

# STEVE CAPLIN'S **A** TO **Z** OF DESIGN

## S: Smart Objects

Steve Caplin walks us alphabetically through the concepts essential to success for any jobbing or aspiring designer.



### ABOUT THE AUTHOR

**Steve Caplin** is a designer and illustrator working for a range of national newspapers. His best-selling *How to Cheat in Photoshop*, now in its fourth edition, is published by Focal Press.  
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▼ 01 Here's a grid set up as a layer in Photoshop, converted to a Smart Object and distorted using Image Warp to wrap around this mug. The layer mode has been changed to Multiply, so we can see the mug through it.



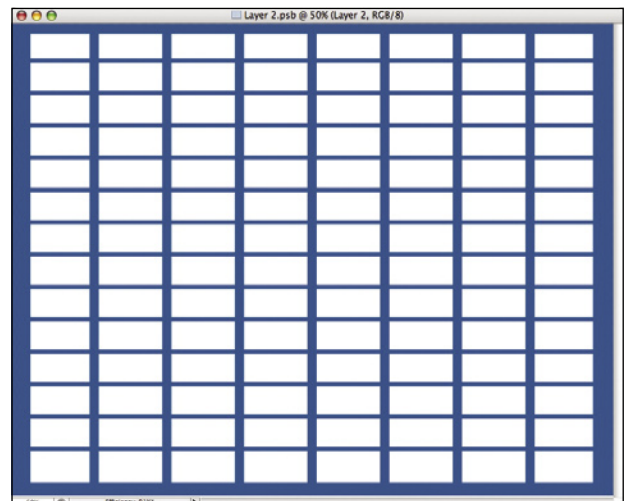
**Introduced in Photoshop CS2, Smart Objects** give designers the power to experiment with scaling and distorting images without the loss of quality normally associated with repeated transformations. But there's much more to the technology than this: the contents of a Smart Object can be replaced with different artwork at any stage, which means that a complex distortion can be endlessly repurposed with different content.

Here's how it works. A layer, or set of layers, is first processed by choosing Layer > Smart Objects > Convert to Smart Object. This will turn all the selected layers into, apparently, a single layer, which can then be distorted, rotated and transformed at will: you can even use Image Warp distortions to bend the layer around curves.

The difference is that the contents of the Smart Object are saved in their original state in the Photoshop document, and when further transformations are applied, it's this original document that's referred to. So if you scale a Smart Object down to, say, 5%

of its original size, when you return to it later and scale it back up again the original layers will be used to perform the scaling operation. Try this with a regular Photoshop layer, and you'll see the degradation that would normally occur in this extreme instance. Smart Objects also work with placed Illustrator files, meaning that imported vector artwork can now be scaled in Photoshop as true vectors, with resolution-independent adjustment.

It gets really clever when you double-click a Smart Object in Photoshop's Layers palette. The contents will open in a new window as a .psb file (the format Photoshop uses for storing large documents), with all the layers intact. It's now possible to edit each of the layers within the Smart Object: when the .psb file is saved, the changes made will be returned to the transformed version in the original Photoshop document. If it contains a placed Illustrator object, this can be opened in Illustrator and edited, then returned to Photoshop and transformed automatically back in place.



▲ 02 Double clicking the Smart Object layer opens it as a .psb document, showing – in this case – the original grid we used to wrap around the surface.



▲ 03 We can replace this grid with any artwork we choose – even with multiple layers, as shown here. Each element remains a separate, editable layer.



▲ 04 When we save the .psb file, the new artwork is immediately wrapped around the mug, following our initial distortion.



▲ 05 We can even drag the artwork off to the side, so it's clipped by the bounds of the Smart Object document.



▲ 06 Now, because the Smart Object used the mug as a clipping layer, we can see the effect of printing the logo in different positions around the surface.

So why is this so useful? Well, here's an example. Let's say we take a photograph of a ceramic mug. We can set up a grid pattern and make that into a Smart Object, then distort it using Image Warp so that the grid appears to wrap around the mug. If we change the mode of the Smart Object layer to Multiply, then we're able to see the original mug shading through it. Now, we can double-click the Smart Object to open the document: we can replace the contents with any artwork we choose and, when we save the file, that artwork will be wrapped around the mug, with the original shading showing through it. And, of course, we can repeat this process as many times as we choose with different artwork.

The possibilities here are endless. If you photograph a rippling white flag and distort a grid to fit it, you can impose an Illustrator drawing of any country's flag on it in a couple of seconds. You can photograph a wine bottle in a still-life situation, and replace the label; or photograph a blank magazine spread, and impose your flat artwork on it to make it appear to have been photographed in place.

A Smart Object can be duplicated in a document, and each duplication then transformed and distorted individually.

When any of the Smart Object instances are edited, each version in the document will be changed to match the edit. For designers, this works in much the same way as using Symbols in Illustrator. Complex layouts can be produced using a company logo, for example: if the logo then changes, it's a simple matter to change one instance and the same effect is applied to all the versions of the logo in the artwork.

By turning text into a Smart Object we can then apply effects to it that wouldn't otherwise be possible, such as filters and warp distortions. Previously, we'd have had to rasterise the type first, to turn it into a regular pixel layer; now, we can leave it as live text, opening the Smart Object when we want to edit it or change the font.

Smart Objects give us the ability to use 'placeholder' artwork in Photoshop, then to change it to the final artwork in a couple of seconds. Here's a real-life example: I was recently asked to produce a cover for the Guardian magazine G2, in which the whole

cover, complete with headlines, was to be distorted to look like a sheet of crumpled newspaper, with fish and chips placed on top. Naturally, the headline and other cover lines were decided at the last moment. But, using Smart Objects, I was able to create the entire artwork using dummy text, only replacing the contents with the real headlines shortly before going to press. And then to do so again, when the editor changed his mind. Without Smart Objects, it would have meant painstakingly recreating the distortions – a combination of Image Warp and the Wave filter – from scratch, each time the headlines changed.

Photoshop CS3 brings us the ability to apply filters to Smart Objects. This means we can apply ripples, paint effects, blurs and more to groups of layers and then edit the contents, instantly seeing the same set of filters reapplied to the new artwork. Smart Filters in CS3 also come with masks, just like Adjustment Layers, so the effect can be selectively hidden and faded.



▲ 07 If a Smart Object is duplicated within the artwork, both instances will be updated when one is changed – so the reflected version of this pill bottle matches the label on the bottle.