

Fundamental Photoshop

Little things make a big difference when working in Photoshop

■ BY BEN WILLMORE

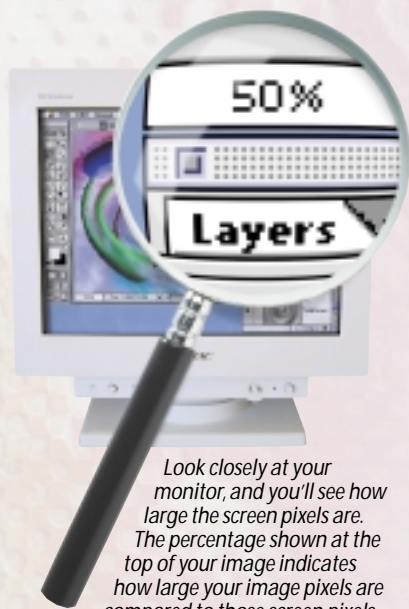
When I started using Photoshop, I was confused by the magnification number that Photoshop displayed at the top of my document. I assumed that 100% meant 100% of my printed size, but after printing a few times, I learned this was not the case. Well, that percentage has absolutely nothing to do with how large your image will be when it is printed. Erase that thought from your head, and let's start over.

Imagine that you want to create a tile design for a floor in your house. You buy some grid paper and a few magic markers to fill in the little squares to make your design. You know that you'll have to visualize the tiles, because they will be a different size than the squares on the grid... one tiny square for each tile, no matter how big the tiles are.

But it's not that simple; you'd have some choices to make: you can buy different sizes of graph paper with different kinds of grids, and you'll have to choose the size of your floor tiles.

If any of this makes sense so far, then you know what Photoshop is thinking when you view your image at 100%—the pixel on screen *represents* a pixel that will print, but it's not the same size it will print at.

Now, let's look at how the rest of this relates to Photoshop. Well, did you purchase a 15", 17" or 21" monitor? What is the screen resolution set to? Sounds just like the graph paper to me; but we're talking about screen size instead of page size and how many pixels fit on the screen instead of squares on the grid paper. And instead of picking how large your floor tiles are going to be, you are choosing how large the pixels will be when you print them. Pixels are so small (to avoid the jaggies) that you can fit a bunch of them into an inch, so we don't call it pixel size (even though that's what it really means). Instead, it's described as *resolution*, and it's resolution that determines how many pixels will fit into each inch of your printout. Then, remember, one square on the graph paper represents one tile that will end up on your floor; it's just not full size. It's the same with those screen pixels—a



Look closely at your monitor, and you'll see how large the screen pixels are. The percentage shown at the top of your image indicates how large your image pixels are compared to those screen pixels.

pixel is a pixel, but they aren't the same size that we are going to print them.

So why not show them at the same size we'll be printing them? Well, your image might have a resolution of 300, but that doesn't mean your monitor can display it like that—it just doesn't have that many pixels available in each inch. A standard 15" monitor uses 800 pixels in the width and 600 pixels in the height. In order to display your image with the pixels the same size, as they will be when printed (300 pixels in each inch), a 15" monitor would have to be capable of displaying at least 3600 x 2700 pixels!

Photoshop can't change the size of your screen pixels—only your operating system can. The settings in your Monitors control panel (part of your OS) determine how many pixels you see on screen and, therefore, their size.

So that explains what happens when you view your image at 100%, but what happens when you use 200% or 50%? Well, that's when you have to stop thinking about floor tiles and start thinking like Photoshop. Zoom in to 200% view, and Photoshop knows it can't really make them 200% of their current size. Instead, it uses a 2 x 2 area of your screen to show one pixel of your image. That way it looks twice as big, even though you haven't changed the size of the screen pixels. Zoom out to 50% and Photoshop does the opposite—it averages a 2 x 2 area of your image to determine the color of a single screen pixel, which means you aren't seeing all the info in your file anytime you view it at less than 100%.

Viewing your image at magnifications above 100% isn't all that bad, but you should know that the only time you are getting an accurate view is when you view it in increments of 100%. Try a magnification that isn't an increment of 100% and you're going to get wretched results. For example, if you view at 310%, then each pixel in your image would need to be 3.1 screen pixels wide—that's impossible without averaging it into the surrounding pixels which makes for a truly inaccurate screen view.

I hope this article has shed some light on how Photoshop displays images and what the percentage number really means. ■

Ben Willmore is the founder of Digital Mastery, a training and consulting company which presents the national seminar tour of "Master Photoshop in 3 Days." Ben provides hundreds of free Photoshop tips and tutorials on his Web site www.digitalmastery.com.



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