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Smart Objects

Smart Objects

Smart Objects are one of my favorite features in Photoshop and I believe that, once you understand how to use them, they can fundamentally change the way you think when working with your images.

When you convert a layer into a Smart Object, it is like putting the layer inside of a protective bubble. This means that any changes, effects or adjustments you apply to that layer can easily be modified or undone at a later time.

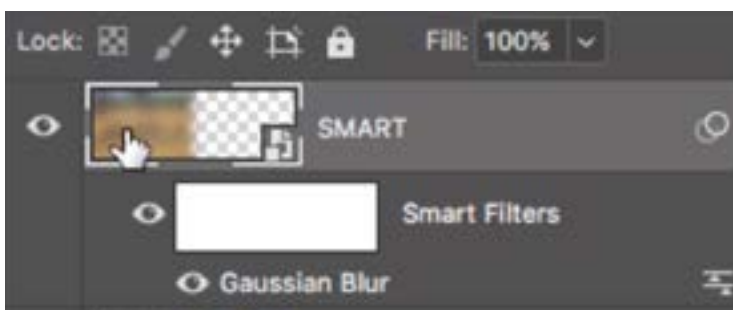
There are a few different ways of converting a layer into a Smart Object, but the most common method is to go to the main menu and choose Layer > Smart Objects > Convert to Smart Object. An icon will appear in the corner of the layer thumbnail in the Layers panel indicating that the layer is a Smart Object. Anything you do to a Smart Object is merely a setting attached to a layer. It's not permanently changing its contents.



The icon at the bottom right of the layer thumbnail indicates that it has been converted into a Smart Object.

Smart Objects & Filters

When you apply a filter to a regular layer, the effect is permanent. You can not change the intensity of the filter or un-apply it at a later time. If, instead, you apply a filter to a layer that has been converted into a Smart Object, that filter will be applied as a setting attached to the layer and it will appear as a separate, indented thumbnail beneath the layer thumbnail in the Layers panel. If you double-click on the name of the filter in the Layers panel, it will bring up the filter settings so that you can make changes at any time. If you would like to remove a filter completely, you can click



When a filter is applied to a Smart Object layer, it is applied as a Smart Filter and will appear below the layer thumbnail in the Layers panel.

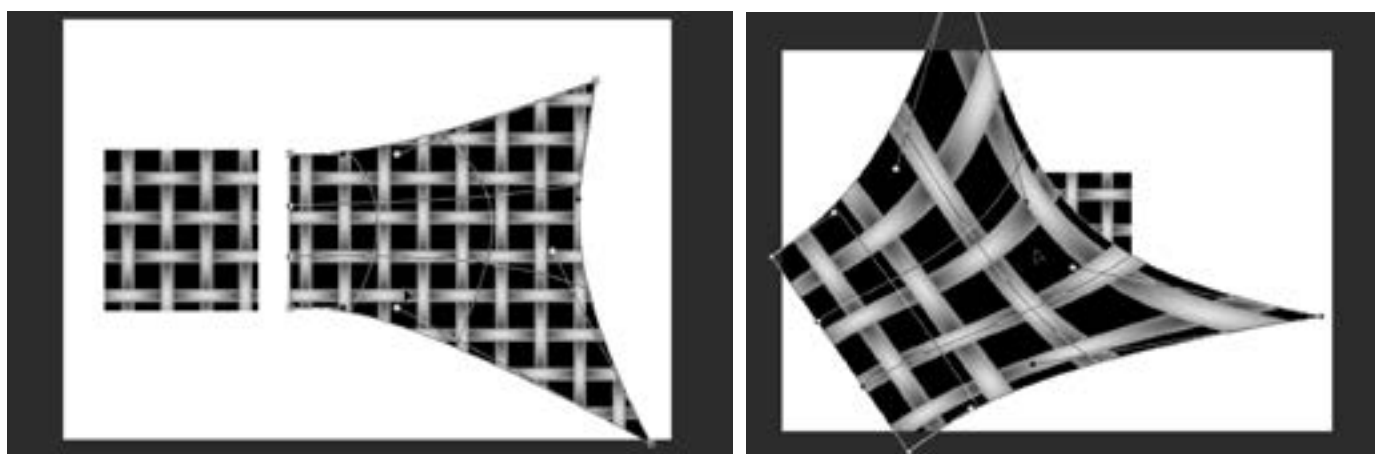
on the filter name and drag it to the trash can icon at the bottom of the Layers panel. If you would like to remove all filters applied to a Smart Object layer, click on the word "Smart Filters" and drag them to the trash can icon.

Smart Objects are also very beneficial when it comes to scaling your images. If you scale down a regular

layer and then close your document, when you reopen the file again, all of the original information in that layer will be gone. This means that you can't scale the layer back up without drastically degrading the image quality. If you scale down a layer that has been converted into a Smart Object, you can scale it up again at any time and it will maintain the quality of the original image.

Smart Objects & Layer Styles Layer Styles will behave differently on layers that have been converted into Smart Objects, and this can often be very useful. If you apply a layer style to a regular layer and then resize or distort that layer, Photoshop will act as if you applied the layer style AFTER the change. This means that if you enlarge a layer that has a pattern effect applied to it, the pattern will not scale up or change orientation. You will simply see more of it. On the other hand, if you apply a change to a layer that has been converted into a Smart Object and then add a filter, the change will be applied to the filter as well. For example, if you apply a pattern effect and then scale up the layer or distort the layer, the pattern itself will also be scaled up or distorted.

Let's say that you apply an effect to a layer that has been converted into a Smart

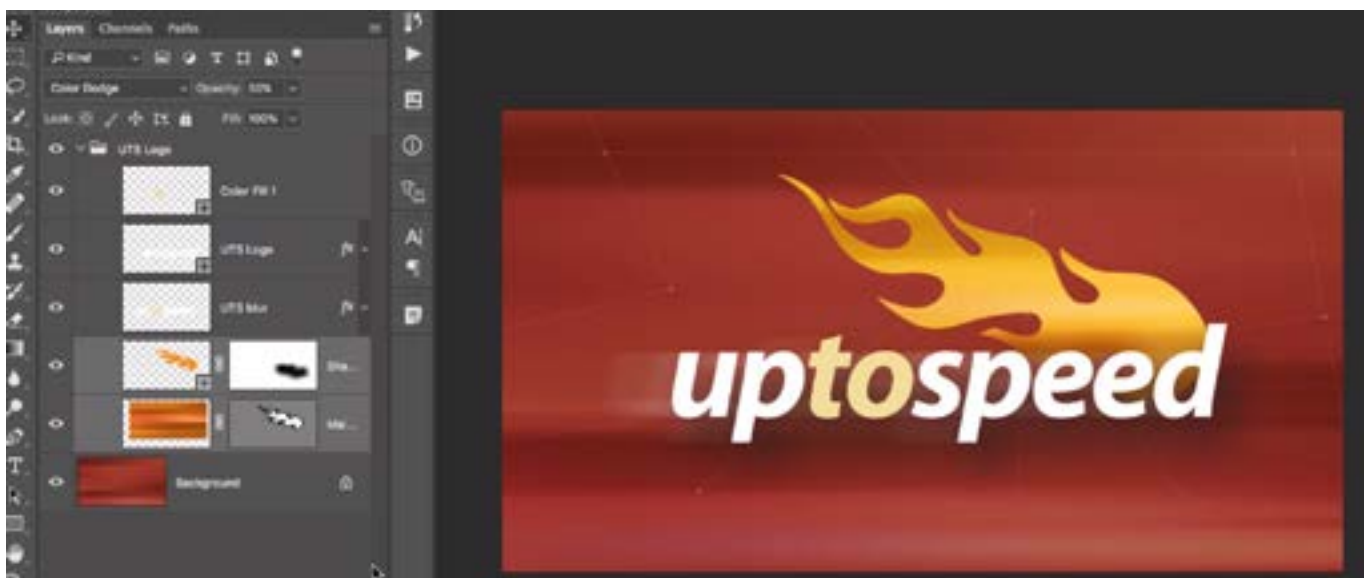


Left: A pattern was applied to a non-Smart Object layer and the layer is now being enlarged and warped. Right: A pattern was applied to a Smart Object and the layer is now being enlarged and warped. With the Smart Object, the changes are reflected in the pattern.

Object and then want to go back and change the effect later. To do this, you will have to open the Smart Object, and you can do so by double-clicking on the layer thumbnail in the Layers panel. When you open a Smart Object, it will open in a separate Photoshop document. In that document, you will see all of the effects

applied in the Layers panel and you can double-click on them to make changes to them. When you are done making changes to the Smart Object document, simply save and close the document. Now, when you go back to your original Photoshop document, the changes you made will be reflected there.

Smart Objects can be created from more than one layer. If you have an object in your document that is made up of multiple layers, select all of the layers in the Layers panel and then convert them to a Smart Object (via the Layer menu). Any time you select multiple layers and convert the layer set into a Smart Object, it will act as if all of those layers are combined into one piece. This means that multiple layers will appear as a single Smart Object within the Layers panel. If you double-click on that Smart Object in the Layers panel, the separate Smart Object document will open and all of the layers will be visible (and editable) in the Layers panel. This can be useful when you want to apply a change to an object made up of multiple layers. For example, in the image here, we have a shape layer for the flame graphic. Then we have a separate layer that is applying the texture to the flame. I want to warp those layers, but when I select both of them and then go to the Edit menu, the Warp command is gray (inaccessible). That's because you can't warp more than one layer at a time. If, however, I convert those layers into one combined Smart Object, I can then warp them together.



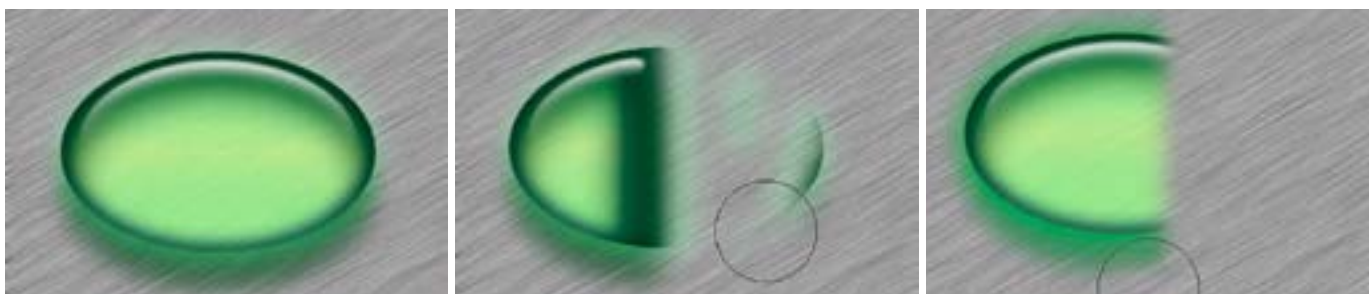
The flame graphic is made out of more than one layer in this document. We can convert the flame into a Smart Object by selecting all of the layers that make up the flame and then going to the Layer menu and choosing Smart Objects > Convert to Smart Object.

When it comes to type layers, you can't apply filters to a type layer, and if you try, Photoshop will ask you if you want to either rasterize the layer (making the type un-editable) or convert the layer into a Smart Object. If you convert the layer into a Smart Object, you can then apply the filter without rasterizing the type (meaning you can change it again later).

Smart Objects & Layer Masks When you add a layer mask to a layer that has a layer style applied to it, the mask will act differently depending on whether or not the layer has been converted into a Smart Object.

To add a layer mask to a layer, first make sure that the layer is active in the Layers panel and then click on the Layer Mask icon at the bottom of the Layers panel. When a layer has a mask, any area of the mask that is black will hide the layer and any area of the mask that is white will allow the layer to remain visible. When you add a new layer mask, it will be completely white by default. To add black, and therefore hide areas of the layer, you can use a variety of tools, including the Brush Tool, the Shape Tool, etc. Note that the layer mask must be active when you are attempting to make changes to it. The little square brackets around the mask's thumbnail in the Layers panel will indicate that the mask is active. If it is not active, simply click on the thumbnail to activate it.

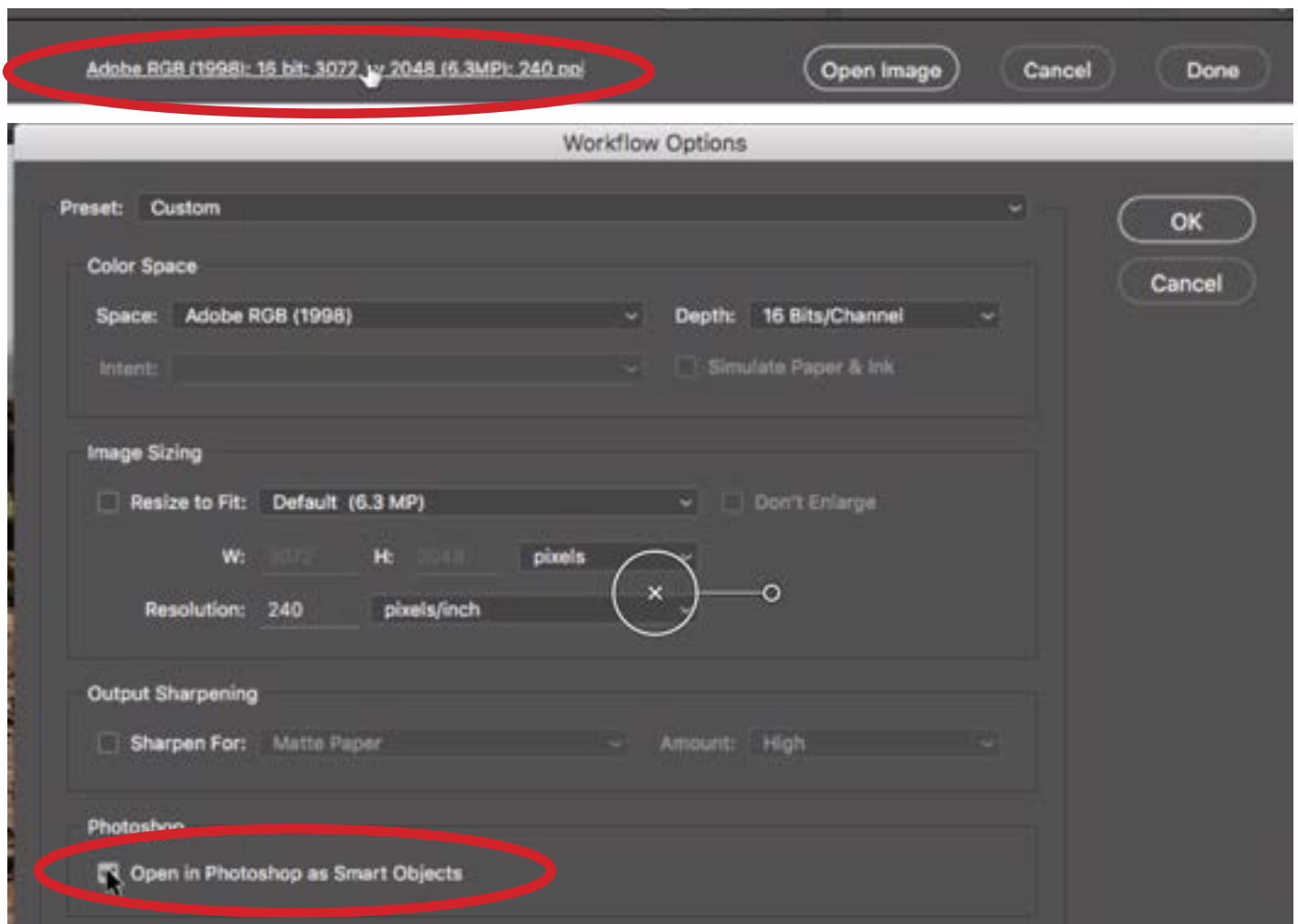
When you paint with black on a layer mask that is attached to a layer that has layer styles applied to it, Photoshop will act as if the layer styles were applied AFTER you created the mask. This is often times undesirable. If, however, you converted the layer into a Smart Object before adding the layer mask, Photoshop act as if any layer styles were applied BEFORE you created the mask. (See screen shots for example.)



Left: This shape layer has a series of layer styles applied to it. **Center:** We added a layer mask and then started painting with black on the mask. **Right:** We first converted the layer into a Smart Object, then added a layer mask and started painting with black on the mask. You can see how the layer styles behave differently when masked depending on whether the layer has been converted into a Smart Object.

Camera Raw to Smart Object You can tell Camera Raw to open an image as a Smart Object in Photoshop. After you're finished adjusting your photo in Camera Raw, you would normally click the "Open Image" button in the bottom right corner of the screen. If, however, you hold down the Shift key, this button will change to say "Open Object." If you click it (with the Shift key held down), the image will open in Photoshop and the image layer will automatically be a Smart Object.

If you always open your images as Smart Objects in Photoshop, you can change Camera Raw so that the Open button will say "Open Object" by default. To do this, click on the line of text below your image window (see screen shot). A Workflow Options dialog will appear, at the bottom of which will be a "Open in Photoshop as Smart Objects" check box. If you turn this check box on, then the default for that button will be "Open Object" instead of "Open Image."



Clicking on the text below the main image window in Camera Raw will give you the Workflow Options dialog. At the bottom, you can turn on the "Open in Photoshop as Smart Objects" check box so that photos are opened as Smart Objects by default.

When you open a photo as a Smart Object from Camera Raw, that Smart Object will have a special feature which will allow you to adjust the raw photo in Camera Raw at any time. Simply double-click on the layer thumbnail and Camera Raw will open, with all of the settings you last used. You can make any additional adjustments in Camera Raw and when you click OK, that image will automatically be updated in your Photoshop document.

Smart Objects & Compositing Smart Objects can be very useful when compositing images because they allow you to easily change them while maintaining any effects or transformations that had been applied. In the example here, we wanted to make a photo look as if it was printed on a mug. We first opened the image from Camera Raw into Photoshop as a Smart Object. Then, we dragged the photo into the Photoshop document that contained the mug. We free-transformed the image so that it was generally the desired size for wrapping around the mug. To free-transform a layer, you can use the keyboard shortcut Command+T (Ctrl+T on Win) to get the free-transform handles around the layer. You can maintain the proportions of the layer while re-sizing by holding down the Shift key while dragging those handles.



A Smart Object image layer is being free-transformed to the size of the mug.

Next, we needed to warp the image to make it look like it was wrapped around the mug. To do this, we chose Edit > Transform > Warp from the main menu. With the Warp transform handles visible on the image, you can use them to warp and bend the edges of the image. You can also click and drag within the grid to warp it. Press Return or Enter to lock in the transformation.



The Smart Object image layer is being warped around the mug.

Finally, we changed the blending mode of the image layer to Multiply. Multiply acts like ink, so it will make the image look as if it was printed on the mug.

This is the point in which you'll see the benefits to that image layer being a Smart Object. Even though we warped the heck out of the layer, we can still double-click on the layer thumbnail in the Layers panel and, because the image was originally opened from Camera Raw, it will re-open in Camera Raw with the settings last applied to it. In this case, we converted the black and white image back to color, optimized it and then clicked OK. When we did so, our Photoshop document re-appeared and the Camera Raw adjustments were updated in the image layer. It remembered the warping that was applied and it remembered that it was in Multiply mode because those were just settings applied to the outside of the Smart Object and they get updated instantaneously when we made changes inside the Smart Object.

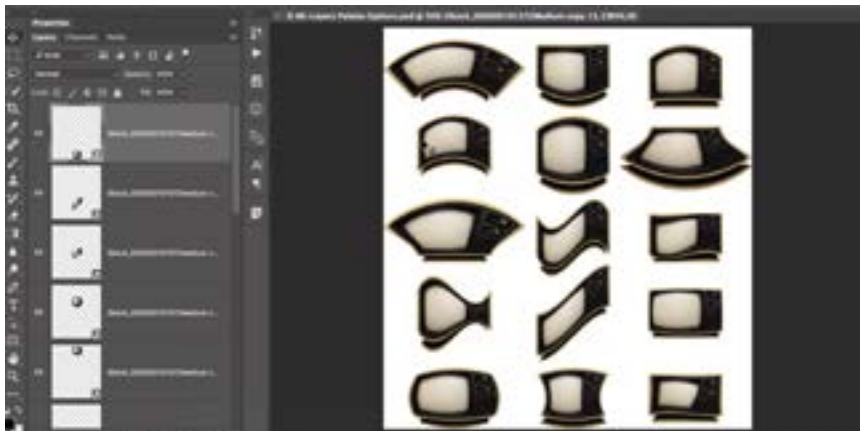


Left: We double-clicked on the Smart Object image thumbnail to re-open the image in Camera Raw and then made additional changes to the photo. **Right:** When we clicked OK, the image went back to Photoshop and all of the Camera Raw changes were reflected in the document.

Replacing a Smart Object with a different image Any Smart Object image layer can easily be replaced with a different image, providing it has the same dimensions. This makes it very easy to create a multi-layer document and quickly replace one part of it. In our mug example, we will replace the image that has been placed on the mug. With the Smart Object image layer active, we'll go to the main menu and choose Layer > Smart Objects > Replace Contents. When you choose this, you will be prompted to choose a new file from your hard drive and click Place. Note that the file you choose should have the same dimensions (width and height in pixels) as the current image. We'll choose a different image, click Place, and because the image is a raw file, it opens in Camera Raw first. We simply have to click OK and the new image is placed on the mug.



Replace Contents was used to replace the Smart Object image on the mug.

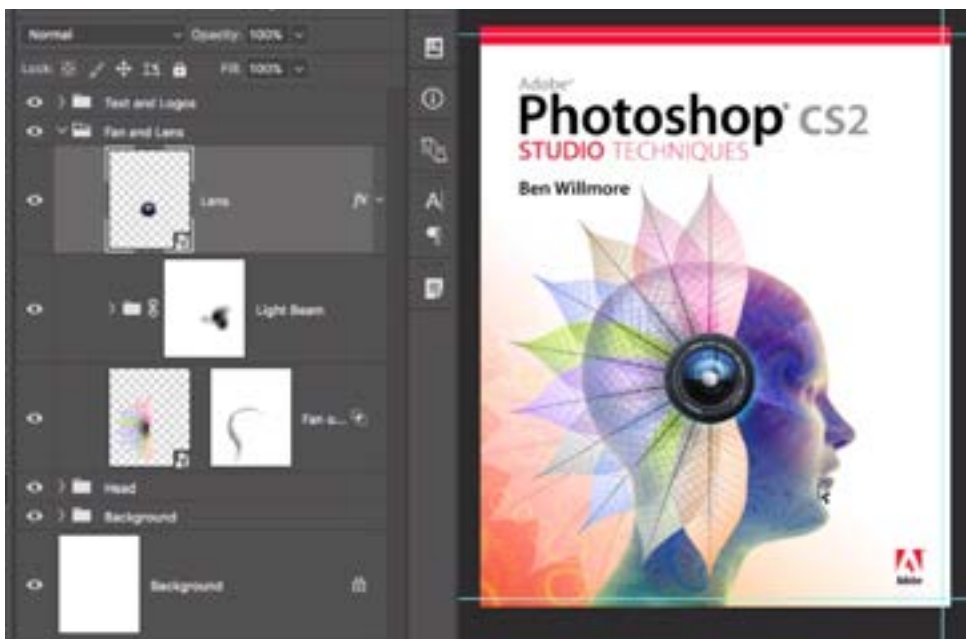
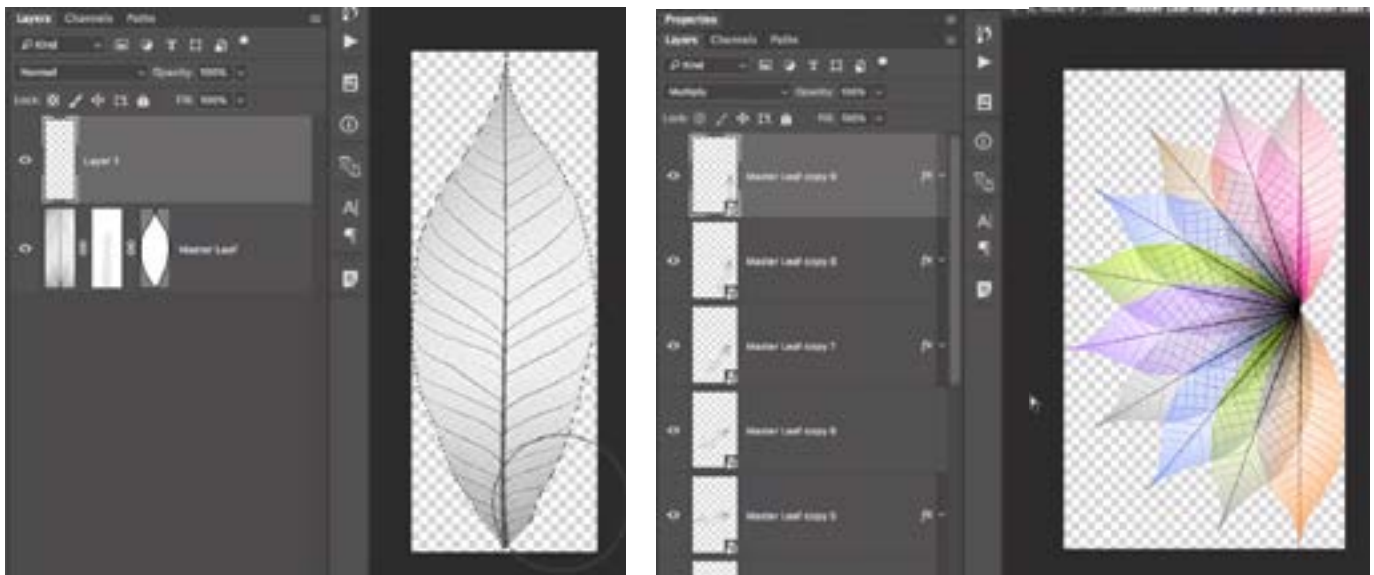


A TV graphic was converted into a Smart Object, duplicated several times and then warped in different ways. When we made a change to the Smart Object and clicked Save, every instance of the TV was updated in the document.

Duplicating Smart Objects

When you duplicate a Smart Object, each duplicate is considered as another instance of that same Smart Object. (You can duplicate a layer by using the keyboard shortcut Command+J, or Ctrl+J on Win.) This means that they all point back to the same original content. If you double-click on the thumbnail for one of those Smart Objects to open it, make a change and then click Save, every instance of that Smart Object will be updated with the change you made.

Nested Smart Objects A nested Smart Object is a Smart Object (or objects) inside of another Smart Object. To create a nested Smart Object, select two or more layers that have already been converted into Smart Objects. Then go to the main menu and choose Layer > Smart Objects > Convert to Smart Object. In the Layers panel, it will look as if all of those layers have been combined into one. You can apply any kind of effects, transformations, warping, etc. on that layer. If you'd like to change one of the individual Smart Objects, double-click on the layer thumbnail and a new Photoshop document will open that includes all of the individual Smart Objects.



The leaf image was created, converted into a Smart Object and then duplicated several times to create the fan shape. All of the leaf Smart Objects were then selected and turned into a nested Smart Object to create the final composite at left. We can click back to the original leaf Smart Object, make a change and click Save to have that change applied to all instances of the leaf in the final composite.

Linked Smart Objects There are two kinds of Smart Objects: Embedded Smart Objects and Linked Smart Objects. Embedded Smart Objects are contained within the Photoshop document, and these are the type we've been using up until this point. Linked Smart Objects are contained on your hard drive and you choose to use them as Smart Objects when you import them. To do this, you'd go to the File menu and choose Place Linked. You would be prompted to choose an existing document on your hard drive and import it as a Smart Object into your current Photoshop document. If, at any time, you make a change to that [linked] document, it will automatically be updated in any Photoshop documents in which it exists as a Smart Object.



In this example the “Up to Speed” bar was converted into a Linked Smart Object, which turned it into a separate file on my hard drive. Any time I made a change to this graphic file, it was updated in every document it was used in.

In the example here, I have a document that contains a graphic used in each chapter intro for a Photoshop book. The graphic has to be the same for each chapter, so I used a Linked Smart Object for that graphic. This way, if I make a change to the chapter intro graphic file, it will automatically be updated on each chapter intro page document.

Now, let's say that you are working on a Photoshop document, create a Smart Object that consists of multiple layers and then decide that you want this Smart Object to exist as a separate document on your hard drive. You can do this by going to the main menu and choosing Layer > Smart Objects > Convert to Linked. You'll be prompted to give the new document a name and choose where it should exist on your hard drive. When you have a Linked Smart Object incorporated into your document, there will be a little link icon in the bottom right corner of the layer thumbnail in the Layers panel.



The icon in the bottom right of the layer thumbnail indicates that it is a Linked Smart Object.