

Being Aware of Content Aware

Advanced Photoshop Techniques Made Easy



Nick Melidonis M. Photog. discusses how to more usefully use Photoshop's Content Aware tools.

Although Content Aware is not new in Photoshop, the latest Content Aware tools in Photoshop CS6 are nothing short of amazing.

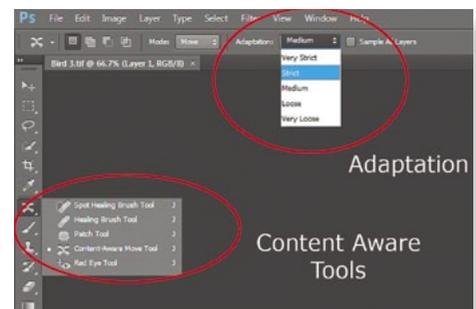
Mind you, they still don't work in every situation and I have found myself doing some clean-up work, despite my best efforts after using them. Nevertheless, the alternative methods of using complex selections, painstaking cloning and trying to match patterns, textures and colours in the areas affected, have meant

that most photographers are delighted with the results they obtain with these new 'miracle' tools.

Whenever I have demonstrated the content aware tools in my workshops, I always get a lot of "Ooohs" and "Aaahhs" when people see how simple it can be.

Content Aware

So what exactly is Content Aware Fill? Very simply, it is an excellent tool for removing content in an image that is not needed and

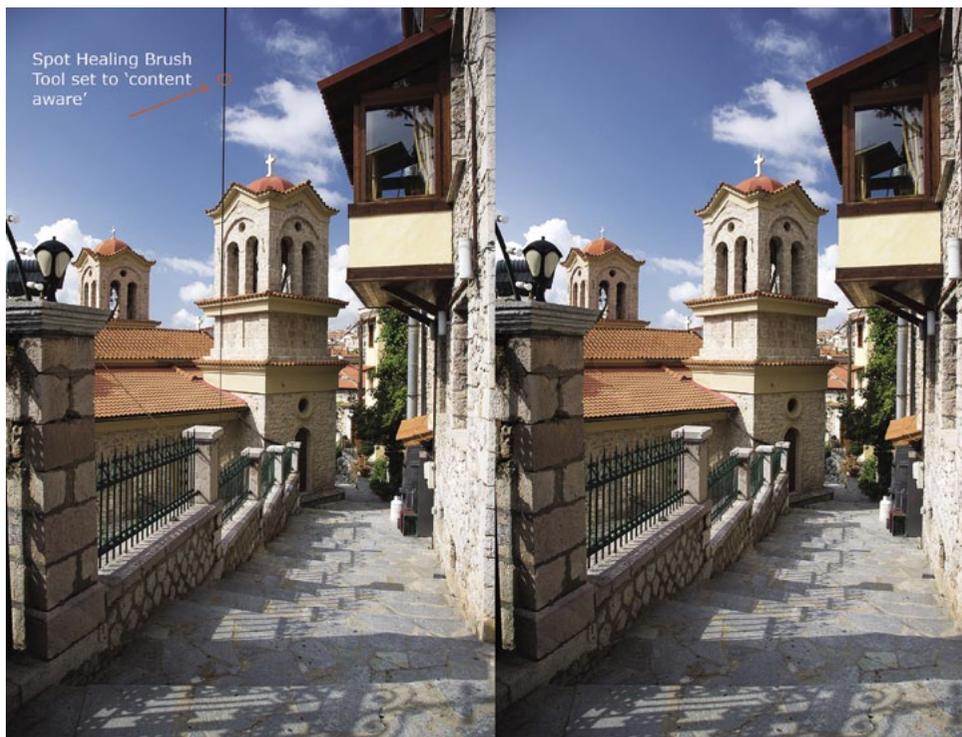


The Content Aware Tools and the Mode and Adaptation options.

replacing the 'hole' with the appropriate pixels of what would have been left.

Classic examples are when you want to remove a lamp post or fire hydrant; power lines that cut across a building and the sky; grass that cuts across the outline of wildlife such as birds or animals; scratches and tear marks from old photos, or any unwanted portions of an image. In earlier versions of Photoshop, if you wanted to remove a lamp post, you would probably have used the Clone Stamp tool to clone small sections of footpath, bushes and trees, brickwork and other areas, and then carefully applied

The Content Aware Healing Brush Tool set to the 'Content Aware' option can work wonders in removing unwanted objects. In this image taken in the mountain village of Arachova in Greece, electrical wires were cutting across the Church Tower and its tile roof. Using as small a brush as I could with the image at 100%, I carefully run the Healing brush along the wires and Photoshop replaced the wires with sampled pixels of the background. The pattern of the roof tiles and the edge of the Church were retained quite well, a task that would have been painstaking with the old clone tool. As always when using the Content Aware Tools, a little experimentation and some clean-up work may be necessary.



them section by section to the area you wanted to remove. The outcome you sought was to replace or cover up what was there with what would have been there if these offending objects didn't exist.

The Content Aware tools use what Adobe calls 'imaging intelligence' to reduce or eliminate labour-intensive retouching. Once you've selected and deleted the unwanted object, the tool analyses the surrounding pixels to determine the best match for colours, textures, and patterns to use as fill material. Then it automatically fills in the area where the object was, matching light, tone, noise and texture – magic indeed and all with unprecedented speed.

Spot Healing Content Aware

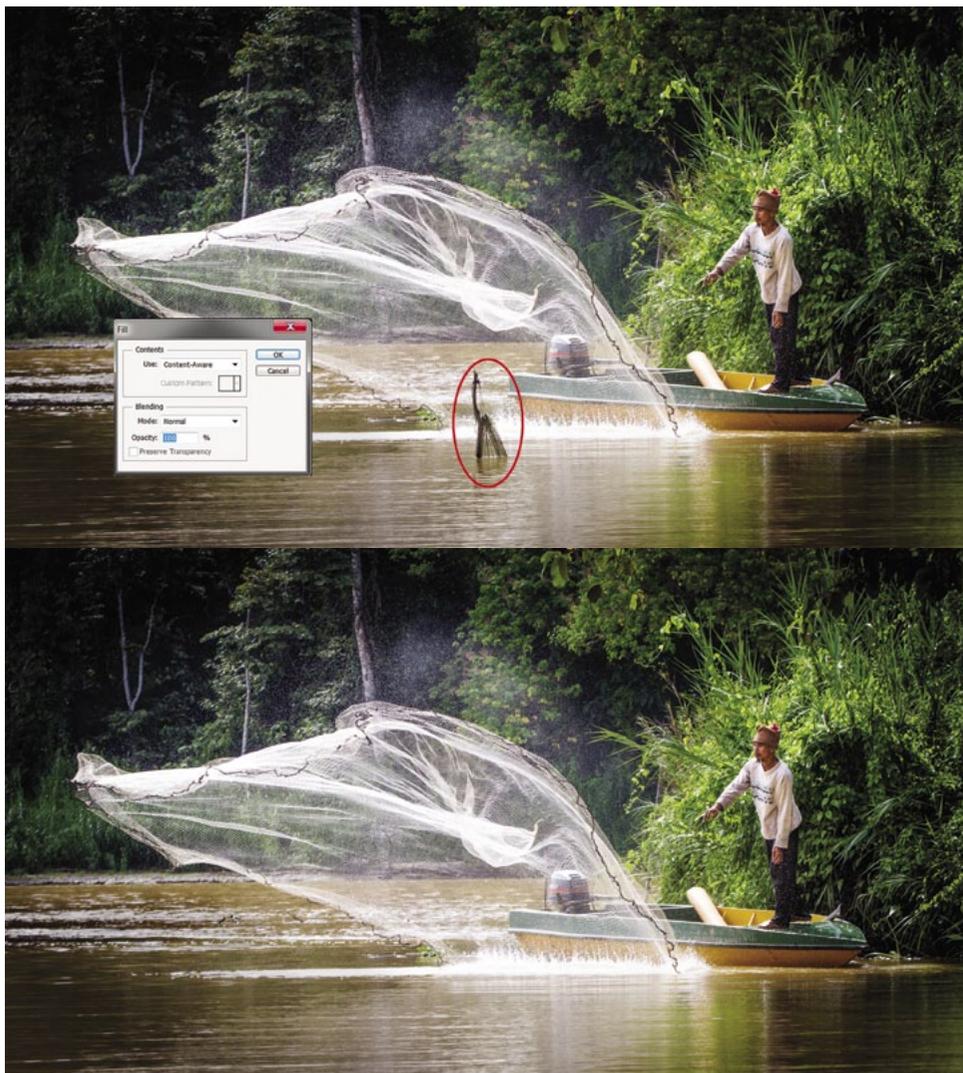
The Spot Healing Tool has been around for a while, but it now has 'content aware' as an option to select. This tool has many uses. For example, you can use it to get rid of blemishes and other facial imperfections in a portrait and it can analyse and replace the blemishes with the correct skin colour and pores of the skin.

A suggested technique is to create a new empty layer and call it 'Retouching', then select 'sample all layers' and now click and dab the face to remove blemishes. If you continue in this way, the face will appear almost perfect, but may look a little 'plastic' like a mannequin. For a more realistic result, reduce the opacity of the retouching layer to put back a hint of the blemishes and so make the face 'human' again.

This technique can also be used to get rid of power lines, cables, drain pipes and overly bright objects that can catch the eye. Applied properly, the results are quick and effective. Of course, the Spot Healing Brush using content aware can also be used to remove sensor dust and other imperfections in an image, and replace them with a blended background that looks very natural.

For photographers who enjoy shooting wildlife, the Healing Brush content aware tool is a lifesaver. Animals often blend in with the grass and foliage around them and quite often some of that grass protrudes into the image of the animal. Try as we might, the chances of getting a clean shot of the animal without the grass can be almost impossible.

The Healing Brush tool again can work miracles with just a simple swipe over the offending grass. I find that the smaller the brush size (you will need to work with an image at 100% or more) prevents unwanted



On a boat trip in Sabah, we came across a fisherman casting his nets in the river. I quickly captured this image with a Canon 5D Mk III and a 100-400mm lens. When I started to process the image in Lightroom, I noticed the stick coming out of the water (marked in red). I thought I would try the Content Aware Fill Tool and selected the stick using the Lasso Tool. I then used Edit>Fill and chose the 'Content Aware' option under 'use'. As you can see, Content Aware replaced the stick and matched the background with the net very well. [This can now also be done in Lightroom 5 using the Spot Removal brush.]

leftovers of the image when Photoshop tries to sample around the selected area.

Content Aware Fill

Larger areas such as bigger drainpipes and lamp posts can be removed with the Content Aware Fill tools.

To use Content Aware Fill, make a selection with the lasso tool around the area you want to replace and then select Edit>Fill and choose 'Content Aware' in the 'use' options drop down box. Click OK and let Photoshop's algorithms do the work.

If the object can easily be selected and there is enough of the image around the object for Photoshop to look at, the process is easy and very successful. If not, the result

might not be perfect and there may be some cleaning up to do.

This technique should be used with larger objects that the Spot Healing Brush may struggle with. For example, if I had two yachts in a photograph and wanted to remove one so the client can have just their own yacht in the picture; the process would be easy if a clean selection of the other yacht could be made.

This technique can also work well if you wanted to remove a rock or a piece of building material from a lawn; simply select the object to be removed and let Content Aware fill in the background. Another example is to replace broken tiles on a roof and match the pattern of the good tiles to



My Canon EOS 5D Mk III captured heron with a 100-400 mm lens, but the bird is too centrally positioned due to the focusing point being set to the middle. I would have preferred the heron to be closer to the right hand edge of the frame. I could have cropped the image, but I thought I would try the new Content Aware Tools. I wanted to get rid of the piece of log at the bottom right of the image and, as two sides of the log were right on the edge of the frame, I knew that Content Aware Fill would be difficult. I chose the new Patch Tool, with 'Content Aware' and since there was sufficient space around the log for Photoshop to 'see', I chose 'Loose' as my Adaptation option. I then dragged the selection to a section of the green background on the left of the image and the result was a perfect removal of the log. Next I chose the new Content Aware Move Tool with 'Loose' as the Adaptation option. I dragged the selection to the right of the image and again, Photoshop produced a flawless result and filled the 'hole' left behind with the appropriate background.

replace the damaged ones; once a long and laborious process in earlier versions of Photoshop, now it is quick and easy.

Content Aware Patch Tool

When objects are right on the edge of an image, Content Aware Fill can be a problem as the sampling technique may leave artefacts or remnants of the image behind. Sometimes you can't select an image with

enough surrounding it for Photoshop to look at, and again, the Content Aware Fill method will leave bits of image behind.

For the situations described above, CS6 has now refined the Patch Tool so it can use the magic of Content Aware as well. This tool is found with the other Content Aware Tools in the box containing the Healing Brush Tool and the new Content Aware Move Tool.



The Content Aware Move Tool has an 'Extend' mode as well as a 'Move' mode. This mode is very good when you want to extend or stretch a piece of an image and let Photoshop's algorithms fill in the required pixels. In this photograph of the columns at Cape Sounion in Greece, I selected the area which I wanted to extend upwards to lengthen the columns, while leaving everything else in the same proportion. I chose 'Very Loose' as the Adaptation and it was the best result from the other Adaptation options.

The Patch Tool with the Content Aware Fill option fills the gap where selections or the Healing Brush won't work. Adobe calls this exciting new option, 'user driven content aware fill'; that is, you make a selection using the new Patch Tool, then you drag the selection to where you want to sample from and let Photoshop's 'magic' fill in what is left after the object is removed. Again, the results are not always perfect and you may need to experiment a little to obtain a satisfactory result.

One of the choices you will have to make when this patch tool is selected is to choose what 'Adaptation' to use when you make the Patch Tool selection. The 'Adaptation' box is found in the tool options at the top left of the tools bar and you have a choice from 'Very Strict' to 'Very Loose'.

'Very Strict' is normally chosen when there isn't a lot of room to blend the edges of the object and there are other things very close to the object. 'Very Loose' is normally chosen when there is plenty of space around the object and Photoshop has plenty of information to blend the object with the new background.

So how do you choose between Very Strict, Strict, Medium, Loose and Very Loose? It's a case of making an educated guess according to how much is around the object, then 'suck it and see'. The results can be very different from "What the..." to an acceptable result. Even though a few minutes can be spent playing with these adaptations, the alternative cloning techniques we used to use from the old days of Photoshop should not even be considered.

Content Aware Move Tool

Another amazing new Content Aware tool introduced in CS6 is the Move Tool. Of all the new tools in CS6, I found this one to be the most exciting. Before CS6, if we wanted to select an object and move it to another place within an image, this used to involve complex selections, masking, compositing and so on.

Once a Move Tool selection is made around the object to be moved (and this can be loosely selected rather than an exact and complex selection) and moved to the new position, Photoshop then looks at the neighbouring pixels and blends the object in the new location. Photoshop's algorithms look at the surrounding pixels and patterns surrounding the 'hole' left behind and matches them. When you first see the result, I'm sure, like me, you will be gobsmacked.

As before, it doesn't produce a perfect result every time and I found that by varying the area around my loose selection of the object to be moved produced varying results. However, by persevering I managed a very good outcome on most occasions.

As with the Patch Tool described above, you are given the same choices for the 'Adaptations' (Very Strict to Very Loose) and choosing the right adaptation will produce the required result.

In the tool options of the Content Aware Move Tool, you also have a choice of Modes of either 'Move' or 'Extend'. If you choose 'Extend' then another interesting variation of this useful tool allows you to choose a building and 'Extend' it higher or lower and Photoshop will fill in the patterns etc. to match the extension. You can even select a corrugated iron roof on a veranda and extend it out further from a building. It really is an incredible tool. As before, your

right choice of Adaptation will produce the best result.

When making a selection, you can try using the 'Quick Selection' tool for a more precise selection and see what results you get. A variation of this method is to use the Quick Selection Tool, then use Select>Modify>Expand by around seven pixels, leaving little around the object so CS6 can have a better chance to blend the object with the new background.

If you have graduated to CS6, then these amazing new Content Aware Tools will make a big difference in time-saving enhancement of images with some very good results that will amaze you.

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