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WHEN TO USE THE PEN TOOL

At first glance, the Pen tool doesn't look like a selection tool: It's not located on the toolbar with the other selection tools; it doesn't create a dancing marquee outline when you use it, and it doesn't respond to the Select menu commands. So is it even a selection tool? Absolutely.

The Pen tool works well for selecting shape-based and form-based image elements. For example, you'll use the Pen tool in the following situations:

- To select smooth, mechanical edges, such as buildings, cars, bottles, windows, and so on.
- To select smooth, organic forms, including rocks, nudes, fishes, flowers, planets, and so on.
- To select elements in images where the color and tones are so similar that the standard selection tools aren't different enough to create an accurate selection.
- To silhouette an object by dropping out the image background.
- Most important, when you need extreme precision. It is exactly in this situation where the Pen tool stands out among the other selection tools.

Do not use the Pen tool to select image elements with the following characteristics:

- Images with delicate or complex detail, such as puffy dandelions or winter tree branches
- Portraits of people with fine hair or furry animals
- Images with tonal subtle gradations, such as a sunset, water reflections, or a foggy landscape
- Areas in an image with soft edges, such as a natural shadow or photographic motion blur

Once you have created a path, you can turn it into a selection to use for a mask or composite, or to create a path for any painting tool to follow. In other words, the Pen tool is an end to a means; use it to make exact outlines of form-based and shape-based objects, and control where image effects take place.

Pen Tool Essentials

The Pen tool is not a drawing or calligraphy tool that lays down ink; rather, it is a mechanical drawing tool used to precisely outline an object or define a smooth curve with anchor points and mathematical vector curves. The vector aspects of the Pen tool enable it to work independently from the pixel information of the underlying image, which is exactly why the outlines created with the Pen tool are much smoother than outlines created with a pixel-based selection tool, as illustrated in [FIGURE 1](#).

On the top is a picture frame that Katrin found along the rocks of the Hudson River that she selected as carefully as possible with the Quick Select tool with the Auto-Enhance check box selected. As you can see, the edges aren't smooth. On the bottom is the same frame, but this time she used the Pen tool to outline it. The edges are smooth and flowing without any tell-tale lumps or bumps that working with a pixel-based selection tool can create. We suppose that the best results would have been for Katrin to carry the frame home and photograph it on a white seamless, but she preferred not to drag home debris from the Hudson River!

Pen Tool Settings

Before you use the Pen tool to outline an image subject, it is important to review the settings in the Options bar to ensure that they are set up ideally for photographic purposes, meaning to create accurate outlines versus shape-based layers. On the Pen tool Options bar ([FIGURE 2](#)) and working from left to right, you see:

- **Pick Tool Mode.** Choose Path from the Pick Tool Mode menu.
- **The Make options.** Selection, Mask, and Shape are inactive and not required before making a path.
- **Path operations.** Determine how a path and the ensuing selections will behave in relation to combining, overlapping, intersecting, and excluding paths and selections.



FIGURE 1 The top frame was selected with the Quick Select tool, whereas the much smoother selection in the lower frame was made with the Pen tool. © KE

- **Path alignment.** Determines how paths are aligned and is used when drawing shapes or designing a vector-based subject, such as a logo, which in all honesty is better done in Adobe Illustrator.
- **Path arrangement.** Controls how shapes are stacked.
- **Rubber Band.** Allows you to see the connecting path as you draw out to the next anchor point. It is a very useful option, and we recommend you turn it on by default.
- **Auto Add/Delete.** Allows you to add an anchor point to a path when hovering over a path or delete an anchor point when hovering over an anchor point. Pressing Command+Option (Ctrl+Alt) also reveals the context-sensitive menu where you can select to add or delete anchor points.

The three options we recommend photographers use are Choose Paths, Rubber Band, and Auto Add/Delete. With Photoshop CS6, the improved functionality of the Options bar has essentially replaced the dedicated *Paths panel*. The primary reason we still use the Paths panel is to name our paths, but more on that later in this chapter.

Clicking and holding the Pen tool in the toolbar reveals the standard and Freeform Pen tool, and the Add, Delete, and Convert Point tools (**FIGURE 3**):

- **Pen tool.** Use this tool to make very precise selections by creating a path of adjustable anchor points (press Shift+P to cycle between the Pen tool and Freeform Pen tool).
- **Freeform Pen tool.** Use this tool to make customized paths that are not straight by default. The path/selection follows the same path as your mouse. This tool is not particularly useful for precise photo compositing (press Shift+P to cycle between the Pen tool and Freeform Pen tool).

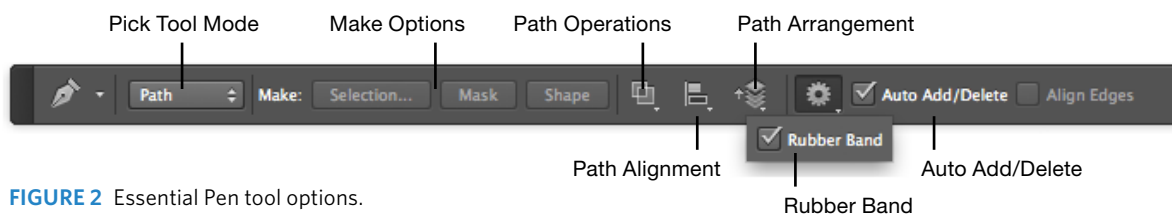


FIGURE 2 Essential Pen tool options.

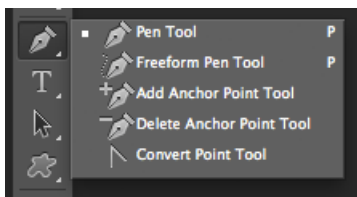


FIGURE 3 Nested Pen tools.

- **Add Anchor Point tool.** Inserts anchor points along a path. Anchor points can be used to alter lines without redrawing them.
- **Subtract Anchor Point tool.** Deletes anchor points from a path.

Pen Tool Partners

Allow us to jump ahead for a moment: After creating an initial path, you may need to move or refine it, and the primary tools to do that are the Path Selection tool (A) and Direct Selection tool (A), which are below the Type tool on the toolbar. The Path Selection tool, also referred to as the black arrow, moves entire paths. The Direct Selection tool (white arrow tool) allows you to refine the placement of individual anchor points and refine direction handles.

With the Pen tool active, press Command+Option (Ctrl+Alt) to activate the Path Selection tool and Command (Ctrl) to activate the Direct Selection tool. Or if all these modifiers make your fingers ache, simply press A to activate the last used Pen tool selection tool and Shift+A to cycle through the Pen tool selection tools (black or white arrows).


With either the Path Selection or Direct Selection tool active, you'll see the new to Photoshop CS6 Constrain Path Dragging option in the Options bar (FIGURE 4). By default, dragging with the Direct Selection (white arrow) tool adjusts multiple related segments, letting you quickly transform path shapes. To edit only segments between selected anchor points, reflecting earlier versions of Photoshop, select Constrain Path Dragging in the Options bar.



FIGURE 4 Constrain Path Dragging is available with the Path or Direct Selection tool.

Straight Paths

Working with the Pen tool is akin to the childhood game of connecting the dots to reveal the picture; the only issue is that the dots aren't on the paper. The "dots" are the anchor points that you add with a single click of the Pen tool. By clicking around an object from point to point without holding down the mouse button, you create a path defined by a series of corner points and straight lines. To practice along, download the templates from www.peachpit.com/pmc2e.

 **pentool_lessons.zip**
1_pentool_square.jpg

Start in the upper-left corner, and working from corner to corner, click once on each corner to add an anchor point. When you return to the initial anchor point, a small circle will appear next to the Pen tool. This is the symbol to close the path. Click once more on the first anchor point to close the path. Open the Paths panel to verify that Photoshop has added a Work Path, as shown in FIGURE 5. Double-click Work Path to rename the path.

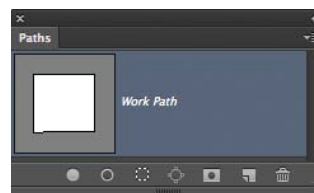
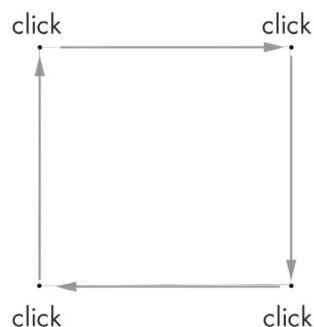


FIGURE 5 Start out by making a square before moving onto the curved objects.

Photoshop can support up to 32,000 paths (a mind-boggling concept). Naming paths takes only a moment, but it is extremely helpful in navigating the Paths panel with ease. Naming the Work Path also ensures that it will not be overwritten when you start a new path.

Outlining square or rectangular subjects is a good way to build up your Pen tool skills and confidence. Before you start, check that the Pen tool options are set to Path, select Rubber Band, and stay just slightly inside of the object by one pixel to start outlining. Click from point to point or corner to corner to outline straight-edged objects, such as the individual compact flash cards in **FIGURE 6**.

cameracards.jpg

1. Start by outlining the upper-left card by clicking on each corner.
2. After closing the path, open the Paths panel and name the Work Path *upper left*.
3. To create a separate path outline for the upper-right card, it is very important that the upper-left path is not active—that is, not highlighted in the Paths panel. Deactivate the upper-left path by clicking in the neutral gray area under the named path in the Paths panel.
4. Outline the next camera card and name the path.
5. Repeat the process for the remaining two cards.



FIGURE 6 You may be asked to isolate basic forms, such as these camera cards. © KE

+ TIP Press Shift to constrain angles to 45 degree increments.

Creating a path for each separate card or image element gives you greater flexibility when you're selecting the individual image elements. Your final result should be the camera cards image with four separate paths, as shown in **FIGURE 7**.

+ TIP To create extremely precise paths, zoom in to a 200% to 300% view and stay one pixel inside of the object you're selecting.



FIGURE 7 Each camera card has a dedicated and named path.

Curved Paths

Using the Pen tool to outline straight-edged objects is a good place to start learning, but when it comes to outlining curved objects, the Pen tool really shines. To create a curved path, click and hold down the mouse button while dragging in the direction of the next anchor point along the edge that you are outlining. The initial anchor point changes from an anchor point to a smooth anchor point, with direction lines and direction points that control the curve. While drawing the initial path, ignore the direction points and concentrate on where you'll place the next anchor point. After you've closed and named the path, return to the path to move the direction points and anchor points to refine the path as addressed later in this chapter.

2_pentool_circle.jpg

Let's practice outlining a curved object using the circle practice template.

1. Start on the top dot (at the 12 o'clock position) and click, hold, and drag to the right.
2. At the tip of the arrow, release the mouse.
3. Move the mouse to the second dot at the 3-o'clock position and click once.
4. Release the mouse and click and hold on the third dot (at the 6-o'clock position).
5. Drag the mouse to the left, and you'll see how beautifully the curve is describing the circle.
6. Release the mouse and click the third dot (at the 9-o'clock position), and then release the mouse.
7. Return to the initial anchor point and click once on the first anchor point to close the path.
8. Open the Paths panel to see that Photoshop has added a work path, as shown in **FIGURE 8**. Rename the path to convert the temporary work path into a more stable entity that will not be replaced and that you can refine as needed.

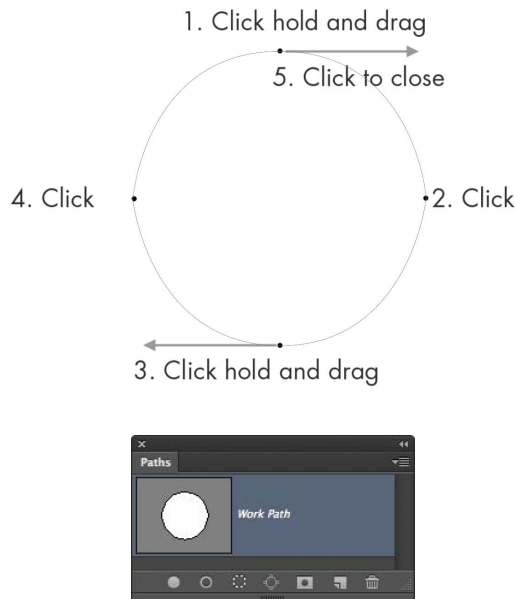


FIGURE 8 The fewer points used, the smoother the curve will be.

HINTS FOR PEN TOOL SUCCESS

Over the years we've developed and used these hints to help make us better Pen tool users:

- Use as few anchor points as possible.
- Place anchor points as far apart as possible.
- Place anchor points at significant changes in curvature inflection.
- While drawing the initial path, pull the handle in the direction you want to continue the path.
- The handles that define the curve should not be longer than half the length of the curve they are describing.
- Close the path before going back to fine-tune anchor points or handles.
- Name all paths.
- Before creating an additional path, double-check the Paths panel to make sure no other path is active.
- Work at 200% to 300% view and stay one pixel within the object to be selected.
- Learn the essential Pen tool command keys.
- While making a path, use the Pen Tool mantra, "click, hold, drag," to meditate yourself into a calm Pen tool mind-set.
- With one eye, look ahead along the path to see where the next anchor point should go. This is akin to driving on the highway—you don't concentrate on the asphalt 10 feet in front of your car but rather look ahead to observe the traffic flow.
- Do not fight the Pen tool; it will win. If the Pen tool is winning and your curves and handles look like a plate of spaghetti, press the Delete key twice to delete the offending path, take a deep breath, smile, and start over again.
- Remain calm; the Pen tool is very forgiving. It doesn't race back to the starting point like the Lasso tool, and it doesn't create unpredictable selections like the Magic Wand. Carefully click your way around the object, knowing that you can always return to a specific point to fine-tune the anchor point after closing the initial path.

As you can see, it only takes four anchor points to describe a complete circle. Take this tidbit of information with you as you work with the Pen tool, and use as few anchor points as possible to outline an object. The goal is not to rivet around the object but to gracefully and efficiently outline an object, which you can do with just a few anchor points.

Combining Curves and Corners

Most of the objects you'll need to outline won't be perfect squares or circles. The following exercise shows you how to make a path with both curved lines and sharp corners.

3_pentool_curves-corners.jpg

Using the practice template, follow these steps:

1. Start at the top-left corner and click, release the mouse button, and click the junction of the curve to the right.
2. Release the mouse and click the apex of the curve, hold down the mouse button, and drag to the right to define the curve on the left side of the arch. Notice how the angle and length of your drag changes the shape of your curve.
3. Release the mouse button and click the junction where the arch meets the angle.
4. Click once on the corner point and continue working your way around this shape (FIGURE 9).
5. Return to the initial anchor point and click once on it to close the path.

+ TIP To practice your Pen tool skills, outline the letters Z, B, and S, and trace the additional templates provided in the Pentool_lessons folder.

The gray boat in FIGURE 10 is a perfect image for the Pen tool. It is a man-made, hard-edged object, and it doesn't have strong tonal or color differences you can use to separate the boat from the background.

gray-boat.jpg gray_boat_dots.jpg

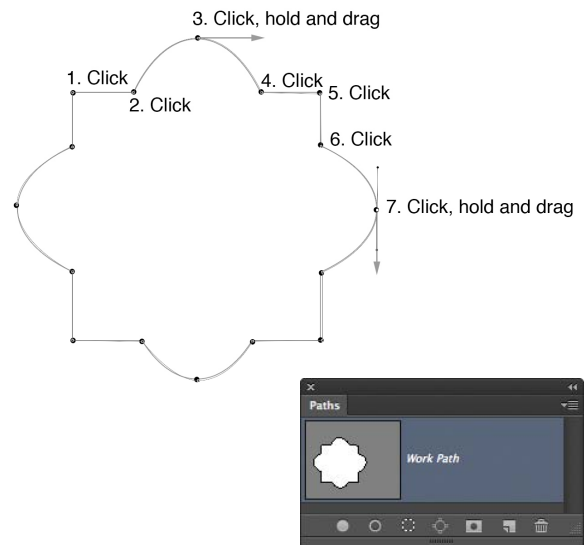


FIGURE 9 Practice tracing straight and curved subjects to hone your Pen tool skills.



FIGURE 10 The overcast light and the gray boat on the gray pier make this subject an ideal candidate for the Pen tool.
© SD

Take a moment to plan ahead and visualize where you will place the anchor points. In FIGURE 11, Katrin added dots to show where she would place anchor points. Those points are where there is a dramatic change in direction, like the ribbing, and where the curve is distinctly defined. For best results, work between 200% and 300% zoom view. As you can see in FIGURE 12, you'll only see part of the boat. Once you've clicked, held, and dragged your way toward the edge of the visible image, hold down the spacebar to access the Hand tool and scroll to the rest of the

FIGURE 11 Look at the object and imagine where you would place the dots—that is, the anchor points to plan out the path.



FIGURE 12 Use the spacebar to access the Hand tool and scroll the image into view.

image. As soon as you release the spacebar, the Hand tool will revert back to the Pen tool, and you can continue working.

Start with the `gray_boat_dots.jpg` file, and then practice creating the path on the `gray_boat.jpg` file without the dots.

1. Starting at the top of the boat, click, hold, and drag to the right. While dragging the handle to the right and along top of the boat, look ahead and plan where your next anchor point will be.
2. Release the mouse button and move the mouse to where the second anchor point should be. Click, hold, and drag along the white canvas.

3. Continue down and around the boat, being careful to stay just inside of the edge by one pixel between the boat and the background.

4. When you reach a corner point, press Option (Alt) while clicking and dragging along the edge to add a corner anchor point with direction handles that you can fine-tune after you've closed the path.

5. Work your way around the boat and back to the origin point of the path. Click the initial anchor point to close the path.

6. Open the Paths panel and name the path *Boat*, as shown in **FIGURE 13**.

+ TIP Use Katrin's Pen tool mantra to keep track of where you are while creating your first paths: "Click, hold, drag. Click, hold, drag. Click, hold, drag." This will help you to become a smooth, confident, and very calm Pen tool master.

In a nutshell, sharp 90-degree corners require one click; curves require a click, hold, and drag to form a smooth contour; and changing direction requires that you either double-click or Option-click (Alt-click) an anchor point to draw out a direction handle as you make the path.

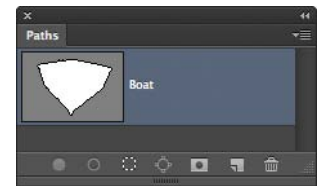


FIGURE 13 Close and name the path before fine-tuning the path.



FIGURE 14 The initial path is all right, but it needs refinement before it looks professional.



FIGURE 15 Refine the path with the Direct Selection tool.

Fine-tuning a path

After you close a path, inspect it to see whether the outline needs to be finessed. Zoom in and take a close second look at the boat path (**FIGURE 14**). Look for sections of the path that are outside or too far inside of the boat.

To fine-tune the path, use the Direct Selection tool, fondly called the *white arrow tool*, to move anchor points and adjust direction handles (**FIGURE 15**). You'll find it nested under the Path Selection tool (the *black*

arrow tool), which is underneath the Type tool in the Tool bar. When you're initially creating and refining a path, the active anchor point is solid and an inactive point is hollow.

To refine a path with the Direct Selection tool:

- Move anchor points so that the path outline conforms to the object more precisely.
- Move direction handles up and down in a seesaw manner to make the angle of the curve steeper or

to bend them into a form-fitting position. You won't need to move the handles very much to achieve dramatic results.

- If a curve is too steep, shorten the direction lines by pushing the direction handles in toward their anchor point.
- To increase the arch of a curve, lengthen the direction lines by pulling them away from the anchor point.
- Move direction handles independently to affect only the curve on one side of the anchor point by Command+Option-clicking (Ctrl+Alt-clicking) one handle and pulling.
- If the handles are longer than half the length of the curve that they describe, add a new anchor point by Control-clicking (right-clicking) the curve where you need a new anchor point. Then choose Add Anchor Point from the context menu.
- If there are too many anchor points, simplify the path by deleting unnecessary anchor points. Use the Direct Selection tool and Control-click (right-click) over an existing anchor point and choose Delete Anchor Point.

- Change the attributes of anchor points as needed. To convert an anchor point to a smooth anchor point, use the Direct Selection tool and Command+Option-drag (Ctrl+Alt-drag) to pull out the handles. To convert a smooth anchor point to an anchor point, use the Direct Selection tool and Command+Option-click (Ctrl+Alt-click) the anchor point to convert it.

Refining a path with Free Transform:

- To transform the size or shape of the entire path, use the Path Selection tool (black arrow) to select the path by clicking anywhere on the path. Choose Edit > Free Transform Path to scale the path. Control-click (right-click) to open the Transform context menu to access all of the Transform options: Scale, Rotate, Skew, Distort, Perspective, Warp, Rotate 180 and 90 degrees, Flip Horizontal and Flip Vertical.
- To transform a group of points on a path, use the Direct Selection (white arrow) tool to click and drag over a number of adjacent points. Choose Edit > Free Transform Path to scale just part of the path.

When you're working with the Pen tool and paths, use the command keys in [TABLE 1](#) to make your Pen tool

TABLE 1 Pen Tool Command Keys

TASK	ACTION
Activate Pen tool and Freeform Pen tool	P
Switch between Pen tool and Freeform Pen tools	Shift+P
Toggle between Pen tool and Direct Selection tool	Command-click (Ctrl-click)
Toggle between Pen tool and Hand tool	Press and hold the spacebar
Move individual handles	Command-click-drag (Ctrl-click-drag)
Convert anchor points	Option-click (Alt-click) the anchor point
Select multiple anchor points	Command+Shift-click (Ctrl+Shift-click) on desired anchor points
Select entire path	Command+Option-click (Ctrl+Alt-click)
Duplicate a path	Command+Option-drag (Ctrl+Alt-drag)
Delete anchor point	Control-click (right-click) to open context menu
Add anchor point	Control-click (right-click) to open context menu
Close an open path	Click first open end and then the second
To continue a path	Click open end and continue the outline
Constrain to 45° increments	Shift (Shift)
Path Selection and Direct Selection tool	A (Shift+A)
Activate Last Used Selection tool	Command (Ctrl)
Select Convert Direction Point tool	Option (Alt)

time more efficient and your paths more precise. The Add Anchor Point, Delete Anchor Point, and Convert Anchor Point tools are nested under the Pen tool.

The Freeform and Magnetic Pen Tool

The Freeform Pen tool is nested under the standard Pen tool, and using it is akin to drawing with a pencil on paper. You have no control as to where the anchor points are laid down, but you can fine-tune the paths and points with the Direct Selection tool. We don't use the Freeform Pen tool very often because the time needed to refine the paths it creates would be better used to make a precise path with the standard Pen tool. On the other hand, the Magnetic Pen tool is a handy tool to use when you're outlining images with distinct tonal differentiation and smooth edges.

When the Freeform Pen tool is active, select Magnetic in the Options bar to draw a path that snaps to the edges of defined areas in your image, similar to the way the Magnetic Lasso tool works. To control the Magnetic Pen tool, click the Settings Wheel, as shown in [FIGURE 16](#) and explained here.

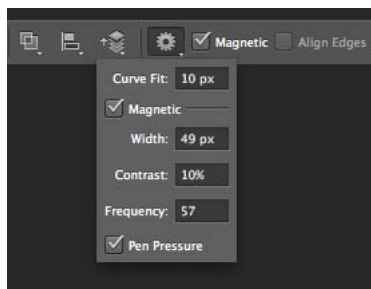


FIGURE 16 The Magnetic Pen tool controls.

The Magnetic Pen tool detects edges only within the specified distance from the pointer. To adjust the parameters of the Magnetic Pen tool, follow these instructions:

- **Curve Fit** adjusts how sensitive to shakiness or amount of error the Magnetic Pen tool is. The default of 2 pixels means that if you veer two pixels offline, the Magnetic Pen tool will compensate and ignore that inaccuracy. Lower values require greater accuracy, and higher values are more forgiving but may create inaccurate results.

- **Width** determines how far to the left or right the Magnetic Pen tool will look for a line to follow. Press the Caps Lock key to turn the Magnetic Pen tool icon into a circle whose size reflects the width, and press the left or right bracket key to decrease or increase the width diameter.

- For **Contrast**, enter a percentage value between 1 and 100 to specify the contrast required between the pixels to be considered an edge. Use a higher value for low-contrast images.

- For **Frequency**, enter a value between 0 and 100 to specify the rate at which the Pen sets anchor points. Higher values anchor the path in place more quickly.

- When you're working with a stylus tablet, selecting Pen Pressure determines that as you increase the pen pressure you decrease the active width of the Magnetic Pen tool.

peaches_sign.jpg

With its hard edges, rough-textured edges, and well-defined contrast, the Georgia Peaches sign in the file **peaches_sign.jpg** is an ideal image to outline using the Magnetic Pen tool ([FIGURE 17](#)).



FIGURE 17 The sign is an ideal candidate for the Magnetic Pen tool and the settings we used when selecting it.

1. Press Caps Lock to see the diameter of the area the Magnetic Pen tool is taking into account. Click the upper-left corner of the sign to set the first anchor point.
2. Without pressing the mouse button, drag to the right along the top edge of the sign. As you move the mouse, the Magnetic Pen tool snaps to the strongest edge in the image.
3. When you get to the right corner, click once to add an anchor point and continue down the side of the sign.
4. If the border doesn't snap to the desired edge, click once to add an anchor point manually and to keep the border from moving. Continue to trace the edge and add anchor points as needed. If needed, press Delete to remove the last anchor point, as Katrin needed to do when the Magnetic Pen tool tried to include some of the dark lettering in the initial selection.
5. To temporarily change the Magnetic Pen tool to the Freeform Pen tool, press Option (Alt) to draw along the dark lower edge as needed.
6. Complete the path by clicking the starting anchor point and naming the path (FIGURE 18).

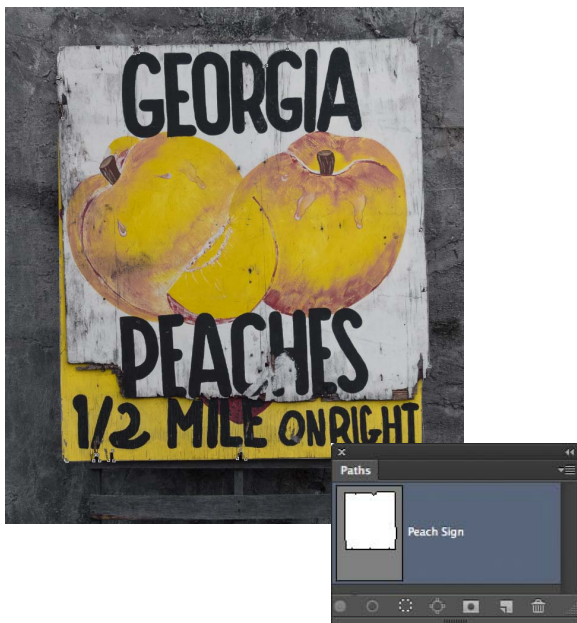


FIGURE 18 Always close and name the path before refining it.

+ TIP When the Magnetic Pen tool is not working as desired or when you just need to start over again, press the Esc key to delete the path in progress.

ANATOMY OF A PATH

The essential path components include:

- **Hard anchor point.** Marks a point along a path and does not have directional handles. Also referred to as a *corner point* or *anchor point*. Two of these points define a straight line.
- **Smooth anchor point.** On curved segments, each selected anchor point displays one or two curve handles. Sometimes referred to as a *soft anchor point*.
- **Anchor points can be active** (indicated by a solid black square) or **inactive** (indicated by a hollow square).
- **Curve handles.** The positioning of these curve handles determines the size and shape of the curved segment. Also called *directional handles*. Press Option (Alt) to adjust individual handles.

To add and convert points:

- To add a corner point, click but don't drag.
- To add a soft anchor point, click and drag in the direction you want the line to continue. This creates two handles, and the longer the arms of the handles, the greater the curve will be.
- To add a soft anchor point with one handle, Option-click (Alt-click) and drag to create a point with one handle leading forward.
- To convert a smooth point to a corner point, Option-click (Alt-click) on the point.
- To convert any anchor point to a two-handled smooth point, Option-click (Alt-click) and drag out.
- To convert a two-handled point into a single-handled one, Option-click (Alt-click) on the end of the handle you want to delete and drag it so it is over the anchor point.

COMPLEX PATHS AND COMBINING PATHS

Up to this point, you've learned to outline a single solid-shaped object with one path. But many objects have an inside and an outside. For example, the shape of a coffee cup consists of the actual coffee cup and the hollow handle area. Or, if you think of Superman standing broadly with his hands on his hips, ready to save the world, the Superman form is made up of his body and the three triangles of negative space formed by the two arms on his hips and widely spread legs. Believe it or not, many composites have failed or looked clumsy when the artist outlined the figure but forgot to outline the hollow negative spaces. As a result, in the composite the figure is in an environment, but the studio backdrop—for example, between the triangle formed by the figure's arms or legs—is still visible.

For practice, let's separate the antique telephone (FIGURE 19) from the background and isolate it (FIGURE 20) for your image stock library. You'll start by outlining the outside contour and then the inside contours that make up the shape of the phone.

+ TIP When you're using the Pen tool to outline complex shapes, keep one finger over the Option (Alt) key to change direction and press the Command key (right-click) to change the Pen tool to the Direct Selection tool to move an anchor point in progress.

 **telephone.jpg**

1. With the Pen tool active, in the Options bar Path Operations select Exclude Overlapping Shapes.
2. Zoom to 100% or 200% view. Outline the outside of the telephone by starting on the top left of the mouthpiece. When you reach a corner where you need to move in a different direction, click to set the anchor point and Option-drag (Alt-drag) in the direction of the angled path to create a directional anchor point, as shown in FIGURE 21.



FIGURE 19 The original phone as photographed in a maritime museum. © KE



FIGURE 20 The isolated telephone is ready to be used for image stock or a composite project.



FIGURE 21 On distinct changes of direction, Option-drag (Alt-drag) to change direction and add an angle anchor point.

3. Work your way around the entire phone and the outside of the cord. Close and name the outside path (**FIGURE 22**) Phone Outline.

4. With the outside path highlighted in the Paths panel, outline the eight individual hollow areas of the telephone as numbered in **FIGURE 23**. Notice that the icon of the existing path changes as you outline the hollow areas (**FIGURE 24**). Be sure to close each inside shape path before proceeding to the next one.



FIGURE 22 Start by making and naming the outside path.

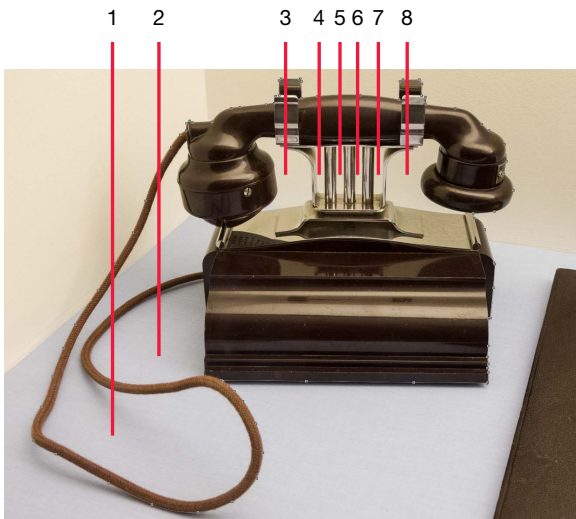


FIGURE 23 Be sure to identify all of the hollow areas as numbered that need to be outlined and select Exclude Overlapping Shapes in the Pen tool options.



FIGURE 24 The hollow areas are clearly visible in the Path panel.

5. Activate the Direct Selection tool and zoom in on the path. Fine-tune the path by adjusting the position of anchor points and angle and length of direction handles. To delete extraneous anchor points, Control-click (right-click) to bring up the context menu and choose Delete Anchor Point.

Making the path in and of itself doesn't change the image. So after making a path, naming it, and saving the file as a PSD or TIFF file, you have a number of creative options for altering the image, as discussed throughout the book. To isolate the telephone, follow these steps:

1. Click the path in the Paths panel to activate it, return to the Layers panel, and Command-click (Ctrl-click) the Add layer mask button to add a vector mask (**FIGURE 25**).

2. Place a Solid Color Fill layer underneath the telephone layer (**FIGURE 26**) or drag the telephone from the Layers panel icon to a background of your choice.

The beauty of the vector mask is that it allows you to refine the Vector mask path without changing the original telephone path. This means you can tweak and refine the outline based on how the telephone looks on the new background you placed it on.

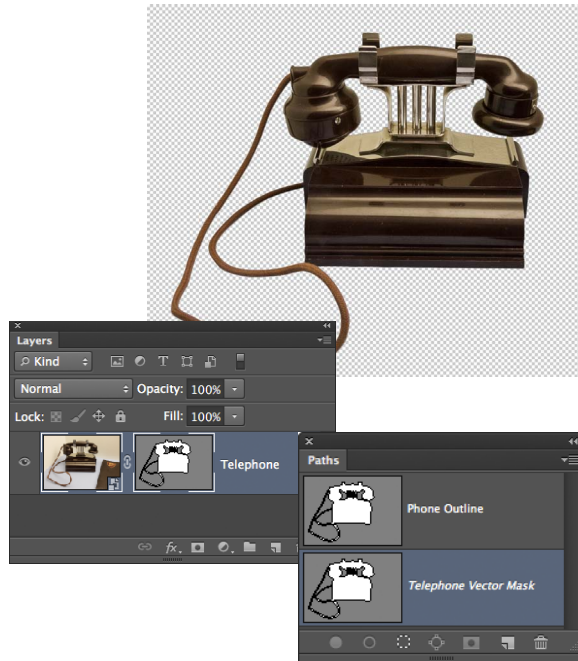


FIGURE 25 The vector mask isolates the telephone perfectly.

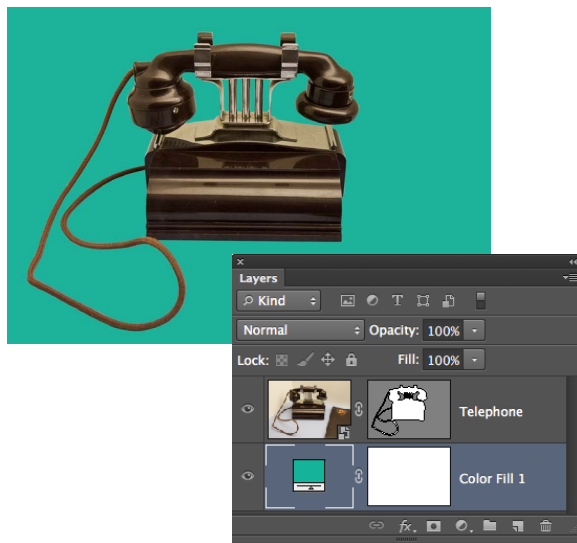


FIGURE 26 A little color helps liven up the brown phone.

★ **NOTE** In Windows, JPEG, JPEG 2000, DCS, EPS, PDF, and TIFF formats support paths in Photoshop. In Mac OS, all available file formats support paths but in most cases we save our layered Photoshop files as PSD, PSB, or TIFF files.

To Specify How Overlapping Areas Interact

To control how paths interact where they overlap, take a few minutes to explore the Paths Operations as illustrated in this section. Create a path or select an existing path in the Paths panel, activate the Pen tool, and choose one of the following options as illustrated in **FIGURES 27** through **30** in the Paths Operations in the Options bar.

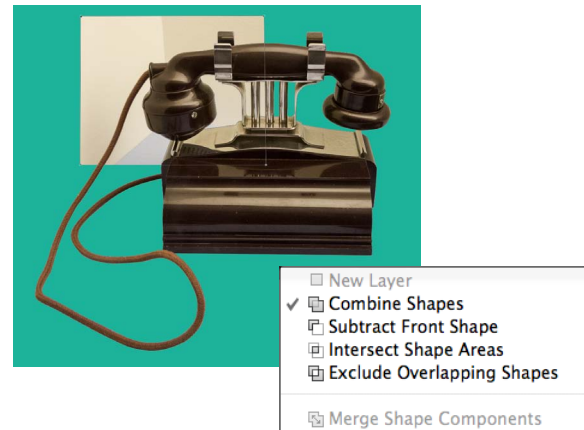


FIGURE 27 Use Combine Shapes to add the new area to the existing path.

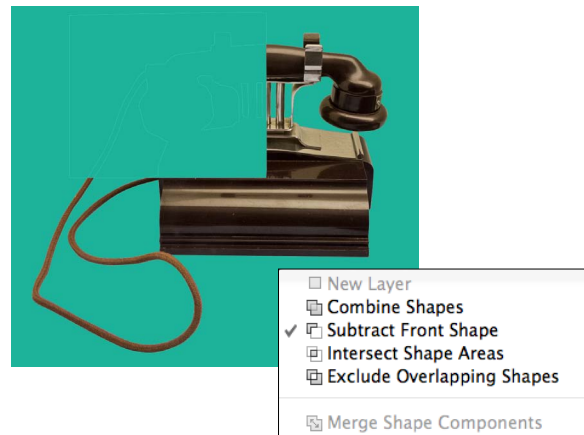


FIGURE 28 Use Subtract Front Shape to remove the overlapping area from the existing path.

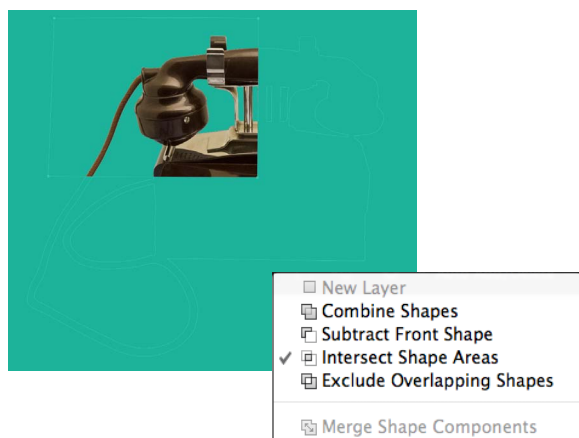


FIGURE 29 Use Intersect Shape Areas to restrict the area to the intersection of the new path and the existing path.

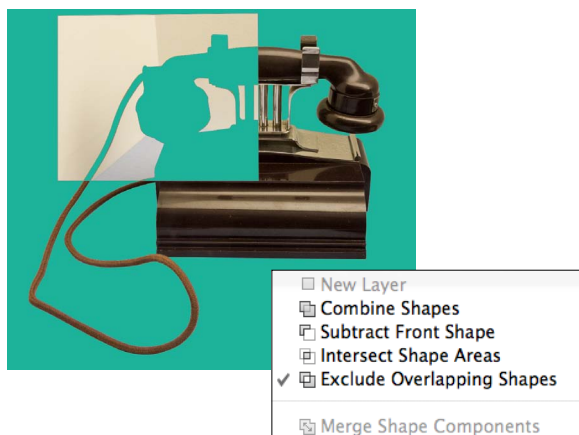


FIGURE 30 Use Exclude Overlapping Shapes to remove the overlapping area in the consolidated new and existing paths.

FIGURE 31 shows a catcher's helmet that Jim DiVitali photographed, outlined with the Pen tool, and then colorized (**FIGURE 32**). As Jim explains, "There was only one prototype helmet available at the time of the photo shoot. Changing product prototypes is often an important part of post-production after a catalog shoot. The path for the helmet was tricky because there were areas inside the helmet that are the same color, which needed to be separated and protected before changing the exterior colors."



FIGURE 31 The original prototype catcher's helmet and dual paths for the interior and exterior of the helmet.
© Jim DiVitali (www.divitalephotography.com)



FIGURE 32 The colorized catcher's helmets are catalog ready.

TRY IT The next time you're in the studio or out taking pictures, make an effort to photograph objects that are ideal to practice using the Pen tool. Start basic, perhaps with a saltshaker, coffee cup, or geometric museum display, and then move on to more complex and involved subjects, such as decorative metal or statues (**Figure 33** and **Figure 34**).



FIGURE 33 The round pendulum clock is practically begging to be outlined with the Pen tool. © Wayne R. Palmer (www.palmermultimedia.com)



FIGURE 34 The curved metal offers a true Pen tool challenge. © Mark Beckelman (www.beckelman.com)

WORKING WITH PATHS

After making and fine-tuning the path, it is time to do something with it! For photographers and composing artists, the most useful choices include:

- Convert a path to a selection
- Combine paths with layer masks
- Stroke or fill a path
- Create image clipping paths

Converting a Path to a Selection

Converting a path to a selection is the option we use all the time. The ability to combine Pen tool precision with selection flexibility is an almost intoxicating combination.

To convert a path to a selection, use one of the following techniques:

- With the desired path active in the Paths panel, click the Path panel Selection button on the Options bar.
- With the desired path active in the Paths panel, click the Load Path as Selection button on the bottom of the Paths panel.
- Drag the Path icon down to the Load Path as Selection button in the Paths panel.
- Command+Return (Ctrl+Enter) to convert the active path to an active selection.
- Command-click (Ctrl-click) the Path icon in the Paths panel.
- Choose Make Selection from the fly-out menu on the Paths panel.

Once the path is a selection, you can use all of the finesse and controls discussed in Chapter 6, “Selection Fundamentals” and Chapter 9, “Layer Masks.”

Combining Paths with Layer Masks

When you're selecting an object with elements that interact, such as objects with translucent attributes like the windows of a car or someone's eyeglasses, it is best to outline each element with its own path. The advantage of having separate paths is that you can convert each path to a selection, which you can use in the layer mask to control density of the translucent areas with shades of gray. In the following exercise, we'll treat the windows of a bomber plane differently than its solid body parts.

To control image elements separately, it is *very* important that after creating and naming the initial exterior path you deactivate the initial path by clicking on the empty space below the named exterior path in the Paths panel before outlining the interior areas to create the paths for the windows. To separate the North American B-45A Tornado jet bomber from its environment (FIGURE 35), Katrin first outlined the plane and then made sure the plane path was not active when she created groups of paths for the rear,

mid, and front windows. Separate paths, which will be converted to active selections, enable you to control the density of the plane windows in the final composite (FIGURE 36).


 **plane.jpg** © SD
sunset.jpg © KE



FIGURE 35 The original bomber is sadly tethered to the ground, as photographed at the Castle Air Museum in California. © SD



FIGURE 36 The composite allows the bomber to soar again.

1. Outline the entire plane with the Pen tool and name it **Outside of plane** (FIGURE 37).
2. Make sure the plane path is not active by clicking in the Paths panel on the empty gray area underneath the named exterior path. Outline the interior of the cockpit windows, making sure to not include the frames (FIGURE 38) and name that path **Cockpit Windows**.
3. Deactivate the Cockpit Windows path by clicking on the empty gray area underneath the named paths. Use the Pen tool to select the pilot windshield and then gunner (the forward) windows to create separate paths for each (FIGURE 39).

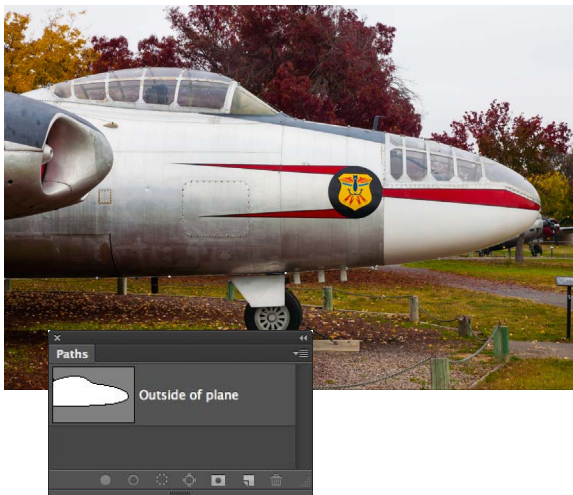


FIGURE 37 Working methodically and outlining each component will speed up the creative compositing work.

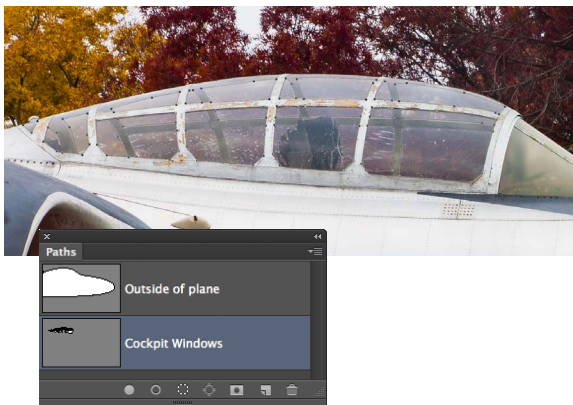


FIGURE 38 Outline the cockpit windows.



FIGURE 39 Outline the gunner windows.

4. To complete the image as shown, save the file as a PSD file and open the Sunset.jpg file.
5. Double-click on the background layer of the jet bomber and name it **Bomber**. Drag the Sunset.jpg file onto the bomber file and position the sunset underneath the bomber.
6. Return to the Bomber layer and activate the Outside of plane path. Click the Add layer mask button twice to isolate the plane on top of the sunset (FIGURE 40).

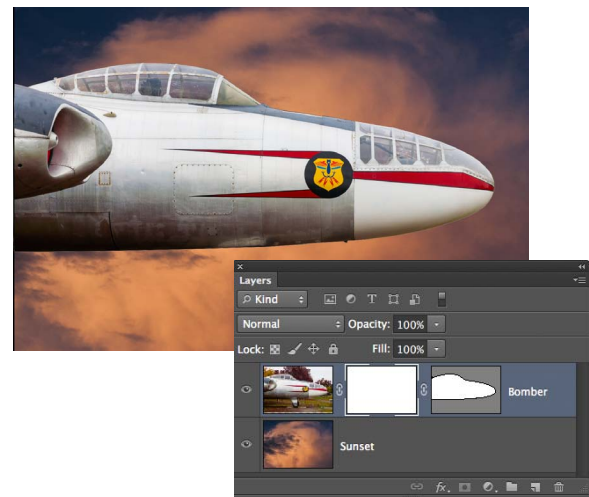


FIGURE 40 Isolating the bomber onto the top of the new sunset background.

7. To control the window density, Command-click (Ctrl-click) on the Cockpit Window path to create an active selection (FIGURE 41). Click on the layer mask, choose Edit > Fill, and use Black at 60% opacity to allow the sunset clouds to shimmer through the windows (FIGURE 42).

+ TIP Vary the shades of gray used on the layer mask to control translucency and create a natural differentiation between surfaces.



FIGURE 41 Convert the path to an active selection.

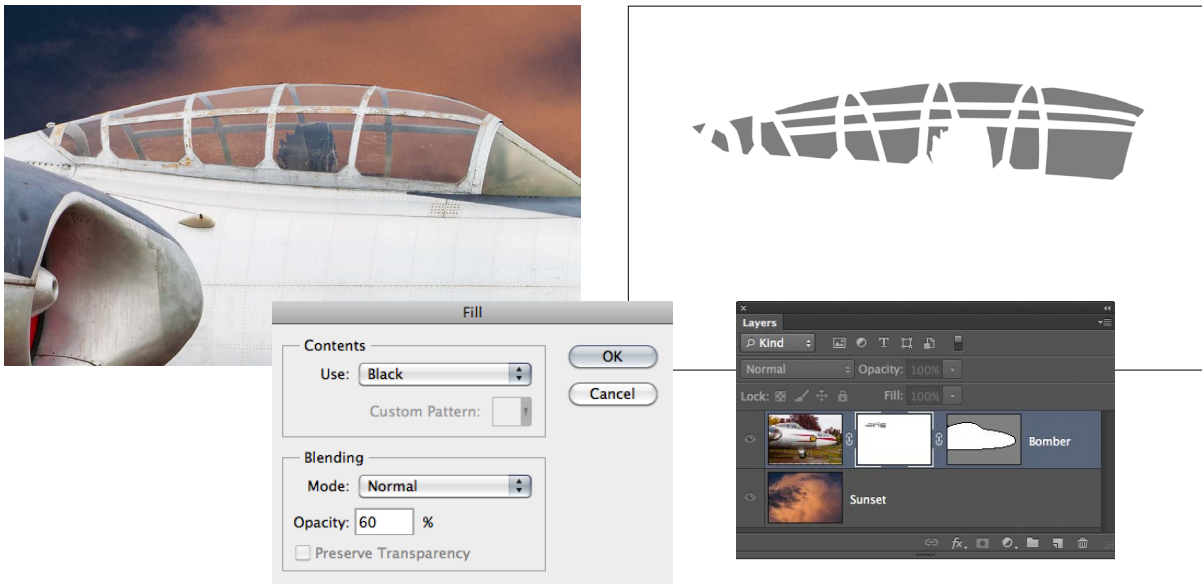


FIGURE 42 Filling the active selection with a shade of gray creates the illusion of transparency.

8. To control the density of the gunner (front window), Command-click (Ctrl-click) on the Gunner Window path to create an active selection. Click on the layer mask, choose Edit > Fill, and use 50% gray at 100% opacity (FIGURE 43). By using shades of gray in the layer mask, the feeling of the glass windshield is maintained. If you move the plane to another part of the picture, the scene behind it will change appropriately (FIGURE 44).

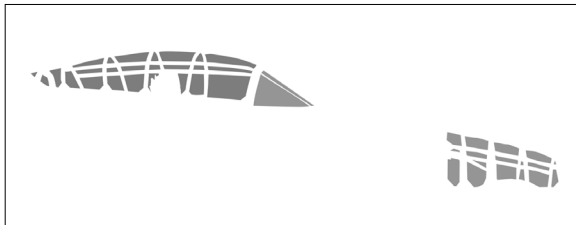


FIGURE 43 Vary the shades of gray used on the layer mask to add realism.



FIGURE 44 Moving the bomber shows how effective the layer mask is.

9. As addressed in Chapter 13, “Photorealistic Compositing,” matching color is very important. One method to do this is to duplicate the light source layer—in this case the clouds—and place it above the object that has been placed into the scene. Blur the duplicate layer with a 25–50 Gaussian Blur, change the layer blending mode to Color, and reduce the opacity to 45% (FIGURE 45).

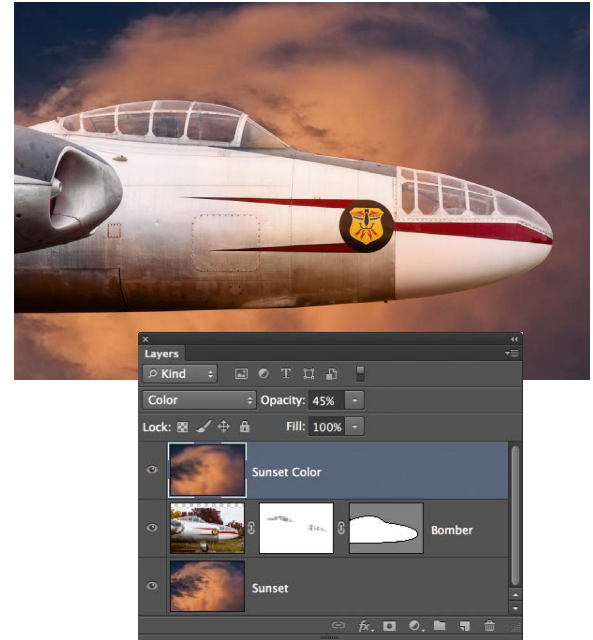


FIGURE 45 Adding a hint of color to the scene allows the elements to come together.

10. To not color the clouds themselves, activate the Outside of plane path. Click the Add layer mask button twice to add a layer and a vector mask so that the blurred cloud color is only affecting the plane (FIGURE 46).

11. To ensure that the plane’s logo is not colorized, outline the logo of the bomber (FIGURE 47). Command-click (Ctrl-click) on the Logo path to create an active selection, click on the cloud layer mask, and choose Edit > Fill with Black at 100% opacity (FIGURE 48).

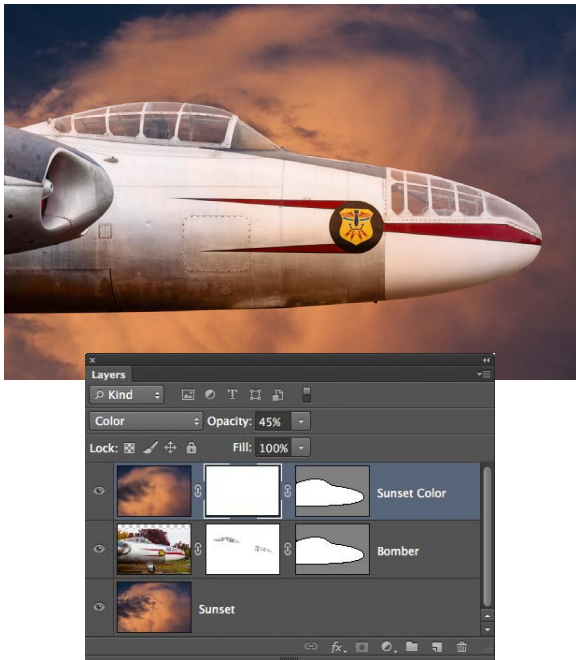


FIGURE 46 Controlling where the color takes place is easily done with the existing path for the plane's exterior.

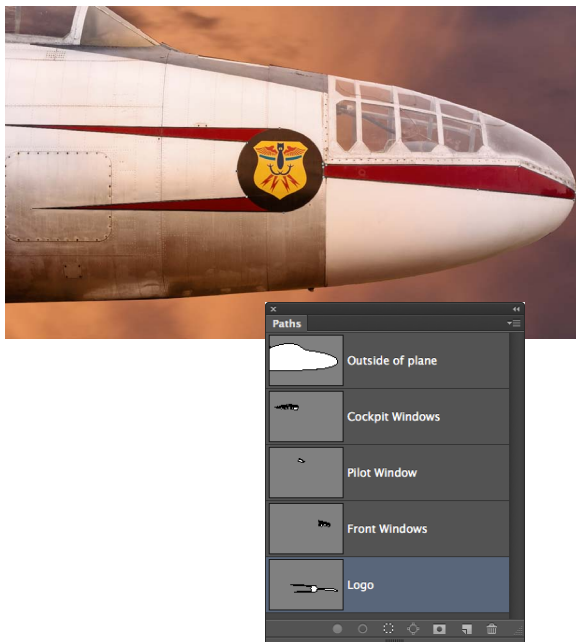


FIGURE 47 Outlining the logo is the first step in isolating it from being affected by the color of the clouds.

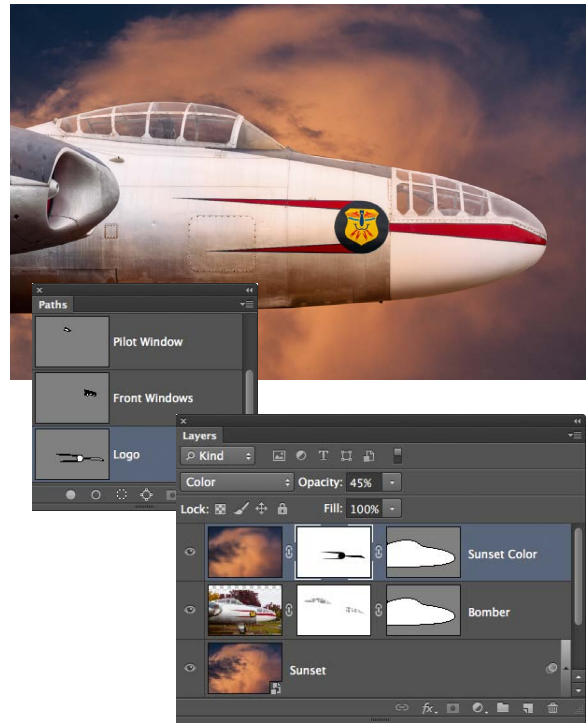


FIGURE 48 Blocking the color from impacting the plane's emblem is the right creative call.

12. Drop down to the bottommost sunset, choose Filter > Convert for Smart Filters, and experiment by adding Motion Blur to the clouds in the background to create the final image.

Creating separate outlines for important image elements allows you greater flexibility, and because they are so easy to combine, move, and activate, many photographers get in the habit of making one outline per path.

Color Fills

You can fill a path with solid colors (Layer > New Fill Layer > Solid Color) and gradients (Layer > New Fill Layer > Gradients), which in combination with blending modes gives you a fantastic and flexible method to experiment with images. By making a path for the canoe and then using three different Solid Color Fill layers with three different blending modes, you can change the color of the canoe from silver to green (**FIGURE 49**) or whatever color you desire.



FIGURE 49 Changing the canoe from silver to green. © SD

1. Create a closed path for the silver canoe and name it **Canoe**.
2. Make sure that the Canoe path is active by clicking on it in the Paths panel.
3. In the Layers panel, click “Create new fill or adjustment layer” and select Solid Color.
4. The standard color picker will open, and you can choose a color. In this example, we chose a rich green.
5. Change the Solid Color blending mode to Multiply, and reduce the Opacity to 40% (**FIGURE 50**).
6. Duplicate the Solid Color and change the blending mode to Overlay, which adds snap and contrast (**FIGURE 51**).

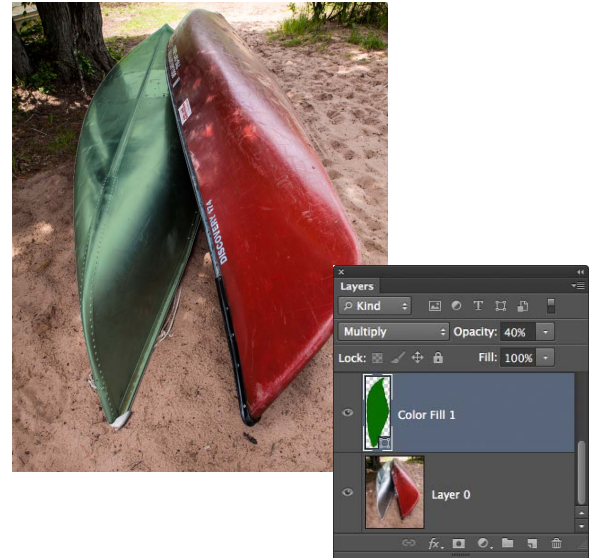


FIGURE 50 The Multiply layer is the base color.

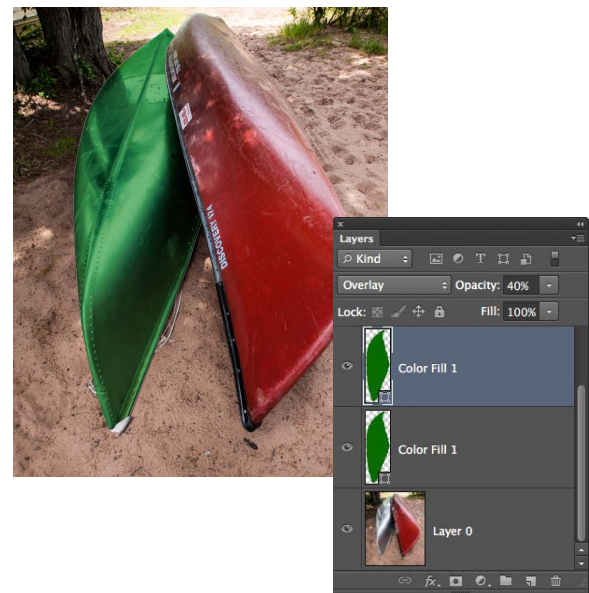


FIGURE 51 The Overlay layer adds snap and offsets possible murkiness.

7. Duplicate the Solid Color one more time, change the blending mode to Color, and increase the layer Opacity to 65% (**FIGURE 52**).
8. Adjust the opacity of each Solid Color layer to refine the balance of color and contrast.

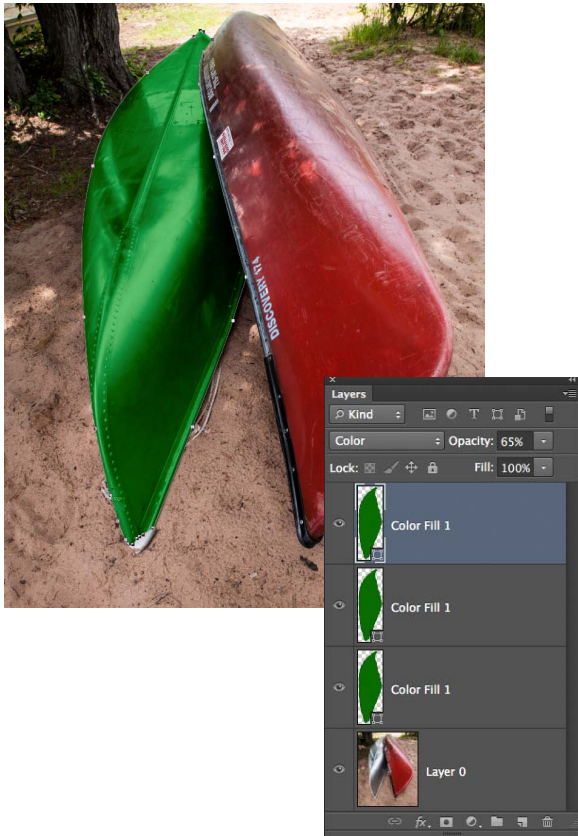


FIGURE 52 Colorizing with three layers allows for greater control and yields better results.

The potential of using the Pen tool to precisely outline an object in combination with the flexibility of Fill layers may cause many sleepless nights of Photoshop experimentation and adventures. Thank you to Jim DiVitale for sharing this useful colorization technique with us!

Stroking a Path

You can stroke a path with any of the painting, toning, and focus tools (**FIGURE 53**). In compositing, you can use the Blur, Burn, Healing Brush, and Clone Stamp tools to refine image edges—for example, to darken and soften areas to create contact shadows.

FIGURE 54 shows a composite in progress that Katrin is working on. To give the edges of the watches more depth and integration into the wood, she stroked the paths around the rim of the tree trunks with the Burn and Blur tools as described next.

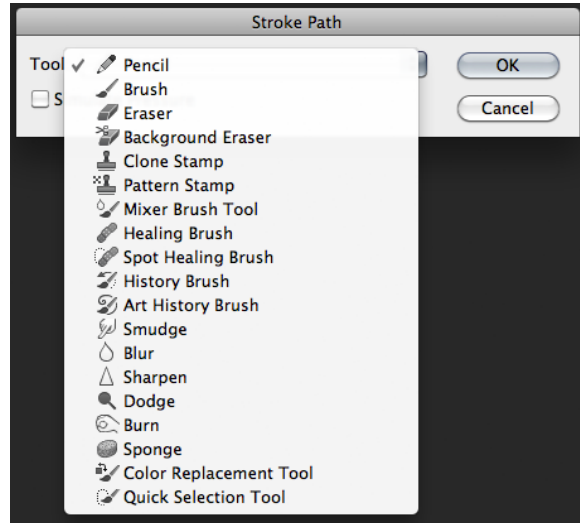


FIGURE 53 Stroking a Path is an option for the painting, tone, and retouching tools.



FIGURE 54 Darkening the edges where the watches touch the tree trunks supports visual coherency. © KE

1. After creating the initial composite, Katrin used the Pen tool to outline the interior of each tree trunk (FIGURE 55) and of course named the individual paths.
2. To darken the edges of each watch and allow the watch to blend in more naturally, Katrin added a Soft Light neutral layer by Option-clicking (Alt-clicking) on the “Create a new layer” icon (in the Layers panel), choosing Soft Light, and selecting Fill with Soft-Light-neutral color (50% gray) (FIGURE 56).



FIGURE 55 Taking the time to create and name all the required paths allows you to concentrate on the creative aspects of the image.

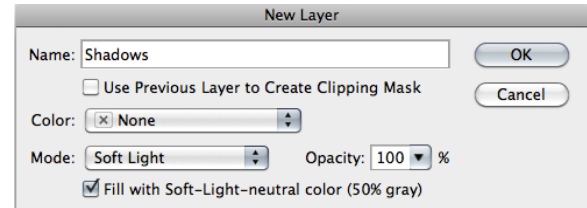


FIGURE 56 Setting up the Soft Light neutral layer for the shadows.

3. Before burning the edges of the watch, Katrin double-checked the Burn tool settings and size. She used a soft-edged brush set to Shadows with 75% exposure.
4. With the Soft Light neutral layer on top of the layers stack, she clicked the Top Trunk path, and on the Paths panel fly-out menu, she chose Stroke Path and then selected the Burn tool (FIGURE 57).

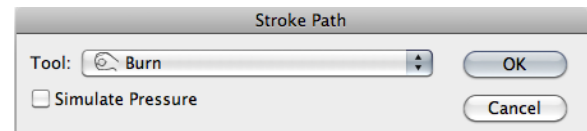


FIGURE 57 Double-check which tool the Stroke Path command will apply to.

★ NOTE Photoshop will reference the last painting tool you modified to be the tool that it uses to stroke the path. You can always use the pull-down menu to choose any of the other painting, toning, retouching, and focus options.

5. Katrin then clicked OK. Photoshop stroked the active path with the selected tool. She repeated the stroking of the path two or three times with the Burn tool until the shadow was visible and also stroked the Path with the Blur tool to soften the shadow a bit.
6. To strengthen the effect, Katrin duplicated the Soft Light layer and adjusted the layer Opacity to suit the image and her personal aesthetic.

FIGURE 58 shows a close-up comparison of the watch edges without and with the darker edges. The effect may be subtle, but subtle is the name of the game, because you don't want the effect to be the subject of the image.



FIGURE 58 Without and with the shadows around the edges of the watches.

Creating Image Clipping Paths

You see images that are clipped all the time—the silhouetted washing machines or the bananas in the “two pounds for one dollar” advertisements in the junk mail that fills your (analog) mailbox.

Image clipping paths, commonly referred to as *clipping paths*, are vector-based information of the outline that is smoother than a pixel-based selection. Most important, image clipping paths are printed at the output resolution of the PostScript output device, so the edges will be very crisp.

FIGURE 59 shows a photograph of a camera lens that Katrin needed to feature in an article. The background is distracting, and the lens would stand out more if it were isolated on the page with a clipping path (**FIGURE 60**).

 camera-lens.jpg

To create an image clipping path, follow these steps:

1. With the Pen tool, outline the object you want silhouetted, and name the path lens (**FIGURE 61**).
2. On the fly-out menu in the Paths panel, choose Clipping Path.
3. Choose the path from the drop-down menu, and type in 4 for a Flatness setting (**FIGURE 62**). Notice how the name of the path is bolded (**FIGURE 63**).



FIGURE 59 The original photograph. © KE



FIGURE 60 The clipping path isolates the subject, allowing it to be more prominent.



FIGURE 61 The initial named path.

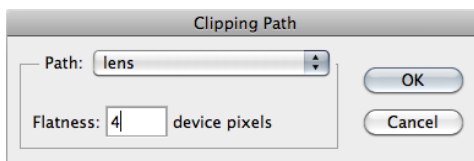


FIGURE 62 Use a standard tolerance setting for very good results.



FIGURE 63 The name of the clipping path is bolded, but you can still work with it like a standard path.

+ TIP The higher the value, the straighter and possibly choppier the curves will be, but as David Blatner explains, “You can almost always raise your Flatness setting to between 3 and 5, never see the difference, and speed your printing times considerably.” From the Adobe Help menu: The lower the flatness value, the greater the number of straight lines used to draw the curve and the more accurate the curve. Values can range from 0.2 to 100. In general, a flatness setting from 8 to 10 is recommended for high-resolution printing (1200 dpi to 2400 dpi), and a setting from 1 to 3 for low-resolution printing (300 dpi to 600 dpi).

4. Save the file as a TIFF or EPS. When you import the file into Adobe InDesign, the object will be perfectly silhouetted.

After converting a path to a clipping path, you can still use it just like a “normal” path and refine it, stroke it, fill it, and convert it to a selection.

Combining and Moving Paths

As you create more and more paths, you’ll find that you have a path in one file that would be useful in a different file. Rather than redrawing the path, you can drag and drop the path from the first file to the second. Moving paths is a practice frequently used in studio still-life photography, such as when a photographer makes a path of an object and then decides to work with a different frame of the same object.

To move the path from the first file to the second, use the Path Selection tool (black arrow) to activate the path you need to transfer, and then drag the path from the image or the Paths panel into the target file. Photoshop will add the path to the active path, or if no path existed before, create a path that you can then name.

If the path doesn’t fit perfectly, use the Direct Selection tool to select the points that need refinement. Choose Edit > Free Transform Points, press Command+T (Ctrl+T), and transform the path into place to create the final path. When the second path is completed, duplicate it by dragging it down to the New Path button in the Paths panel and then refine it for the next layer.

For each layer, start with the path from the previous layer and refine it by transforming, adding, or deleting points, and bending the direction lines into position until each layer has a corresponding path.

+ TIP When you are copying and pasting or dragging paths between files, both images must have the same pixel resolution for the path to fit the target image.

ARTIST IN THE FIRST PERSON Jim DiVitale, Diversity and Detail Master

Katrin first met Jim DiVitale in the mid 1990s while she was visiting The Creative Circus, the art school in Atlanta, Georgia, to present her favorite Photoshop techniques. As any public speaker will tell you, connecting with your audience is crucial, and on this day the energy on the room was very high. But off to her right was an extra special spark of a man with a flash in his eyes and a big smile on his face. She couldn't help but notice that this man, who turned out to be Jim DiVitale, was really enjoying the session, and more important, was already thinking about how he could apply what he was seeing to his own photography. Afterwards Jim introduced himself, and since then Katrin and Jim have been Photoshop colleagues whose paths often cross at major conferences where now Jim is the star speaker to hundreds of Photoshop aficionados.

Jim is the picture of professional diversity; he has been an Atlanta commercial photographer and instructor for three decades, specializing in product photography and digital photo illustration. He is a PPA Master

Photographer, Master of Electronic Imaging, Photographic Craftsman, Fellow of the American Society of Photographers, onOne Master, Team NIK member, X-Rite Coloratti, and a Canon "Explorer of Light." Additionally, Jim is an instructor and contributing columnist for *The National Association of Photoshop Professionals*. His award-winning advertising photography has been featured in many magazines, including *Graphis Photo*, *Print*, *Archive*, *Create*, *Creativity*, *RangeFinder*, *Professional Photographer*, *Digital Output*, *Digital Imaging*, *Photo District News*, and *After Capture*. His clients have included Mizuno USA, Rubbermaid, Remington Medical, SmartSynch, Canon USA, William Carter Co, Toshiba, Time Warner Cable, TEC America, Kenneth Cole, Bellsouth, BP Amoco, COX Media, Genuine Parts Company, Adobe Systems, Solvay Advanced Polymers, Witness Systems, JP Morgan Financial, Coca-Cola USA, and Scientific Atlanta.

But more impressive than his biography is Jim's ability to problem solve. As he explained, "I know a job is going to be a tough one when my art director starts laughing



FIGURE 64 Jim shot many, many pour shots with the glasses and then combined the best parts of each one with the bottle image to create the final feature ad. © Jim DiVitale

before he explains the details and changes needed. Often, the clients know that they are asking the almost impossible, but I love a challenge. For me, the best part of the photo shoot is figuring out how to break down the shoot into the needed components, shoot them properly, and then use Photoshop to put the image together (FIGURE 64)."

Jim looks back and shares how he was introduced to the Pen tool. "I learned in my very first Photoshop class in the early '90s that the Pen tool was one of the most powerful tools in the program and have believed in that ever since. Coming from years of large-format, in-camera masking and pin registration darkroom assembly, the Pen tool was the single most important new tool to work with to make perfect transitions between photographic elements."

In addition to being a successful commercial photographer, Jim finds the time and needed balance to work on his fine-art photo illustration work, which is a direct contrast to the highly defined and detailed work required during his "day job."

Jim clearly explains his lifelong interest in photography: "From my first rolls of film in high school photography class, I've been compositing elements together to create what I see in my head—first by sandwiching negatives, then double exposures, multiple cameras, enlargers, or whatever ever it took. The computer just put all of that into hyperdrive by changing the tools to accomplish the same goals. Things I see become parts to images that I am working on in my head. I give myself many self-assignments to create series of images that work together as a theme. They can come together quickly, or it can be years before certain elements snap into place on an image. They are all works in progress. It just makes me feel good to create art in this way."

Recently, Jim completed a collaborative project with author Doug Frey, which consisted of beautiful architectural photographs (FIGURE 65) of the historic homes of Marietta, Georgia. The photographs were exhibited and featured in the book *Marietta, the Gem City of Georgia: A Celebration of Its Homes—A Portrait of Its People*, a 432-page coffee-table book published by Cobb Landmarks and Historical Society. The three-year-long photography project yielded 235 GB of location photography, and as Jim shared, "Working in black and white and shooting

architecture are both out of my daily comfort zone of working in the studio on product photography, but it was fun and quite an eye-opening experience to complete the book and exhibition. Using the Canon1Ds MIII camera and assorted tilt/shift lenses, the images were created using multiple exposures and merged to HDR files before converting to black and white."

Whenever Seán or Katrin meet Jim at the Photoshop World Conferences, they know that he will have a smile on his face and take the time to say hello (and mean it). Jim is always learning, exploring, and looking for bigger photographic challenges. We should all remain as curious, open, and excited about photography and creativity as Jimmy D (www.divitalephotography.com). ■



FIGURE 65 The historical homes of Marietta, Georgia, was a long-term project Jim collaborated on with author Doug Frey.

Converting Selections to Paths

It makes sense that if you can convert a path into a selection, you can also convert a selection into a path. Katrin isn't a huge fan of this technique because the paths are often very rough with too many points and require too much refinement to make the resulting paths very useful, but it has helped enough people for us to include it here.

 awl.jpg © KE

1. Select the awl with the Quick Selection tool (as shown in [FIGURE 66](#) and) as described in Chapter 6.
2. Open the Paths panel and click the fly-out menu. Choose Make Work Path, which will bring up the Flatness dialog. Type in a Tolerance setting of 1.0, and click OK ([FIGURE 67](#)).



FIGURE 66 Start with a Quick Selection of the bookmaker's awl.

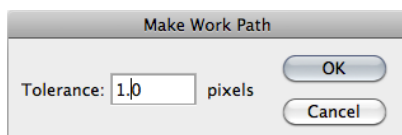


FIGURE 67 The Tolerance setting determines how accurate the path will be: The higher the setting, the less accurate the path.

3. Name the path and use the Direct Selection tool (the white arrow) to refine the path as needed.

FIGURE 68 shows the path that Photoshop created from the selection and the path that Katrin made and refined in about 60 seconds. As you can see, the hand-made path has fewer points and is more accurate.

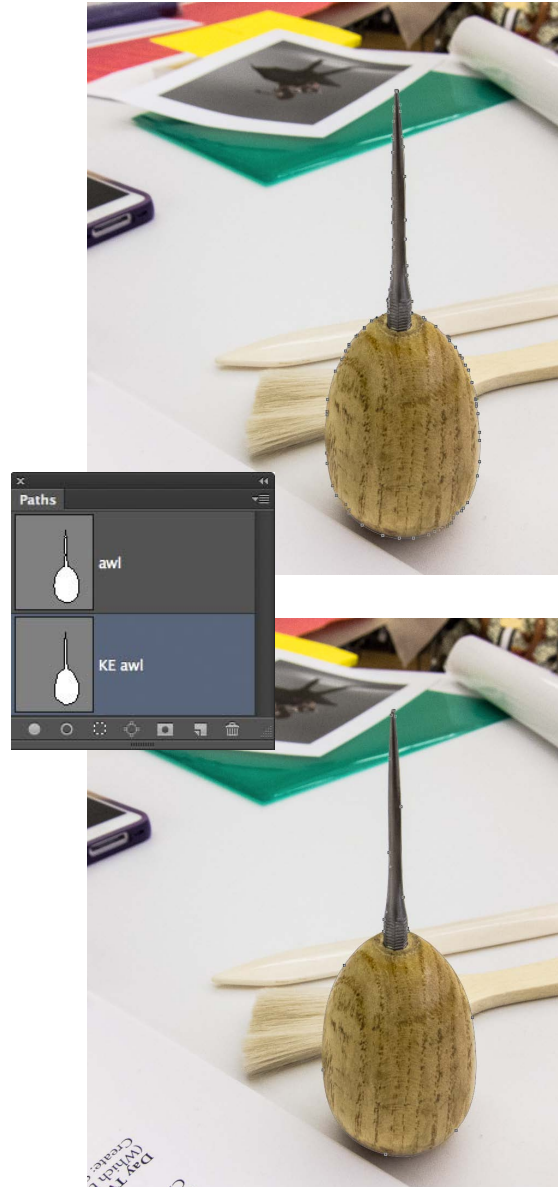


FIGURE 68 The Path created by the selection has too many anchor points to be very effective, but the hand-drawn path is very smooth.

★ NOTE Paths add only 4 Kb to 6 Kb to a file, making them wonderfully efficient. But because of their tiny file size, many people assume they should convert their alpha channels to paths to save file size. This is an urban myth that needs to be squelched wherever it raises its misunderstood head. Photoshop uses an efficient run-length encoding scheme to describe the masks, so when the file is closed, the masks hardly add anything to the file size. In addition, if you convert gradated alpha channels to paths, you will lose the smooth edges and tonal transitions.

CLOSING THOUGHTS

We hope that by reading this chapter and practicing the techniques in it that you have banished the lurking Pen tool monster from your Photoshop list of tools to learn. Throughout the book, you'll use paths and the Pen tool to refine edges, create silhouettes, and make alpha channels that are elegant and precise. Enjoy!