Icon

Introduction

Keith Ohlf's program for creating and manipulating TIFF images, **Icon**, is in the NextDeveloper/Demos directory of every machine shipped. If you do any programming with Interface Builder, you should definitely use Icon to create the image for your program's icon. In fact, you should consider using Icon for much more. Let me explain.

The NeXT has a sophisticated way of using multiple images to create a huge variety of effects, called *compositing*. The more you know about compositing, the more you will write programs that really show off the platform's unique abilities. It is very difficult to understand all of the compositing modes by reading the documentation provided by NeXT. You need experience with each mode, using actual images. If you learn to use Icon, you will also be learning much of what you need to know about compositing.

There are some problems with Icon. (These comments apply to the version of Icon released with the 2.0 system software.) It is officially just a demo, so it is not guaranteed to be robust, and, in fact, it does sometimes crash. This usually occurs when you attempt to close a window. It also sometimes takes a very long time to save an image, giving you a spinning wait cursor for tens of seconds before finally writing to disk.

These problems are not the biggest obstacle to using Icon. When I first used the program, it seemed counterintuitive. Perhaps there are other paint programs on other systems that resemble Icon, but to me it was *sui generis*. I didn't understand how the marquee tool worked, or how to select a color. I didn't understand all those graphic symbols in the control panels.

I considered including images of all the relevant panels in this article, but I don't think that's necessary. If possible, read this while simultaneously running Icon.

Colors

As soon as you begin working in Icon, select *Colors* in the *Tools* submenu. (Or select *Show Patterns*, which will bring up Colors too.) This brings up the Colors panel, which is indispensable. Most of the drawing tools require a color to be selected in the Colors panel. The default color is usually transparent, which means that if you do not bring up Colors and select a color, your tools will seem to be nonfunctional. (Although they will be working fine—just invisibly!) Unless you have a color system, stick to the color picker mode selected by the button second from the left at the top of the Colors panel. Notice the row of small color wells along the bottom of the panel. Put swatches of colors you use often in these wells. Icon will save your choices, so when you use the program again you can click on the wells to select your colors.

Patterns

Show Patterns in the *Tools* menu brings up an addition to the Colors panel. The button on the left lifts whatever is selected in the marquee tool into the left pattern well. Either pattern well may be selected by clicking on its broad lip. Click again to deselect. When the well is selected, the pattern in it becomes the current fill, overriding the color currently selected.

Detail

Tools–>Detail from the main menu gets you a detail window. All the tools work in Detail.

The Inspector Panel

This panel toggles between five modes: *Tools*, *Gradation*, *Animation*, *Image Info*, and *Shapes*. This means that you can only use one mode at once, which creates problems (see Animation).

The compositing button is present in all five modes, in the same place. This button says *Sover* when you start Icon. Wherever you are in Icon, whatever you are doing, you can access the compositing button. It selects the compositing mode used. Try them all! I find *Satop*, *Dover* and *Plus* widely useful. *Xor* is fun - try disabling *Always Sover Brush* and paint with a large brush using *Xor.* Trippy!

Tools

The *Tools* mode of the Inspector panel itself toggles between 14 modes, one for each tool available on the tool selection panel, which is always visible. I will start with the most tricky, the marquee tool, selected by the lowest right button on the tool selection panel.

Marquee

First, you can copy the marquee and paste it into another window. Try this, because it is important. The *opacity* slider on the marquee tool inspector controls the opacity of the selection. Use it to make a selection more transparent: it doesn't work the other way.

The twelve buttons with little pictures on them select marquee actions. Some only affect the selection; some affect the underlying image. From left to right, upper row first:

1. Take the image under the marquee and lift it onto the marquee. The underlying image is "lifted off" and the area becomes clear (transparent.) Anything on the marquee before the action is also lost.
2. Same as 1, except the underlying image is not disturbed.
3. Composite ("drop down") the marquee onto the underlying image, using the compositing mode selected.
4. "Drop down" the marquee onto every frame of an animation.
5. Paintbucket: I don't use this. It seems to fill the marquee with the selected color or pattern, making it equivalent to the Square tool.
6. Magic Fairy Dust Wand. This seems to invoke the Dropper tool—but why?
7. Returns the selection to its original size and rotation.
8. Shear.
9. Rotation
10. Scaling.
11. One kind of flip.
12. The other kind.

To the right of these buttons is a sort of diamond-rosette. This is composed of four buttons which move the marquee around in little increments.

Below are two color wells and associated controls. The button on the left selects the operation. I have only used *Replace*. It is very useful. Suppose you have an little image from a scanner. It is black on a white background. You want black on transparent instead. What to do? Select opaque white in Colors: drag a swatch into the lefthand well. Select transparent and drag a swatch into the other well. Get your image onto the marquee and click *Do It*. Make sure your compositing mode is *Copy* and drop the marquee back down. Hit *command-1* to see your image in glorious transparency against a moving granite background.

Finally, the bottom button on the marquee inspector panel: *Effects*. Most of these seem to be disabled.

A final note about the marquee: "marquee" has the same first six letters as "Marquette", the name of the obscure Northern Michigan town I grew up in. My computer-hacking friend in seventh grade, Ted Vielmetti, is mentioned in NextAnswer misc.390. Hope this reaches you, Ted.

Other Tools

Many of the other tools should be familiar. The paintbrush and airbrush will always be *Sovered* unless you disable this feature, which you sometimes will need to. Several tools, such as *Circle*, have a big color well for choosing the outline color. You won't be able to drag a color in here if the line width slider to the right is set to minimum width. The *Circle*, *Square*, *Closed Curve* and *Polygon* tools will fill with gradation instead of the current color if you check *Gradation*. This is a cool effect controlled by the Gradation mode of the Inspector Panel.

Gradation

Click in the gradation image at upper left and drag the mouse around. Click *Radial* and do it again. Makes me think of butterfly ocelli (eye patterns on their wings.) Cool, huh?

Animation

Use *Image–>Grab* from the main menu. Grab a fairly small area. *Command-a* to select the whole thing. Doubleclick on the first action button to clear the contents. Select your favorite

paintbrush. Now toggle down from Tool Inspector to Animation. There is a text field titled *Frames:*. Add a zero after the 1 and hit return.

Your image is now ten images, which Icon will display in succession. Click the *Play* button, second from the left, and try to paint in the image with the mouse. Slow the animation down by clicking on the minus sign in the film still picture. You can stop the animation and cycle through one by one. You can paint or use any other tool—*except the marquee*! Why?

Because when you toggle from Animation back to Tool Inspector, the image snaps to the first frame of the animation. The marquee cannot be applied to the image without the action buttons on the marquee Tool Inspector. If you want to make an animation of the Snark moving around, you cannot paste him into each frame in a slightly different spot, unless you do the following:

1. Create your animation with the required number of frames. Use the marquee drop-through button to put in any background that will be constant.
2. Save your animation as "snark", and close it. It will show up as "snark.anim".
3. Go to the Workspace and change the suffix to ".ani".
4. Open every tiff in the snark.ani directory: snark.ani/ snark.1.tiff, snark.2.tiff, snark.3.tiff . . .
5. Lay them out in order and paint, paste, and composite into each frame of the animation.
6. Save and close them all and rename the directory to "snark.anim". Doubleclick on the directory and voila!

I think this part of Icon could work a little better. The animation is really neat, though.

Image Info, Shapes

I don't use these much. They seem self-explanatory.

Text

The *Text* panel is called up from the main menu. Type the desired text into the field provided. When you click on *Set*, the text will be rendered in the desired font, size and so on and

placed in the marquee above the current image. The more fonts you have, the more fun this will be.

A First Project

Even if you aren't writing apps, you can still install cute little icons all over your file system. Save two 48*48 pixel TIFFs (that's the smallest size Icon will let you work with, so use *Image–>Grab* and mouse a tiny selection to get a window this size) in any directory as ".dir.tiff" and ".opendir.tiff". The Workspace will use them instead of the picture of the folder that opens up, the /me house with the door opening, etc. for that directory only. By the time you give every directory on your machine its own two little TIFFs, you'll definitely be comfortable using Icon!

A Parting Hint

If you usually keep your mouse speed high in Preferences, bring it down a notch. You'll get denser events on the screen when you draw, which makes some tools work more accurately.

Note

Jess Anderson formatted this article, posted in comp.sys.next.misc March 28, 1992 by dkoski@cs.arizona.edu (David Koski). That was a reposting of the (I presume original) article, written by sr3j+@andrew.cmu.edu (Soren Renner), dated November 22, 1991.