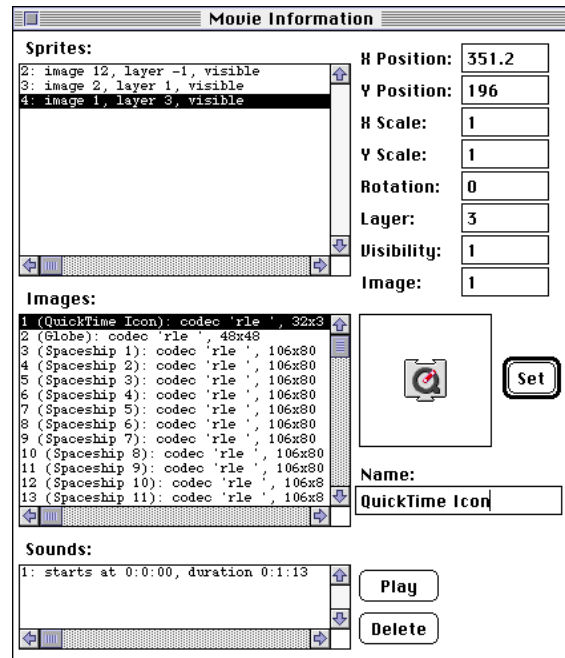
Note that the position, scale, and rotation attributes can be modified by directly manipulating the sprite with the cursor. To change the other attributes (layer, visibility, and image) you must use the **Get Info...** dialog (described in the section on “Advanced Sprite Editing”).

Although all of the attributes can be animated, only the position, scale, and rotation attributes do intermediate computation to smooth the animation. The other factors: layer, visibility, and image are hard values that change at specific times.

Advanced Sprite Editing

The **Read PICT Image...** command reads a PICT file from disk and adds it to the set of images in the movie. This does not create a new sprite, nor does the image appear in the movie. Rather, this image is now available for use by another sprite that wishes to change images as part of its animation.

Another way to edit sprites is to type values into the **Get Info...** dialog. This dialog shows a list of sprites, images, and sounds. When you click on a sprite, all of its attributes are displayed on the right. You can then type new values for any attribute and click on the **Set** button to make a change. You can also select images from the list to see them. Finally, you can select sound samples to preview them and remove them.



Another advanced feature is the **Extend Animation...** command of the **Options** menu. This command presents a dialog for duplicating animation. When you click on the **Apply** button, all animation from the **Starting point** to the **Ending point** will be duplicated **Repeat Count** times and placed at the **Insertion point**. You can select the attributes to be duplicated, and you can choose which sprites will have their animation duplicated.

Sound Editing

Sounds can be added to the sprite movie by recording them with the sprite animation. In the VCR dialog, you must select **Sprites&Sound** under the **Record** field. Then, the *record* button not only tracks sprite animation but also stores sound input. Note that, like the sprite animation, the sound is only recorded while the mouse is pushed.

If you want to add a sound track without making any sprite animation, use select **Sound** under the **Record** field. Then you can click the *record* button and click anywhere to record sound. Again, recording will only occur while the mouse button is pushed, and this time, the mouse will not cause any sprites to be modified. Only sound will be recorded.

The QuickTime Sprite Editor will remove any sounds that already exist in the same time when new sounds are recorded. Note that sounds can be previewed and deleted in the **Get Info...** dialog.