SMASHING MAGAZINE

Smashing eBook Series #3

MASTERING PHOTOSHOP FOR WEB DESIGN

"Photoshop is a powerful tool, and although the basics can be easy to grasp, mastering the application can be extremely difficult. This is where Mastering Photoshop comes in: it takes readers through the app in depth and relates all tasks back to the creative process. There's much to learn in here, for beginners and experts alike."

— Elliot Jay Stocks, designer, illustrator and speaker

Introduction

This book was written in the hope of filling a gap — a gap that has existed for as long as designers have been using Photoshop for Web design; a gap that we so often fill with tutorials focused on the latest trends and on inspiration galleries that are quickly browsed and forgotten; a gap that is growing as quickly as our technologies. It's a gap of foundation.

The fast pace of the Internet has focused us on the latest and greatest techniques, which typically have a lifespan of only a few months. Rarely do we focus on the fundamentals, the principles that outlive the trends. Unfortunately, the principles are often less appealing than the shiny and new. Photoshop tutorials offer quick results. They hold our hands step by step until something incredible appears, but they rarely go in depth to explain the principles that enable us to create something unique and incredible of our own.

Mastering the fundamentals of our tools opens our minds and unlocks our inherent creativity. It helps us recognize the difference between timeless and trendy. It increases our efficiency and ultimately makes us and our work more valuable.

My hope is that this book helps you gain a deeper understanding of Photoshop. If you're a beginner, I hope it gives you the comprehension you need to bring your ideas to life. If you're a veteran, I hope it unveils some of the mysteries that have always boggled you. Ultimately, though, I hope this book increases your appreciation of the fundamentals and the subtleties that make Photoshop such a powerful tool.

About the Author

Thomas Giannattasio is an interactive designer who resides in the Washington DC metro area. He specializes in Web design and front-end development, particularly art direction, website design and application design, and has 14 years of experience. Thomas cares strongly about typography, simplicity and user experience. Currently he works as a senior designer for a global marketing firm and freelances under the name *attasi*.

Dedicated to my relentlessly supportive wife, Maggie, without whom this book would not be possible. Thanks for putting up with me!

— Tom

Imprint

Published in July 2010

Smashing Media GmbH, Freiburg, Germany

Book Cover Design: Andrea Austoni

Proofreading: Andrew Lobo

Layout: Jessica Bordeau, Vitaly Friedman

Concept & Editing: Sven Lennartz, Vitaly Friedman

Table of Contents

Chapter 1, **Color Management**

Maintaining a consistent appearance on the Web is difficult because you never know the end user's environment. They may be viewing a website on their home computer or on a mobile device. They could be on a Windows platform or running a Mac. Even within these parameters, a multitude of other variables affect how their monitor is calibrated. All of these factors amount to an unremediable loss of control over the final output. Colors can appear lighter or darker, more or less saturated, cooler or warmer, or just plain wrong depending on the user's environment. This can be quite a problem, especially with a client's brand-specific colors As Web designers, our responsibility is to ensure that the experiences we craft are as true to the original as possible. To do this, you need to manage and align every step of the design process with how the majority of users will be viewing your work. This requires a complex and equally confusing system of color management. While it doesn't completely solve the problem of color shifting, it makes it far less severe and ensures the maximum preservation of colors across a majority of devices.

Calibrating the Display

Gaining control of your color output starts by controlling your input (i.e. your monitor). A properly calibrated monitor is crucial: it lays the foundation for a properly managed workflow. Calibrating your monitor can be done with software, but it is better left to a colorimeter. Purchasing a colorimeter is a good idea if you're concerned about accuracy. A number of companies sell affordable solutions: Monaco Optix, LaCie blue eye, basICColor displaySQUID, etc. Whether you use hardware or software to calibrate your monitor, let your monitor warm up for about half an hour. Also ensure that the lighting in the room is soft and evenly distributed and that no light shines directly on the monitor.

Because our work will be displayed on both Macs and Windows machines, our gamma and white point should be set to the most common settings. Gamma is basically a value that represents the relationship between luminance values of the monitor. The higher the number, the darker the display appears. Windows machines run a gamma of 2.2, while Macs run 1.8 — although, Snow Leopard now defaults to 2.2. A gamma of 2.2 is the most common setting of Web users, and for this reason your monitor should be set to match. The most common white point is D65, and you're best off following suit.

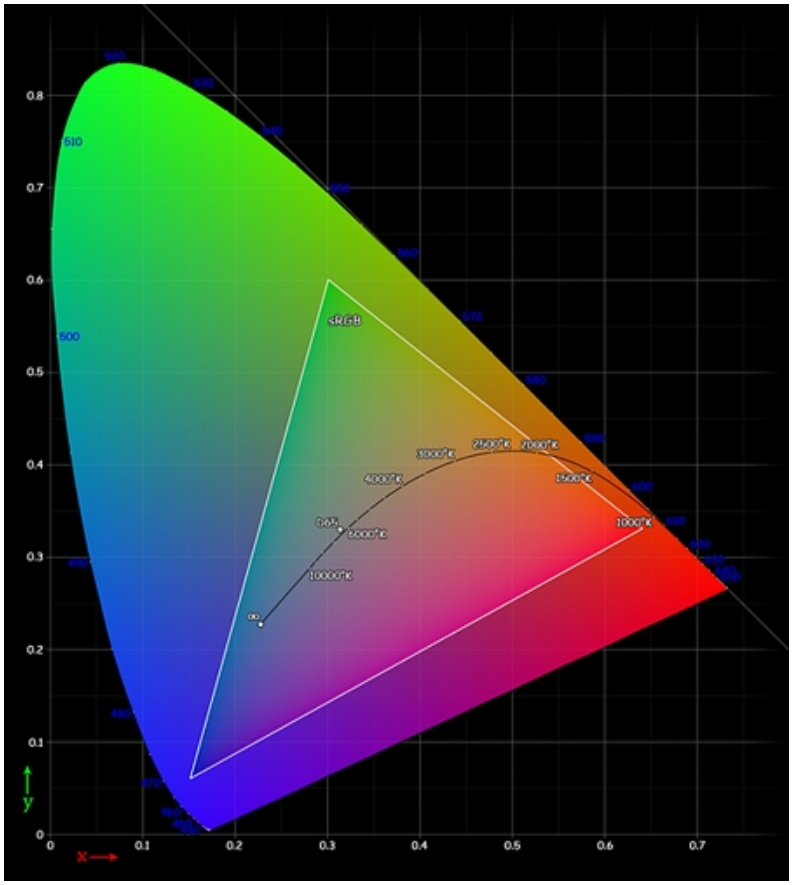
The LaCie blue eye colorimeter (http://bit.ly/cHphAV)

ICC Profiles

Managing color across the ever-increasing spectrum of devices would be impossible without a universal standard. The International Color Consortium (ICC) has provided just that. By specifying vendor-neutral color specifications, the ICC has created the ability for devices to interpret and display color as intended. In order for the ICC specification to work, both devices and files need to have profiles attached to them. An image file's ICC profile essentially tells the device how to interpret its color data, and the device's profile tells the system how to display that color data.

Because the standard red, green and blue profile (or sRGB IEC 61966-2.1) represents a wide range of colors that can be replicated across a majority of devices, it has been adopted by the Internet world as its standard.

Therefore, you should create all of your work in this profile to maintain maximum consistency. For more information, see Color Settings on page 14.



The sRGB color gamut.
(http://bit.ly/aYuSGV)

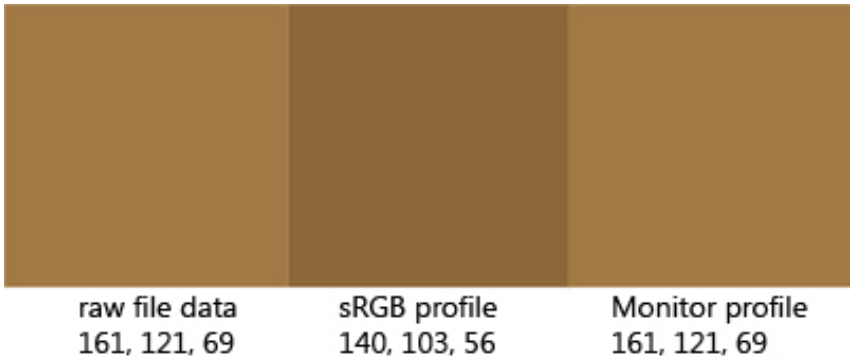
Setting Up Photoshop

After you have calibrated your monitor, the next thing to manage is Photoshop. This is where things become slightly more complicated. You have two goals for color management in Photoshop. The first is to avoid color shifting when your file is exported and displayed in a Web browser. The second is to save the color data in the file so that it can be used and viewed consistently across different platforms.

Color Management Module (CMM)

Photoshop works with a Color Management Module (CMM), which is used to convert colors between ICC profiles. At the core of the module is the Profile Connection Space (PCS). This is the engine that processes a file's raw data along with its ICC profile and tells the target device how to display it based on its profile.

Understanding this process is important, because the colors you see in Photoshop are not necessarily the actual colors of the file. For example, if your working space is set to sRGB (more on this in the next section), and you examine a brownish color (let's say 161, 121, 69) using the Mac's DigitalColor Meter, you'll notice that the display is actually outputting 140, 103, 56. That's quite a shift, especially in the blue channel. This is because the document is telling the PCS that the file should be converted first to the sRGB profile and then converted to the monitor's profile. In order to view the raw color values, we can assign the document a different profile by going to



Color shifting from raw data with an sRGB profile and monitor profile.

Edit → Assign Profile. If we change the Profile in the drop-down menu to our monitor's profile, then the colors will shift to display at their actual values. So, now our document is telling the PCS to convert the raw data directly to the monitor's profile, thereby bypassing the sRGB conversion, which caused the initial color shift. This can be quite confusing, and discrepancies in the working space can cause a massive headache once you introduce the browser into the workflow. Many browsers completely ignore embedded ICC profiles, and the GIF and PNG formats don't even support them. This leads to color shifts and can even cause browsers to render an image differently. Luckily, there's a way to simplify the whole process: by properly managing your working space.

Color Settings

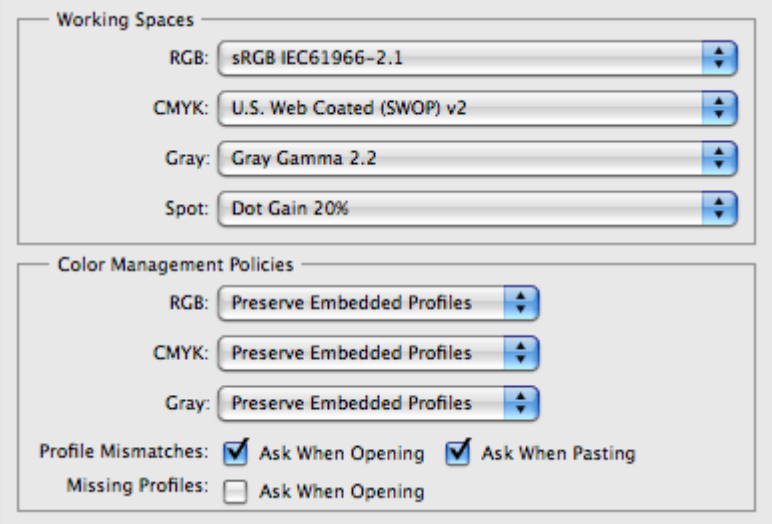
If left at its defaults, Photoshop will export files that shift in color when viewed in the browser. This is due to Photoshop's default working space, which is Adobe RGB. While this profile is great for photographic work that's meant to be printed, it will wreak havoc on your Web designs. For this reason, you need to change your working space. There seems to be two schools of thought on which working space is best for the Web. Some argue that the working space profile should match your monitor's profile, while others suggest using sRGB. Both of these methods can actually achieve the same result, but in different ways.

Using your monitor's profile as the working space has the benefit of simplicity. There's no need for any conversion or proofing. However, you need to ensure that the "Convert to sRGB" option is turned off in the "Save for Web and Devices" dialog. Otherwise, your colors will shift. This method is extremely simple and works well for a one-person shop. However, you are essentially binding the document to the monitor's profile. If you were to open the PSD on a different machine, the color values will remain the same, but they will display differently, which can be quite deceiving.

To maintain the highest degree of consistency in both your exports and your PSDs, I recommend using a set standard for all your working spaces: sRGB. The sRGB profile provides a baseline from which all machines can accurately reproduce color. However, when you set the working space to sRGB, the document's appearance will not match what is ultimately rendered in the browser (unless you embed an ICC profile and the browser is adept at interpreting it).

This can be easily remedied by working with a soft proof. Under View → Proof Setup, change the setting to "Monitor RGB." Then, make sure that View → Proof Colors is checked. You should see a change in your document. This is identical to how the image will appear in the browser. Working with Proof Colors can be tricky to remember, but it's worth getting into the habit of proofing.

The bottom line here is that using an sRGB working space is the best solution for ensuring consistency in Photoshop and in exported images. That being said, make sure while you're working to have your Proof Colors on and set to your monitor's profile. When you "Save for Web and Devices," it doesn't matter whether "Convert to sRGB" is on or off, but make sure that "Embed Color Profile" is off.



The Color Settings dialog with the RGB Working Space set to sRGB.

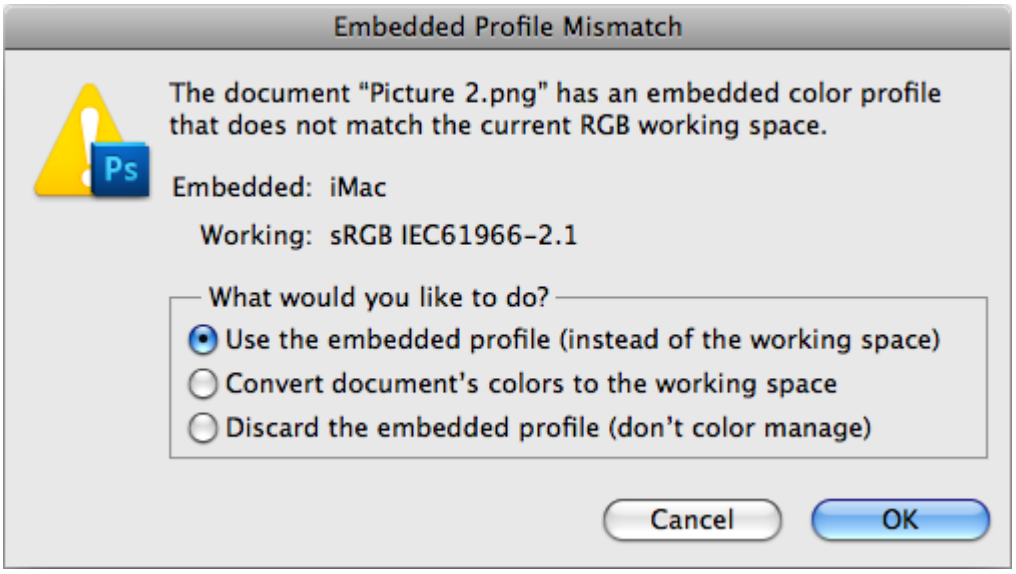
To change your working space, open the Color Settings dialog (Edit → Color Settings). You can then change the RGB Working Space to sRGB IEC61966-2.1. You'll also notice a number of other settings in this dialog.

Aside: Modern Browsers and Color Management

In the past, all browsers completely ignored embedded ICC profiles. However, more and more browsers are starting to accept them. Once all browsers are up to date on color management, your workflow will vary from what we've just discussed. Fortunately, you'll already be accustomed to working in the sRGB color space, and you'll only need to start including the profile when saving your files by checking the "Embed Color Profile" option.

Color Management Policies

The Color Management Policies section gives you control over how discrepancies in profiles are handled. For example, when copying and pasting an image with a profile other than the current working space, you'll want to control how that file is converted. I recommend leaving RGB, CMYK and Gray on "Preserve Embedded Profiles," with both of the Profile Mismatches checked. When you open or paste a file with an opposing profile, Photoshop will ask whether you'd like to convert the file to the current working space, keep the current profile or ignore color management altogether.



When a file's profile doesn't match the current working space, the Color Management Policies determine how to handle the discrepancy.

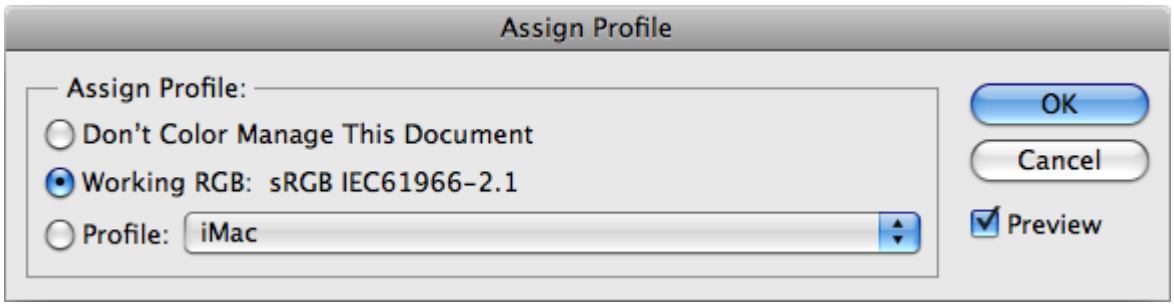
Note that the conversion process from one profile to another is destructive. The sRGB color space is, in fact, significantly smaller than, say, Adobe RGB. Therefore, when converting from Adobe RGB to sRGB, you'll be clipping a lot of data. This is a necessary evil and should be done only when necessary.

Conversion Options and Advanced Options

If you click the "More Options" button in the Color Settings dialog box, you'll be presented with a couple of extra options. The first are the Conversion Options, which control how images in one profile are converted to another. These are pretty advanced options and probably don't need to be altered for a typical Web design workflow. However, you may have some luck changing the Intent to "Absolute Colorimetric" when converting extremely sensitive colors, such as those found in a logo. The Advanced Options are less useful when working on the Web. They're basically used to simulate other devices and print output. On the whole, these options can all be left as they are.

Assign Profile

The "Assign Profile" option can be used to change the profile associated with a document without actually converting the data. This can be helpful if a document has somehow lost its profile but you know the profile that should be associated with it. Otherwise, using this option is a shot in the dark. You can cycle through different profiles and might hit one that properly reproduces the original.

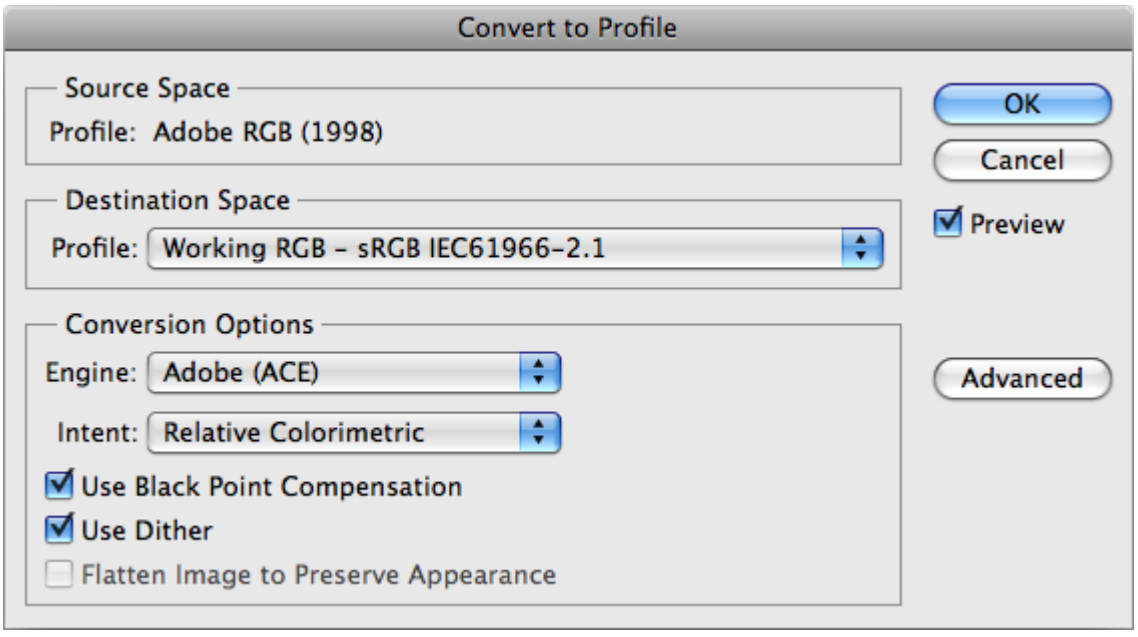


The Assign Profile dialog can be used to shift an image's profile without conversion or gamut clipping.

Convert to Profile

If an image contains a profile other than the current working space, it will need to be converted before it can be included in your sRGB document. As stated, converting a document to a different profile will result in destruction of the raw data. Therefore, aim to convert a file only once: from its source space directly to the working space.

Photoshop uses a rendering engine to process from the source space to the destination space using different algorithms. Each algorithm (or "Intent" as it's referred to in the dialog) specializes in a different kind of conversion. Sticking with the default of "Relative Colorimetric" is probably best, because it seeks to reproduce colors as close to their originals as possible while preserving highlight values. The "Absolute Colorimetric" intent can be used to try to preserve signature colors. "Perceptual" aims to reproduce colors the way the human eye perceives them while straying from the raw color values; this can used to some effect in converting photographs. Finally, the "Saturation" intent pumps up the saturation without staying true to the original colors and their relativity to each other.



The "Convert to Profile" dialog converts raw color data to fit the gamut of the Destination Space.

The Quick Set-Up

To recap, setting up your system for color management is extremely important for reproducing your Photoshop document on the Web. And while Color Management as a subject can be confusing, the set-up is really quite simple:

1. Calibrate your monitor with a gamma of 2.2 and a white point of D65.
2. Set Photoshop's working space to sRGB.
3. Use Photoshop's "Proof Colors" command to proof all documents in Monitor RGB.

Chapter 2, **Paths**

Photoshop is such a robust application that performing a simple task can often be done in three or four different ways. While the case could be made that you should work with whatever tools you feel most comfortable with, there are certain cases in which one methodology proves to be superior.

Using paths is one method that will change your entire approach to Web design. You could, of course, build your document using raster layers, but the flexibility inherent to paths allows you to quickly and easily resize elements without losing quality, making them the perfect foundation for interfaces.

Despite the ease and precision afforded by paths, many designers shy away from them — perhaps because Illustrator is regarded as Adobe's vector platform and Photoshop primarily as the raster platform. While Illustrator's vector tools are much more powerful, Photoshop's added benefit lies in its ability to blend vector and raster data together seamlessly. Because Photoshop documents are based on a pixel grid, the path tools make them superior to Illustrator for designing on-screen media.

In this chapter, we'll cover the tools necessary to create flexible and pixel-perfect interface elements with paths.

Bézier Basics

Paths are the building blocks of the vector graphics format (a format that represents images based on mathematical equations). This is in contrast to the raster format, which uses a grid of pixels. Photoshop documents are unique in that they are based on a pixel grid but allow the use of vector elements. Vector paths are ultimately processed on the pixel grid, but the PSD format — as well as a few others, such as EPS and TIF — saves the vector data so that you never have to rasterize it. This dramatically increases flexibility and productivity, making paths an indispensable tool.

Paths consist of a series of anchor points, each of which has two handles that dictate the curvature of the lines connecting it to other anchor points. The mathematical basis of paths allows them to be scaled indefinitely without losing the smoothness of their curves (referred to as Bézier curves). Photoshop provides a number of tools that allow you to create and modify paths, and there is a variety of ways to implement them.

Path Creation Tools

Pen Tool

The Pen Tool (P) is the most dynamic path creation tool available to Web designers. While it is not really suited to creating geometric shapes, it shines with organic forms. It provides a precise means for creating paths, but it requires an experienced hand to plot naturally flowing curves. A lot of practice is necessary to feel comfortable with it, but mastering the Pen Tool is well worth the time invested.

Photoshop provides two different pen tools: the standard Pen and the Freeform Pen. Although it requires manually drawing every line segment, the standard Pen Tool is best suited to nearly every task. The Freeform Pen can be handy — with the

Magnetic option turned on — for quickly tracing an object, but the path is rarely as clean as it should be. At first, using the Pen Tool involves a lot of trial and error, but rest assured, there is a methodology to creating well-formed paths.

Start in a Corner

The first point in a path is probably the trickiest, because you cannot see how the final point in the path connects to it. For this reason, starting in a sharp corner is best. This way, when you reach the end of the path you won't have to worry about the smoothness of the curve.

Add Points Where Necessary

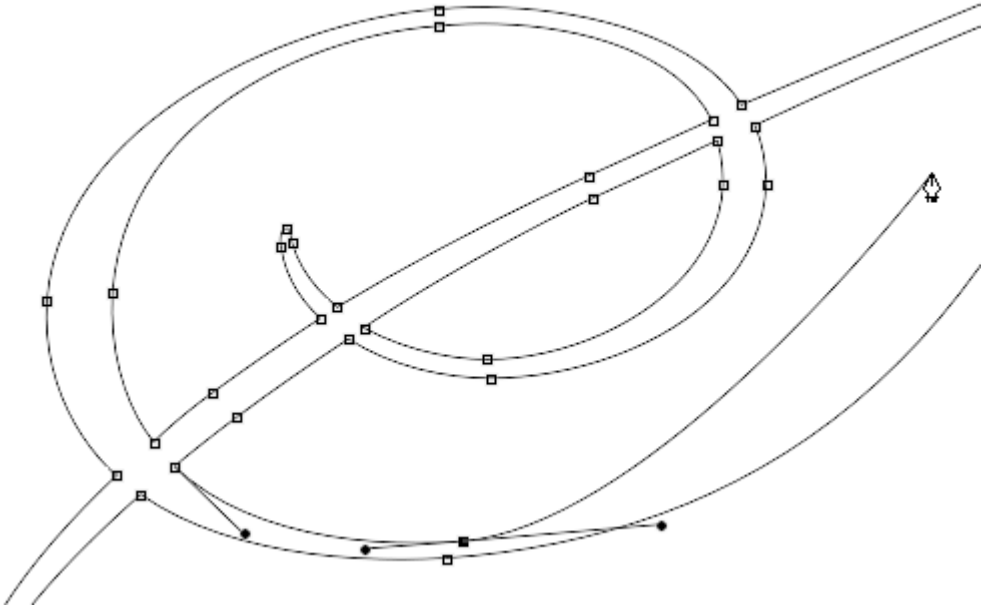
First, add points wherever there is an abruptness or sharp change in direction. The directional handles on these points will typically create an acute angle, if any handles are even necessary. "On-curve" points are a little trickier. Add them where they feel most natural — typically at or near all optical apexes.

Keep Points to a Minimum

It may seem that the more points that are along your path, the more accurate the path will be. However, this typically makes for jagged and awkward paths. Using as few points as possible is always good practice. Just remember: the fewer, the smoother.

Use the Rubber Band Option

To set anchor points exactly where you'd like them, you can turn on the "Rubber Band" option, located in the drop-down menu next to the Custom Shape Tool button in the Pen's property bar. This setting allows you to see the curve connecting the last anchor point to the mouse's current position.



Pen Tool with the Rubber Band setting.

Spring-Loaded Tools

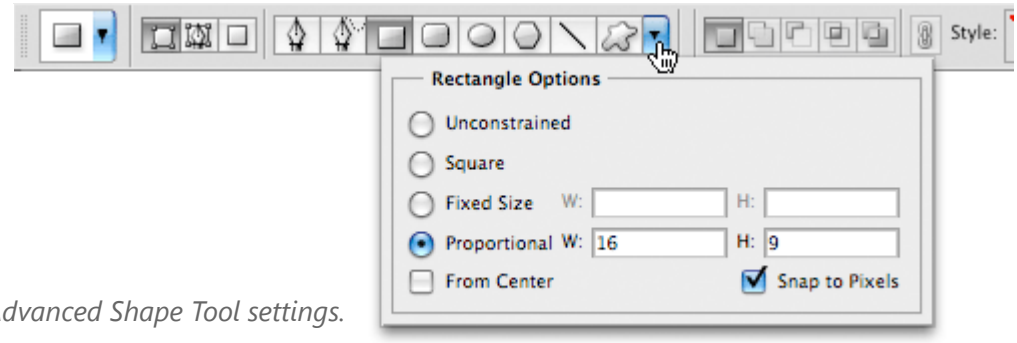
The Pen Tool has a number of hidden capabilities known as spring-loaded tools that make it the most powerful tool for creating and editing paths.

Convert to Point Tool: Option (Alt) while hovering over an anchor point
Direct Selection Tool: Command (Control)
Path Selection Tool: Command + Option (Control + Alt)
Group Selection Tool: Command + Option (Control + Alt) while hovering over a path segment or anchor point
Add Anchor Point Tool: Hover over path segment
Subtract Anchor Point Tool: Hover over anchor point

Shape Tool

The Shape Tool (U) gives you access to standard geometric shapes. Perhaps the most useful of the Shape Tools are the Rectangle and Rounded Rectangle Tools. These two tools are indispensable and can and should be used as the basis of a majority of your design elements: buttons, frames, masks, menu bars, etc.

Depending on the shape you're drawing, a few settings might help. First and foremost is the mode. Like the Pen Tool, the Shape Tool can be used in three different modes. These modes specify how the tool will implement the shape: as a shape layer, as a path or by filling pixels. For more information on these modes, refer to "Path Usage: Modes" on page 27. In addition to the mode, there are advanced options unique to the shape that can be found in the drop-down menu in the properties bar. These give you access to options such as snapping to pixels, constraining proportions, adding arrowheads, etc.



Advanced Shape Tool settings.

Photoshop also gives you the ability to create more complex shapes using the Custom Shape Tool. The default library is limited, but other libraries of custom shapes are accessible from the Shape drop-down's flyout menu. To define your own custom shape, select the shape's path using the Path Selection Tool (A), right-click inside the canvas, select "Define Custom Shape," name it and click OK. The shape will then be appended to the Shape drop-down in the property bar.

The Perfectionist's Way

Every Photoshop document is built on a grid of pixels, but paths are not constricted to the pixel grid like raster data is. An anchor point can actually reside between pixel edges. This can allow for greater flexibility when creating dynamic shapes, but it can also lead to undesirable anti-aliasing, especially along horizontal and vertical lines. One of the best ways to prevent this from happening is by using the Snap to Pixels option located in the Shape Tool's property bar. Now when drawing a shape, the beginning and end points are guaranteed to be perfectly aligned on the pixel grid.

On- and off-pixel edge comparison.

If you run into an off-pixel anchor point, it can be easily fixed by nudging it while zoomed in. First, zoom in as far as possible; the further zoomed in you are, the smaller the increment of each nudge. Then, use the Direct Selection Tool (A) to select the anchor point, and use the arrow keys to nudge it into position (clicking and dragging will move the anchor point in only one-pixel increments). The Pixel Grid (Show → Pixel Grid) comes in handy when doing this.

Type Tool

Converting type to a shape layer allows you to work directly with the anchors and curves of each letter, and it might even improve your typesetting. Because you will be sacrificing the ability to edit the text, this technique is most useful when you know that the text won't change. With the type layer selected, right-click the layer in the Layers palette and choose "Convert Type to Shape." You can now access the actual paths used to create the type. Thinking of type in this manner (as shapes instead

of letters) dramatically changes the way you work. Kerning is now more intuitive: just select a letter and move it — no pesky integers to set!

Type-to-path conversion.

Other Creation Methods

Selections

Editing paths is far superior to editing raster data, especially when it comes to scaling. If the raster shape is simple enough, why not convert it to a path? Select your shape, then from the flyout menu in the Paths palette, select "Make Work Path," or Option-click the "Make work path from selection" button at the bottom of the palette. Set the tolerance based on the complexity of the shape: the simpler the shape, the higher the tolerance. Click OK.

You'll notice that pixel-to-path conversion is not an exact science, but with some manual clean-up, you can effectively recreate the original shape.

Selection-to-path conversion.

Importing and Exporting

While Photoshop provides vector tools that are sufficient for many basic tasks, it in no way compares to the ease and power of Illustrator. Fortunately, Adobe products work in unison. You can create paths in Illustrator and easily import them by copying (Command/Control + C) and pasting (Command/Control + V) in Photoshop. In the paste dialog box, select either "Path" to import a Work Path or "Shape Layer" to create a fill layer with the foreground color. In case you need to translate your paths in the opposite direction, copying and pasting will work as above, or you can use Export → Paths to Illustrator to create a new Illustrator document with the same dimensions and positions as the current Photoshop document.

Pixel Perfection

Moving a shape such as a logo from Illustrator into Photoshop and having it anti-alias properly can be difficult. Importing it as a Smart Object allows you to resize and translate it as a whole until things line up better with the pixel grid. However, for maximum control over individual elements, try importing it as a shape layer. Now you can work with the individual paths to perfectly align every element. If the logo consists of multiple colors, you may need to import the entire logo as a shape layer and then separate each color into its own shape layer. While this may not work for more complex shapes, the improvement in crispness can be extreme.

Path Usage

Modes

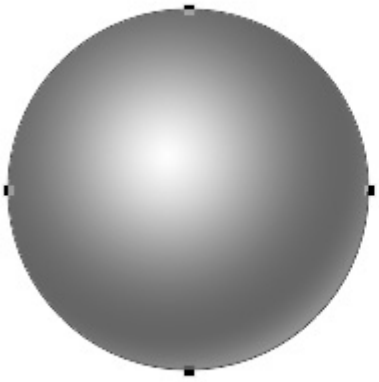
When creating paths via the Pen or Shape Tool, three settings — found in the tool's property bar — are available to define how the path should be used: Shape Layer, Paths and Fill Pixels. The Shape Layer setting automatically creates a new fill layer using the color and layer style set to the right.

Paths create a temporary Work Path accessible in the Paths palette, which makes it available for many different implementations. Fill Pixels paints raster data on the current layer, leaving no paths behind.

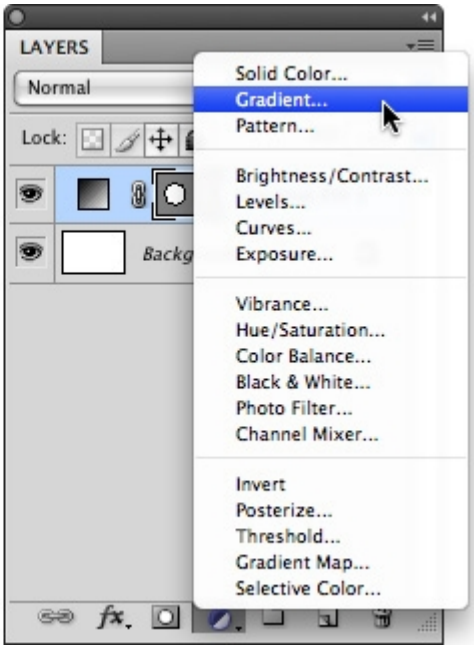
Pen Tool set to create a Shape Layer.

Shape Layer

Shape layers are the key to flexible interface construction. The ability to quickly resize, reshape and recolor them can save you hours of frustration on large projects. They are ideal for creating one-layer buttons and can even be filled with gradients or patterns without the use of layer styles.



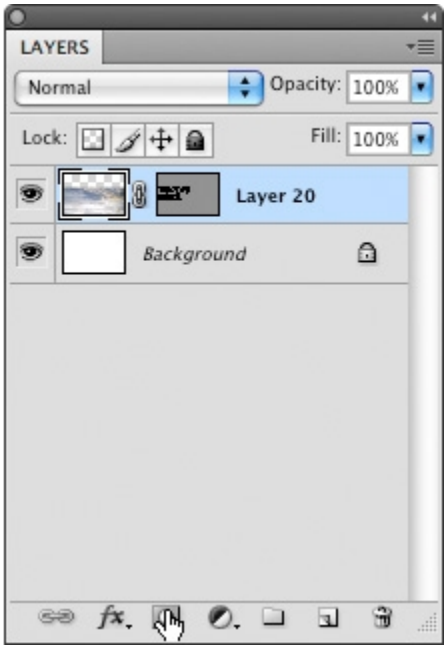
Creating a gradient shape layer.



A shape layer is essentially a fill layer with a vector mask. It can be created as a solid color, gradient or pattern, although only the foremost is explicitly available. The easiest way to create a shape layer is to use a path drawing tool set to Shape Layer. However, setting the tool to Paths allows you to specify the type of fill to be used. First, draw your path. Then, click the "Create new fill or adjustment layer" in the Layer's palette and choose from Solid, Gradient or Pattern. Note that you can also create an adjustment layer with a vector mask in the same manner.

Vector Mask

Vector masks are often preferable to raster masks because they can be easily tweaked and scaled and still produce a crisp edge. With CS4's introduction of the Masks palette, vector masks are more powerful than ever. Now, you can feather the edges and adjust the density of a vector mask. The quickest way to create a vector mask is to select the layer you wish to mask. Then, select the path using the Path Selection Tool (A) and Command-click (Control-click) the "Add Layer Mask" button at the bottom of the Layer's palette.



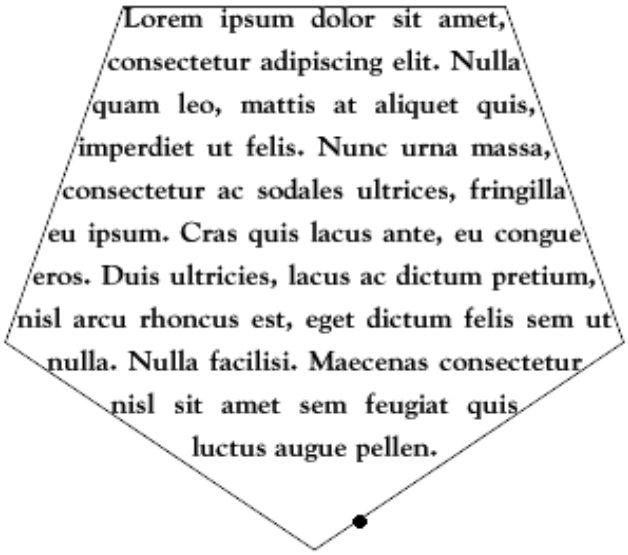
Command-clicking (Control-clicking to quickly create a Vector Mask.

Type Paths: In and On

Type on a path.

There are two ways to use paths with the type tool: by defining the baseline or by creating a custom text box shape. Select the work path you'd like to use, and with the Type Tool (T) mouse over the path.

The dotted square on the cursor will change to a curved line. Click on the path, and you'll see that the type flows right along the path. After committing the type (Command / Control + Enter), you can use the Path Selection Tool (A) to move the beginning and end points — indicated by an "x" and a black circle, respectively — or to flip the type from the top of the line to the bottom. If using a closed path, you can click inside it to create a custom-shaped text box. These are helpful when wrapping text around an object.

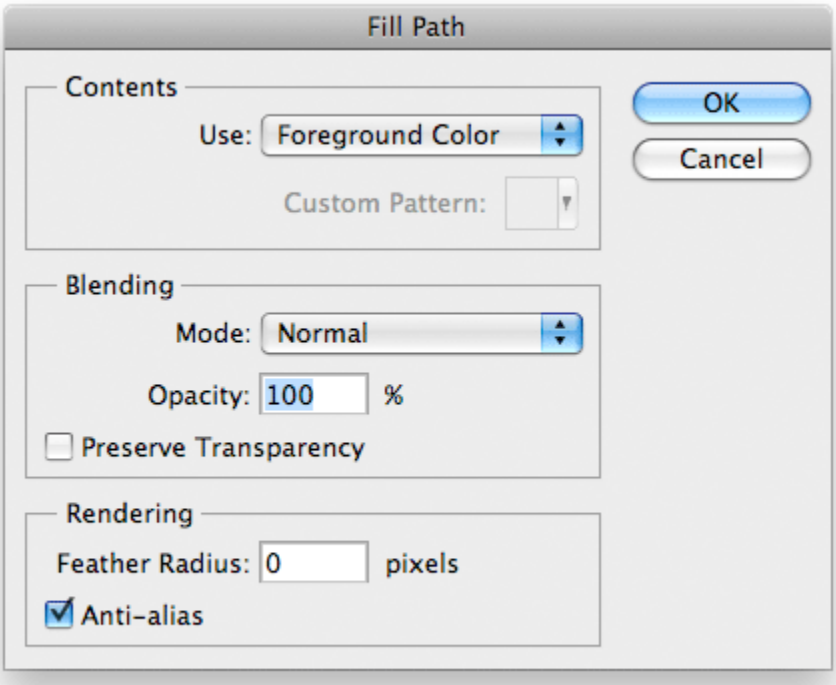


Type in a path.

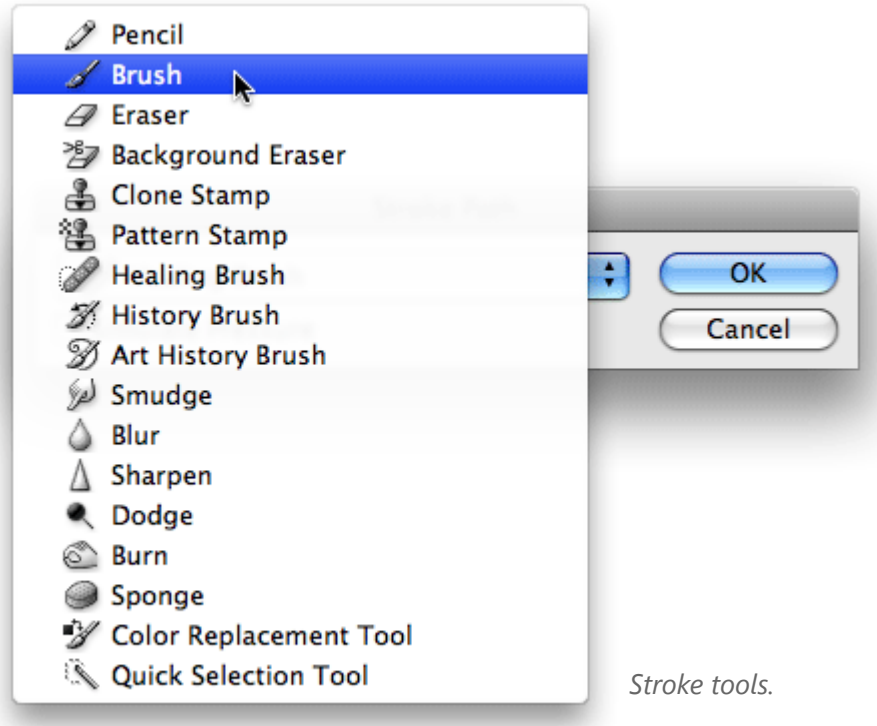
Fill and Stroke

The Paths palette provides an interesting array of options to fill and stroke a work path. These options are available only when the current layer is a raster layer — you can quickly create a new raster layer using Command + Option + Shift + N (Control + Alt + Shift + N). Then, by Option-clicking (Alt-clicking) on the "Fill path with foreground color" button, you can open the Fill Path dialog box.

From here, you can set the fill type, blending modes, transparency and feathering. Option-clicking (Alt-clicking) the "Stroke path with brush" button will open the Stroke Path dialog box, which allows you to choose a tool to stroke with. The stroke will adopt the foreground color and the selected tool's current settings.



Fill Path dialog box.

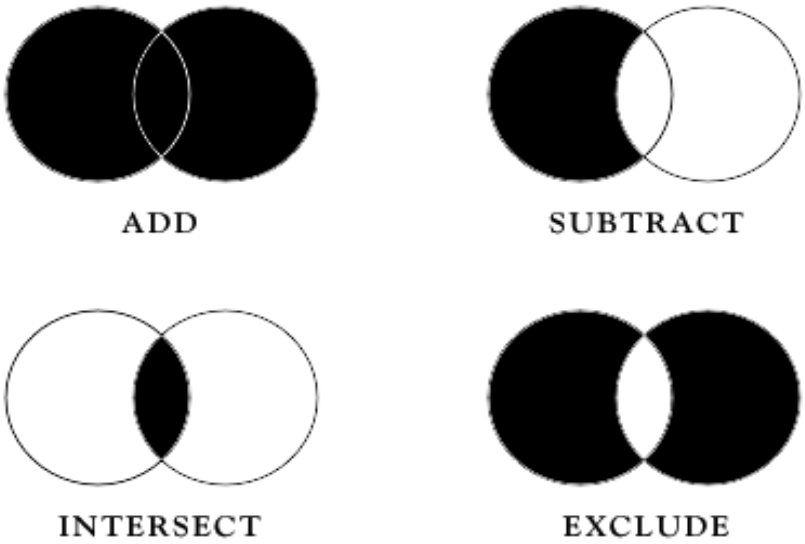


Stroke tools.

Boolean Operators

To allow for more complex shapes, multiple paths can be grouped together in a compound path, on which Boolean operations can be set.

These are accessible in the properties bar of the Pen Tool, Shape Tool and Path Selection Tool, and they include:



Boolean modes.

Add (+): specifies a fill area.

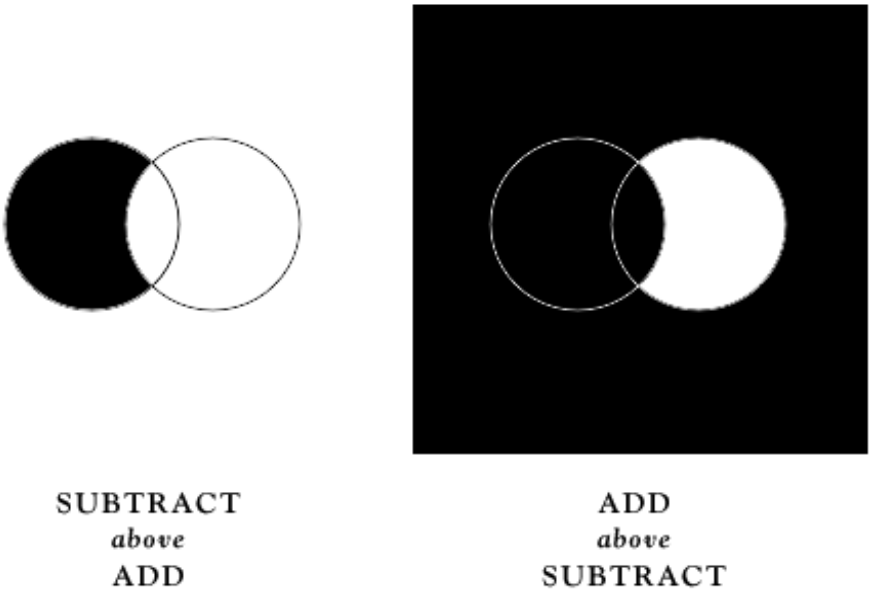
Subtract (-): defines an area that is not filled. If only one path exists, then the entire canvas is considered the fill area, from which the shape is subtracted.

Intersect: sets the fill to areas included in all paths.

Exclude: fills all path areas except those that overlap.

Stacking Order

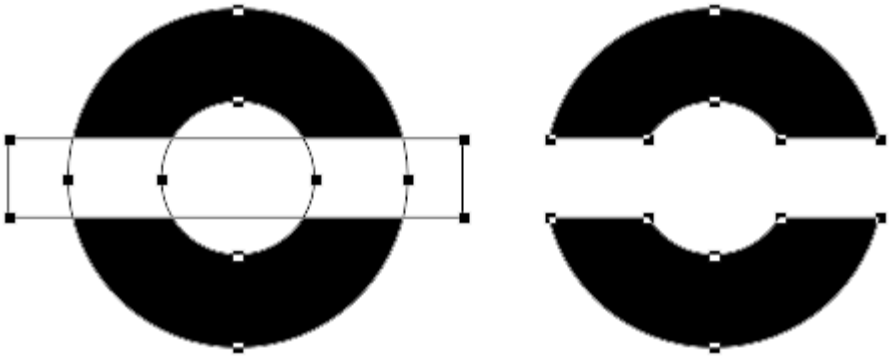
When creating compound paths, note the positions of the paths in the stacking order. A compound shape with an add path on the bottom and a subtract on top will be completely different with swapped depths. A path's Boolean operator takes effect on all of the paths below it. Unfortunately, there are no commands or palettes to simply swap depths in Photoshop; you'll need to use a series of cut (Command / Control + X) and paste (Command / Control + V) commands to rearrange them.



Path stacking order.

Combining

Combining paths can reduce complexity by creating a single path from the perimeter of a compound path's fill area. To do this, select the paths to combine using the Path Selection Tool (A), and click the Combine button in the Tool Properties bar.



Reducing complexity by combining Paths.

Quick Tips

One-Layer Buttons

Buttons are an unavoidable element in interface design. You'll undoubtedly need to create many of them, and maintaining a consistent style for every button will maximize usability. By simplifying buttons to a single resizable layer, the task of replicating and managing buttons is made much easier. Using paths in conjunction with layer styles is assuredly the best basis for achieving concise buttons.

Step by Step

1. Select the Rounded Rectangle Tool, and set the mode to Paths and the Radius to 6 pixels. It's a good idea to open the advanced settings and turn on Snap to Pixels.
2. Draw an elongated rectangle.

3. In the Layer's palette, click the "Create new fill or adjustment layer" button, and choose "Gradient."
4. Click the gradient's icon to edit it. Set the right color stop to a dark red color and the left stop to a brighter orange color. Drag the bottom-right slider over so that its Location reads 45%, and click OK.
5. Click OK to close the Gradient Fill dialog box. Then, open the Blending Options dialog by Option + double-clicking (Alt + double-clicking) the layer's thumbnail in the layer's palette.
6. Add a Gradient Overlay, and click on the gradient's thumbnail. Change both of the color stops to white.
7. Modify the left opacity stop to 0%, and make sure the right opacity stop is set to 100%. Also, create two new opacity stops by clicking directly above the gradient bar. Set the first's location to 49% and its opacity to 0%. Place the second at 50%, and set its opacity to 25%. Then, click OK.
8. Change the Blend Mode to Linear Dodge (Add), and knock the opacity down to about 65%.

You should now have a shiny new button contained nicely on one layer. Because the button was built with paths and styles, you can easily resize it to use throughout your design.

Wrapping Type

Photoshop's Type Tool is not nearly as robust as Illustrator's or InDesign's, but you can still achieve many of the same effects through various workarounds. The Type Tool allows you to click and drag to create a paragraph text block. However, there's no way to then alter the shape of the text block to anything but a rectangle. By first creating a work path in the desired shape, you can then turn it into a type holder by selecting the Type Tool (T) and clicking inside the shape. You can then modify the path, and the text will automatically wrap inside the shape.

Keyboard Shortcuts

Pen Tool (P)

Shift + P	toggle between Pen Tool and Freeform Pen Tool
Shift	constrains to 45° angles
Option	change to Convert to Point Tool, used to set directional handles
Command (Control)	change to Directt Selection Tool, used to move anchor points or stretch line segments
Command + Shift (Control + Shift)	select multiple anchor points and segments
Command + Option (Control + Alt)	change to Group Selection Tool, used to select entire paths
Command + Option + Shift (Control + Alt + Shift)	select multiple paths
+	set Boolean mode to Add
-	set Boolean mode to Subtract

Shape Tool (U)

Shift + U	rotate through Shape tools
Shift	constrain proportions

Option (Alt) while dragging	draw from center of shape
Option (Alt) before clicking, if set to create Shape Layers	temporarily switch to Eye-Dropper tool
Option (Alt) before and while dragging, if set to create Paths	set Boolean mode to Subtract
Option + Shift (Alt + Shift) before and while dragging, if set to create Paths	set Boolean mode to Intersect
Command (Control)	change to Path Selection Tool, used to select and move paths
Command + Shift (Control + Shift)	select multiple paths
+	set Boolean mode to Add
-	set Boolean mode to Subtract
Space bar (while dragging)	move the shape's origint

Path Selection Tool (A)

Shift + A or Command-click (Control-click) inside document window	toggle between Path Selection Tool and Direct Selection Tool
Shift + Click	select multiple
Shift + Drag	move and snap to 45° angles
Command + Option (Control + Alt)	convert to Shape Tool
Command + Option + Shift (Control + Alt + Shift)	convert to Shape Tool (constrained to 45° angles)
Option (Alt)	change to Group Selection Tool

Option + Click + Drag (Alt + Click + Drag)	duplicate selected path
Arrow	nudge selected path or anchor point 1 pixel
Shift + Arrow	nudge selected path or anchor point 10 pixels
Option + Arrow (Alt + Arrow)	duplicate selected path or anchor point and move copy 1 pixel
Option + Shift + Arrow (Alt + Shift + Arrow)	duplicate selected path or anchor point and move copy 10 pixels

Target Path

Enter	dismiss target path
Command + Enter (Control + Enter)	selection from target path
Command + Option + Enter (Control + Alt + Enter)	subtract path area from current selection
Command + Option + Shift + Enter (Control + Alt + Shift + Enter)	intersect path area from current selection
Command + T (Control + T)	Free Transform Path
Command + Shift + T (Control + Shift + T)	Free Transform Path again
Command + C (Control + C)	copy path or anchor point with neighboring points
Command + X (Control + X)	cut path or anchor point with

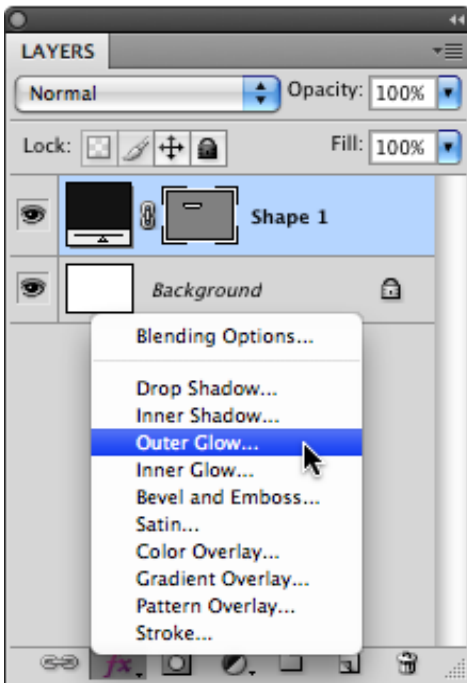
Chapter 3, **Layer Styles**

In the previous chapter, we covered the benefits of using paths in your documents, but paths alone can make for a rather dull design. This is where Photoshop's Layer Styles come in. They allow you to add depth and tactility; and because they can be easily copied and modified, they help maintain consistency across different elements of a website.

Layer Styles are essential to creating flexible and non-degradable documents, because they're separated from the layer's actual content. In this chapter, we'll cover how to create great-looking and reusable styles. We'll also cover some unique effects and non-typical uses that help to consolidate excess layers.

Basics

Layer Styles are a set of commonly used effects that can be applied to a layer without affecting the data of the layer itself. Before Layer Styles were introduced, these effects had to be created manually using numerous layers and adjustments. This often resulted in a mess of layers just to create one simple effect. Now with a few clicks, we can easily create, duplicate, modify and remove styles. Learning when and how to use Layer Styles can greatly increase a designer's productivity.



The "Add a layer style" menu gives you quick access to individual effects.

The Layer Styles dialog box is not readily available but can be quickly accessed in a few ways. My personal favorite is by double-clicking on a layer's thumbnail in the Layers palette — if it's a shape or type layer, then you'll need to Option + double-click (Alt + double-click).

You can also Control-click (right-click) on a layer and select "Blending Options" or use the "Add a layer style" button at the bottom of the Layers palette to select a particular effect.

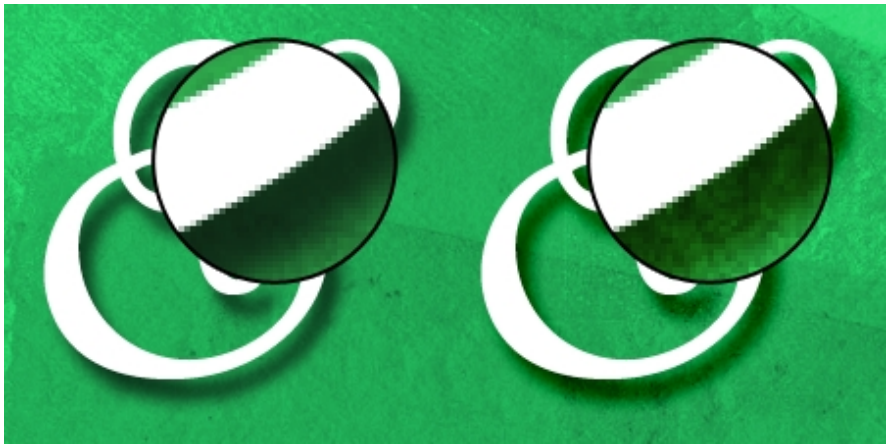
Effects

Along the left side of the dialog box is a menu with a number of effects. Adding an effect can be as simple as clicking one of the check boxes. However, the default is rarely appropriate. To access more options for the effect, you must click on its name. Each effect has a number of settings that can be tweaked: blend mode, color, size, contour, etc. While there is no magic formula for creating a great layer style, there

are some techniques you can employ to maximize your effort. Below are some tips to help you get better results from your layer styles.

Blend Modes for Better Color

The default blend modes for some of the effects are good enough, but they can often appear dull and unnatural. For example, using Multiply for a black drop shadow against a brightly colored background can result in a shadow that is abnormally gray, breaking the sense of reality.



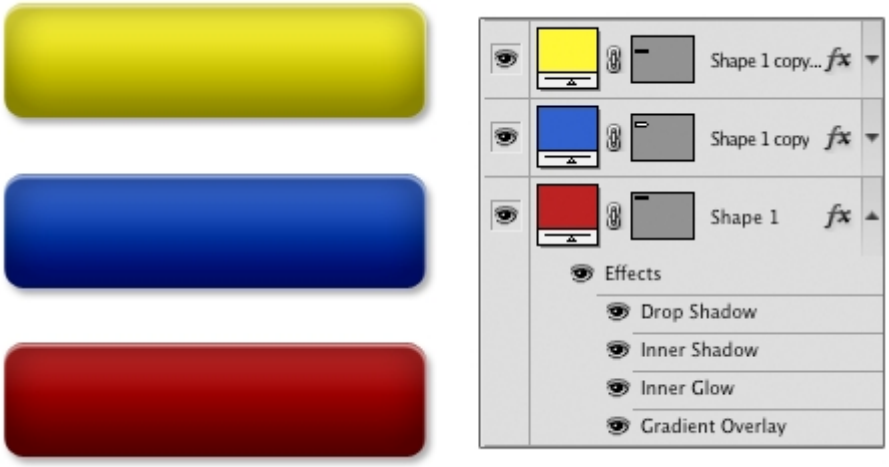
Changing the blend mode from Multiply (left) to Linear Burn (right) can pump some life into a dull effect.

By changing the Blend Mode to Linear Burn and also reducing the opacity, the shadow will adopt more color from the background. The very same technique works well for effects that typically use Screen. Changing it to Linear Dodge will be more intense, but when the opacity is reduced you can achieve a more realistic feel.

Color-Independent Effects

When possible, keep absolute color values out of your layer styles. Especially with things like buttons, which can be of myriad colors, you may want to try building a layer style with relative effects. For example, if we have two simple buttons, one blue and one red, we could add a Gradient Overlay that gradates from a bright red to a dark red for the first and a bright blue to a dark blue for the second.

However, if the layers are already red and blue, then we can simply add a gradient that ramps from black to white and change the blend mode to Linear Burn. We can then reuse one layer style for buttons of any color while maintaining a consistent look.



Using the same layer style with color-independent effects for our buttons provides consistency and flexibility.

Remember the Stacking Order

You may have noticed that sometimes an effect isn't visible when another effect is being used. For example, a Color Overlay seems to override a Gradient Overlay. This is due to the Layer Styles stacking order. Just as with the Layer's Palette, one layer will cover another that is lower in the stacking order.

Unfortunately, the Layer Styles menu doesn't allow you to rearrange the order of effects. One way around this (although you will sacrifice the ability to edit) is to use Create Layers, which will turn all of your Layer Style effects into actual layers that you can then move (see page 50).

Interior Effects Stacking Order:

- Bevel and Emboss
- Stroke
- Inner Shadow
- Inner Glow
- Satin
- Color Overlay
- Gradient Overlay
- Pattern Overlay

Exterior Effects Stacking Order:

- Stroke
- Outer Glow
- Drop Shadow

Avoid Bevel and Emboss

Bevel and Emboss is great in theory but pretty ugly in practice. It is quite possibly the most abused layer style in the arsenal. We've all witnessed poor typography made worse with a gaudy Bevel and Emboss. Photoshop's attempts to simulate light and shadow on a beveled surface are quirky and unrealistic. This is not to say that a beveled look can't be created using layer styles; there is simply a better method. By using a combination of Inner Shadow and Inner Glow, you can create a crisper and more customizable bevel. Use a black Inner Glow set to Multiply or Linear Burn for a shadow. Then, use a white Inner Shadow set to Linear Dodge for the highlight.

This technique gives you far better control of the output and is great for buttons and beveled UI elements.

Bevel and Emboss (left) can quickly add dimension, but it creates unsightly ridges. Using a combination of Inner Shadow and Inner Glow can create much smoother results, even though you sacrifice certain gradations.

Change the Light's Angle

The Inner Shadow and Drop Shadow effects are cast based on the Angle setting. By default, this is set to 120°, which corresponds to our gestalt's preference for an upper-left light source. This, however, is not always ideal. In fact, because this angle is slightly more upward than leftward, adding a tight drop shadow can look awkward.

Changing it to 135° will give you perfectly upper-left angled effects. For example, by changing the angle to 135°, setting the size to 0 and the distance to 1, we add an evenly distributed shadow to the bottom and right of an object.

The default 120° light angle (left) renders asymmetrical shadows. Changing it to 135° evens things out (right).

Blend Options

The Blend Options menu gives you control over how the layer and its effects blend with the rest of the document. In addition to the standard fill, opacity and blend mode settings, you also have controls for the application of masks, value-based blending sliders, layer-only channels and more. These options are powerful and worth going into in depth.

General Blending

The two settings in the General Blending section should be pretty familiar. They're the same controls found on the Layers palette. Blend mode changes how the entire layer blends with the layers below it, and opacity changes the transparency along with all of its effects.

Advanced Blending

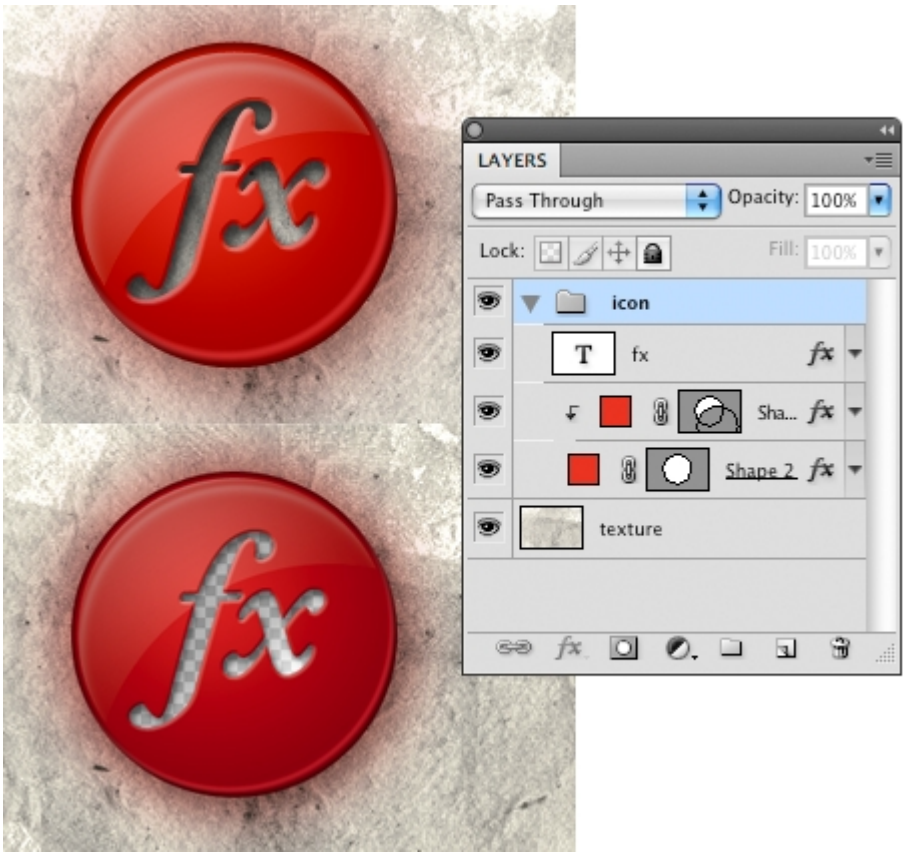
In the Advanced Blending section are some really powerful settings that are often overlooked. The Fill Opacity setting is the same as the Fill in the Layers palette: it controls the transparency of the actual layer data and not any of the effects applied to it. The Channels check boxes allow you to control which channels of the current layer are shown.

The Channels check boxes allow you to toggle individual channels of the current layer. Above, the original photo (left) and its red and green channels (right).

Knockout provides two options for subtracting the current layer from the layers below it. By using Shallow or Deep, all opaque pixels on the current layer will cut through the layers below it. If the layer's fill is set to 100%, this may not be immediately obvious, but after changing it to 0% you should see underlying layers showing through.

The layer that comes through the Knockout depends on which setting you've used and where the current layer is in the layer stack. The Deep setting will always show the background layer. If there is no background layer, then the area will be

transparent. Shallow works the same way as Deep, unless the current layer is in a group, in which case it cuts through to the bottom-most layer of the group. These settings can be really handy for removing certain areas of a large stack of layers.



The Knockout command allows a layer to cut through the layers below it. Shallow (top) cuts through all layers in the current group, and Deep (bottom) cuts through the Background layer or (if one does not exist) allows full transparency.

Tip

You can turn any layer into a background layer by selecting Layer → New → Background from Layer. There are five additional options in the Advanced Blending section that deal primarily with how the layer's effects are defined. By default, "Blend Clipped Layers as Group" and "Transparency Shapes Layer" are checked. Blend Clipped Layers as Group controls how the blending modes of any clipped layers affect the layer they're clipped to. With this option selected, all clipped layers will

first blend with the base layer, and then the composited base layer will apply its blend mode to the layers beneath it.

However, when the Blend Clipped Layers as Group option is turned off, each of the clipped layers and the base layer will apply their individual blend modes. Transparency Shapes Layer controls the area within which the effects are constrained. If checked, the layer's data acts as bounds for the effects. Otherwise, the bounds will be the entire canvas, and certain effects will not render.

The Blend Interior Effects as Group option will cause all effects that modify the original layer data to act as part of it. For example, if a layer has a default gradient overlay on it, and we turn the Fill Opacity to 0%, then the gradient will still be displayed at 100% opacity. However, if we now turn on Blend Interior Effects as Group, then the gradient will also adopt the 0% opacity.

The Satin effect set to Screen looks unnatural by default (top), but using the Blend Interior Effects as Group (bottom) creates a much better effect.

The final two options ("Layer Mask Hides Effects" and "Vector Mask Hides Effects") modify the bounds that define the effects. When they're both unchecked, any opaque areas of the layer are used to define the bounds. Turning one of these options on removes the mask's influence on the boundaries and instead hides any effects lying outside of its active area.

By default, effects aren't hidden by layer or vector masks (left). Changing this to Layer Mask Hides Effects (middle) or Vector Mask Hides Effects (right) helps smoothen out strange effects.

Blend If

The Blend If sliders make short work of simple extractions

At the bottom of the Blending Options menu are two extremely powerful sliders, which control the transparency of pixels. This Layer slider dictates the transparency of each pixel of the current layer based on its bit value (from 0 to 255). Sliding the black stops to the right gradually causes the darkest pixels of the layer to become completely transparent, and dragging the white stops to the left in turn causes the lightest pixels to disappear. This is extremely helpful when extracting something like a logo from a white background. However, you'll notice that there's no gradation in transparency, resulting in unsightly aliased edges. To achieve a smooth anti-aliased edge, you need to split the color stops. By holding Option (Alt), you can move each

half of the color stop independently. The Underlying Layer slider works in a similar fashion, except that it bases the transparency of the current layer on the bit values of the visible data below it. You can also set the opacity based on values from a particular channel by changing the settings in the Blend If drop-down menu.

Contextual Controls

The Layers palette has some convenient, though inconspicuous, options to help you manage styles. By right-clicking on either the fx icon or the effects list, you can quickly access the blending options or any of the effects. What's more, you're also given copy, paste and clear controls and the ability to show or hide all effects, create layers and control the global light.

Copy, Paste and Clear Layer Style

Selecting Copy Layer Style will copy all of the effects of the current layer, after which you can use the Paste Layer Style command to apply the same effects and blending options to one or more layers. The copy command can also be done by holding Option (Alt) while dragging the fx icon to a different layer; however, this will not copy any blending options.

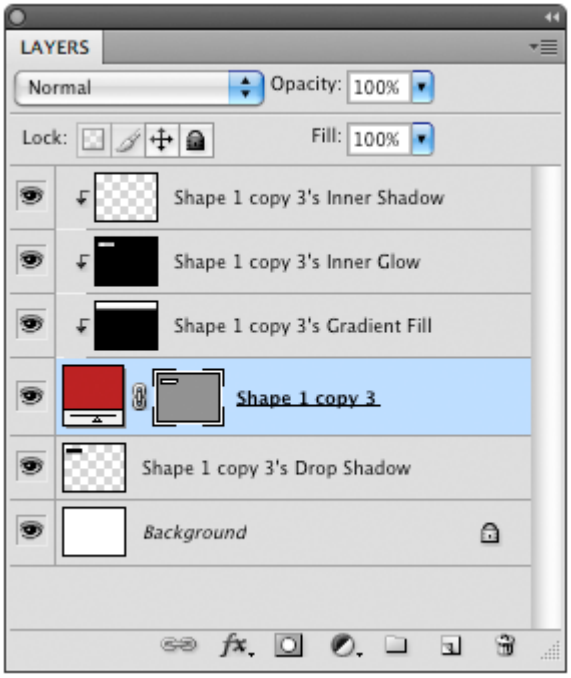
Clear Layer Style allows you to remove all effects and blending options from the selected layer. Alternatively, if you'd like to remove only the effects, you can simply drag the fx icon to the trash can at the bottom of the Layers palette.

Show or Hide All Effects

Hide All Effects is an interesting option. It allows you to hide not only the effects on the selected layer but all of the effects in the document. This can be useful when inspecting the core structure of a website and the styles have become distracting.

Create Layers

The Create Layers command allows you to break styles into individual layers (right-click on a layer style list on the Layers palette and select Create Layers). But in doing so, you sacrifice the ability to edit them via the Layer Styles dialog. Certain layer styles will break when converted to layers, and some will need to be remasked. Breaking the style into layers can help you double up effects on the original layer (e.g. two strokes) or apply effects to effects themselves (e.g. strokes with strokes).



The Create Layers command allows you to change the stacking order of effects.

Global Light

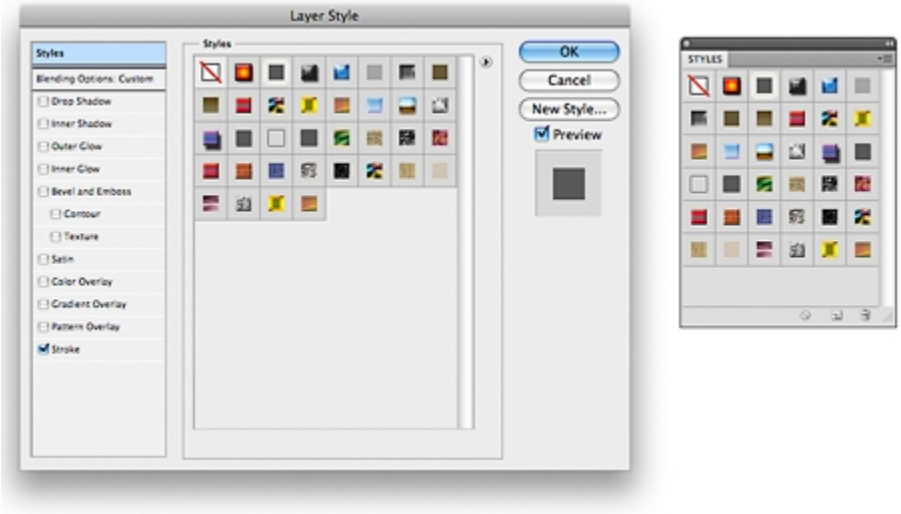
If you're applying a global light to your styles, you can quickly modify the angle and altitude from the Effects contextual menu.

Saving and Loading Styles

Once you've created a top-notch layer style, you'll undoubtedly want to save it for later use. By clicking the New Style button in the Layer Style dialog, you can append your layer style to the current list of styles. You can even save the opacity, fill and other blending options by checking "Include Layer Blending Options." After a style has been created, it can be accessed in a few places. In the Layer Style dialog, you can view and manage styles by clicking the Styles tab. There is also a Styles palette (Window → Styles) that gives you the same management control as the Layer Style

dialog. You might also want to preset a style before creating new shapes. This can be done in the Shape Tool's properties bar using the Styles drop-down menu.

Building a library of styles can be really useful for large projects, especially when multiple designers are involved.



Building a library of commonly used layer styles can save you a lot of time and hassle, especially on large projects. It's also a good idea to save your most commonly used styles in an ASL file, which can be shared across workstations. This can be done through either the Style tab in the Layer Style dialog or the Styles palette by selecting Save Styles from the flyout menu. You can then save a file that contains all of the styles currently in the list. In the same manner, you can load ASL files by choosing Load Styles from the flyout menu.

Quick Tips

0% fill

Whether you're creating a transparent button, a simple border or anything else that calls for a layer style but not necessarily any layer data, a 0% fill can be extremely useful. Because you're stripping away only the original layer data, your layer styles will display at their respective opacities — essentially creating an effects-only layer.

A 0% fill opens a number of creative possibilities.

Invisible Strokes

Invisible inner strokes come in handy when you need to shrink the content of a layer proportionately inward from its perimeter. For example, creating a rounded rectangle inside another rounded rectangle while keeping proportionately smaller corner radii can be rather difficult. By using the same corner radius as the larger rectangle and adding an inner stroke with the opacity set to 0%, you can simply ramp up the size of the stroke to reduce the radius until it's perfectly in line.

A stroke set to 0% can be used to contract the perimeter of a layer.

Letterpress Type

A popular effect is simulated letterpress. By adding a white drop shadow with a size of 0, a distance of 1 and a blend mode set to Screen, you can create the effect of type (or any shape for that matter) being pressed into the background. Alternatively, if the background is a light shade, you can reverse the angle, change the color to black and change the blend mode to Multiply to create the same effect.

Drop shadows can be used to create a subtle letterpress effect.

Scaling Effects

There may be times when you've created a Layer Style that looks great at the original size, but when the shape is increased or decreased your beautiful style is destroyed. Fortunately, Photoshop provides a method for adjusting out-of-whack styles. Simply choose Layer → Layer Style → Scale Effects, and input the percentage to fit your needs.

Inconspicuous Menu Options and Spring-Loaded Tools

A number of hidden commands are available to you in the Layer Styles menu. Depending on the effect, you can gain access to either the Hand tool or the Move tool by simply mousing over the document window. The Hand tool allows you to move the document around just as it would outside of the Layer Styles menu, and the Move tool repositions the current effect and updates the settings automatically.

When using the Move tool, you can still access the Hand tool by holding the space bar. While using either of the tools, you can zoom in and out by holding Command + Space (Control + Space) or Option + Space (Alt + Space), respectively. Finally, holding Option will change the Cancel button to a Reset button, allowing you to undo any changes.

Chapter 4, **Brushes**

Wabi-sabi is the traditional Japanese aesthetic of the imperfect. It promotes the beauty and humanness of worn, naturally aged objects. For example, the patina of an ancient bronze statue adds an appreciable imperfection. The implied history and naturalness add a sense of legitimacy and uniqueness that a new statue simply can't provide.

Many websites today are like new statues, with perfectly polished design elements, crisp edges and geometric shapes. While this makes for clean, easy-to-use interfaces, it can also create a rather cold user experience. Introducing some imperfect design elements can help cut through the stark precision and produce a wonderfully unique aesthetic.

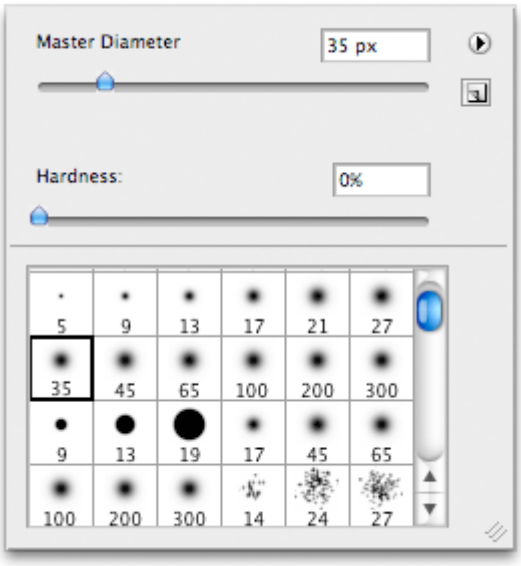
Photoshop's tools are designed to execute with absolute precision. The exception is the brush tool, which is capable of adding randomness and imperfection. Mastering the digital brush is by no means easy. It carries the same difficulties as the sable brush hidden at the bottom of your art bin. In fact, the difficulty is multiplied by the disconnect between the hand and monitor. Developing Photoshop brush skill takes time, but it is well worth the effort.

Basic Settings

Along the brush's properties bar are some simple yet powerful settings that determine the strength and shape of the brush. These settings have a big impact on the how the brush applies paint, so understanding them is important.

Brush

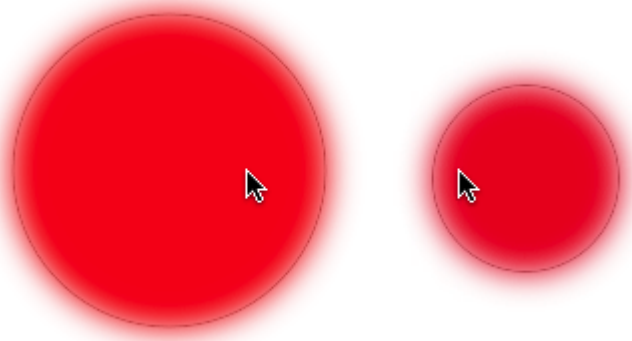
The brush menu, which is accessible by clicking the drop-down menu next to the brush preview or by right-clicking on the canvas, presents three options to control the shape of your brush: "Master Diameter," "Hardness" and "Brush Shape."



The brush menu is easily accessible by right-clicking on the canvas.

The Master Diameter setting sets the overall width and height of your brush in pixels. While hard to notice on a standard round brush, making a brush larger than its original size can make it blurry. So, if you want to maintain clean edges, keep an eye on the brush's original diameter. This setting is easily controlled using a couple of shortcuts. Use [and] to modify the diameter in increments of 10 pixels, or use the on-canvas drag method: with your mouse cursor on the canvas, hold down Option + Control + Shift (Alt + Shift + Right-click) and drag the mouse left or right. The brush will change in size as you scrub back and forth. This is great for when you need a precise size on the fly.

The hardness setting is available only for Photoshop's round brushes. Setting the hardness as a percentage from 0 to 100 will feather the edges of the brush: 100% is a crisp edge, and 0% is a completely feathered edge from the center of the brush to the circumference. For broad alterations to this setting, use the keyboard shortcuts Shift +] and Shift + [to change the values in 25% increments, or hold Command + Option + Control (Control + Alt + Right-click) and drag inside the canvas to change the values and see them take effect as you do it.



The on-canvas drag shortcuts make diameter and hardness adjustments simple and intuitive.

At the bottom of the panel is an assortment of brush presets that gives you quick access to the brushes you use most. Some of the defaults are just simple shapes and textures, but others have been customized with advanced settings in the Brushes palette (F5). Photoshop has a number of brush libraries you can add to the list using the panel's flyout menu, but you can also load and create custom brushes (see "Brush Presets" on page 59).

Mode

The brush's mode sets how painted pixels affect those already on the current layer. These modes work the same way that Blend Modes work on the layer's palette, except that they're converted to absolute values when the stroke is finished. This is an important distinction to understand: once you've painted using a blending mode, that mode cannot be altered after the fact, because then you would be using blending modes on the layer's palette.

Setting the mode changes how the paint affects the layer's current pixels.

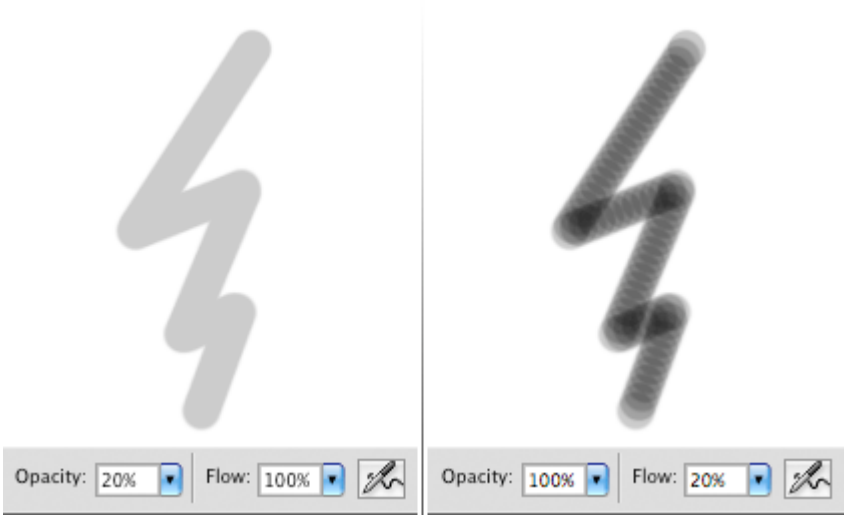
The brush tool also introduces two blending modes not found in the layer's palette: "Behind" and "Clear." The Behind setting allows you to paint only in the areas of the layer that are transparent; this can be helpful if you need to paint behind a subject and leave filled pixels intact. The Clear setting essentially turns the brush into an eraser; instead of adding paint to the layer, it removes it.

The Behind mode allows you to paint strictly in transparent areas. Clear mode essentially turns the brush into an eraser.

Opacity, Flow and Airbrush

These three settings work in unison to determine the amount of paint laid on the canvas. The opacity setting is the master control: it sets the maximum amount that can be painted with each stroke, mouse down to mouse up, regardless of any other setting.

Flow, on the other hand, sets the amount of paint applied to an area every time the brush moves. So, if your Flow setting is set to 20%, and you click one area of the layer, only 20% will be painted. However, if you move the mouse back and forth over an area with the same setting, the paint will build up incrementally by 20%.



Opacity and Flow both control the brush's transparency but are very different.

Finally, the Airbrush setting allows you to add paint based on time instead of movement; by simply holding the mouse down in one area, you multiply the brush's effect. You can quickly set the Opacity of a brush using the number keys (5 is 50%, 65 is 65%). By holding Shift while inputing the numbers, you can control the brush's Fill setting. Note: if the Airbrush setting is on, then these two shortcuts are reversed.

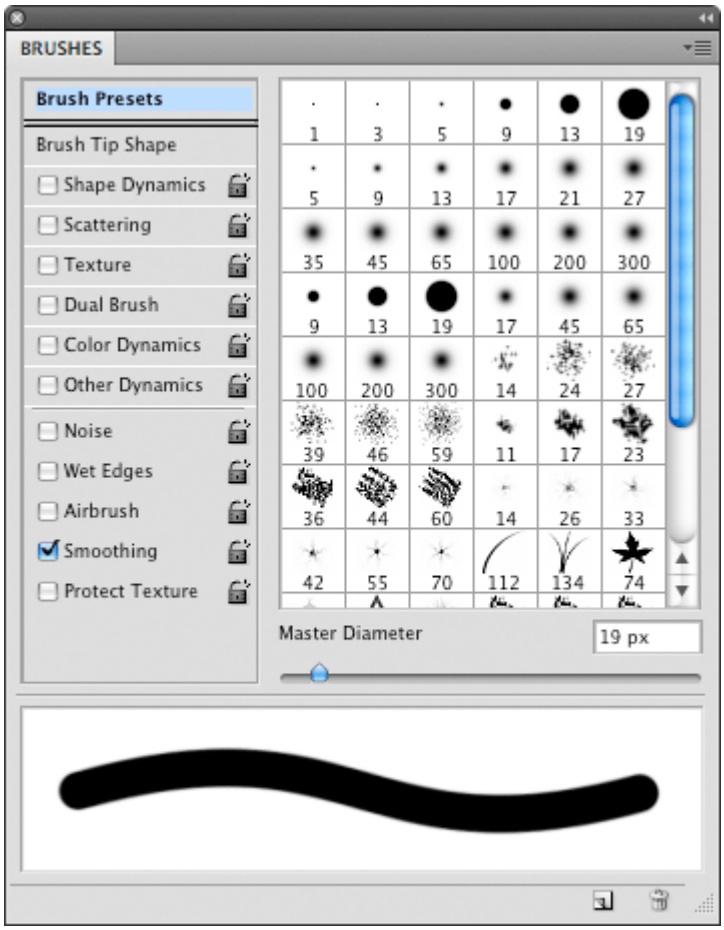
Advanced Settings

On the Brushes palette (F5) are dozens of settings that control the way the brush paints, from shape and size to flow and scatter. Understanding how to use these options is the key to creating wonderful brushes.

Brush Presets

The Brush Presets menu lists all of the currently available brushes. While some of the presets simply change the shape of the brush, others have advanced settings.

Photoshop has a number of brush libraries in addition to the defaults that can be easily appended to the current list of presets. These presets are accessible in the flyout menus located on the Brushes Palette and in the Brush drop-down menu in the toolbar. Photoshop provides a dozen or so libraries, including Dry Media, Wet Media, Natural and Calligraphic but you can load a custom library by choosing "Load Brushes."

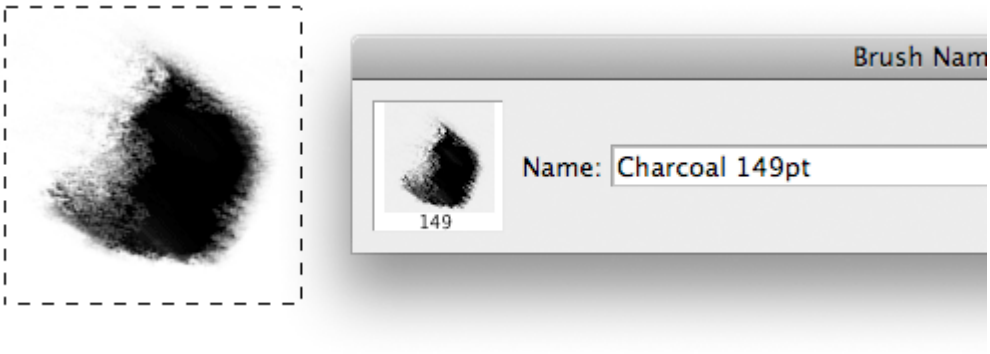


The brushes in the Brush Presets list are not just brush shapes: some also have advanced settings.

If you've created a brush that you would like to save as your own custom preset, you can do so by clicking the "Create New Brush" button at the bottom of the palette. This will add the brush to your preset menu; but if the menu is reset, the brush will be lost. Luckily, Photoshop allows you to export a custom library so that you never lose your favorite brushes. Simply choose "Save Brushes" from the fly-out menu, and then you can export an ABR file containing all of the brushes currently in the Brush Presets menu.

You can customize even further by creating your own brush shape. To do so, start by selecting the area you'd like to create the brush sample from (or select the layer you'd like to use). Then, select Edit → Create Brush Preset. Name it and click OK. A new brush preset will be added to the menu.

Creating a custom brush shape is the first step to creating a completely unique brush.



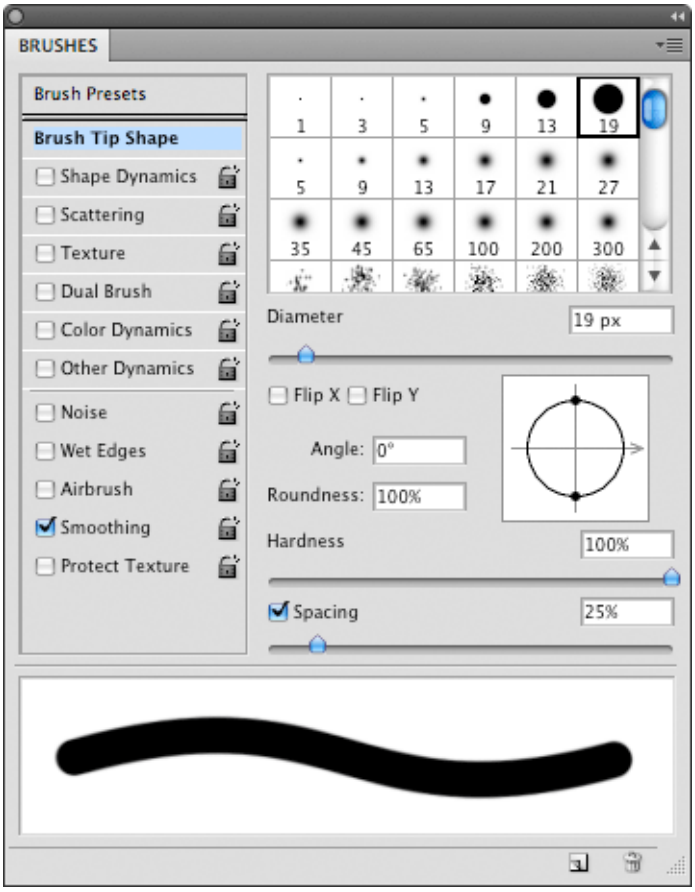
Brush Tip Shape

This group allows you to control the primary shape of the brush. Many of these settings, which are outlined above, are also found in the Brushes toolbar, but here we also have options for flipping, rotation, roundness and spacing. Rotation, Flip X and Flip Y modify the orientation of the brush. Setting Roundness to lower than 100%

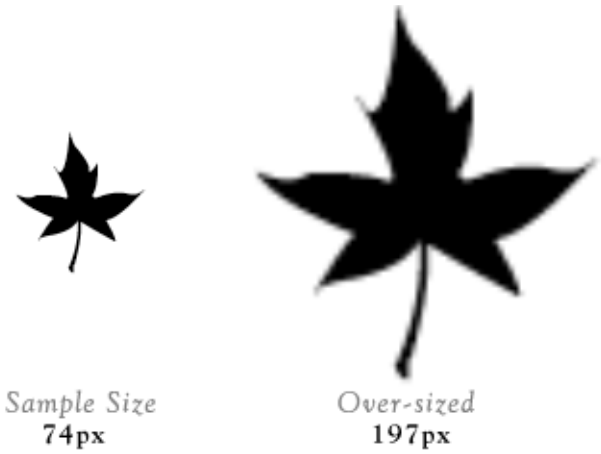
squishes the brush along its original x-axis; this can be used to easily create a calligraphic brush. You can also control the values by dragging the arrow and control points on the image to the right.

Photoshop scales brushes by interpolating them up or down; no vector brushes are available. Therefore, some brushes become gritty or pixelated if scaled too big. To quickly return a brush to its original size, click the "Use Sample Size" button.

The final setting in this group is Spacing, which determines how often the brush is sampled onto the layer. Lower values place the samples close together, and higher values space them farther apart. Spacing not only changes the stroke's appearance but can drastically affect Photoshop's performance. Setting it to 1%

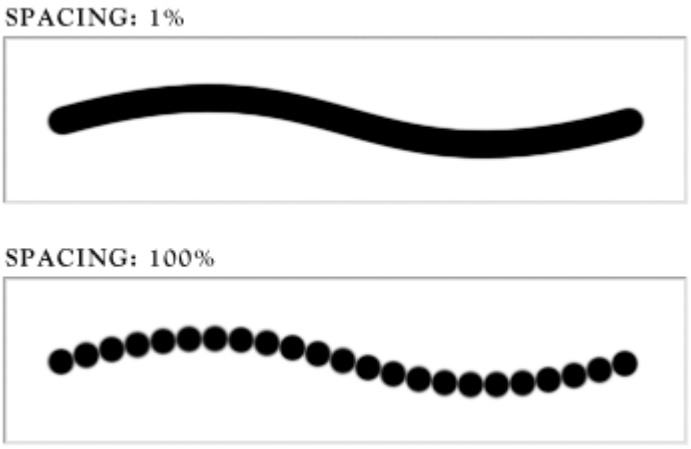


The Brush Tip Shape menu controls the primary shape of the brush.



Over-sizing a brush can cause unwanted pixellation. This can be remedied with the Use Sample Size button.

can produce smoother edges, but a large or complex brush can seriously bog down Photoshop. If performance is an issue, keep this setting as high as possible. Spacing can also be turned off using the check box next to its name. This causes the brush to sample with inconsistent spacing based on the speed of your movements.



Spacing greatly affects the smoothness of your brush but can also impact rendering speed.

Brush Control Methods

A number of the settings in the Brushes palette allow you to set a method for controlling values. They include Off, Fade, Pen Pressure, Pen Tilt, Stylus Wheel, Rotation, Initial Direction and Direction. Some of these settings require a tablet, such as a Wacom. If you don't have a tablet, or if the method is not available with your particular stylus, Photoshop will display an error icon to notify you.

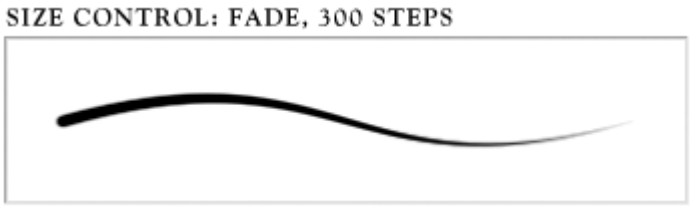
Off

Control is completely negated with the Off setting, which means that values will remain consistent throughout the stroke of the brush.

Without a control set, each sample of the brush remains consistent.

Fade

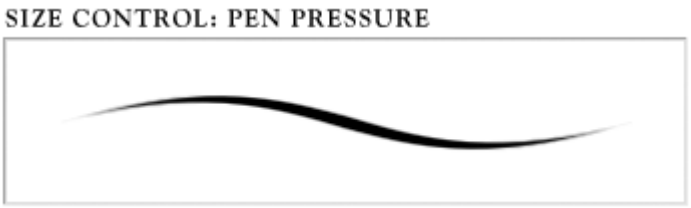
The Fade control allows you to specify the number of steps over which the setting will incrementally decrease until it reaches its minimum. So, by default, setting the Size control to Fade with 10 steps will cause the brush to decrease its size by 10% each step until the brush reaches 0. This can be used with the Size setting to create individual strands of hair. While many of the settings allow you to specify the fade's minimum percentage, some use a preset amount. For example, setting steps for the Angle Fade determines how many steps will be used to rotate the brush 360°.



The Fade Control incrementally decreases values until the minimum is reached.

Pen Pressure

Pen Pressure is an extremely useful setting but requires a pressure-sensitive tablet device. It determines values based on how hard you press the pen to the pad. This often makes for intuitive painting, especially when used on size and opacity settings.



Pen Pressure requires a tablet device and determines values based on how hard the stylus is pressed to the pad.

Pen Tilt

The Pen Tilt setting changes values based on the angle of the pen to the tablet. When the pen is perfectly perpendicular to the tablet, the variance is set to 0%. As you tilt the pen, the values increase. This setting is especially helpful for controlling

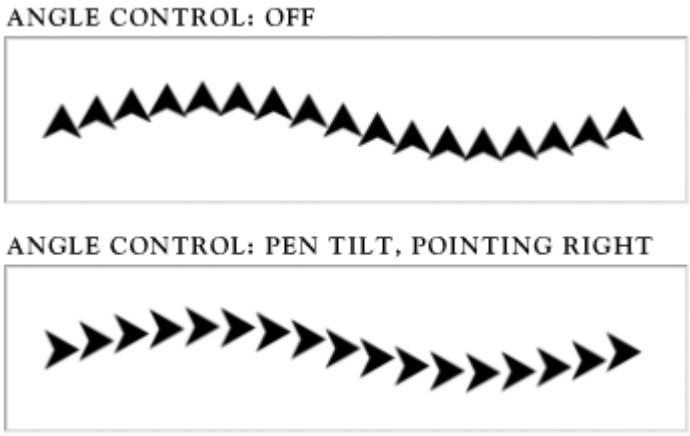
the angle of the brush, because it also takes into consideration the direction in which the pen is pointing on the tablet. So, holding the pen at an angle and pointing it to the left of the tablet will point the brush to the left.

Stylus Wheel

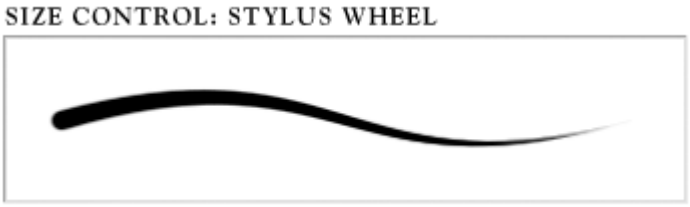
If your stylus is equipped with a Stylus Wheel, you can use it to control variance on the fly by rotating it. This may be helpful for quickly changing settings between strokes, although using it to change values during a stroke is difficult.

Rotation

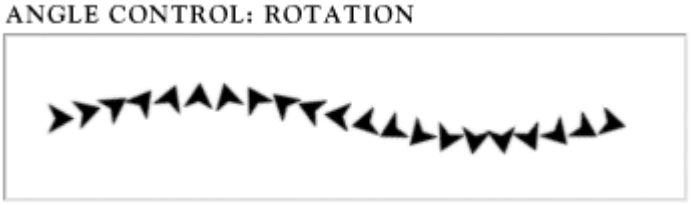
This is another setting that requires a special type of stylus. If your stylus supports Rotation, you can simply rotate the stylus to control values. This is probably best used with the angle setting.



By setting the Angle Control to Pen Tilt, you can match the brush tip's rotation to your hand's rotation.



Stylus Wheel



Rotation

Initial Direction

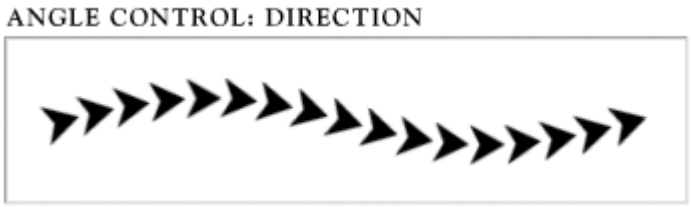
When using the Initial Direction setting, the brush will not immediately start applying paint. Photoshop waits to see in which direction you move the brush and then rotates the brush according to the angle.

Direction

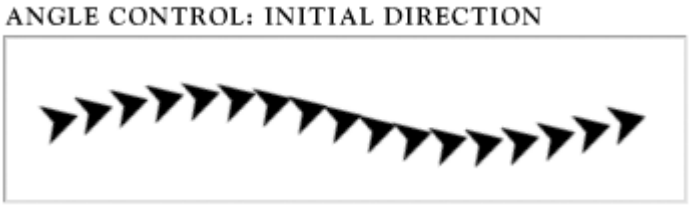
The Direction setting can be particularly useful for painting things like grass along a contour, because it rotates based on the direction your brush has traveled since the last step.

Shape Dynamics

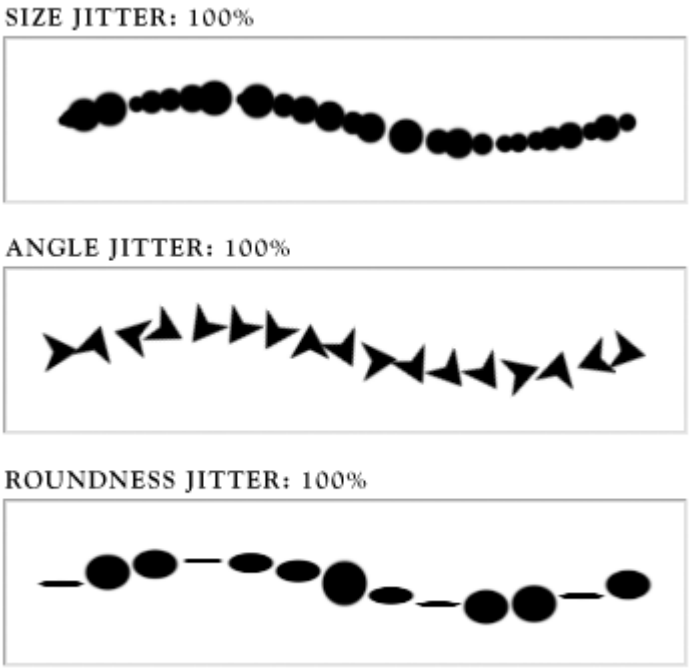
Now that you have set a basic shape and size, you can add some variance using Shape Dynamics. Here you'll see three different types of jitters, which control the amount of variation allowed for size, angle and roundness. Setting any of these options to above 0% will cause the brush to



The Direction control rotates your brush so that it naturally follows the curve of the stroke.



The first movement you make using the brush determines the angle when using the Initial Direction control.



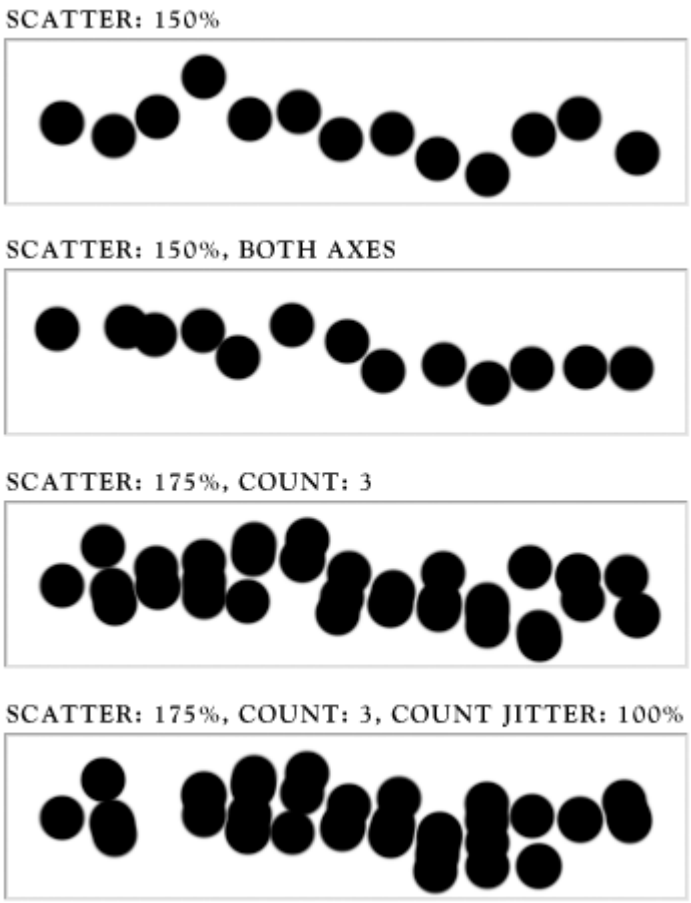
The Shape Dynamics' jitter controls can be used to add variation to the brush shape.

sample at random values within the range set by the percentage (e.g. setting the Angle Jitter to 50% will limit the brush's rotation to 180°).

Scattering

The Scattering menu allows you to vary where each sample of the brush is placed and how many samples are placed per step. Three sliders are here for you to control: Scatter, Count and Count Jitter.

The Scatter setting sets a percentage for how far off the origin the sample is allowed to travel. By default, this controls the variance only along the y-axis, but by clicking the "Both Axes" check box, you set the same value for the x-axis.

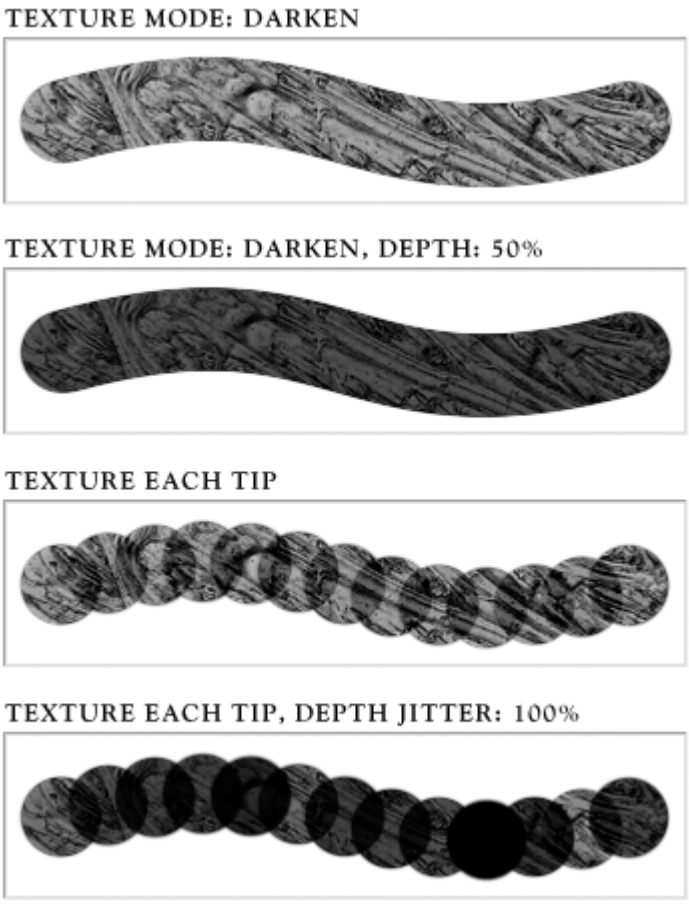


Scattering can add a lively randomness to a stroke.

Count and Count Jitter work together to determine how many samples are generated in every step. Count dictates the maximum number of samples allowed, while Count Jitter randomly chooses a number in that range to sample. If the Scatter setting is not set to above 0%, then the Count setting will place the brush on top of itself, which can create a "heavy" brush with jagged edges.

Texture

Adding a texture to your brush can give a wonderful sense of depth. Photoshop allows you to apply any of your Texture presets to the brush. You can then modify the scale or invert it. The Mode drop-down menu provides a list of blending modes that determine how the texture mixes with the current values of the brush. Although most of these blending modes will look familiar to you, they function a little differently here. For example, you would think that setting the Mode to Multiply on a brush that is completely black wouldn't have any effect. However, Photoshop compensates by reducing the original values of the brush so that the texture is visible.



Using a texture adds tactility and depth to each stroke.

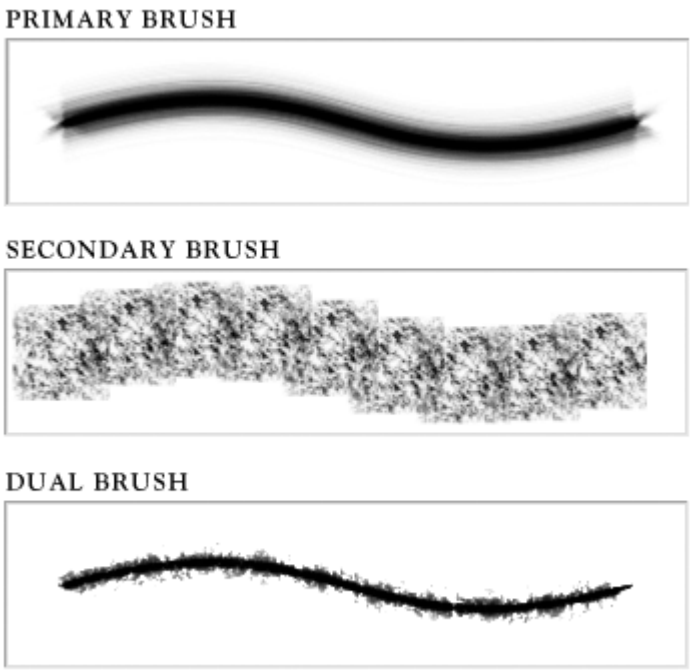
At first, the Depth setting seems to work by setting the opacity of the texture. But what it really does is ramp the values of the texture from their original grayscale values (at 100%) to completely white (0%). This allows for more dramatic results than you would get by simply reducing the texture's opacity.

This menu also has a feature, called Texture Each Tip, that allows you to control the texture of every brush sample. Checking this option turns a couple of other sliders on that set the Minimum Depth and

Depth Jitter. Altering these values gives each sample a random depth within the set range.

Dual Brush

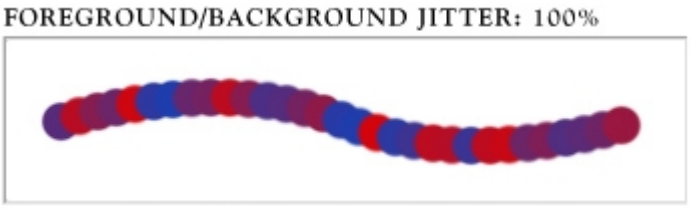
Combining two brushes using the Dual Brush option opens the door to some fantastic effects that you could never create with a single brush. As the name implies, this setting uses two different brush shapes to create the final sample. The primary brush is basically used as the mask that the dual brush is contained within. The Dual Brush menu has a few settings for the second brush that work in the same manner as the ones for the primary brush. The differences you set in Shape, Spacing, Scattering, Count and Mode make for a more dynamic and naturally random brush stroke.



Combining brush shapes creates unique effects that you cannot achieve otherwise.

Color Dynamics

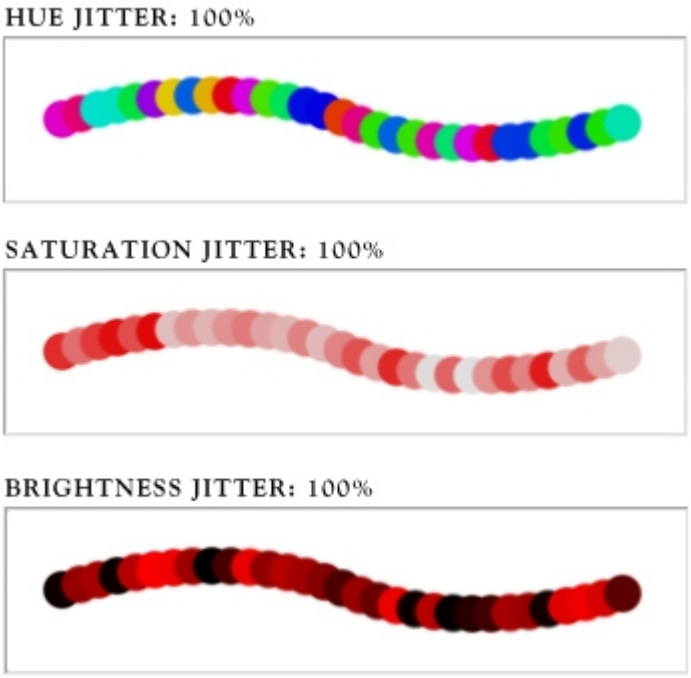
The Color Dynamics menu helps you inject some color variation into your brush strokes. You can control the colors by using the Foreground/Background Jitter, or you can allow Photoshop to randomly select values using the Hue, Saturation and Brightness Jitters.



The Foreground/Background Jitter randomly blends two colors.

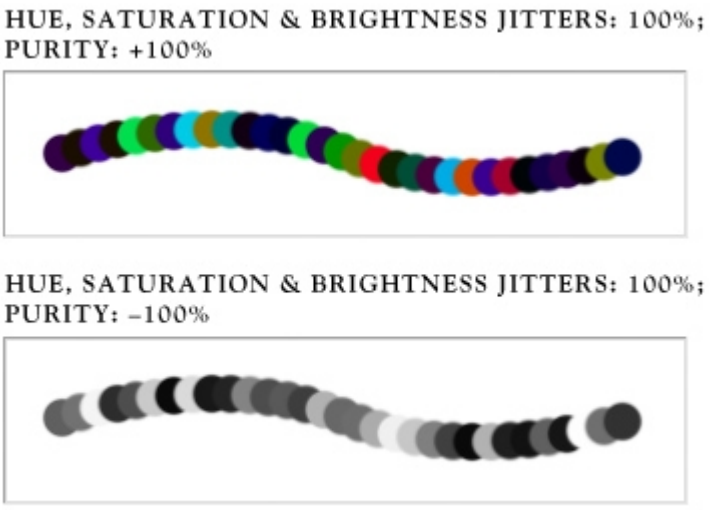
The Foreground / Background Jitter controls how much of the background color is allowed to be sampled into the brush. Note that the background color is added to (not substituted for) the foreground color. This means that if your foreground color is red and your background color is blue, the intermediary samples will be a purple hue.

The Hue, Saturation and Brightness Jitters determine the maximum amount of variance allowed based on the foreground color's values for each. So, if your foreground color has a saturation or brightness value of 0, then your brush strokes will be completely grayscale. At the other extreme, setting a foreground color to 100% brightness and saturation will make every possible color available to use.



Hue, Saturation and Brightness Jitters can be used to add variation to the foreground color's properties.

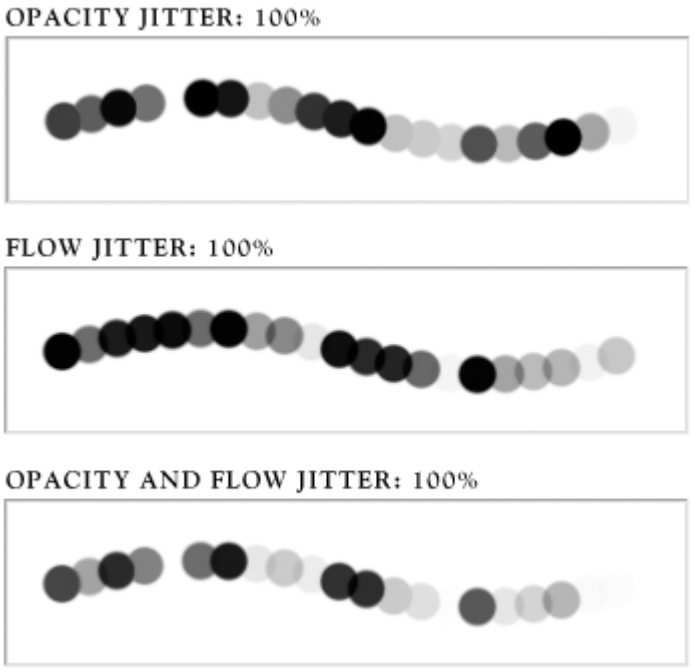
In addition to the Jitter settings is a Purity slider. This sets how pure the saturation is for each sample. If set to 0%, it does nothing; if moved to 100%, it limits the Saturation value for each sample to 100%. However, don't mistake this for an overriding setting for saturation; it sets only thresholds for it. So, setting it to -50% ensures that saturation values never go above 50%, and a setting of -100% completely removes all saturation.



The Purity slider sets a threshold for each brush sample's saturation level.

Other Dynamics

With the Other Dynamics menu, you can jitter and set controls to vary the brush's opacity and flow. Both of these jitters depend on the brush's current settings in the properties bar. They don't allow the brush to gain opacity; they only determine how much lower it can go. The pen pressure control is an intuitive match for either of these settings.



Opacity and Flow Jitters both change the transparency of each brush tip shape, but the Flow Jitter allows the samples to compound.

Other Settings

Noise

This generates random noise within the gray values of your brush shape.

Wet Edges

This decreases the interior values of your brush, while leaving the edges at full opacity. In doing so, the brush creates an effect similar to watercolor, with its "wet" edges.

Airbrush

This allows paint to build up incrementally based on the Flow setting and limited by the Opacity setting (see Opacity, Flow and Airbrush above).

Smoothing

This setting smoothens the curves of the stroke to prevent polygonal curvatures. Turning this off might help if your brush is rendering slowly.

Protect Texture

This ensures that the same texture is used for every brush with a texture.

Other Palette Options

Lock Setting

Next to each menu name in the Brushes Palette is a padlock icon. This allows you to lock settings so that when you switch to a different brush preset, the settings from

that menu carry over to the new preset. This is handy when you need a similar effect but don't want to rebuild it with a new brush shape.

Resetting

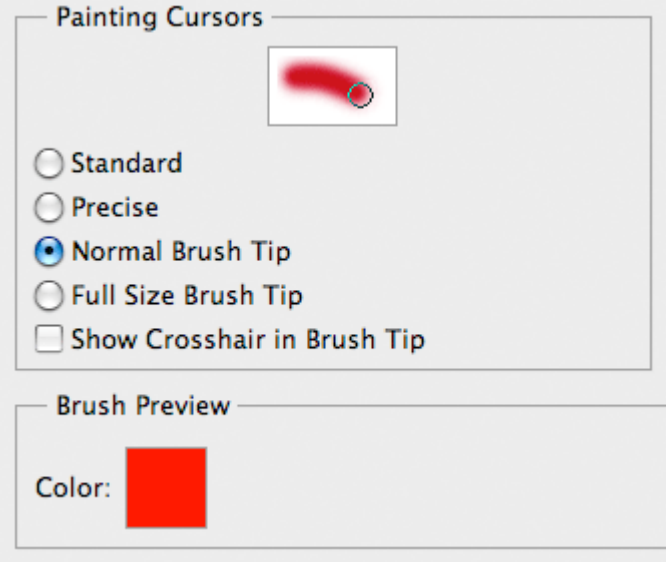
The Brushes Palette has two different ways to reset controls in its flyout menu: "Clear Brush Controls" and "Reset All Locked Settings." Clear Brush Controls turns off all controls except for Smoothing, but keeps the locked settings locked. Reset All Locked Settings also turns off all controls but unlocks everything.

Quick Tips

Learning the technical aspects of the digital brush is only the first step to becoming a master brush artist. A bit of talent mixed in with neverending practice are also required. Here are some quick tips to help you along the way.

Changing the Cursor

If the normal cursor isn't to your liking, you can change it. In Photoshop's Preferences menu (Command/Control + K) is a section called Cursors (Command/Control + 5). Here you have the option to change the "Painting Cursor" from Normal Brush Tip to Standard, Precise or Full-Size Brush Tip. You can also create a hybrid cursor by using the Normal or Full-Size Brush Tip in conjunction with the "Show Crosshair in Brush Tip" option.



Changing the cursor might give you better control of the brush.

Below the Paint Cursors section is an option for the Brush Preview color. This is the color that is displayed when modifying the brush shape with the on-canvas drag shortcuts: Control + Option + Drag (Alt + Right-click + Drag) to change the diameter, and Control + Option + Command + Drag (Control + Alt + Right-click + Drag) to change the hardness.

Painting Straight Lines

Painting a freehand straight line is nearly impossible. Luckily, Photoshop has some features to help with this. By holding the Shift key while painting, your stroke will be constrained to 45° angles. Painting straight lines that aren't locked to 45° angles is just as easy: click to start a line, and then Shift-click at another point, and you'll get a perfectly straight line between the two points.

Clicking to start a line and then holding Shift and clicking somewhere else will paint a perfectly straight line between the two points.

Painting Perfect Curves

Photoshop's Paths palette allows you to stroke a path using the current brush's settings. This can be extremely helpful if you have a tricky curve or complex shape to paint.

Stroking a path with your brush gives you perfect control over the stroke's curvatures.

First, set up your brush. Then, select the path you wish to stroke; and in the Paths palette, Option-click the Stroke path with the brush button. This will present you with a dialog box that allows you to set the tool to stroke with. You can even use the Simulate Pressure button to activate any control methods you have set on your brush.

Other "Painting" Tools

Remember that the Brush Tool is not the only tool that uses brush settings. By customizing other tools, you can create some very impressive effects. The other "Painting" tools include the following: Pencil, Eraser, Background Eraser, Clone Stamp, Pattern Stamp, Healing Brush, History Brush, Art History Brush, Smudge, Blur, Sharpen, Dodge, Burn, Sponge, Color Replacement and Quick Selection.

Keyboard Shortcuts

B	Brush tool
Shift + B	Rotate through Brush tools (i.e. Brush, Pencil and Color Replacement tools)
F5	Show or hide Brushes palette

Brush Settings

[	Decrease brush diameter
]	Increase brush diameter
Shift + [	Decrease brush hardness by 25%
Shift +]	Increase brush hardness by 25%
Digit combination (with airbrush off)	Set the brush's opacity
Shift + Digit combination (with airbrush off)	Set the brush's fill
Digit combination (with airbrush on)	Set the brush's fill
Shift + Digit combination (with airbrush on)	Set the brush's opacity
Option + Shift + "+" (Alt + Shift + "+")	Next blending mode
Option + Shift + "-" (Alt + Shift + "-")	Previous blending mode
","	Previous brush
"."	Next brush
Shift + ","	First brush
Shift + "."	Last brush
Caps lock	Toggles between Precise and Normal cursors
Control + Click (Right-click) inside canvas	Bring up the quick brush menu
Control + Shift + Click (Shift + Right-click) inside canvas	Brush blending mode menu
Control + Option + Drag (Alt + Right-click drag) inside canvas	Change the brush's diameter

Control + Option + Command + Drag (Control + Alt + Right-click drag) inside canvas	Change the brush's hardness

Painting

Shift + Drag	Constrain the brush to 45°
Click, move cursor, then Shift + Click	Draw a straight line from the first click to the second click

Helper Tools

Option (Alt)	Temporarily switch to Eyedropper tool
Shift + Option (Shift + Alt)	Temporarily switch to Color Sampler tool
Command (Control)	Temporarily switch to Move tool
Command + Option (Control + Alt)	Duplicate and Drag layer
Space	Temporarily switch to Hand tool

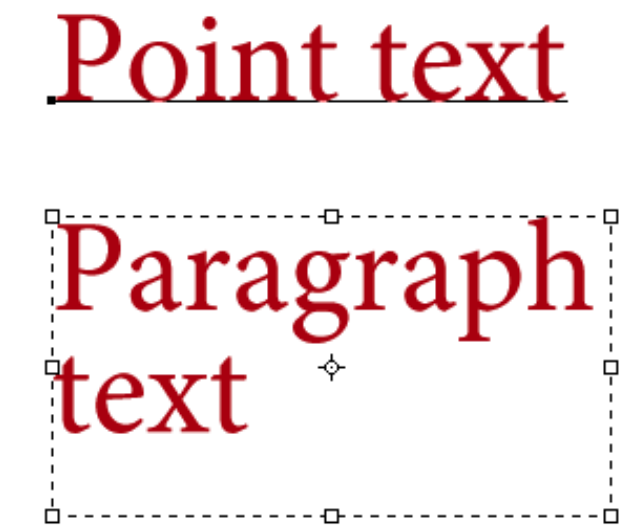
Chapter 5, **Typography**

Words may be clear and concise, but typography is the voice that carries them into our subconscious. Typography has the ability to evoke feelings and forge impressions greater than the words it renders. Even bad typography can be extremely powerful. We've all landed on websites with bright red text on an even brighter blue background, and strained our eyes to read three paragraphs over minutes that we wished we could take back.

Poor type can instantly ruin a visitor's impression of your brand and its reputability. So, understanding the ins and outs of on-screen typography is critical. While the majority of type on the Web is rendered by HTML, Photoshop is still necessary to handle treatment beyond the grasp of CSS. In this chapter, we'll explore Photoshop's type tools and discover ways to maximize the software's typesetting capabilities.

Anatomy of the Type Tool

Photoshop's Type Tool is pretty straightforward. Click inside the document and you can add a type layer, which is referred to as a Point Text layer. Clicking and dragging creates a Paragraph Text layer. You can even click on or within a path to create a Type Path. These implementations are very similar but have some important distinctions.



The three main implementations of the type tool.

Point Text

Point Text layers specify a single point from which the first baseline of the text is set. The text flows from this point on towards infinity unless manual line breaks are entered. This restricts some of the paragraph options but makes this type of layer great for creating text for buttons and headlines (i.e. text with few characters). In fact, the open nature of a Point Text layer makes it much easier to use in these circumstances. Fumbling around with the size of a Paragraph Text layer to change the text on a button can be a real hassle.

Paragraph Text

By specifying a set area for the text to flow within, Paragraph Text allows more advanced settings, such as word wrapping and hanging punctuation. These advanced paragraph options are essential when setting larger blocks of text.

Type Paths

There are two ways paths can be used with the type tool: by defining the baseline or by creating a custom text box shape. Select the Work Path you'd like to use, and with the Type Tool, mouse over the path. The dotted square on the cursor will change from a square to a curved line. Click on the path and you'll see that the type flows right along the path.

After committing the type (Command/Control + Enter), you can use the Path Selection Tool to move the beginning and end points — indicated with an "x" and black circle, respectively — or flip the type from the top of the line to the bottom. If using a closed path, you can click inside it to create a custom-shaped text box.

Aside: Warping Text

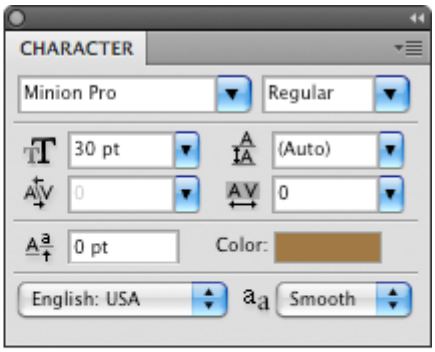
Warp Text is reminiscent of Microsoft's WordArt because it allows you to bend, bulge and skew text in all sorts of ridiculous ways. I recommend steering clear of these options because they will give your text a less than professional feel. Nonetheless, you can access the Warp Text dialog in the Text Tool's properties bar. Choose from a number of different styles, and set the amount of bend and distortion. Again, though, even if you want to just wrap text around a simple shape, you're better off using a type path.

Character Palette

The Character palette is sort of like a wolf in sheep's clothing. It provides everything you need to properly change the appearance of type, but it also has options that should never appear in software for creative professionals. Understanding how and how not to use this palette is extremely important to setting type.

Photoshop's Character palette (left) offers many unprofessional options. The palette on the right is more appropriate for someone who is serious about typography.

Actual Character Palette

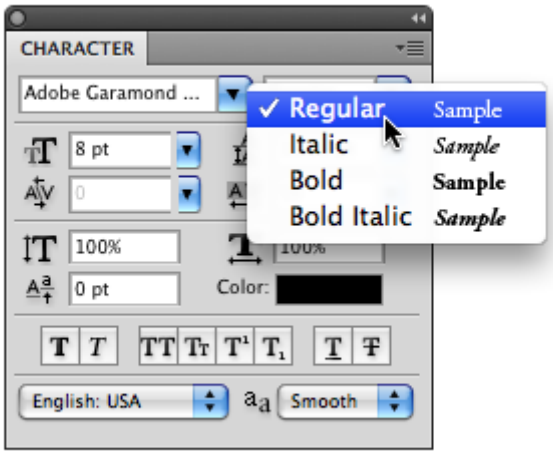


Ideal Character Palette

Font

Anyone who has used a word processing program should be pretty familiar with the first few options in the palette. The very first is the font family, which, when expanded, displays a list of all fonts available in the system.

After you have chosen a font, the drop-down menu next to it will provide a list of all of the font's variants. This may include obliques, headlines, various weights, glyph sets, extended and condensed versions and more.



The font variant drop-down menu gives you access to many styles depending on the font family.

Size and Spacing

Just below the font drop-down menus are four settings for controlling the size and spacing of the type. The first setting is the size of the font, set in points, which varies greatly from pixels. Next to it is the leading, which sets the distance between baselines, in points as well.

Third, we have kerning, which controls the spacing between two characters. To kern two characters, place the cursor between them, and then modify the kerning value to bring the characters closer or move them farther apart. If you select multiple characters or simply select the entire block of text, you can set the auto-kerning to either Metric or Optical. Metric kerning evaluates the absolute space between characters, with no consideration for individual character shapes. Optical kerning accounts for how the characters actually look (e.g. a capital "V" will be kerned closer to a lowercase "g").

Optical kerning intelligently spaces letterforms, which is usually preferable to setting the kerning to 0 or using Metric kerning.

The final option in this set is tracking. Like kerning, tracking controls the space between characters, but for multiple characters. This should be used to space an entire block of text, as opposed to individual characters.

Color, Baseline Shift and Stretching

The next set of options contains two useful and two absurd ones. We'll start with the options you should actually use. The Color option allows you to modify the color of

the selected text. To the left of it is the baseline shift, which translates characters up or down from the baseline. The other two options in this section allow you to stretch text to make it taller or wider. As a rule, avoid these two options. Stretched type just looks bad.

Fauxs and Variants

Under the guise of simplicity, Adobe has added a series of icons that give you quick access to common typesetting features. A couple of them are rather helpful, but most of them attempt to invent new characters for you. The All Caps option is the safest of the bunch; it simply replaces all lowercase letters with their capital equivalents. The Underline and Strikethrough options are also fairly safe, though you can achieve better results by drawing the line as a separate shape layer, thus avoiding intersecting the descenders.

The remaining options are ones that anyone who is serious about typography should avoid. These offenders are Faux Bold, Faux Italic, Superscript, Subscript and Small Caps. By running preset calculations on the text, these options bloat, skew and resize your type to simulate a different font variant. These faux variants look awkward and can be easily spotted, especially Small Caps, which simply changes the point size of the characters, leaving you with noticeably different weights.

Faux Italics uses inferior letterforms for the sake of simplicity. Stick with true italics for better typography.

The Superscript and Subscript options work the same way. While somewhat conspicuous, superscript and subscript characters are usually included in the font set. I recommend using Illustrator's Glyph palette to hunt down the elusive characters. If you need bold, italics or small caps, check the font variant drop-down menu. If no such variant exists, then check with the type foundry to see if it is available. If no variant is available, you're probably best off choosing a different font.

Anti-Aliasing

Anti-Aliasing is critical to the appearance of on-screen typography. It basically smoothens the edges of characters to preserve their original design. Photoshop provides five preset anti-alias settings, which determine pixel values using various algorithms in conjunction with the document's pixel grid. Unfortunately, none of these settings allow for subpixel rendering, but by using the Free Transform option to nudge the layer's position, you can effectively force the algorithms into rendering more cleanly. Each setting allows a different amount of origins, and some only produce variations when translated along the x-axis. Below is a table of available transformations.

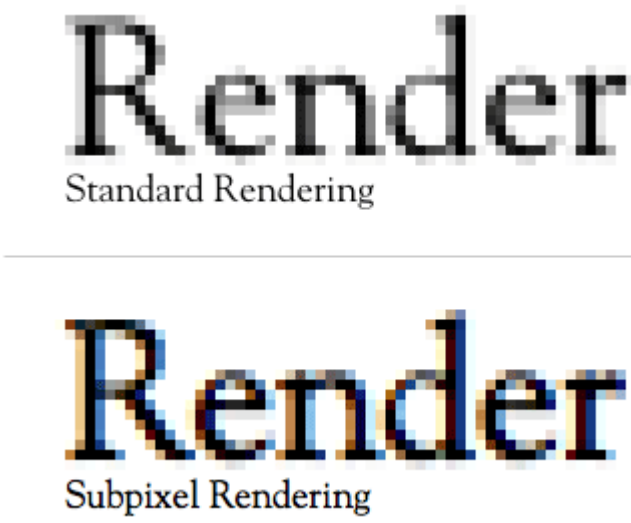
	X-TRANSLATIONS	Y-TRANSLATIONS
NONE	1	1
SHARP	2	1
CRISP	4	1
STRONG	32	16
SMOOTH	4	4
SHAPE LAYER	32	32

Using the Free Transform tool allows you to nudge type layers to improve the anti-aliasing.

Aside: Subpixel Rendering

Every pixel on a standard monitor consists of three components: a red, a green and a blue. The brightness of each of these subpixels is controlled independently, and because of their small size, our eyes blend the three into one solid-colored pixel. Typical anti-aliasing sets even values for each of these subpixels, resulting in full grayscale pixels.

Subpixel rendering exploits the individuality of each single-colored component and uses it to increase the perceived resolution of the monitor. This allows a pixel to take on visual weight from neighboring pixels, thereby allowing type to be smoothed in smaller increments. The only drawback is that rendering type in this way can produce subtle color shifts visible along the edges of glyphs. Unfortunately, Photoshop does not support subpixel rendering at this time, but it certainly gives us something to hope for.

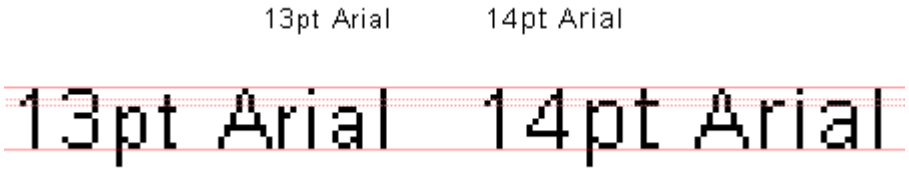


Subpixel Rendering renders type more smoothly by increasing the perceived resolution of a device. Unfortunately, Photoshop does not currently support it.

None

Aliased text created using the None setting has very limited use and typically looks best between point sizes of 9 and 18. Sizes below this range will result in unidentifiable characters, and larger sizes will lead to increased character weight and overly jagged edges.

Depending on the font, sometimes two different point sizes will render at the same height, causing a shift in letter spacing, width and x-height. For example, 14 pt Arial renders 10 pixels high with an x-height of 8 pixels. Arial at 13 pts also sits 10 pixels high but has an x-height of only 7 pixels — a slight but very perceivable difference. When tightly tracked, this setting might also require manual kerning, because some letters will sit pixel to pixel against each other.



13 pt and 14 pt Arial render with the same cap height but different x-heights.

Sharp

The Sharp setting uses very tight grid-fitting and produces sharp, if not too sharp, type. The plotting of pixels with this setting is very similar to how the None setting plots them, but it allows for a certain degree of smoothing. In fact, if you set these two options atop one another, you can actually see that a majority of solid pixels carry over from None to Sharp.

While the cap height and x-height typically remain the same, you might see an increase in character weight and width. Sharp has a tendency to completely cut subtle shape variations from rendering and sometimes causes inconsistent letterforms. So, if typeface integrity is important to you, you may want to try a different setting.

Crisp

The Crisp setting maintains much of the font's original weight and curvature but cleans up some of the awkward pixels created by light serifs and thin strokes, which is especially useful for larger point sizes. With the Crisp setting, however, you sacrifice the ability to nudge the layer on the y-axis.

Strong

The Strong setting is notorious for adding unnecessary weight to a typeface, but it provides the most freedom with translating the origin, with 32 x-axis variations and 16 on the y-axis. The variety of origins with this setting comes in handy when working with complex letterforms. Strong is also useful when working with typefaces that have very thin strokes.

Smooth

The Smooth setting is the closest to unhinted anti-aliasing and therefore remains truest to the original glyph shape. This algorithm is best used on medium-sized to large type, because it tends

to render very light and often blurry at smaller point sizes. If used with an appropriate typeface at a proper size and if the origin is properly adjusted, this setting can strike a beautiful balance between crispness and letterform fidelity.

Flyout options

Change Text Orientation

This option allows you to toggle the type layer between a vertical and horizontal layout.

Standard Vertical Roman Alignment

If your type layer is set to vertical orientation, then your text will stack character on top of character. However, if you turn the Standard Vertical Roman Alignment option off, then the text will align characters along the same baseline but rotate them 90°.

OpenType

Depending on the font, a number of OpenType features might be available. These can really improve your typography by giving you access to more appropriate glyphs and creative alternatives. Many of these features should be set only on the necessary characters to avoid strange formatting.

Standard Ligatures: replaces common character combinations with a single combined glyph.

Adobe Garamond Pro Italic with and without the standard "th" and "ffi" ligatures.

Contextual Alternates: changes characters based on the characters around them to increase fluidity.

Bickham Script Pro has many contextual alternates, as seen above.

Discretionary Ligatures: replaces character combinations in the font's discretionary ligature table with a single combined glyph.

Adobe Garamond Pro's discretionary "st" ligature.

Swash: swaps capital characters with more decorative swash alternatives.

Bickham Script Pro has extraordinary swashes.

Old Style: switches lining figures with old-style figures.

Goudy Old Style and its old-style figures align better with lowercase text.

Stylistic Alternates: substitutes decorative alternatives for standard characters.

Bickham Script Pro with stylistic alternates for the "B" and "k."

Titling Alternates: substitutes more appropriate glyphs for use with large type sizes.

Didot LT Std Headling with titling alternates (bottom) has subtle differences in weight and spacing, making it better suited to headlines.

Ornaments: changes certain characters with glyphs from the ornament set.

Adobe Garamond Pro set to ornaments.

Ordinals: swaps character combinations such as “st,” “nd” and “rd” for use with “1st,” “2nd” and “3rd.”

Adobe Garamond Pro’s ordinals spruce up these rankings.

Fractions: change digits separated by a backslash (/) with their numerator or denominator alternatives and replaces the backslash with a solidus.

Adobe Garamond Pro properly displays a fraction with a solidus instead of a backslash.

Fractional Widths

This setting can sometimes help with anti-aliasing and kerning type, especially at small point sizes. With this setting turned on, character spacing is set to varying fractions of pixels. This is ideal for auto-kerned type at large sizes, but it tends to bump the type either too close together or too far apart at smaller sizes. Turning this option off rounds all character spacing to whole pixel values, which might better space the problematic type. This is hit or miss, so use it wisely.

System Layout

System Layout resets certain options in the Character palette to simulate the generic typesetting of a plain text document. Kerning and tracking return to 0, the anti-alias setting is changed to None, and Fractional Widths are turned off.

No Break

No Break gives you manual control over which words hyphenate in a paragraph text layer. By selecting a word and setting No Break, you ensure that the word will never be hyphenated. You can also do this with multiple words to always keep a phrase on the same line. If you don't mind the word being hypenated but you have a preference for where the hyphenation should occur, then select the characters that should not be broken and set No Break, which will create a break elsewhere.

Reset Character

The Reset Character option returns the text to its original default settings. Font, size, leading, color and everything else in the Character palette will be reset.

Paragraph Palette

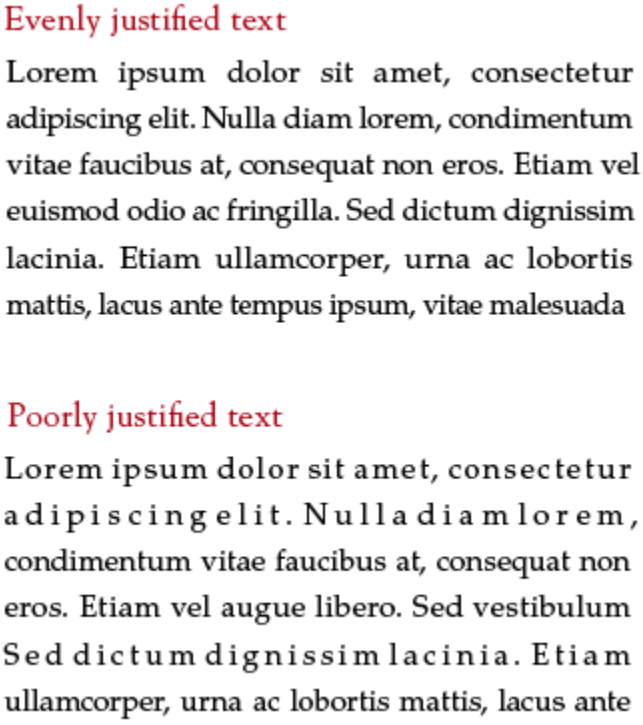
The Paragraph palette relates mainly to margins and justification. These settings are most useful when setting large blocks of text with a paragraph text layer, but they can also be used with point text layers.

Justification

Photoshop provides seven different justification settings: three ragged and four flush. The first three are your basic ragged settings: left-aligned, centered and right-aligned. They are available for both point text and paragraph text, and they simply determine how each line of text in a paragraph is aligned. If set, hyphenation is still applied, but without justification. The other four settings — Justify Last Left, Justify

Last Centered, Justify Last Right and Justify All — are available only with paragraph text and space text so that both the left and right edges are flush.

The justification settings can be further controlled via the Justification setting in the Paragraph palette's flyout menu. This dialog allows you to set thresholds and an optimal setting for how the text composer spaces characters or adjusts their width. Achieving an evenly colored block of text is the ultimate goal here, but keep the ranges as low as possible and use glyph scaling only when absolutely necessary.



Optimal justification spreads text evenly across the column, resulting in a block that colors the page consistently. Poorly justified text allows words to run together and spreads letters too far apart.

Word Spacing: sets the spacing between full words. 80%, 100% and 120% are typical settings; going much further beyond these could result in inconsistent spacing. Instead of increasing the range, try adding letter spacing.

Letter Spacing: controls the amount of space added between individual characters. This can reduce gaping spaces but should be used in moderation (±5% or so).

Glyph Scaling: horizontally scales glyphs to add to or subtract from the length of the line. This should be used as little as possible (no more than about ±2%).

Auto Leading: sets the amount of leading applied when the Leading option in the Character palette is set to Auto.

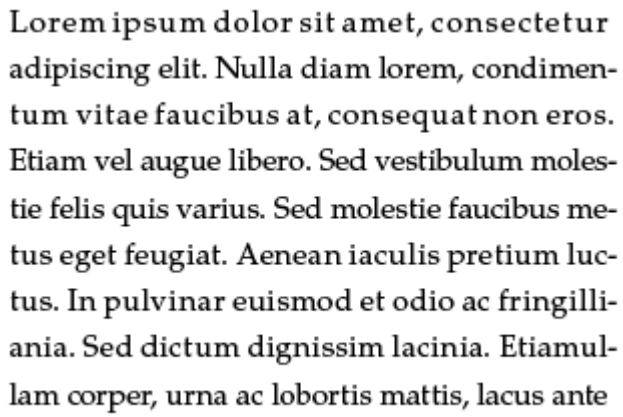
Hyphenation

The hyphenation option, which is on by default, breaks up words at the end of a line to aid justification and balance rags. You can modify the hyphenation settings with the Hyphenation option in the Paragraph palette's flyout menu.

Words Longer Than: sets the minimum number of letters a word must contain to be hyphenated. Using a minimum of five is a good rule of thumb.

After First: controls the minimum of letters left behind the hyphen. Two definitely should be the minimum for this.

Before Last: controls the minimum number of letters to be carried over to the next line. Three is a safe minimum here. With a five-letter word, leaving two behind and carrying over three is accepted style.


Lorem ipsum dolor sit amet, consectetur adipiscing elit. Nulla diam lorem, condimentum vitae faucibus at, consequat non eros. Etiam vel augue libero. Sed vestibulum molestie felis quis varius. Sed molestie faucibus metus eget feugiat. Aenean iaculis pretium luctus. In pulvinar euismod et odio ac fringillia. Sed dictum dignissim lacinia. Etiamullam corper, urna ac lobortis mattis, lacus ante

Hyphenation can improve justification but should not be overused, as it is above.

Hyphen Limit: dictates the maximum number of consecutive hyphens allowed. Avoid more than three.

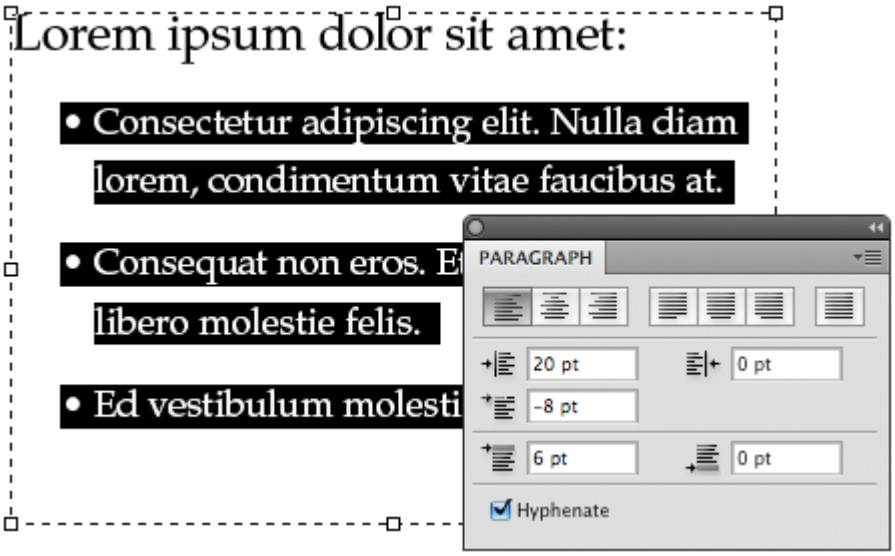
Hyphenation Zone: specifies a distance from the right edge of a paragraph within which no hyphenation should occur.

Hyphenate Capitalized Words: enables or disables hyphenation of capitalized words. In general, avoid hyphenating proper nouns.

Indents

There are three indenting options in the Paragraph palette: Indent Left Margin, Indent Right Margin and Indent First Line. The ones for the left and right margins allow you to inset a paragraph from its left or right bounds. This is helpful for blockquotes, lists and other non-standard paragraphs. The Indent First Line option indents only the first line of every paragraph.

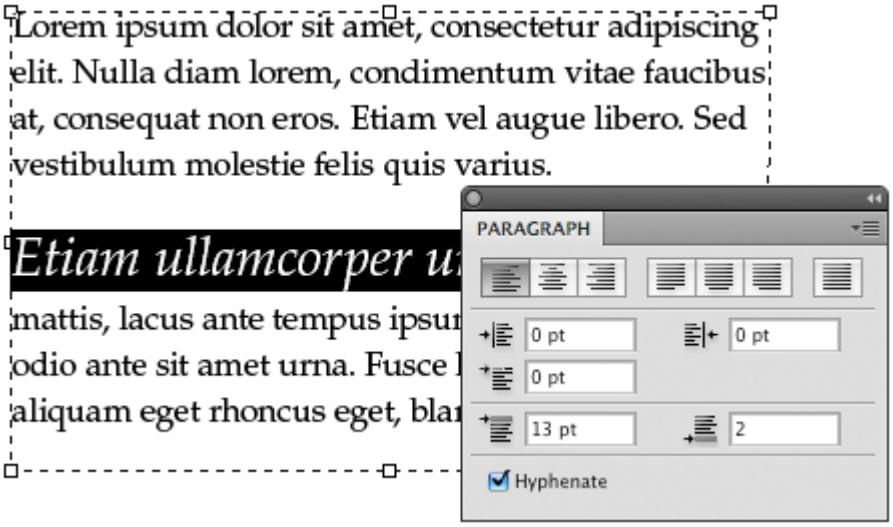
If no extra space separates your paragraphs, the Indent First Line option can be used to add an appropriate pause between paragraphs. All of the indenting options also allow negative values; you can easily outdent a paragraph or create nicely aligned lists by setting a positive left indent and a negative first-line indent.



A left-margin indent coupled with a negative first-line indent is great for aligning bulleted lists with multi-line items.

Spacing

Spacing paragraphs by adding a hard return in the text is bad style. If you're familiar with HTML, it's like adding a <br /> between <p> tags instead of using CSS to space paragraphs. It not only adds unnecessary data to the text, but makes controlling the space between paragraphs much more difficult. The spacing options in the Paragraph palette make this task much easier and more flexible.



The spacing options give you much better control over the relationship between paragraphs and headlines.

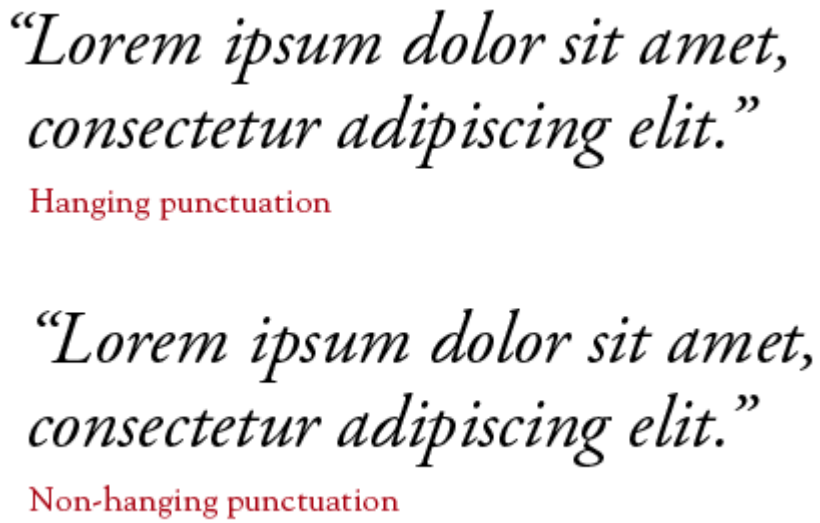
Every-Line Composer vs. Single-Line Composer

The line breaks and hyphenation of paragraph text layers are determined by what's referred to as a "composer." Each paragraph is controlled by either the Every-Line Composer or the Single-Line Composer. They evaluate the character settings along with the justification and hyphenation thresholds to determine the best place to break lines. The Every-Line Composer analyzes every line in a paragraph to reduce the number of line breaks, while the Single-Line Composer works line by line and makes each as long as possible. The composer can be changed per paragraph by setting the cursor in the target paragraph and selecting either Every-Line Composer or Single-Line Composer from the Paragraph palette's flyout menu.

Roman Hanging Punctuation

Hanging punctuation is good typography. It entails extending punctuation (quotation marks, periods, commas, etc.) at the beginnings and ends of lines into the margins.

Because the visual weight of punctuation is typically light, this setting improves the flush alignment of paragraphs. Photoshop will automatically hang punctuation when you enable Roman Hanging Punctuation in the flyout menu of the Paragraph palette.



Hanging punctuation improves the alignment of multi-line text blocks.

Quick Tips

Decimal Point Sizes for Improved Anti-Aliasing

Typophiles might cringe at the idea of using a decimal point size, but when designing for digital media, standard point sizes don't always conform to the pixel grid. By using decimal point sizes and either the Smooth or Strong anti-alias setting, you can usually bring a blurry typeface back into focus.

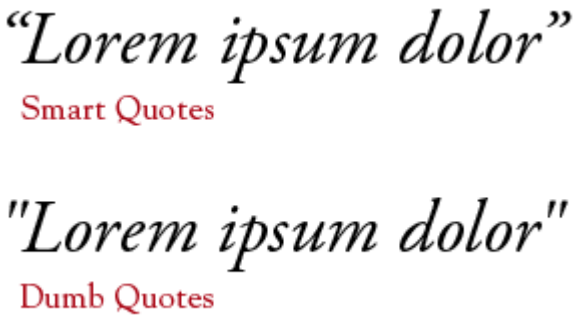
Shape Layer Anti-Aliasing

If Photoshop's hinted algorithms are producing undesirable results, you may want to attempt using unhinted anti-aliasing by way of converting the type into a shape layer. This gives you access to the original outlines of the font, which draw values based on the percentage of the pixel enclosed in the shape. What you sacrifice in editable type you make up for in origin transformations: 32 on both the x-axis and y-axis. While it's usually a last resort, don't rule out the possibility of using a Shape Layer: it can often produce better results than Photoshop's algorithms.

Using decimal values can dramatically improve anti-aliasing results, as seen above. Top: 16 pt Goudy Oldstyle with Strong Anti-Aliasing. Bottom: 16.5 pt Goudy Oldstyle with Strong Anti-Aliasing.

Smart Quotes

Smart Quotes are good style and should be used instead of straight quotes wherever available. Luckily, Photoshop allows you to replace dumb quotes automatically. Open the Preferences dialog (Command/ Control + K) and navigate to the Type section.



You should see a few options, the first of which is Use Smart Quotes. Check this; now, any time you type a quote or apostrophe, it will be replaced with its smart equivalent. Note: some fonts do not have smart quotes.

Hard Returns vs. Soft Returns vs. Paragraph Spacing

Separating lines of text is a pretty common task, but separating them properly goes beyond hitting the Return key. When you press Return, a hard return is inserted in the text. This signifies the end of a paragraph and should be used as such. Despite common practice, entering two hard returns after a paragraph is not the ideal way to space paragraphs. Rather, you can save data and make paragraph spacing much more flexible by making one hard return and modifying the Add Space After Paragraph option in the Paragraph palette. Doing so gives all hard returns the specified amount of spacing.

Of course, this can be a hassle when setting something like a postal address, which has multiple lines but is essentially a single paragraph. This is where soft returns come in. By pressing Shift + Return, you add a soft return. This does not register the end of a paragraph but instead allows you to control where your lines break in the paragraph.

Extra Glyphs

Each font typically contains a variety of glyphs that go beyond the standard set. Some of these glyphs are accessible by activating certain OpenType features, but a lot of them aren't. If you happen to own Adobe Illustrator, you can use its wonderful Glyphs palette to view all of the extra glyphs that you don't have direct access to. You can then copy and paste them into a Photoshop text area.

If you don't have access to Illustrator, you can use a system application to browse glyphs. In OS X, activate the character palette from System Preferences → International. Then, open the Characters dialog and change the View to Glyph.

You now have access to the glyphs of all installed fonts, and you can insert one into the active text field by double-clicking it. If you're on a Windows machine, you can access a similar menu by opening the Character Map (Start → Applications → System Tools → Character Map).

Glyph Shortcuts

Special Characters

– En dash	Option + -	Alt + 0150
— Em dash	Option + Shift + -	Alt + 0151
™ Trademark	Option + 2	Alt + 0153
® Registered	Option + R	Alt + 0174
© Copyright	Option + G	Alt + 0169
§ Section	Option + 6	Alt + 0167
¶ Pilcrow	Option + 7	Alt + 0182
• Bullet	Option + 8	Alt + 0149
… Ellipsis	Option + ;	Alt + 0133
† Dagger	Option + T	Alt + 0134
‡ Double dagger	Option + Shift + 7	Alt + 0135
¡ Inverted Exclamation	Option + 1	Alt + 0161
¿ Inverted Question	Option + ?	Alt + 0191
ª Feminine Ordinal	Option + 9	Alt + 0170
º Masculine Ordinal	Option + 0	Alt + 0186

¦ Broken bar		Alt + 0166

Dipthongs

Æ AE	Option + Shift + '	Alt + 0198
æ ae	Option + '	Alt + 0230
□ OE	Option + Shift + Q	Alt + 0140
œ oe	Option + Q	Alt + 0156

Ligatures

fi fi	Option + Shift + 5
fl fl	Option + Shift + 6
ß Eszett (German double s)	Option + S

Diacritics

´ Add acute	Option + E, character to add to	
ˆ Add circumflex	Option + I, character to add to	
¨ Add diaeresis	Option + U, character to add to	
` Add grave	Option + `, character to add to	
˜ Add tilde	Option + N, character to add to	
´ Acute	Option + Shift + E	Alt + 0180
˘ Breve	Option + Shift + >	

ˆ Circumflex	Option + Shift + I	Alt + 0136
ˇ Caron	Option + Shift + T	
ı Dotless I	Option + Shift + B	
¨ Diaeresis	Option + Shift + U	Alt + 0168
` Grave	Option + Shift + `	
¯ Macron	Option + Shift + <	Alt + 0175
˙ Overdot	Option + H	
° Ring	Option + K	
˜ Tilde	Option + Shift + N	Alt + 0152
¸ Cedilla	Option + Shift + Z	Alt + 0184
˛ Ogonek	Option + Shift + X	

Å A ring	Option + Shift + A	Alt + 0197
å a ring	Option + A	Alt + 0229
Á A acute	Option + Shift + Y	Alt + 0193
á a acute	Option + E, a	Alt + 0225
Â A circumflex	Option + Shift + M	Alt + 0194
â a circumflex	Option + I, a	Alt + 0226
Ä A diaeresis	Option + U, A	Alt + 0196
ä a diaeresis	Option + U, a	Alt + 0228
Ã A tilde	Option + N, A	Alt + 0195

ã a tilde	Option + N, a	Alt + 0227
À A grave	Option + `, A	Alt + 0192
à a grave	Option + `, a	Alt + 0224
Ç C cedilla	Option + Shift + C	Alt + 0199
ç c cedilla	Option + C	Alt + 0231
È E grave	Option + `, E	Alt + 0200
è e grave	Option + `, e	Alt + 0232
É E acute	Option + E, E	Alt + 0201
é e acute	Option + E, e	Alt + 0233
Ê E circumflex	Option + I, E	Alt + 0202
ê e circumflex	Option + I, e	Alt + 0234
Ë E diaeresis	Option + U, E	Alt + 0203
ë e diaeresis	Option + U, e	Alt + 0235
Í I acute	Option + Shift + S	Alt + 0205
í i acute	Option + E, i	Alt + 0237
Î I circumflex	Option + Shift + D	Alt + 0206
î i circumflex	Option + I, i	Alt + 0238
Ï I diaeresis	Option + Shift + F	Alt + 0207
ï i diaeresis	Option + U, i	Alt + 0239
Ì I grave	Option + `, I	Alt + 0204
ì i grave	Option + `, I	Alt + 0236

Ñ N tilde	Option + N, N	Alt + 0209
Ø O slash	Option + Shift + O	Alt + 0216
ø o slash	Option + o	Alt + 0248
Ó O acute	Option + Shift + H	Alt + 0211
ó o acute	Option + E, o	Alt + 0243
Ô O circumflex	Option + Shift + J	Alt + 0212
ô o circumflex	Option + I, o	Alt + 0244
Ö O diaeresis	Option + U, O	Alt + 0214
ö o diaeresis	Option + U, o	Alt + 0246
Ò O Grave	Option + Shift + L	Alt + 0210
ò o grave	Option + `, o	Alt + 0242
Õ O tilde	Option + N, O	Alt + 0213
õ o tilde	Option + N, o	Alt + 0245
Ú U acute	Option + Shift + ;	Alt + 0218
ú u acute	Option + E, u	Alt + 0250
Ù U grave	Option + `, U	Alt + 0217
ù u grave	Option + `, u	Alt + 0249
Û U circumflex	Option + I, U	Alt + 0219
û u circumflex	Option + I, u	Alt + 0251
Ü U diaeresis	Option + U, U	Alt + 0220
ü u diaeresis	Option + U, u	Alt + 0252

Ý Y acute		Alt + 0221
ý y acute		Alt + 0253
ÿ y diaeresis	Option + U, y	Alt + 0255

Quotations

‘ Left single	Option +]	Alt + 0145
’ Right single	Option + Shift +]	Alt + 0146
“ Left double	Option + [	Alt + 0147
” Right double	Option + Shift + [	Alt + 0148
« Left guillemet	Option + \	Alt + 0171
» Right guillemet	Option + Shift + \	Alt + 0187
‹ Single left guillemet	Option + Shift + 3	Alt + 0139
› Single right guillemet	Option + Shift + 4	Alt + 0155
″ Double prime	Option + Shift + G	

Mathematics

∞ Infinity	Option + 5	
≠ Not equal	Option + =	
± Plus/minus	Option + Shift + =	Alt + 0177
/ Solidus	Option + Shift + 1	
/ Create fraction	numerator, Option + Shift + 1, denominator	

≈ Approximately	Option + X	
° Degree	Option + Shift + 8	Alt + 0176
× Multiplied by	Alt + 0215	
÷ Divided by	Option + /	Alt + 0247
≥ Greater than or equal to	Option + >	
≤ Less than or equal to	Option + <	
∫ Integral	Option + B	
¬ Negation	Option + L	Alt + 0172
◊ Lozenge	Option + Shift + V	
µ Micro	Option + M	Alt + 0181
π Pi	Option + P	
√ Square root	Option + V	
· Middle dot	Option + Shift + 9	Alt + 0183
∂ Partial differential	Option + D	
‰ Per mille	Option + Shift + R	Alt + 0137
¹ Superscript 1		Alt + 0185
² Superscript 2		Alt + 0178
³ Superscript 3		Alt + 0179
¼ One quarter	1, Option + Shift + 1, 4	Alt + 0188
½ One half	1, Option + Shift + 1, 2	Alt + 0189

¾ Three quarters	3, Option + Shift + 1, 4	Alt + 0190

Currency

¤ Currency		Alt + 0164
£ Pound	Option + 3	Alt + 0163
¢ Cent	Option + 4	Alt + 0162
€ Euro	Option + Shift + 2	Alt + 0128
ƒ Florin	Option + F	
¥ Yen	Option + Y	Alt + 0165

Greek

Δ Delta	Option + J
∑ Sigma	Option + W
Ω Omega	Option + Z
π pi	Option + P
∏ Pi	Option + Shift + P

Keyboard Shortcuts

Command + H (Control + H)	Hide or show text selection
Enter or Command + Return (Control + Return)	Commit changes
Esc	Discard changes

Option + Delete (Alt + Backspace)	Change text color to Foreground color
Command + Delete (Control + Backspace)	Change text color to Background color
Return	Insert hard return
Shift + Return	Insert soft return

Variants

Command + Shift + B (Control + Shift + B)	Bold
Command + Shift + I (Control + Shift + I)	Italic
Command + Shift + «+» (Control + Shift + «+»)	Superscript
Command + Shift + «-» (Control + Shift + «-»)	Subscript
Command + Shift + K (Control + Shift + K)	All Caps
Command + Shift + H (Control + Shift + H)	Small Caps
Command + Shift + U (Control + Shift + U)	Underline
Command + Shift + ? (Control + Shift + ?)	Strikethrough

Justification

Command + Shift + L (Control + Shift + L)	Left align
Command + Shift + C (Control + Shift + C)	Center align
Command + Shift + R (Control + Shift + R)	Right align
Command + Shift + J (Control + Shift + J)	Justify last left
Command + Shift + F (Control + Shift + F)	Justify all

Spacing and Sizing

Command + Shift + < (Control + Shift + <)	Decrease type size by 2 pts
Command + Shift + > (Control + Shift + >)	Increase type size by 2 pts
Command + Option + Shift + < (Control + Alt + Shift + <)	Decrease type size by 10 pts
Command + Option + Shift + > (Control + Alt + Shift + <)	Increase type size by 10 pts
Option + Up arrow (Alt + Up arrow)	Increase leading by 2 pts
Option + Up arrow (Alt + Up arrow)	Decrease leading by 2 pts
Command + Option + Up arrow (Control + Alt + Up arrow)	Increase leading by 10 pts
Command + Option + Up arrow (Control + Alt + Up arrow)	Decrease leading by 10 pts
Option + Left arrow (Alt + Left arrow)	Kern or track -20 units
Option + Right arrow (Alt + Right arrow)	Kern or track +20 units
Command + Option + Left arrow (Control + Alt + Left arrow)	Kern or track -100 units
Command + Option + Right arrow (Control + Alt + Right arrow)	Kern or track +100 units
Option + Shift + Up arrow (Alt + Shift + Up arrow)	Shift baseline +2 pts
Option + Shift + Down arrow (Alt + Shift + Down arrow)	Shift baseline -2 pts
Command + Option + Shift + Up arrow (Control	Shift baseline +10 pts

+ Alt + Shift + Up arrow)	
Command + Option + Shift + Down arrow (Control + Alt + Shift + Down arrow)	Shift baseline -10 pts

Resets

Command + Shift + Y (Control + Shift + Y)	Removes Bold, Italic, Superscript, Subscript, All Caps, Small Caps, Underline and Strikethrough
Command + Shift + X (Control + Shift + X)	Resets vertical scale to 100%
Command + Option + Shift + X (Control + Alt + Shift + X)	Resets horizontal scale to 100%
Command + Option + Shift + A (Control + Alt + Shift + A)	Sets leading to (Auto)

Chapter 6, **Photography**

Up to this point, we've discussed the creation of fairly passive elements: they're necessary, but they don't engage the user on the same level that a photograph does. Photography on the Web is extremely powerful, and that power has to be handled properly. A photograph — especially of the human face — immediately draws the user's attention and can be used to direct eye flow to important areas of the page. Placing a large photograph above the fold is a common way to provide an entry point to the content. Because photographs are high above other elements in the hierarchy, they need to be handled with care and precision.

Photography is a powerful tool for drawing attention and directing eye flow.

Photography is subjective, and choosing images that complement your subject matter can be time-consuming. Some websites might call for explicit shots that quickly communicate an idea, present a product or simulate an experience. In other situations, the message might be best conveyed through metaphor or abstraction.

The key to the perfect photo is balancing relevance and appeal: ensuring that the subject relates to the message that needs to be communicated and that the image appeals to the audience it is being directed at.

After devising your approach, you'll have to conquer a number of technical hurdles gracefully in order to produce a high-end product. Prepping photos for on-screen display varies from prepping them for print. In addition to traditional concerns of color, tone, sharpness and composition, Web designers also need to be aware of interpolation and compression. In this chapter, we'll cover the workflow for bringing photography to life on the Web.

Garbage In, Garbage Out

Photoshop is a great tool and can do amazing and seemingly impossible things with photography. However, this black magic relies heavily on good source material; Photoshop simply adds the polish. You can easily make a good photo great, but making a bad photo anything better is impossible. Applying endless adjustments to a heavily over-exposed image will never give you the subtlety of a properly exposed image. Therefore, finding workable source material is vital to ensuring a quality product. Shots that a client's nephew took with his mobile phone are a big red flag. If you're using stock photography, spend the extra time sifting for just the right shot. If you're the one shooting, make sure you're not setting yourself up for a headache in post.

Resizing and Interpolation

Resizing is one of the most common types of edits. Ideally, you'd be working with beautiful, high-resolution photos that you only have to scale down. While not always possible, try to use images that are at least twice as big as the output size. This gives you a nice cushion and ensures that the final output is of the best quality quality. Avoid increasing the size of photos at all costs, even though it is sometimes unavoidable.

Whether you're scaling up or down, understand how Photoshop determines pixel values. The calculation of pixel values when scaling is referred to as interpolation. This is done based on the color relationship of neighboring pixels. As a simple example, imagine one black pixel and one white pixel next to each other, scaled down to create one gray pixel. In its simplest form, this is how interpolation algorithms determine values.

Photoshop provides five different methods of interpolation, each for a certain kind of resizing. Below is a breakdown of the modes and their purpose. You can change the interpolation method in two places. If you're using the Free Transform tool, you would change it in the Preferences dialog. If you're using the Image Size command, just change it in that same dialog.

Nearest Neighbor

The Nearest Neighbor mode is great for maintaining crisp edges and is most useful with rectangular shapes that line up with the pixel grid. When calculating a pixel's value, this mode first determines an average color based on its neighbors and then makes it inherit the exact value of the neighbor closest to this average. Therefore, no new values are ever used.

If you were to scale the image by 200%, you would notice that each pixel basically doubles in size (i.e. each pixel is now four pixels). This can be helpful when working with screenshots of interfaces for which you'd like to maintain crisp borders and avoid anti-aliasing.

Bilinear

Bilinear interpolation uses values from the four points closest to the sample point and blends them to find the average. This method outputs adequate results but is usually trumped by one of the Bicubic methods below.

Nearest Neighbor can be used to scale screenshots without blurring pixels.

Bicubic

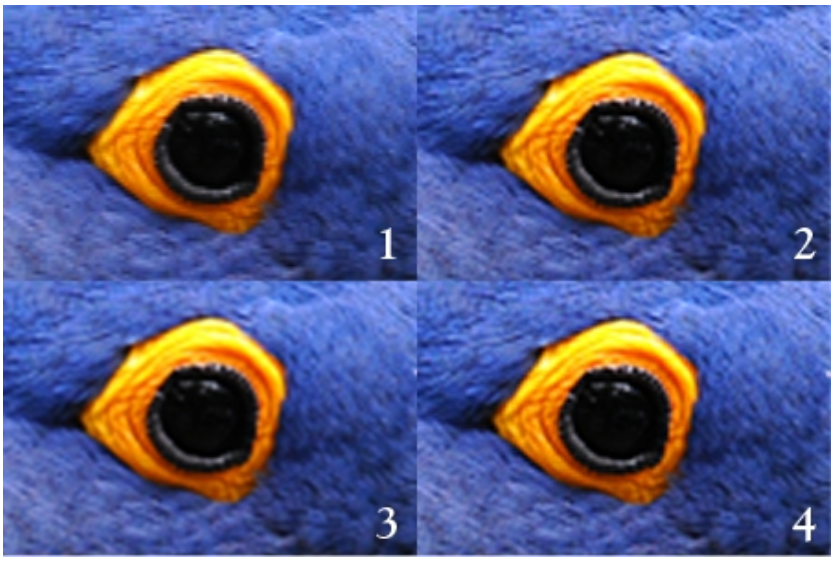
Best for smooth gradients. The Bicubic setting is Photoshop's default and provides great results in most situations. By sampling more points per calculation, bicubic interpolation outputs much smoother results, making it ideal for photographs.

Bicubic Smoother

Best for enlargement. Bicubic Smoother uses an algorithm similar to that of the basic Bicubic but with more of a focus on blending, resulting in smoother results and less contrast along edges. When downsampling, this can make images look slightly blurry. Upscaling can be improved, though, by using Bicubic Smoother, which reduces common blocky artifacts.

Bicubic Sharper

Best for reduction. Unlike Bicubic Smoother, which reduces contrast along edges, Bicubic Sharper actually overshoots edge values. This results in an increase of "acutance," which is the perceived sharpness of an image based on the contrast of its edges.



Detail of an image resized to 200%: 1. Bilinear, 2. Bicubic, 3. Bicubic Smoother and 4. Bicubic Sharper.

Stair-Step Interpolation

Stair-step interpolation is a common technique when resizing images, particularly upscaling. By incrementally scaling and interpolating an image towards its final size, you can sometimes increase sharpness and preserve detail. Experiment with different increments, but 10% seems the most common for this method. Your results will vary based on the image and interpolation method used. It's really a matter of trial and error.

Smart Objects

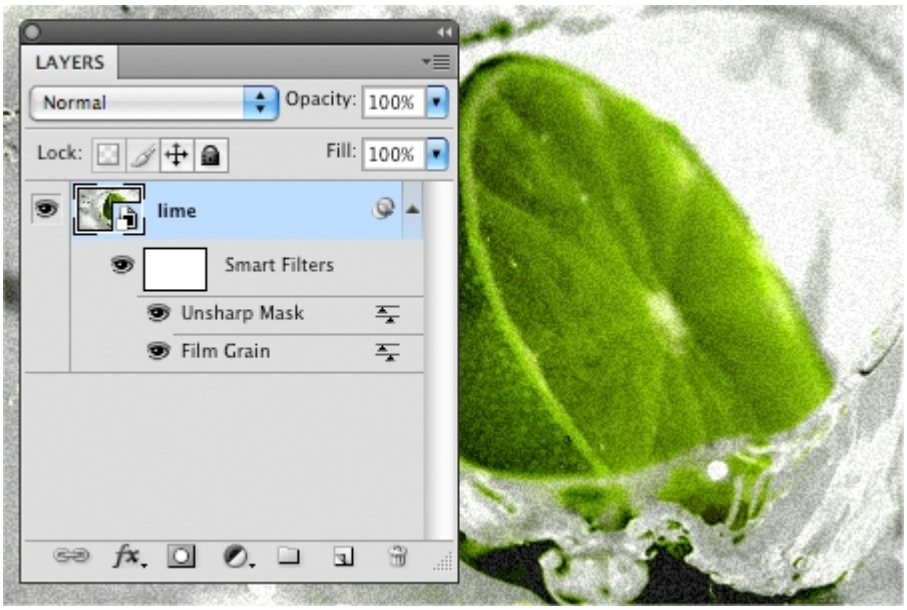
Photoshop CS2's introduction of Smart Objects radically changed the way layers could be resized and interpolated. By converting a layer to a Smart Object, you ensure that however many times an image is resized, it will be interpolated only once. The Smart Object interpolation method is determined by the universal interpolation set in the Preferences dialog.

Smart Objects are critical to non-destructive editing. Any layer — even multiple layers — can be converted to a Smart Object by right-clicking the layer in the Layers palette and selecting "Convert to Smart Object." This essentially extracts the data from the selected layers and puts it in a new document, which is embedded in the main document.

Because all of the data is now separate from the layer itself, Photoshop will pull the data from the original Smart Object every time a transformation is applied to it. Any time you need to edit the layers in the Smart Object, you can double-click its thumbnail, which will open a new PSB document containing all of the layers in the same state as when you created it. You can modify the Smart Object as if it were any other document; and when you're finished, simply save it, and the document containing the Smart Object will be updated to reflect your changes.

In addition to preserving the original data while resizing, Smart Objects also increase the flexibility of filters. Typically, filters are permanently applied to a layer, but filters on Smart Objects become a Smart Filter. As you add filters, they're added to the layer in the Layers palette under the Smart Filters section. Each of the filters can be edited by double-clicking its name. You can even change the stacking order of the filters by dragging them up and down. Finally, you'll notice a thumbnail next to the Smart Filters header: this is an additional mask that applies only to the filters. Like a standard layer mask, any areas that are painted black will be hidden.

In general, multi-layered Smart Objects make for an interesting, although somewhat unpredictable, feature: Smart Object Stack Modes. By selecting multiple layers and compiling them into a Smart Object, you can alter how those layers are composited by changing their Stack Mode (Layer → Smart Objects → Stack Mode). Each of these modes offer unique blending methods, but only a few of them are intuitive (the rest are based on complex algorithms, which render them impractical for a Web designer's workflow).

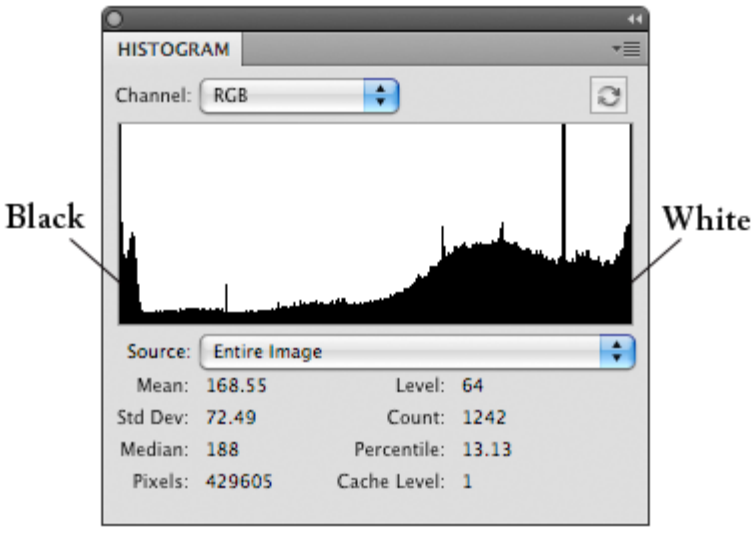


Smart Filters allow you to modify your filters after they're applied. You can also change the stacking mode and mask certain areas of the image from being filtered.

Color and Tone

Whether creative or corrective, color and tone adjustments are an important part of design. The color and tone of photographs must match the feel of the website. A photo's color values are determined by the composition of its channels — because we're Web designers and our final output is rendered in pixels, these are usually Red, Green and Blue. When making adjustments, you're essentially altering the brightness value of each pixel's red, green and blue component.

Adjusting the color or tone of an image is better done with a visualization of its values, known as a histogram. The Histogram palette (Window → Histogram) provides numerous visualizations that allow you to determine the image's balance at a glance. What appears as jagged mountains is actually a representation of the sum of pixels with a corresponding value. When the Channel drop-down menu is set to RGB, each value along the x-axis (known as the levels) represents each pixel's overall tonal value. Therefore, the values to the left of the graph represent pixels that are completely black or almost black, and values to the right move towards white. The same holds true when changing the Channel drop-down menu to Red, Green or Blue, except that the chart would then represent the values of that individual channel only.



The Histogram provides a visualization of pixel values. As you can see, this image contains more light values than dark ones.

The histogram is critical to balancing the color and tone of an image and is seen in many of the adjustment dialogs. Typically, the values in a well-balanced image will range across the entire span of the histogram. Although the histogram is not directly editable, you can make two key histogram-based adjustments: Levels and Curves (see page 120 and 122 for details).

Adjustment Layers

Photoshop allows you to adjust layers directly via Image → Adjustments, but in the spirit of non-destructive editing, your best option is to use adjustment layers. At the bottom of the Layers palette is the "Create new fill or adjustment layer" button, which gives you access to the core adjustments. Choosing an option from the list will create a new layer named after the adjustment type. The adjustments to this new layer will be applied to all of the layers below it, but you can constrain them to a single layer by creating a clipping mask (Command + Option + G or Control + Alt + G).

Adjustment layers give you much more flexibility than you would get by applying adjustments via Image → Adjustments.

Preservation of data is not the only perk to using adjustment layers. They also provide superb flexibility by allowing you to modify the adjustment at any time via the Adjustments panel (Window → Adjustments). And because each adjustment is treated as a layer, you can prioritize them by changing the stacking order. What's more, each of the adjustment layers can make use of blend modes, layer styles and masks, giving you total control over the implementation.

Brightness/Contrast

This self-explanatory adjustment comes in two sliders: one for Brightness and one for Contrast. The Brightness control allows you to increase or decrease brightness by 150 units, and the contrast ranges from -100 to 100. It can be used to quickly add pop to a lifeless photo, but it lacks the control of more refined adjustments.

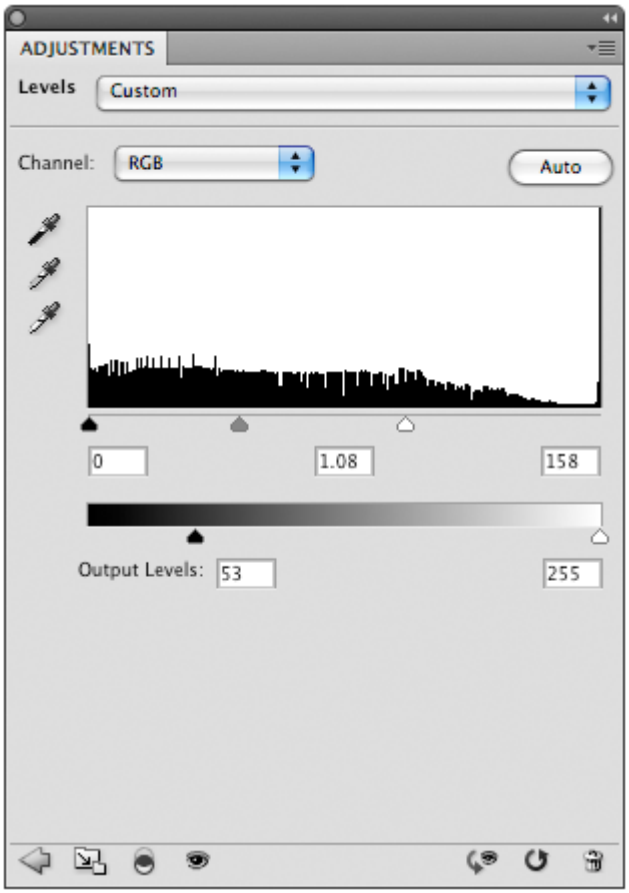
Add drama to a photo with the Brightness and Contrast adjustment.

Levels

The Levels adjustment is extremely useful for its balance of simplicity and control. This histogram-based adjustment lets you set the range of values based on either composite or channel. By default, you're presented with the RGB histogram, with three sliders along the bottom: black, gray and white. Each slider represents an absolute value. Black represents a 0 value, gray is 128 and white is 255. Moving these sliders adjusts the values relative to the new absolutes.

Therefore, moving the black slider to the right progressively darkens the image. All values to the left of the black slider will be mapped to 100% black, and the values to the right will adjust to the new black point. The gray slider sets the weight of the mid-point. By default, this is set to 1.00, which puts it evenly between the black and white points. As you move the black or white point, the gray point will auto-adjust to maintain the same percentage. Dragging the gray point to the right will darken the image, and dragging it to the left will lighten it.

The main slider points can also be controlled using the Eyedropper tools next to the histogram. By selecting one of the Eyedropper tools, you can click anywhere on the canvas to set that pixel's value as the black, gray or white point. Holding Option (Alt) while mousing over the canvas will display the current values for that point. This provides a rather intuitive way to set values.



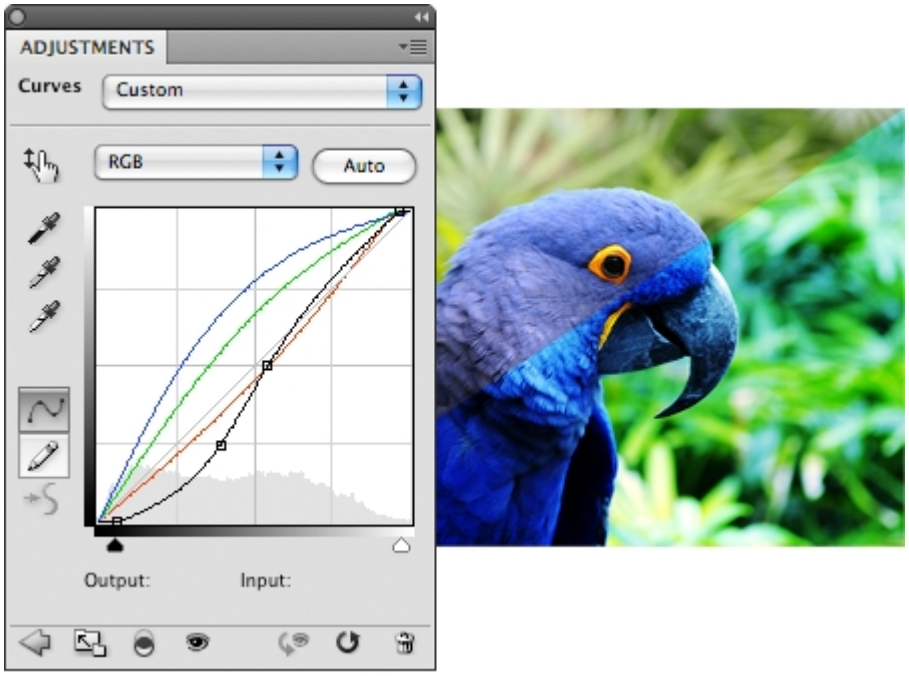
The Levels adjustment allows you to remap colors based on their histogram values. The adjustment above will both brighten an image and reduce its contrast.

Below the black, gray and white point sliders are two other sliders that control the output levels. These control the maximum values for black and white, which are defaulted to 0 and 255, respectively. Dragging the black output slider to 128

ensures that no values will be darker than 50%. You'll notice that an Auto button is located above the histogram. Clicking it will loop through the channels and balance their black and white points, which in turn will also balance the composite image so that a full range of values is reached. As with any automatic setting in Photoshop, the result may be extreme and is no substitute for manual adjustments.

Curves

While the Levels adjustment is powerful, it falls short when you need to adjust more than the black and white points. This is where the Curves adjustment comes in handy. Of all the adjustment layers, it is arguably the most important. It allows for precise control of every value in the image.



The Curves adjustment provides two-dimensional control over each channel's values.

The Curves adjustment looks similar to Levels: the histogram is front and center, there are black and white sliders, we can set which channel to work on, and the three

Eyedropper tools are there. The difference between Curves and Levels is in the gridded histogram. As in Levels, the left side still represents black and the right represents white, but Curves is a two-dimensional adjustment because it also plots data on the y-axis. The bottom of the histogram represents 100% black, and the top represents 100% white. The diagonal line running from the bottom-left to top-right corner represents how the values on the histogram (input) correspond to the adjusted values (output).

Initially, we have a perfectly diagonal "curve," setting pure black to pure black and pure white to pure white. By clicking anywhere on the curve, you can add a new anchor point, which can be moved up, down, left or right. Moving the point up will lighten the corresponding values, and moving it down will darken them. Mindfully setting and adjusting anchor points can quickly resuscitate a lifeless photo.

Exposure

By modifying the three sliders in the Exposure adjustment (Exposure, Offset and Gamma), you can correct exposures or simulate an over-exposure or under-exposure. The Exposure slider is really the key to modifying and correcting the exposure, while the Offset and Gamma options allow you to change the lightness and color range.

Vibrance

The Vibrance adjustment provides two ways to adjust the saturation of colors. The Saturation slider adjusts it by simply increasing or decreasing the saturation of each individual pixel until the maximum or minimum value is reached. Vibrance, on the other hand, is a bit more sophisticated. By taking into consideration the original saturation value, the Vibrance slider intelligently increases or decreases saturation to reduce clipping (i.e. heavily saturated colors will gain less saturation than lower saturated ones). This is very useful when working with skin tones because it helps to maintain a more natural look.

Hue/Saturation

At first glance, Hue/Saturation appears to be a simple adjustment that controls… well, the hue and saturation (and lightness, too). However, this adjustment is quite robust and versatile. It can be used to create black-and-whites, sepia effects and other duotones. It can even target particular ranges of colors to help balance them. The three sliders adjust values for each pixel in the current color group relative to the pixel's original value in the HSB color model. By checking Colorize, you can set all values to grayscale, at which point the Hue, Saturation and Lightness sliders will add color. This is great for quickly creating sepia tones and other duotones.

Setting Hue/Saturation to Colorize allows you to quickly create duotone images.

By default, all values are modified in the Master group. This applies the adjustment to the entire image. You can rotate through different color groups using the drop-down menu above the sliders. You'll notice that color stops are added to the spectrums at the bottom. This allows you to target a particular range of colors. By using the hand-pointer option in the upper-left of the dialog, you can automatically set the color range by clicking anywhere on the image. You can even click-drag on the image to change the saturation or Command (or Control) + click and drag to change the hue.

The relationship between the adjusted values and the originals can be seen in the spectrums at the bottom of the dialog. The top spectrum represents original values, and the adjusted values are on the bottom. The bar between the two is where the range stoppers appear when working with a single color group. Measured in degrees, the four range stoppers represent the beginning and end of the range as well as the edge gradation.

The triangular stops represent the color at which the adjustment should end; any value beyond them will receive no adjustment. The rectangular stops represent the internal range within which 100% of the adjustment will be applied; areas between the internal and external ranges will receive only a percentage of the adjustment.

This helps to maintain a natural and smooth transition from one color to the next, but they can be adjusted as you see fit. Modifying the stoppers is as simple as dragging them left or right, but you can also use the Eyedropper tools to add, remove or change the values.

If you happen to move a color group's range from its original color to another, Photoshop will rename the color group accordingly. For example, if the group is set to Cyan, and you move it to a range of red colors, then the group will be renamed Red 2.

Color Balance

Color Balance does exactly what its name suggests: it balances colors between Red, Green and Blue and their counterparts Cyan, Magenta and Yellow. Range control is provided by way of the three radio buttons: Shadows, Midtones and Highlights. The Preserve Luminosity check box allows you to maintain consistency between light and dark areas. This adjustment is helpful for quick color shifting, but it doesn't match the control of Curves, which can achieve the same result.

Black and White

A number of adjustments can remove color from an image — Hue/Saturation, Vibrance, Gradient Map — but none compare to Black and White. By having control over how much of each color is used for the composited Black and White image, you can pull much more contrast and detail. You can also create duotones using the Tint feature.

The upper-left of this image was just desaturated, but the bottom-right has a Black and White adjustment applied to it. Notice the improvement in contrast and range of values.

Photo Filter

Photo Filter simulates what the image might look like if it were taken with a particular filter on the camera. This can be used to subtly or drastically tint images warmer, cooler or towards a certain hue.

Channel Mixer

The Channel Mixer controls the values in each channel by adding and subtracting values from other channels. This can help with subtle color adjustments but is rather unintuitive. Turning on the Monochrome check box gives you a slimmer version of

the Black and White adjustment, controlled by the three channels as opposed to the six color groups.

Repair

Whether you're abolishing creases from a turn-of-the-century photograph, removing unwanted objects from a stock image or smoothing out blemishes from a portrait, photo repair is a necessary skill. There is an art to removing objects and covering up imperfections. It must be done with a careful eye so that it avoids ending up in a Photoshop Disasters post (http://bit.ly/1VwDZr). Removing a blemish is easy, but maintaining the realism can be difficult. Luckily, Photoshop provides a number of tools to help with the process, most of which are brush-based (see *Brushes* on page 54). These tools work by sampling data from similar areas of the image and blending them with the target area.

Clone Stamp

The Clone Stamp is the original repair tool. It allows you to set a source from where pixels will be copied and applied to the target area. You can set the source area by Option-clicking (Alt-clicking) anywhere on the canvas. Upon setting the source, you can paint directly to the area you want to repair. If you're using a newer version of Photoshop, an overlay of the source area will follow your cursor to help with alignment. Because the stamp tool is brush-based, you can modify the Radius, Hardness, Opacity, Fill and other settings to make your clone blend properly with its surrounding. Reducing the Fill and Hardness and sampling multiple times with slight variations is a good technique for maintaining realism, especially with soft areas such as skin tones.

Always copy the layer you're working on before applying destructive edits to it. Better yet, avoid destructive edits altogether. Thankfully, the Clone Stamp provides

a way to avoid applying cloned areas to the original layer via the Sample drop-down menu in the properties bar.

Start by creating a new layer above the layer(s) you'd like to repair and select the new layer. Then, set the Sample option to All Layers (or Current and Below if other layers are interfering). Now, any cloning that occurs will be sampled to the new layer and not the original. This allows for much greater flexibility and ensures that the original data stays intact. If adjustment layers are shifting your sample, you can click the "Ignore adjustment layers while cloning" option to exclude them from the source.

Newer versions of Photoshop provide a preview of the sampled area within the brush shape.

The Aligned option — located in the Clone Stamp tool's property bar — determines whether each clone will start at the source. When checked, the first clone will sample from the source's coordinates, and any subsequent clones will be sampled relative to the first clone.

For example, let's assume the source is located at x:100, y:100, and the first clone is at x:200, y:200. If the second clone is at x:225, y:225, then its sample will be located at x:125, y:125. When the Aligned option is unchecked, the second clone would change to the original source coordinates of x:100, y:100. More advanced options for the

Clone Stamp tool can be found in the Clone Source palette (Window → Clone Source). At the top of this palette are five clone source icons, each representing a unique sample area. Clicking an icon activates it, and any source area set while it's active will be mapped to it. You can then come back to that source at any time by re-clicking it.

The distance between the source and the first clone is known as the "Offset." You'll notice that after you've set a source area and move the cursor around, the X and Y values are updated to reflect the difference. These values can be edited after cloning, but it's rather difficult to predict the results. To alter the offset in a more intuitive way, Option + Shift + Drag (Alt + Shift + Drag) to the desired location. Next to the Offset are options for scaling and rotating the clone. The three inputs are fairly intuitive: setting the width and height to 50%, for example, will clone at half size. Beside the W and H options are circular arrows that allow you to flip the clone horizontally or vertically.

If you're cloning across the frames of an animation or video, you can use the Frame Offset, which lets you set the frame of the source. The offset can be set to a positive or negative integer to target future or past frames, respectively. The Lock Frame option ensures that every clone samples from the frame where the source was originally set.

The bottom section of the Clone Source palette contains options for controlling the appearance of the overlay. You can toggle the overlay on and off, change its opacity and modify its blending mode. The Clipped option dictates whether the source is shown only in the brush shape or the entire layer is shown. Auto Hide removes the source overlay as you paint, and Invert inverts the overlay only (the clone itself is not inverted).

Healing Brush

Similar to the Clone Stamp but far more advanced, the Healing Brush clones data from the source and analyzes the data so that it can intelligently blend it with the existing layer data. The result of this process is typically much more natural. The drawback of the Healing Brush is that it sometimes loses subtle textures in the blending process. This can be advantageous when repairing areas such as a cheek, but it can also lead to awkwardly smooth blotches along a surface. In such cases, using the Clone Stamp tool or a combination of the two is best.

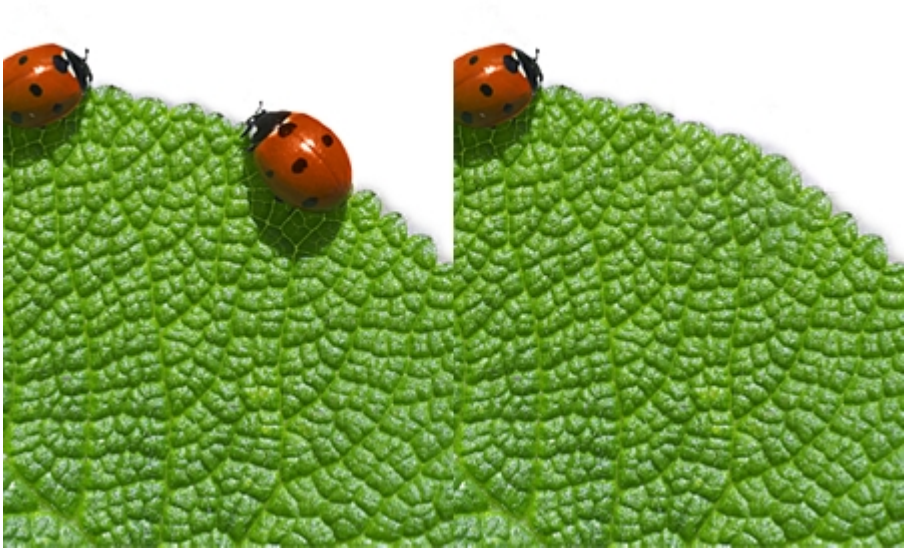
When using the Healing Brush along contrasting edges, you'll sometimes pick up unwanted color from outside of the brush shape. This is because Photoshop is using an area larger than the brush to help determine the result. This can be problematic, but there's a quick remedy. By making a tight selection over the area that needs to be healed, you can limit the pixels that are included in the blending process.
The Pattern Sample option allows you to specify a pattern to blend with the target area. This option might prove useful for creative flourishes but is less effective for general repair.

Healing along sharp edges can sometimes absorb color from nearby elements (as seen on the left). Setting a selection around the area can help remedy this.

Spot Healing Brush Tool

The Spot Healing Brush is an offshoot of the Healing Brush. It provides a similar blending process but doesn't require — or even allow — a source. When the tool's Type option is set to Content-Aware, the tool analyzes the pixels in the image to determine how the area should be filled. This works remarkably well in many circumstances, but by sacrificing the ability to manually set the source, you lose a lot of control. Therefore, this tool is best reserved for healing small and simple areas.

The Type option for the Spot Healing Brush is almost always best left on Content-Aware, but the other two options may be helpful as well, and if you haven't upgraded to CS5, they're all you have access to. The Proximity option samples pixels around the painted area. This is similar to the Content-Aware option, but it may not preserve texture and shading quite as well. The Texture option takes areas within the image, bumps up the contrast and blends them over the painted area. This can be helpful for small areas, but it looks atrocious in large areas. In fact, if the area is too large, you'll actually remove texture, leaving you with a large blurry area.



With one click, the Spot Healing Brush removes unwanted items from a photo while successfully creating data to replace them.

Changing the Blend Mode is another way to gain more control of this tool. The Normal setting usually does the trick, but depending on your image, the Replace setting might do a better job of preserving texture. The other modes should be familiar to you; you can use them to ensure that the sample targets the color or luminosity of the area.

Patch Tool

Like the Clone Stamp and Healing Brush, the Patch Tool allows you to set a sample area, but it uses an entire selection as its source. Begin by setting a selection, either with the Patch tool (which acts as a standard Lasso tool) or by using a prior selection. After the selection is made, drag it — depending on the Patch setting, you'll either sample to (Destination mode) or sample from (Source mode) the target area. The sample will then be blended as is done with the Healing Brush. If you're using the Patch tool to set your selection, you can use Shift to add to the current selection, Option (Alt) to subtract from it and Shift + Option (Shift + Alt) to intersect with it.

Content-Aware Fill

One of the most anticipated features of Photoshop CS5 was the Content-Aware Fill, which promised to alleviate nightmarish repair work by intelligently filling in the blanks. While the tool is somewhat hit or miss, when it hits, it really hits. Begin by selecting the area that needs to be filled. Then, initialize the Fill dialog (Shift + F5), and you'll notice that Use now has a Content-Aware

Content-Aware Fill can be used to seamlessly replace large areas.

option. Click OK, and watch as Photoshop works its magic. Depending on the image and your selection, you'll either achieve a seamless repair that needs no further retouching or a laughable mess. While this option doesn't rival manual healing by a skilled hand, it does make a designer's job much easier by speeding up the process. If you're lucky and the fill has seamlessly created an area of your image, then bravo! Chances are, though, that this feature is more of a jumping off point: use it to start the process, but follow up with the Clone Stamp or Healing Brush to rework trouble spots.

Sharpening

After all of the resizing, transforming and adjustments, a photograph often needs to be sharpened. Sharpening can really bring a photo to life, but it must be done very carefully so as not to create any artifacts or halos. Notice that adjusting the sharpness of an image after it has been shot is much different than tweaking the focus of a camera lens.

The images on the right have been programatically sharpened. They have much higher acutance (or edge contrast) than the images on the left.

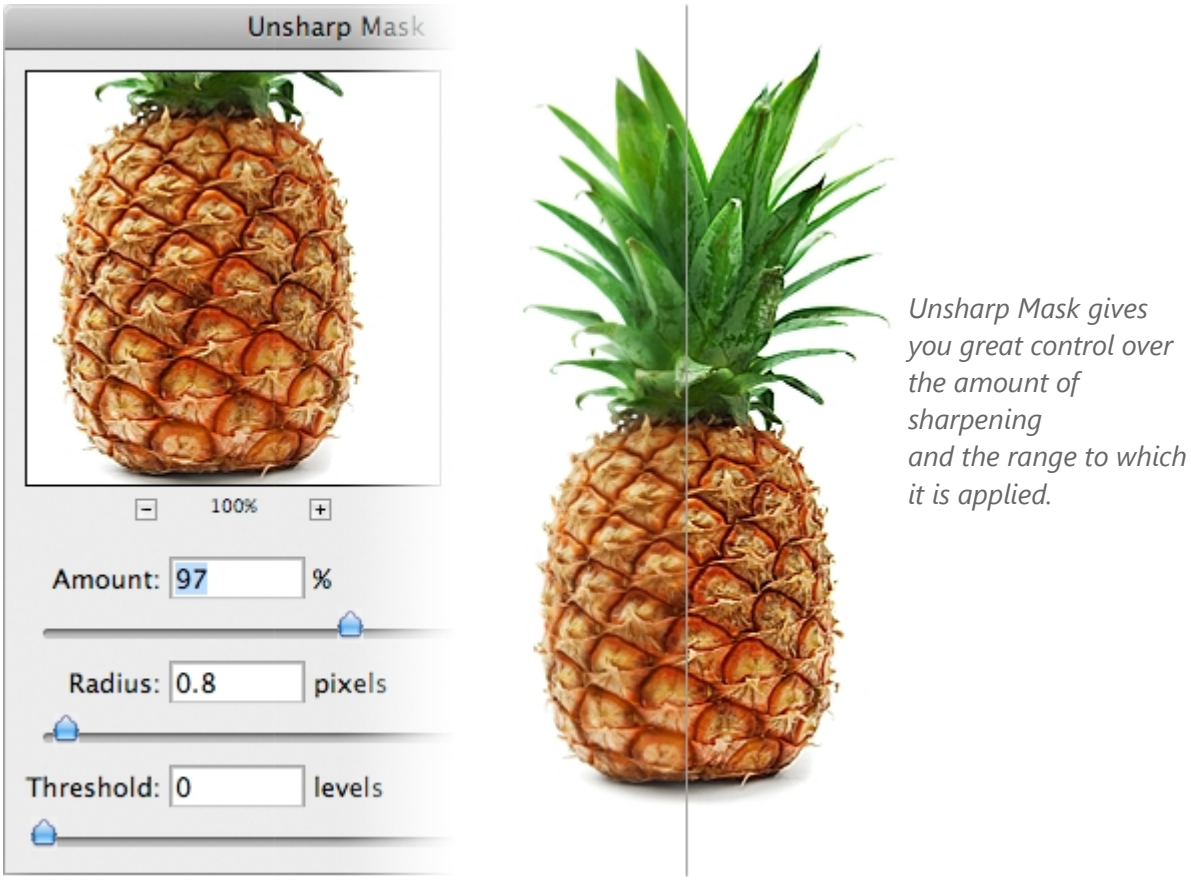
Post-production sharpening relies on changing the perceived sharpness by increasing the contrast along edges, referred to as "acutance." Photoshop provides five filters for sharpening, all located in the Filters menu (Filters → Sharpen).

Sharpen, Sharpen More and Sharpen Edges

Sharpen, Sharpen More and Sharpen Edges are quick and dirty ways to increase the sharpness of an image. They all apply a standardized amount of sharpening that cannot be adjusted and are rarely ideal. Give them a try and maybe you'll luck out, but you're much better off using Unsharp Mask or Smart Sharpen.

Unsharp Mask

Unsharp Mask had a long run as the way to sharpen. Unlike the generic sharpening filters, Unsharp Mask allows you to adjust the amount of sharpening.



Unsharp Mask gives you great control over the amount of sharpening and the range to which it is applied.

You can also modify the filter's Radius and Threshold. The Radius setting controls the sampling area. Larger radii result in more dramatic sharpening but usually create unwanted halos. You're best off leaving the radius as small as possible to achieve the desired effect. The Threshold limits the range to which the sharpening is applied. A setting of 0 applies to the entire image, whereas a setting of 20 limits the sharpening to neighboring pixels whose values differ by at least 20. The Amount, Radius and Threshold afford you great control over which pixels are sharpened and by how much, but the introduction of Smart Sharpen has changed the way we think about sharpening.

Smart Sharpen

Much like Unsharp Mask, the Smart Sharpen filter allows you to control the amount of sharpening along with the radius, but that's where the similarities end. Smart Sharpen opens a slew of features to make sharpening more intuitive and customizable. The other core option available is the Remove setting, which determines the sharpening algorithm.

By default, this is set to Gaussian Blur, which is the same algorithm that Unsharp Mask uses. The Lens Blur setting attempts to sharpen finer details, and the Motion Blur setting can help remove the blur from moving subjects (for best results, the Angle setting must be tweaked with the Motion Blur setting to run parallel to the blur streaks in the image). The More Accurate check box can be turned on to process the image more intensively; this slows the process down but can deliver sharper results.

Toggling the Basic option to Advanced will reveal three tabs: Sharpen, Shadow and Highlight. The Sharpen tab holds all of the options from the Basic mode. The other two are new, and as their names imply, they control how the sharpening is applied to the dark and light areas. These options are like the Threshold option in Unsharp Mask, but with more customization. By modifying these options, you can really

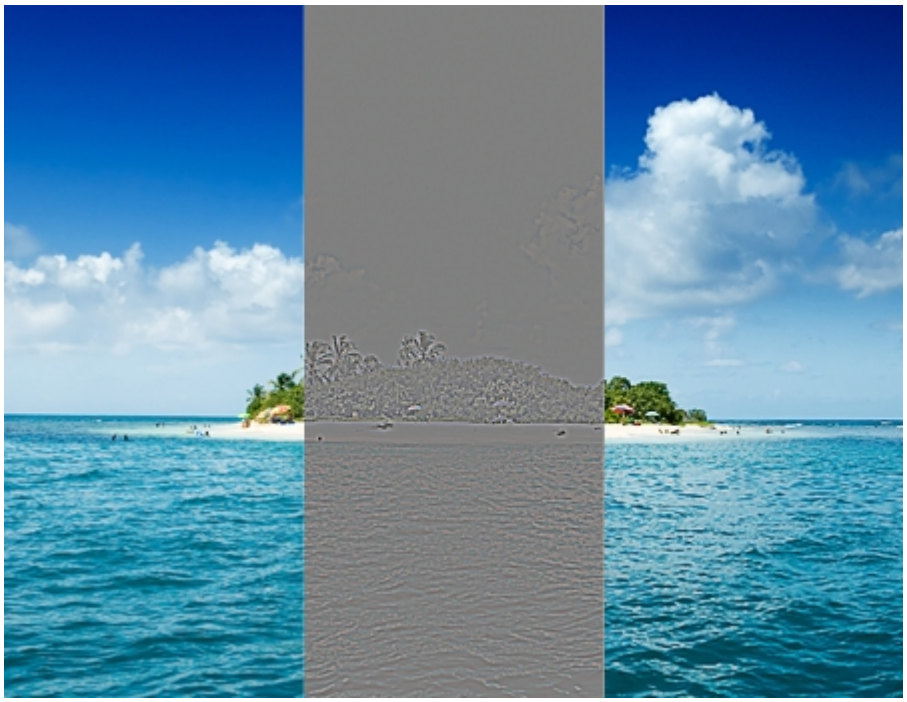
reduce the appearance of halos and without loss of acutance. The Fade Amount reduces the amount of sharpening applied to the pixels considered to be Shadows or Highlights. Tonal Width adjusts the range of values that make up the Shadow or Highlight. Values towards the left will decrease the range and thus target only the darkest or brightest edges. Finally, the Radius controls how many surrounding pixels are evaluated when determining whether a pixel is a Shadow or Highlight: the higher the value, the smaller the range of sharpened pixels. Note that modifying the Tonal Width or Radius has no effect on the sharpening process unless the Fade Amount is set higher than 0%.

Sometimes sharpening will create halos of highlights or shadows, as seen along the horizon on the left. Smart Sharpen's advanced features allow you to reduce the sharpening applied to those areas (right).

High Pass

Though not listed in the Sharpen filters, another filter is commonly used to increase the acutance of edges. The High Pass filter (Filter → Other → High Pass) outputs a grayish version of the current layer with intensified edge contrast. Areas with subtle value changes will be about 50% gray, and areas with sharp contrasting edges will be closer to either black or white.

At first, this grayish layer might seem somewhat useless, but applying the High Pass filter to a copy of the original layer and changing its blending mode to Overlay, Soft Light or Hard Light will sharpen the image with dramatic effect. You can experiment with the three blend modes and the layer's opacity along with the Radius setting of the High Pass filter to achieve results similar to those of Unsharp Mask.



The original layer (left), the duplicated layer with the High Pass filter applied (middle), and the original layer with the High Pass layer set to Overlay (right).

Masking

Photoshop masks are the cornerstone of the non-destructive editing process. Photoshop offers five methods of masking: Pixel Masks, Vector Masks, Quick Masks, Clipping Masks and Clipping Paths, all of which define pixel opacities without affecting the original data. Each has its pros and cons, and knowing which method to use is important to creating clean, flexible and properly masked layers.

Pixel Masks

Pixel masks determine opacity values based on a raster image with grayscale values that correspond pixel for pixel to the original layer. This makes them ideal for masking complex photographic imagery (e.g. the hair on a model or leaves on a tree). Pixel masks allow for 100 shades of gray, which correspond directly to opacity percentages. The ability to vary opacities is unique to pixel masks, making them an invaluable tool.

While pixel masks can be easily modified, they aren't ideal for every situation. Because of their raster format, scaling them can cause unwanted artifacts and interpolated blurriness. Smooth curves and perfect edges can also be tricky to create when painting a mask. In such circumstances, vector masks would be preferable.

Pixel masks are ideal for extracting complex photographic imagery.

Creation

Creating a pixel mask is as easy as selecting the layer or layer group and clicking the "Add Layer Mask" button at the bottom of the Layers palette. A second thumbnail will be added to the layer, giving you a preview of the mask. By default, this will be

entirely white. However, if a selection happens to be active when you're creating the mask, then it will be used to define the grayscale values of the mask. Once a mask is created, it can be edited as if it were any other pixel data by clicking on the mask's thumbnail. You can then paint in black to hide areas or paint in white to reveal them. The mask can also be tweaked using adjustments and filters such as Curves, Threshold, Unsharp Mask and Gaussian Blur.

Painting the mask black is much like using the eraser tool.

View Modes

When creating a mask, there are a number of ways to view the mask data. Option-clicking (Alt-clicking) on the thumbnail will display only the mask on the canvas. This is great for fine-tuning areas, but it doesn't show you the actual layer as you're working. To see both the mask and layer at the same time, view the mask as a Ruby overlay. Simply press \ with the layer selected to toggle the overlay on and off. The color and opacity of the overlay can also be changed by double-clicking the mask's thumbnail. Additionally, you can toggle the mask on and off by Shift-clicking on the mask's thumbnail.

Turning the mask off and the overlay on can help with fine-tuning.

Channels

Every time a layer with a mask is selected, the mask is shown as a temporary alpha channel in the Channels palette. From here, you can save the channel for later use by dragging the channel to the "Create new channel" button at the bottom of the palette or just by selecting "New Channel" from the flyout menu. You can also change the mask's Ruby overlay settings

A temporary channel is available whenever a layer with a mask is selected.

by double-clicking the channel's thumbnail. Because a temporary channel becomes available whenever a masked layer is selected, you can use keyboard shortcuts to toggle between the actual layer and its mask. Pressing Command + \ (or Control + \) selects the mask, and Command + 2 (or Control + 2) brings you back to the layer data.

Vector Masks

Vector masks pick up where pixel masks fall short. By defining the mask's shape using paths, vector masks provide a superior level of finesse and flexibility. They're ideal for defining shapes with clean, crisp lines. The disadvantage of vector masks is that they cannot vary pixel opacities; they are basically either 0 or 100. For this reason, many masking jobs require a hybrid implementation. By using a vector mask to define the solid edges and a pixel mask for more complex areas or for varying opacities, you can effectively extract objects while maximizing flexibility.

Vector Masks are ideal for masking crisp-edged objects.

Creation

To add a vector mask to an existing layer, simply Command-click (Control-click) the "Add Layer Mask" button at the bottom of the Layers palette. If a path is currently active, the mask will be created using it. Otherwise, the mask will be empty. Paths can then be added, subtracted or modified by clicking the mask's thumbnail.

View Modes

By clicking on the Vector Mask's thumbnail in the Layers palette, you can show or hide the paths saved in the mask. These paths can also be accessed from the Paths palette, but only if the layer itself is selected. Toggling the mask on and off can be done by Shift-clicking the thumbnail.

Paths

Much like how layer masks appear in the Channels palette, a temporary work path is displayed in the Paths palette when a layer with a vector mask is selected. You can then save the mask by dragging it to the "Create new path" button at the bottom of the palette or by selecting "Save Path" from the flyout menu. This temporary path can be accessed at any time by first selecting the Path Selection tool (A) and then pressing Enter; it can be dismissed by pressing Enter again. You can also quickly create a selection from an active path by pressing Command + Enter (Control + Enter).

Applying

Before applying a vector mask to a layer, you must first rasterize it by right-clicking the vector mask thumbnail and choosing "Rasterize Vector Mask." If the layer already has a pixel mask, then the two masks will be composited together to create a single pixel mask. It can then be applied like any other layer mask (i.e. right-clicking the thumbnail and choosing "Apply Layer Mask").

Quick Masks

The Quick Mask mode allows you to create a selection using pixel-editing tools as opposed to the primitive selection tools. This is a more logical approach to creating a complex mask with variable opacity. You can access this mode by clicking on the "Quick Mask" button in the Tools bar or by pressing "Q."

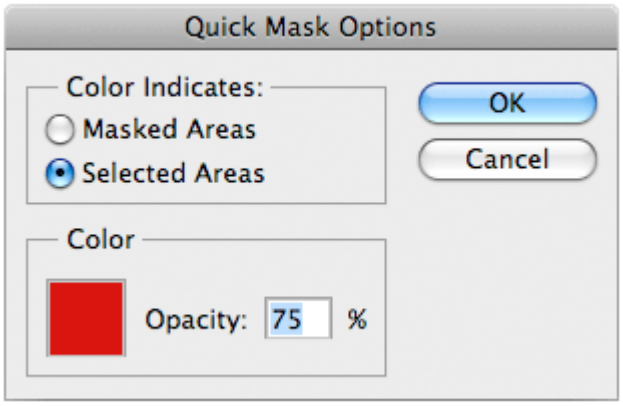
Once in Quick Mask mode, you'll no longer be editing the current layer. Instead, you'll be editing a Ruby overlay that can be edited as if it were regular pixel data. By default, entering this mode will cover the entire canvas with a semi-transparent red color. You can then paint white to remove the overlay and paint black to add it back. The Quick Mask is essentially a more visual representation of a selection. Therefore, every area that you remove from the overlay is added to the selection.

Quick Mask mode allows you to quickly paint a selection.

Options

You can modify how the Quick Mask mode is displayed by double-clicking the "Quick Mask" button in the Tools bar. Here you can change the color and opacity of

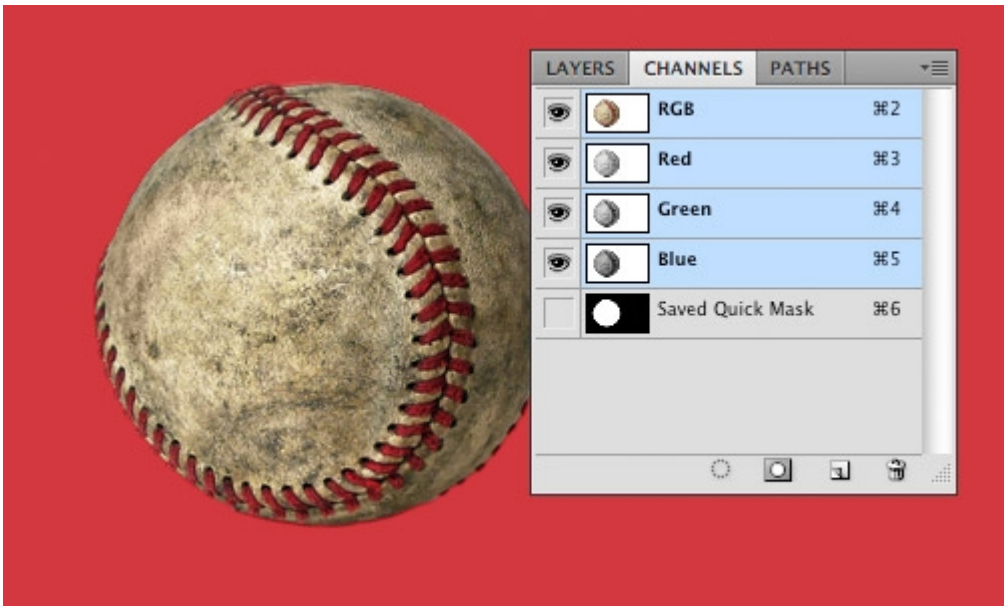
the mask as well as whether the mask color indicates masked areas or selected areas. Personally, I find painting selected areas more intuitive than painting masked areas, which is the default.



The Quick Mask Options menu allows you to change the color, opacity and target of the overlay.

Saving

After creating a quick mask, you can either immediately apply it to a layer by creating a layer mask or save it for later use. By selecting Selection → Save Selection, you can save your selection as a new channel or apply it to an existing channel. This allows you to come back to the selection at any time by Control-clicking the channel in the Channels palette or by selecting Selection → Load Selection.



Saving a Quick Mask creates a new channel.

Clipping Masks

You'll often run into situations in which multiple layers require the same mask. You could group the layers and mask the layer group, but that is not always ideal. Clipping masks allows for a layer to adopt the opacity of an underlying layer.

The easiest way to create a clipping mask is to Option-click (Alt-click) between the two layers in the Layers palette when the clipping mask cursor appears. Alternatively, you could press Command + Option + G (Control + Alt + G) to clip a layer to the one below it. Any number of layers can be clipped to the master layer, but a clipped layer cannot be used as a clipping mask itself.

Clipping Masks are great for constraining Adjustment Layers.

Clipping Paths

Clipping Paths are a lot like Vector Masks except that they apply to an entire document rather than a layer or layer group. They are used primarily by print designers to specify uniquely shaped objects that are imported into a page layout program. The path is imported along with the image to ensure a crisp clean edge.

To create a clipping path, first be sure that you have a path saved; a temporary Work Path does not suffice. You must select "Save Path" from the flyout menu in the Paths palette if your path is not saved. Then, from the flyout menu, choose "Clipping Path." Your document's appearance will not change, but if you were to import the document into Illustrator using the Place command, it would be clipped to the path.

Masks Palette

The Masks palette was introduced in CS4 and has changed the way we create and refine masks. For the first time, we could feather and fade masks without losing the original data. In CS5, we have exactly the same basic controls, but a few updates have been made to the Mask Edge dialog.

Create/View Buttons

At the top of the palette are two buttons that can be used to select the layer mask or vector mask, or to create one if one doesn't exist. If the layer contains Smart Filters, then you'll also get a Filter mask icon.

Density

The density slider basically controls how strong the mask is. At 100%, fully masked areas will be completely transparent. When density is set to 50%, those same areas will be only 50% transparent.

The Density slider controls the strength of the mask.

Feather

Feathering the edges of a mask used to require applying a Gaussian Blur, which would destroy the original mask shape. With the Masks palette, you can now change the amount of feathering at any time while maintaining the original mask data.

With the Feather slider, you can now change the mask's softness on the fly.

Mask Edge

The Mask Edge menu delivers some long-desired features that aid in refining a mask's perimeter. They come in very handy when the extracted object is still picking up color from the masked background.

View Mode

The View drop-down menu allows you to control how the mask is previewed. This setting is completely based on preference, but some modes work better for certain implementations. Note the various keyboard shortcuts contained in this menu. The shortcut to temporarily hide the mask view ("X") is particularly useful for seeing the result. Show Radius is helpful for tweaking the Edge Detection Radius, especially

when using the Refine Radius Tool. The Show Original option toggles the appearance of the mask before any of the Refine Mask adjustments are made.

Edge Detection

The Radius setting is similar to feathering, but it retains some of the edge's crispness. This can be helpful for reducing awkward or overly sharp edges of complex shapes. By checking Smart Radius, Photoshop determines the sharpness of the edges and adjusts the Radius accordingly. To the left of the Edge Detection legend is an icon for the Refine Radius Tool. This brush-based tool allows you to manually add or remove areas from the radius. By default, the tool is set to add, but you can activate the Erase Refinements tool by pressing Shift + E or by clicking and holding the icon or simply by holding Option (Alt) while painting.

Adjust Edge

Smooth

Smooth simplifies the complexity of the mask's edges. This can be useful if you've painted the mask by hand and need to quickly clean up some rough edges.

Feather

This feather command is nearly identical to the Mask palette's primary feather command, but it restricts the blur more to the edge of the mask. The difference is slight yet noticeable.

Contrast

Contrast simply modifies the contrast of edge elements, which helps to crispen soft edges. Using this in conjunction with Radius can help remove unwanted artifacts in the mask.

Shift Edge

Formerly the Contract and Expand slider, this option allows you to grow and shrink the edges of the mask. This is extremely useful for reducing unwanted color fringes.

The Shift Edge slider can be used to remove unwanted color fringes.

Output

The Output section allows you to set how the Refine Mask adjustments are applied. You can set the changes directly to the Layer Mask, or you can create a new layer or even a new document with the mask automatically applied or preserved in a layer mask. The Decontaminate Colors option processes the edges of the mask and removes any unwanted color fringes.

Color Range

The Color Range menu is one of the most powerful ways to extract an image from an evenly colored background. With only a few clicks and adjustments, even the most complex object can be cleanly masked.

Quick Tips

Post-Apocalypse

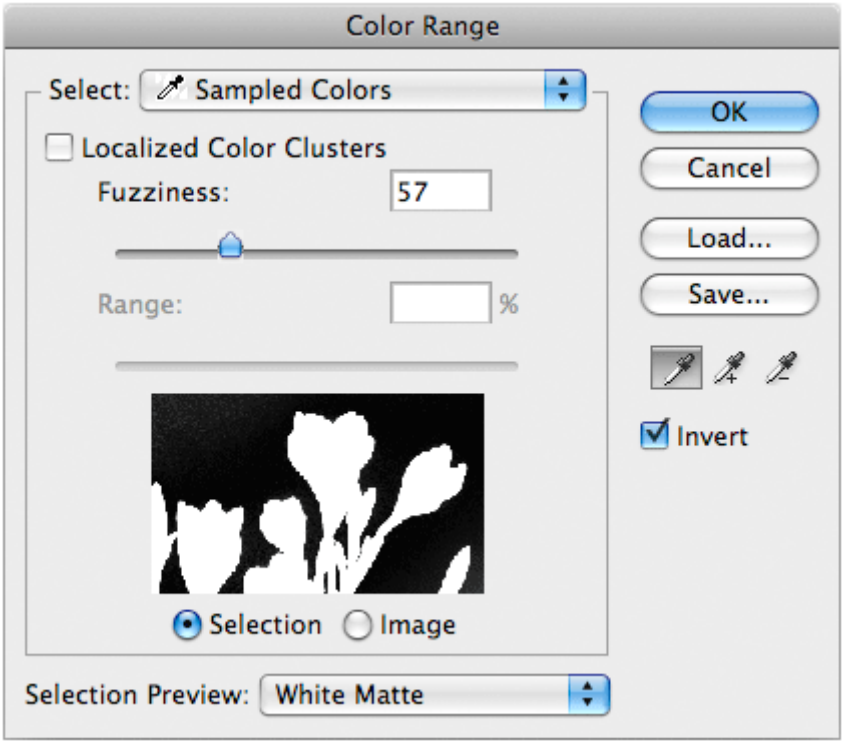
Recreating the typical deserted city street effect seen in post-apocalyptic films is made easy by using a video clip and Smart Objects. This technique relies heavily on a video clip in which the camera remains stationary with no zoom or pan; but you can

also use multiple stills taken consecutively. We will sample a median of every frame and piece it together, basically eliminating anything that has moved during the clip. This technique will also eliminate the noise in each frame, leaving us with a smoother and more detailed image.

Start by importing your video by selecting File → Import → Video Frames to Layers. Once the layers are imported, select them all, and convert them to a Smart Object by right-clicking one of the layers and choosing "Convert to Smart Object." Next, choose Layer → Smart Objects → Stack Mode → Median.

Color Range Masks

When an object needs to be extracted from an evenly colored background (much like the video-editing process of Chroma keying), the quickest means is often the Color Range command.



The Eyedropper tool allow you to easily select the sky in the photo below.

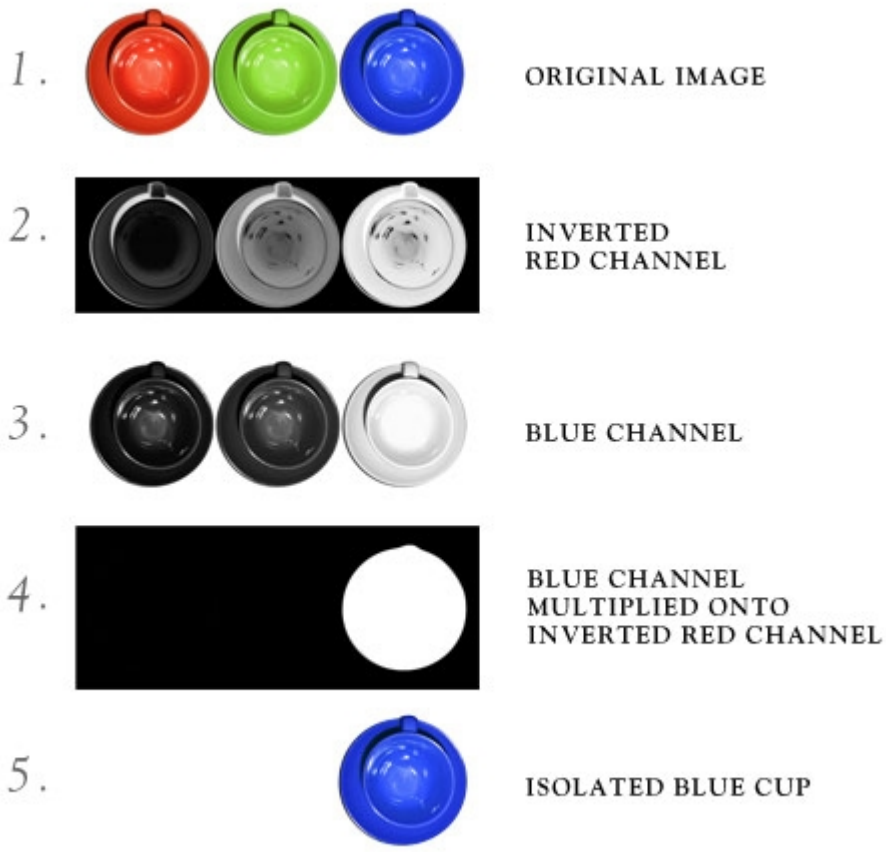
First, use the Eyedropper tool to select the primary background color. Then, use the "Add to sample" and "Remove from sample" tools to refine the color selection. The fuzziness slider lets you broaden the range of colors selected. If the color data is there to support it, this process makes short work of an otherwise tedious task.

Color Range makes quick work of complex masks.

Masks From Channels

A mask often hides in one of the layer's channels, just waiting to be unlocked. Depending on your image, you may be able to find a channel with a strong contrast between the target object and its surroundings. You might even want to temporarily change the color mode to Lab or CMYK to access alternative channel options. Once you've found a channel with strong enough contrast, Command-click it to create a selection. Then, apply the selection as a layer mask. You'll then be able to tweak it as you would any other mask.

As the image below demonstrates, simply selecting a channel is not always sufficient for a clean mask. You may need to do some mixing with other channels.



1. The original image has strong vibrant colors, making it a great opportunity to create a mask using channels.
2. The red channel has the right foreground-to-background contrast, so we'll start there. We've copied and pasted it onto a new layer and then inverted it.
3. The green cup is still prominent, so we've converted the blue channel to a layer and will use it to negate the green and red cups.
4. By setting the Blending Mode on the blue channel's layer to Multiply, we can effectively erase any extraneous white areas.
5. The two layers are then flattened and applied as a layer mask to the original image. This leaves us with a cleanly masked blue mug.

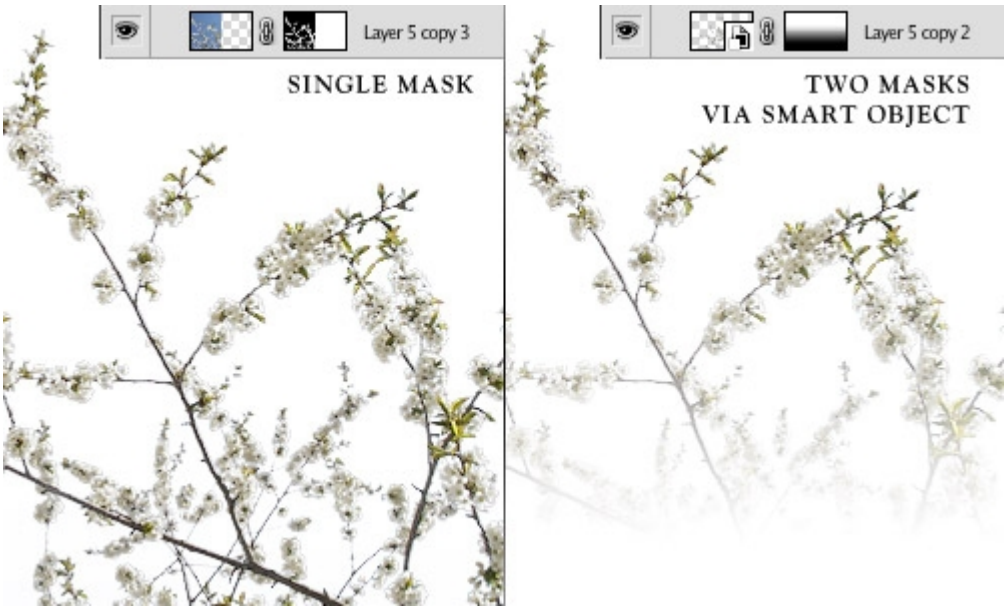
Pixel/Vector Hybrid Masks

Objects will quite often have a combination of sharp edges and soft feathered edges. In such instances, using both a pixel and a vector mask may be best. One common example of this is extracting a figure. You can use the Pen tool to draw all of the smooth edges along the figure's body, and then use a pixel mask to paint in the fine details such as hair.

Multiple Masks

At times you may want to apply more than one mask to a layer. You could apply the mask by right-clicking the layer and selecting "Apply Layer Mask," after which you could apply a new mask. This, however, is not ideal because the data behind the mask will be lost.

A far better method is to create a Smart Object from the layer and mask the new layer. This allows you to apply two masks to one layer without losing data. In fact, if needed, you could repeat this process over and over.

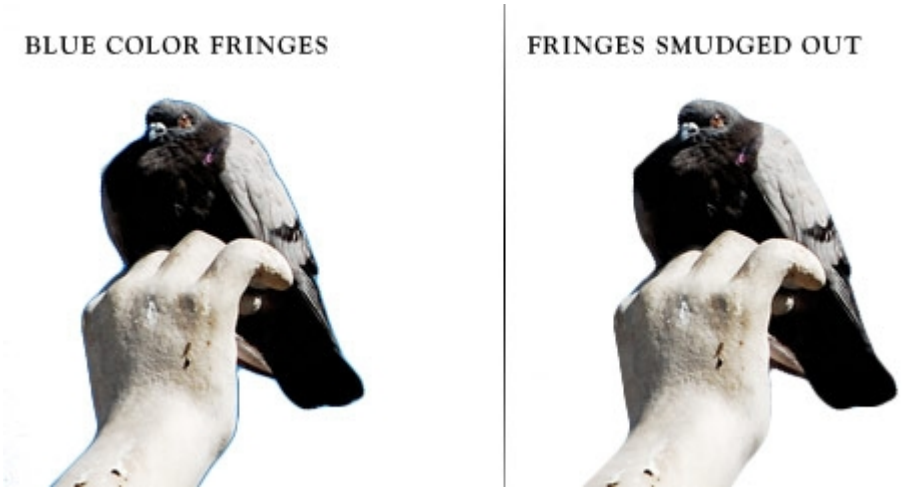


Converting a layer to a Smart Object allows you to add multiple masks without losing data.

Removing Edge Fringes

Even after using the "Refine Edge" command in the Masks palette, you may find random color fringes left along the edge of your mask. This is where some manual brushwork comes in handy. The Paintbrush tool can be used here, but I recommend the Healing Brush, Stamp tool or Smudge tool because they will blend better with the subject.

First, create a new layer and clip it to the masked layer. Then, set your tool of choice to sample all layers. You can now select the sample area and paint the fringes out; the original layer data will be preserved. Changing the brush's Blend Mode will often preserve the detail of the layer.



Color Fringes can usually be smudged or painted away on a clipped layer.

Keyboard Shortcuts

Tools

S (Shift + S to cycle through)	Clone Stamp and Pattern Stamp
J (Shift + J to cycle through)	Spot Healing Brush, Healing Brush, Patch tool and Red Eye tool
O (Shift + O to cycle through)	Dodge, Burn and Sponge tools

Adjustments

Command + L (Control + L)	Levels
Command + M (Control + M)	Curves
Command + U (Control + U)	Hue/Saturation
Command + B (Control + B)	Color balance
Command + Option + Shift + B (Control + Alt + Shift	Black and white

+ B)	
Command + Shift + U (Control + Shift + U)	Desaturate
Command + I (Control + I)	Invert
Command + Shift + L (Control + Shift + L)	Auto-tone
Command + Option + Shift + L (Control + Alt + Shift + L)	Auto-contrast
Command + Shift + B (Control + Shift + B)	Auto-color

Masks

"\"	View Layer Mask as an overlay
Command + \ (Control + \)	Set layer focus to Layer Mask
Command + 2 (Control + 2)	Set layer focus to layer data
Command + Option + \ (Control + Alt + \)	Create selection from Layer Mask
Command + Option + G (Control + Alt + G)	Make or release Clipping Mask
A, then Enter	Activate or dismiss Vector Mask
Command + Enter (Control + Enter)	Create selection from active vector mask
Command + Click Mask Thumbnail (Control + Click Mask Thumbnail)	Create selection from mask
Command + Option + Click Mask Thumbnail (Control + Alt + Click Mask Thumbnail)	Subtract mask from selection

Command + Option + Shift + Click Mask Thumbnail (Control + Alt + Shift + Click Mask Thumbnail)	Intersect mask from selection
Q	Toggle Quick Mask mode

In the Color Range Dialog

Option (Alt)	Toggle the Reset button and the "Subtract from Sample" tool
Command (Control)	Toggle between the Selection view and Image view
Shift	Toggle the "Add to Sample" tool

In the Levels and Curves Dialog

Option + 2, 3, 4 or 5 (Alt + 2, 3, 4 or 5)	Cycle through RGB, Red, Green and Blue channels

In the Refine Mask Dialog

J	Show radius
P	Show original
M	Marching ants
V	Overlay
B	On black
W	On white
K	Black and white

L	On layers
R	Reveal layer
F	Cycle through view modes
E (Shift + E to cycle through)	Refine Radius tool and Erase Refinements tool
Z	Zoom tool
H	Hand tool

Clone Stamp and Healing Brush

Option + Click (Alt + Click)	Set Sample location
Option + Double-click (Alt + Double-click)	Select Aligned option (Clone Stamp only)

For more shortcuts, see Brushes: Keyboard Shortcuts on page 74.

Filters

Command + F (Control + F)	Last filter
Command + Option + F (Control + Alt + F)	Last filter with dialog
Command + Shift + F (Control + Shift + F)	Fade filter just applied

Chapter 7, **Exporting**

Once you've polished every last pixel, it's time to get your work into the browser. This is a pretty straightforward process, but properly optimizing your images is crucial. You need to maintain a balance between clarity and download speed. This requires multiple formats, varying levels of compression and other optimization techniques. In this chapter, we'll explore the workflow of exporting images via the "Save for Web and Devices" dialog.

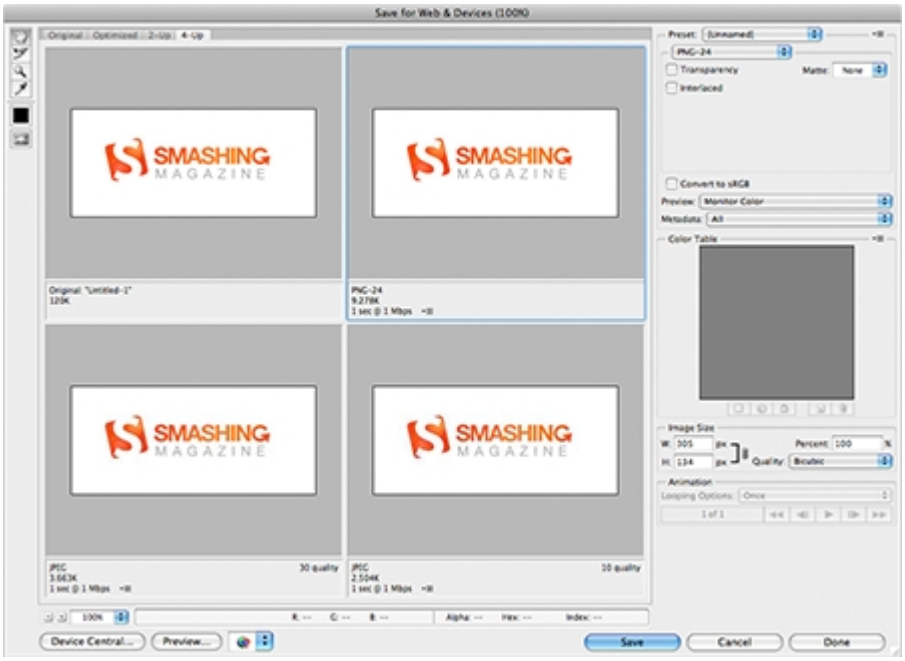
Save for Web and Devices

Every image that is exported and that will ultimately end up in a browser should be sent through the Save for Web and Devices dialog. This dialog provides everything you need to optimize and save your images for the Web. Not only does it save images in a particular format, it gives you control over quality, transparency and colors. Tweaking all of these settings is key to reducing a file's size while keeping the quality as high as possible. This is increasingly important today, as more and more people access the Web via mobile devices, where smaller file sizes are more crucial to a smooth experience.

We'll begin by examining the interface of the Save for Web and Devices dialog, which can be accessed via the File menu or by pressing Command + Option + Shift + S (Control + Alt + Shift + S). The first thing you'll likely notice is the large image window. By default, you should see one large image, which may look slightly different from your actual file. This is because you're currently viewing the optimized version. There are four different view options, which can be changed by the tabs in the upper-left corner: Original, Optimized, 2-Up and 4-Up. The Original view shows the file exactly as it appears outside of the dialog. The Optimized shows the file after the current compression settings have been applied. 2-Up and 4-Up split the screen into panels to allow you to compare the differences between the original and optimized versions. The 4-Up view even allows you to test multiple settings. By clicking into one of the panels, you activate its settings, which can be changed without altering any of the other panels. This can be valuable for testing different compressions.

At the bottom of each view panel is a brief summary of the associated file type, along with the file size and an estimated download time. Remember, the goal here is to get that file size down as low as possible without disrupting the quality. You'll want to keep a close eye on this summary. If you like, you can change the simulated

download settings to get a better approximation of the file's speed by clicking the "Select Download Speed" button.



The 4-Up view allows you to compare three different compression settings against the original file.

To the right of the view panels are the file settings. This is where all of your compression work will be done. These options vary greatly depending on the file format you're exporting to. This dialog gives you access to five different file formats: GIF, JPEG, PNG-8, PNG-24 and WBMP.

Format Specific Options

GIF

The Graphics Interchange Format (GIF) is great for saving logos, text and other graphic images. This format uses a lossless compression, meaning that the highest quality is maintained in the process. However, the GIF format allows only 256 colors. That is not to say that you can only choose between a set number of 256 colors, but rather that the file is able to store up to 256 colors, from which each pixel will be

colored. This makes it less than ideal for photographs, but perfect for images with large blocks of solid color.

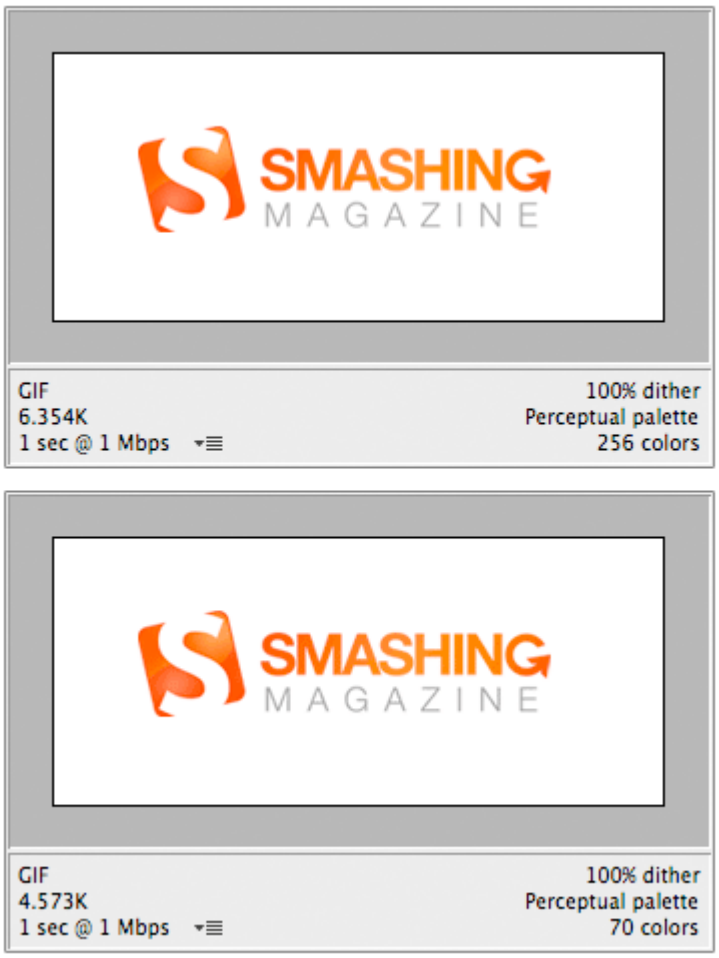
The GIF format compresses images by examining large blocks of similar colors, making it perfect for logos.

Color Reduction

If you set the Optimized file format drop-down menu to GIF, you'll see a number of options to control how the GIF will be compressed. The very first option is the palette reduction algorithm. Because the GIF format can store only 256 colors in its color table, Photoshop will run the image through an algorithm to determine which pixels to keep and which to discard.

Some of the methods are self-explanatory, such as Black, White and Grayscale. Some are basically useless, such as Mac OS and Windows, which attempt to simulate the typical gamut of those platforms. And then there's Custom, which lets you set the entire color palette yourself. This can be rather tedious, and you're better off with one of the remaining four methods: Perceptual, Selective, Adaptive or Restrictive.

The Perceptual algorithm prioritizes colors that the human eye is most adapt at perceiving, but it is less accurate at reproducing exact color values. Selective determines which colors are used the most and in the largest concentration, and it ensures that those are maintained. This makes Selective a great choice for most images. The Adaptive setting is similar to Selective, except that it prioritizes colors used throughout the entire document as opposed to those neighboring each other. Finally, the Restrictive setting limits the color table to the outdated Web Safe color palette of 216 colors. This palette was used in the early ages of the Web to identify colors that could be rendered by a majority of monitors. Today, you'd be hard-pressed to find a user who is using a monitor with such a limited color palette, which makes the Restrictive setting basically worthless.



Limiting the color table can sometimes reduce the file size without noticeable dithering.

Colors

A GIF can store 256 colors in its color table, but it can also be manually restricted to fewer. Lowering the number of colors can help reduce the size of the file and can sometimes be done without degrading the image.

Dithering

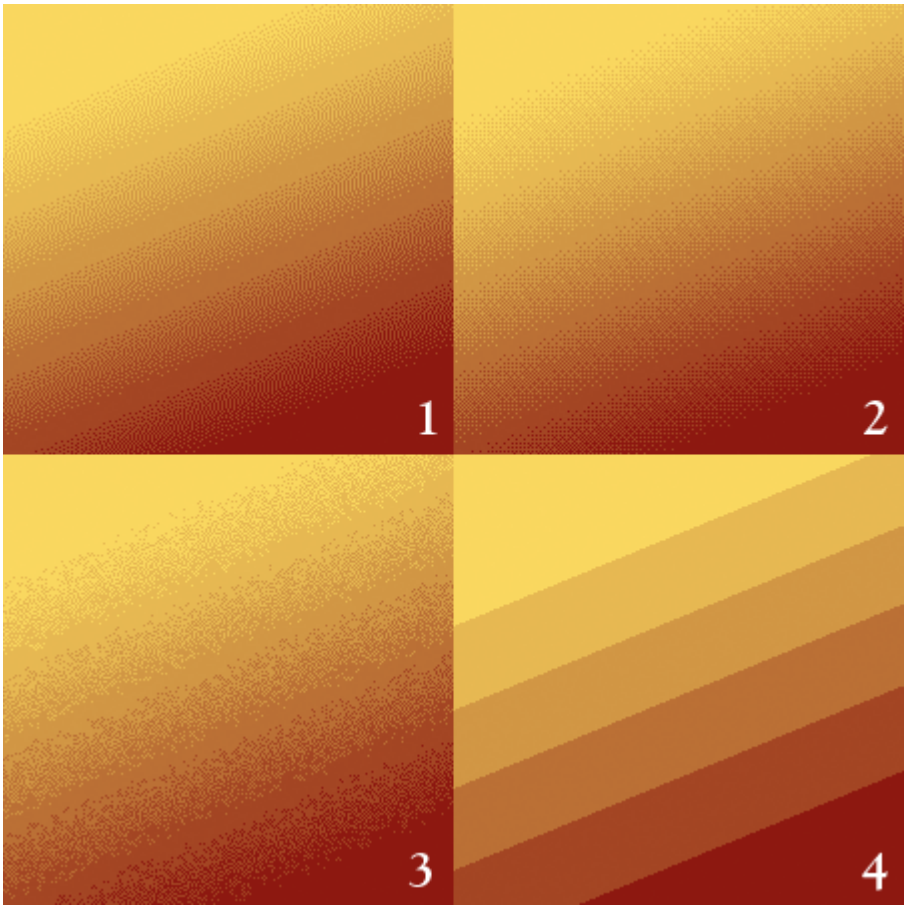
Reproducing color gradations with such a limited color palette can prove quite challenging. Even a simple gradient can contain hundreds of shades, quickly filling your color table. But simply stripping some of the colors out can create unwanted banding. To combat this, Photoshop lets you run the image through a Dithering algorithm, which strategically distributes pixels of different colors through the gradation. This is similar to pointillism, because it relies on our eyes to mix the colors into a seamless gradation.

Because GIF images can store only 256 colors, it has to compensate for other shades by dithering.

There are four options for dithering. No Dither completely removes dithering, which can result in color bands. The Diffusion setting applies a diffuse pattern, which spaces pixels out based on the concentration of their color. Pattern spaces out pixels more evenly to simulate a half-tone pattern; this is more stylistic than realistic. Finally, the Noise setting is similar to Diffusion, but the placement of pixels is more random, resulting in grittier gradations. In addition to the dithering algorithm, Photoshop allows you to fine-tune the dithering by specifying the amount.

Dithering modes:

1. Diffusion,
2. Pattern,
3. Noise
4. None.



Transparency and Matte

The GIF format allows 1-bit transparency, meaning that a pixel can be either fully transparent or fully opaque. This can lead to awkwardly sharp edges and strangely colored gradations. You can modify the Transparency Dither algorithm to help smoothen some of the gradations, but they'll often appear gritty.

The best way to achieve a smooth transparency with a GIF is to matte it on the target background color. Using the Matte drop-down menu, you can select the color to be filled in areas with varying transparency. For example, if a pixel has an opacity of 30%, Photoshop will essentially fill in the other 70% with the matte color, which creates a blended color with 100% opacity. This technique works great when the

image will ultimately reside above a solid color, but it will create seams if placed on a pattern or gradient.

1. No Matte on solid,
2. Matte on solid,
3. No Matte on gradient,
4. Matte on gradient.

Interlaced

Interlacing is an outdated method of delivering files that allows users with slow connections to receive images in progressive segments. Now that a majority of users are on broadband connections, this is rarely needed. It also adds weight to the file size, so use only if necessary.

Web Snap

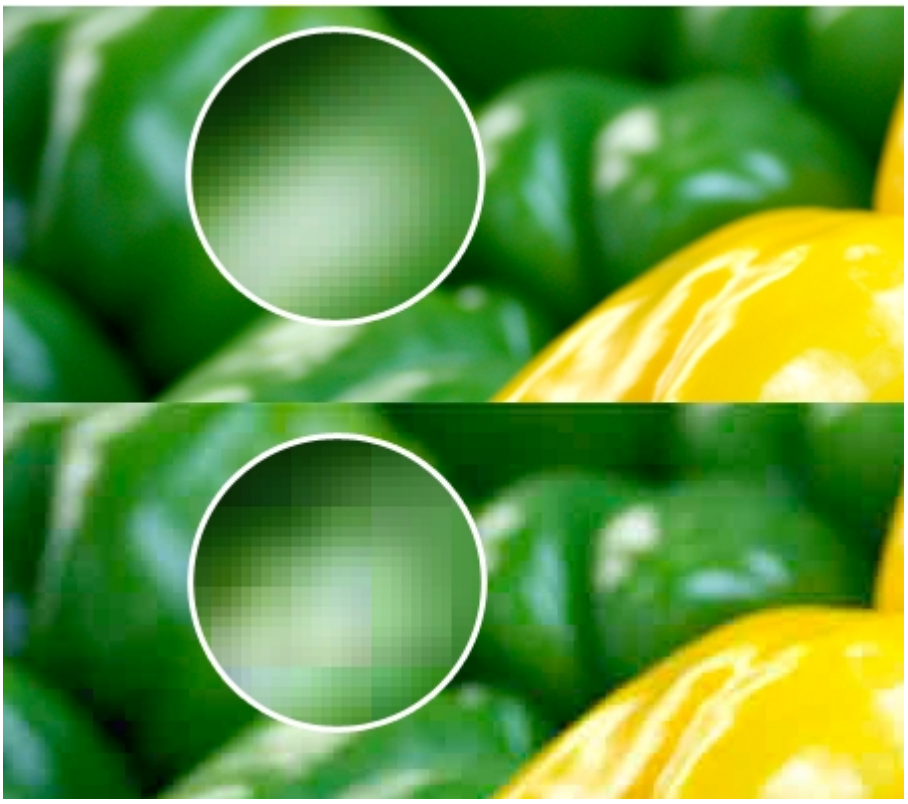
This is another deprecated option that was used to shift colors towards the 216 Web Safe color palette. Nowadays, this can just be left at 0%.

Lossy

The Lossy setting sacrifices the quality of the image to reduce file size. Ideally, you would never have to change this setting, but it might help if you don't mind losing some clarity in the image.

JPEG

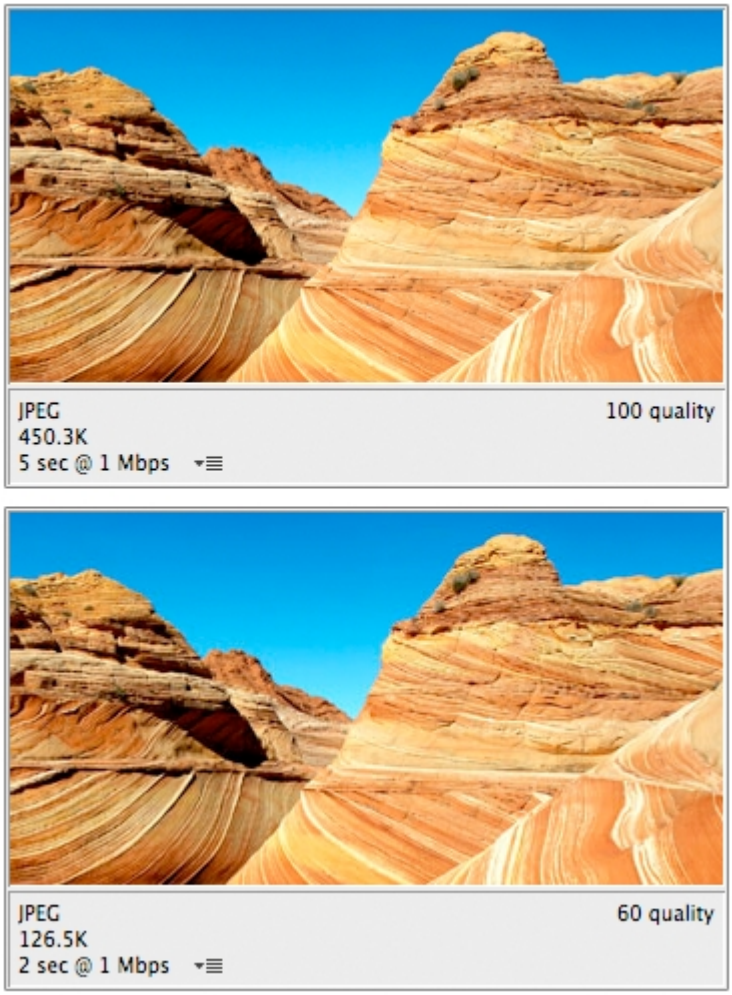
Joint Photographic Experts Group (JPEG) compression is drastically different from GIF or PNG compression (see pages 161 and 170). The biggest distinction is that JPEG is a lossy format, meaning that it compresses files by reducing the quality of the image. When handled carefully, this loss of quality is not perceivable to the human eye. Despite this compromise, JPEGs are ideal for photographs and other complex imagery. JPEGs are also capable of embedding meta data, which is useful for including copyright and other information with photographs.



JPEG compression can create unwanted artifacts. Excessive compression can reveal an 8×8 mosaic pattern (bottom).

Quality

The Quality setting is the primary means of compressing a JPEG. The lower the setting, the more the file is compressed and the worse the image looks. Unfortunately, there are no magic numbers here. You'll have to make a subjective decision on how much to compress the file before the loss in quality becomes unacceptable.



The Quality setting is used to find the perfect balance of clarity and file size.

Progressive

Progressive JPEGs download in stages, much like interlaced GIFs. This allows users with a slow connection to see the image more quickly but at very low quality. The file then gains quality progressively. This requires the file to include more data and therefore increases the size. This is hardly needed in today's broadband world.

Optimized

Checking this option runs the image through an additional compression technique (Huffman coding) to reduce the file size even further. Leaving this option on is recommended, because it effectively reduces file size without affecting the quality of the image.

Embed Color Profile

JPEGs are able to store ICC profiles to inform browsers how their data should be displayed. Unfortunately, a majority of browsers completely ignore the embedded profile. For now, this option is best left unchecked; but as browsers evolve, we'll start to use this option to improve the delivery of images.

Blur

Because of how the JPEG compression engine operates, blurry areas can be compressed far more than areas with sharp color variations. For this reason, Photoshop lets you blur an image slightly before exporting. Of course, we rarely want blurry images, but there are times when a very slight blur will reduce the file size just enough without drastically affecting the clarity of the image.

Matte

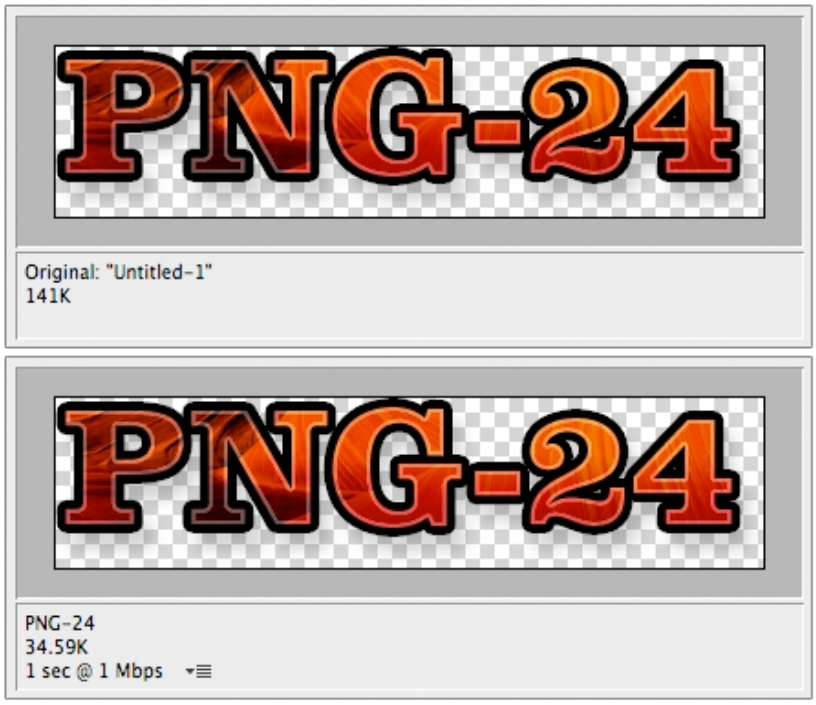
Because JPEGs don't support transparency, any transparent areas will be filled with the color set by the Matte option.

PNG-8 and PNG-24

The Portable Network Graphics (PNG) format comes in two varieties. The first is PNG-8 format, which is similar to the GIF format. It supports 1-bit transparency and limits its color table to 256 values. The only real difference is that it doesn't support animation. For details on PNG-8 settings, please refer to the GIF settings on page 161.

The second PNG format is PNG-24, which provides the best quality of all the aforementioned formats. This is a completely lossless format, meaning that the image itself is not affected by compression. PNG-24 also supports 8-bit transparency. Basically, what you see in the original PSD is what you get in the exported version. However, this beautiful output comes at a significant cost: because they contain four lossless 8-bit channels, PNG-24 files can be tremendous in size. Use only when appropriate.

The settings here are pretty simple. You can toggle transparency and add interlacing just like with a GIF. You can also add a Matte color, but it is added only if Transparency is off.



The PNG-24 format not only saves the image pixel for pixel, it also saves an 8-bit alpha channel for perfect transparency.

WBMP

Wireless Bitmap (WBMP) files were developed for use on monochromatic

wireless devices. They consist of only black and white pixels. Photoshop allows you to control the dithering algorithm and amount of dither. Chances are you'll never use this format.

Other Settings

Convert to sRGB

If your working space is set to anything other than sRGB, you can check this option to have Photoshop convert the image to sRGB before it exports the file. If you've followed my recommendation in the Color Management chapter (page 10), you can leave this option unchecked.

Preview

The Preview drop-down menu dictates how the image in the optimized panel is proofed. If your monitor is properly calibrated and your working space has been set correctly, you can set this to Monitor Color to see how the file will appear when viewed in the browser. You can also proof the image to see how it would appear on Windows or Mac, or you can turn off the proof by setting it to Use Document Profile.

Meta Data

If you'd like to pass information such as contact information, camera data and copyright, you can add it with the Meta Data drop-down menu. This option controls which data to include, but the data must first be set with the File Info dialog (File → File Info). This information can be saved only in JPEGs.

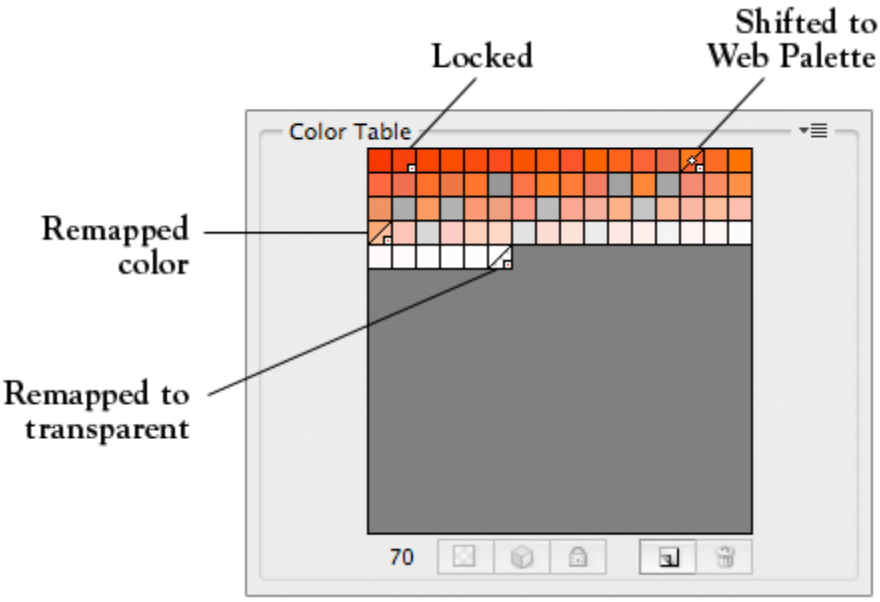
Color Table

When working with an indexed file format (GIF or PNG-8), you'll want to know exactly which colors are being embedded in the file. The Color Table provides this information via swatches. Each swatch represents one color in the file. From this table you can add, remove and tweak colors.

Transparency: Clicking this toggles the selected swatches between fully transparent and fully opaque.

Shift/Unshift to Web Palette: This option shifts the selected color to its nearest Web Safe color. If already set to a Web Safe color, this shifts it back to the original.

Lock Color: Locking a color with this button ensures that it is not dropped, regardless of any other option that would otherwise remove it.



The Color Table shows all the colors that will be saved in the file. From here you can add, remove and remap colors as needed.

Add swatch: If your document has fewer than 256 colors, you can click this button to add the current Eyedropper color to the table. You'll notice that the new color is not simply added as a new swatch; instead, the color closest to it is converted to that color. The swatch is then split in half diagonally to display the old color (upper-left) and the shifted color (bottom-right).

Delete swatch:
To remove a color from the table, select it — or hold Command (Control) to select multiple — and then click the Trash icon.

Image Size

If you need to resize an image before exporting it, you can do so with the Image Size settings. Resize it to specific dimensions or a percentage, and control the interpolation algorithm with the Quality drop-down menu. However, I recommend doing all of your resizing outside of the Save for Web and Devices dialog.

Animation

The animation settings, supported only in the GIF format, let you control the file's loop settings and preview the animation.

Slices

Modern Web development centers on semantic mark-up and clean CSS. Life, however, was not always so idealistic. Web developers once had to rely on tables to construct their layouts. This required perfectly aligned table cells containing images that were seamlessly stitched together. To speed the process of building these tables and cutting the images just right, Photoshop introduced Slices. This simple tool let developers dictate where images should be cut and then export the individual segments as separate images. It could even export the HTML needed to bring the images together in a table.

While the development community has moved past table-based layouts, these still serve a purpose. HTML emails have meager and varying CSS support, which means that their layouts need to be constructed with tables. Slices are still relevant for this reason.

Creating a slice is easily done with the Slice tool (K). Simply click and drag out a rectangle. The areas around your slice will be logically split into other slices, referred to as "auto-slices." Auto-slices work exactly like "user slices" except that you can't resize them directly; but you can promote them to user slices using the Slice Selection tool (Shift + K to rotate between the Slice tool and Slice Selection tool). Select the slice and click Promote.

Each slice is delineated by a bounding box and numbered based on its position among the other slices. After creating a slice, you can resize it by dragging its bounding box, and you can move it by dragging inside the bounding box. If one slice overlaps another, their stacking order determines how the image is divided.

An email sliced into table cells.

You can modify the stacking order by selecting it with the Slice Selection tool and using the stacking order buttons in the properties bar. Slices higher in the stacking order take precedence over those lower down.

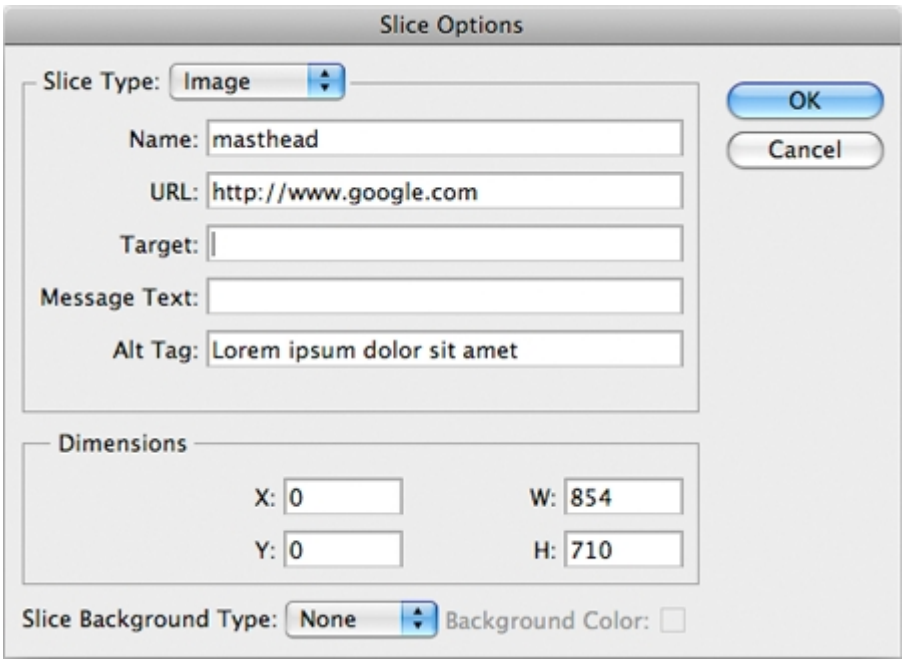
A slice basically represents a table cell, and Photoshop can export all of the HTML necessary to build the table. This is done through the Save for Web and Devices dialog. When you open this dialog on an image with slices, things change slightly. All of the same file formats and options are there, but you can now give each slice its own setting.

Use the Slice Select tool in the upper-left corner of the dialog to select one or multiple slices. Then, set the compression details for the selected slices, which won't affect the unselected ones. You can easily select all of the slices and apply a global setting, but you might be able to reduce the file size by setting each slice individually, especially because some slices might work better as JPEGs while others would benefit from GIF compression.

Each slice also has some hidden settings that determine how the HTML will be written. Double-clicking a slice with the Slice Selection tool opens the Slice Options dialog. Here you can change the name, message and alt text, which control the image tag's ID attribute, status bar text and alt attribute, respectively.

You can also add a link to the image by populating the URL and control the link's window target with the Target setting. If the slice does not contain an image, you can change the Slice Type option to No Image, and you'll then be able to add text or other HTML in that cell.

The Slice Options dialog determines how the HTML will be written.



When you've optimized all of the slices, click the Save button. At the bottom of the Save Optimized As dialog, you'll see three options: Format, Settings and Slices. Format controls what is exported (HTML only, Images only or HTML and Images). Settings determines how the images and HTML are exported.

By selecting Other, you gain access to a number of options to control how the HTML or XHTML is written, how images should be named and whether to generate a table or DIVs and CSS. Upon clicking Save, all the images are exported and the HTML is written. While Photoshop can save you time by authoring the HTML, it doesn't necessarily do a great job. You'll probably need to manually clean up afterwards.

Summary

I really hope this book has helped remove the barrier between your creativity and the computer screen. Mastering your tools is the only way to achieve creative freedom. But Photoshop is an extremely complex tool, and conquering it is by no means easy. Years of practice and experimentation are the only real way to master this application; reading this book is merely a catalyst.

Extending your Photoshop education beyond this book is crucial. Frequenting websites dedicated to Photoshop on a regular basis is a good start. But be warned: many tutorials you'll find on the Internet rely on gimmicks and trends. Steer clear of the shallow tutorials, and focus on the ones with principles; they will help you grow into a better designer.

Once you understand the fundamentals, I encourage you to experiment. Investigate unfamiliar tools, apply senseless adjustments, delete important elements and freely make mistakes. Little mistakes have a way of imparting tidbits of knowledge and sparking creativity. Photoshop is a design laboratory. Throw on your lab coat and start mixing things up.

Finally, get involved with the design community. So many incredibly talented people are at the top of our field, and they're more accessible than you might think. Get out there and connect with them. Join Twitter, attend conferences, take part in online discussions and share what you've learned. We all have something valuable to contribute, and sharing that knowledge ensures that our industry will continue to grow.

Smashing eBooks Series

eBook #1: Professional Web Design

This book presents guidelines for professional Web development, including communicating with clients, creating a road map to a successful portfolio, rules for professional networking and tips on designing user interfaces for business Web applications. The book shares expert advice, and it also helps you learn how to respond effectively to design criticism, use storytelling for a better user experience and apply color theory to your professional designs. **Buy this eBook now for just $9.90!**

eBook #2: Successful Freelancing For Web Designers

Being a great Web designer or developer is one thing — running a successful freelance business another. Whether you already have work experience in companies or have just graduated from design school, being self-employed entails a number of tasks that you most likely haven't had to deal with so far. As a freelance Web designer, you also have to be a project manager, accountant, controller and IT expert. **Buy this eBook now for just $9.90!**