

Create perfect panoramas

Once you've found yourself the perfect location for shooting a panorama be sure to spend some time setting it up.

Naturally, a good panorama shot will depend largely on location, but there are several ways you can improve the end result. By carefully selecting your filters, shooting in manual and using the vertical format, you will end up with far superior final images that you can stitch together for that perfect panorama.

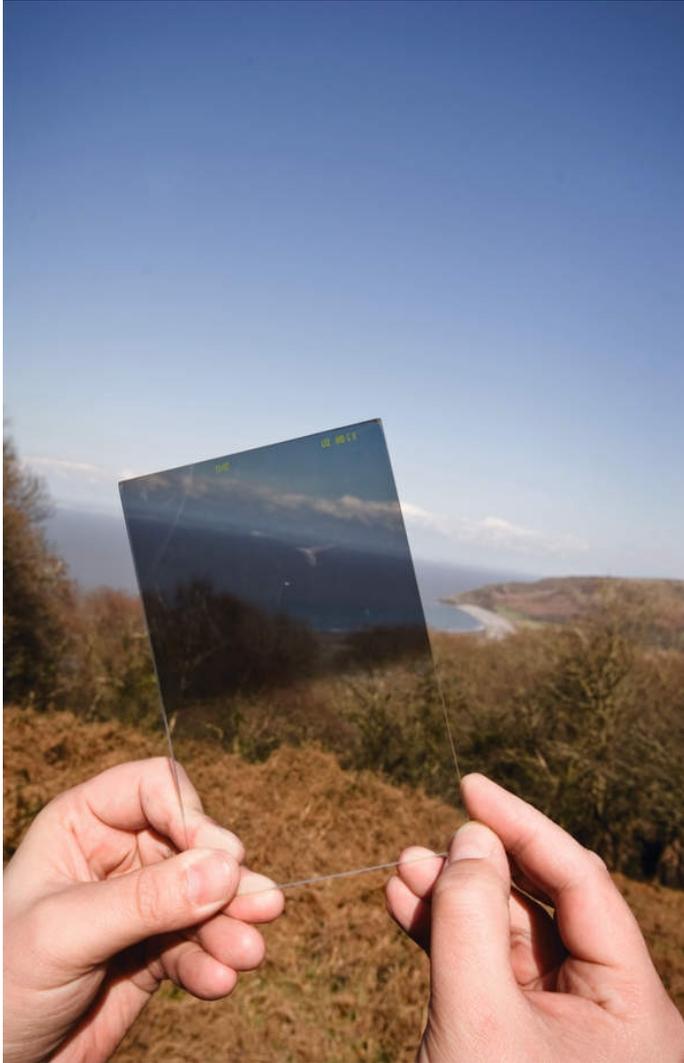


1. Straighten up



Shooting in the vertical (portrait) format will improve the overall quality of your panorama. You'll be able to produce a larger and more detailed image and it'll reduce the effects of converging verticals.

2. Get your filters out.



We've discussed the use of ND grads (neutral density graduated filters) in the Workshop page links. They are to darken the sky and balance its light value with the foreground. Any view with a dramatic difference in light between foreground and background will make the camera struggle to achieve a balanced exposure, so we level things out a little. Take care to look at the effect of the filter in all of the shots and ensure that you're not making foreground objects too dark. Be careful not to make different areas too dark or too light so, if you have a choice of filters, try them all out.

3. Use a tripod when you can and make sure that the camera is parallel to the ground and will not rise or fall as it's rotated.. (You can take 'vertical' panoramas too, in which case you'd make sure that the camera is exactly vertical). Tripods often come with a small 'level-finder' built in but there are also gadgets around to put onto your camera hotshoe and make sure you're perfectly straight. Panorama stitching software, which we will get to later, can quite ably find matching items between exposures to join up quite well, but you may end up with a sloping array of

exposures which, at some point, will need cropping to give one flat edge..... the more slope there is in the individual pictures, the more gets lost in the crop.

4. Switch to Manual

And that's just about **“manual” everything.....** Shooting in Manual mode is essential for a successful panoramic stitch, because it ensures you have a smooth range of tones across the image. As the amount of sky varies from one shot to another automatic functions such as Aperture Priority (Av) will adjust exposure to compensate and result in inconsistent tones. If you can, shoot in RAW format to increase image quality and flexibility when processing your exposures later.

Consider the problems that Auto settings can introduce....

- **Auto Focus:** As you rotate your camera and collect the individual shots, Auto Focus will try to focus on whatever is in the middle of the view (whichever Focus mode you have, it's generally the centre that will be focused on by the lens). The centre of the view in each shot could well be at different distances so some things will be more or less sharp from one shot to the next. Like a tree in one and that distant hill in the next. Of course, with a tripod we can use a small aperture to get a greater depth of field and that's what's usually done, but you could be focusing on, for example, a line of trees, a fence or something that runs right through the panorama and don't require the deep DOF, so you might want a wider aperture for the narrower DOF. Generally, though, you will be wanting a smaller aperture, getting the maximum amount in focus, front to back, and you'll want that range of focus throughout.
- **Auto Exposure (Auto, Shutter Priority, Aperture Priority etc):** There will, usually, be varying amounts of light in each and every shot in the panorama. Auto exposure modes will give you a 'good' exposure in each shot - but you could well end up with different shades or tones in different areas, particularly in the sky, from shot to shot. Take an exposure reading (with your filter in place) using Aperture Priority, of the whole panorama - set the aperture you want (like f16 perhaps) and see what different shutter speeds are 'required' right across the panorama view. Let's say you get all kinds of readings from the different directions and areas - perhaps anything from 1/30th to 1/500th. Decide on a good average reading (in this case 1/125th), go to Manual exposure and set 1/125th and f16.
- **Auto ISO:** For roughly the same reasons as above, you need to make the decisions here and not let the camera make them for you - or you'll get different exposures (by allowing the camera to change ISO). Choose the lowest you have (usually ISO100), as we don't need to worry about camera shake on the tripod.
- **Auto White Balance:** Again for the above reasons, you don't want your camera making white balance decisions for you - otherwise your WB might vary from shot to shot. On a bright day, with no artificial light around, you could ignore this one, but it's a good habit to get into.
- **Shake Reduction (Vibration Reduction):** This always works by making either the camera's sensor or an element in the lens 'shake' or vibrate, counteracting shaking and vibration when you hold a camera in your hands. We're on a tripod, so we don't

need it - in fact it causes more vibration that we don't want. So switch it off.

- So, it's **Manual Focus, Manual Exposure, pre-set ISO, pre-set WB, Shake Reduction Off**. It's just like having a 35mm camera from the 60s!

Location. Not all places work well as panoramic shots. Getting a spectacular panorama shot is all about the preparation, both of your gear and in choosing a good location. Follow these steps and you'll be finding idyllic panoramas instead of dull or uninspiring landscapes.

Preparation

Preparation is essential for any landscape photographer. It can be devastating to get halfway up a mountain in front of a spectacular vista, only to realise that your batteries aren't charged or that you left your tripod's quick-release plate in the car. Trust us, you'll only ever do it once, but it's better not to find yourself in that situation at all!

Timing

It can be a drag getting up at the crack of dawn, but the light in the early morning has a wonderful quality and it's easy to see why many landscape photographers call this the 'magic hour'. If you're not familiar with the area, check for sunrise times and make sure you're up and away in time to get there and set up before the best light. It can be argued that evening light is the same - but I feel the one thing missing is that clarity that early morning often gives us.

OK, we're ready to go now - we've done our preparation and we know how to set up the camera. So let's get down to the nitty-gritty:

The number of shots needed depends on the size of your final image - there's no right or wrong. The more images you shoot, the bigger your final image will be.

Each image will need to overlap other images by about a third to ensure you don't have areas without detail. Most images are taken in landscape format, but you could take a higher number of vertical images instead. It will have the advantage of giving you plenty of room for your final cropping later on, without making the panorama too 'skinny'. It will also give top quality as you're using more shots (and therefore more pixels) on the view. You'll need 8 shots instead of 5 or other variations in that kind of proportion.

The vital **tripod** should be set up on firm ground - extend the fat legs first and get your horizon level - use a spirit level if you have one, or one of those gadgets mentioned earlier. Don't over-tighten the thread; you must be able to move the centre column smoothly when shooting the scene.

Start and finish

Before taking the series of shots, it's important that you know where they will start and finish. Use landmarks such as trees, walls or rocks to act as markers, ensuring you get the right amount of overlap between each image. Each time you make an exposure, make a mental note of where the edges fall, so that you can ensure that the same edge is featured in the next exposure. Complete your row of shots. You may feel inclined to make another row of shots.... that's ok, but if you're shooting in vertical (portrait) mode you should be ok

with what you have.

Once the shooting is over and you're in front of your computer, download your images and process the RAW files in the Raw software of your choice, ensuring you maintain a constant exposure using the Exposure slider. In most programs, including Adobe Camera Raw, you can select a group of pictures and 'batch' process them with the same settings, so you'll have the right exposure and white balance throughout. Make sure that you open your file in PS or PSE in 8-bit mode.

Joining them together.

Photoshop and Photoshop Elements users are really well served here. Just go to File > New > Photomerge Panorama and select the images you want to use - your 'row' of images. You can choose to have the program do the whole joining job for you ("Auto"), or select the "Interactive Layout". This one may be necessary if you've missed a 'join' somewhere or the program has difficulty finding overlapping parts. You just shuffle your pictures into roughly their right sequence and let the program do its work again. There's a good video tutorial beside 'Panoramas' on the Learning page on the website.

In most cases, you will end up with a great panorama (in multiple Layers of one huge PSD file - don't forget that, if you've taken seven Raw shots you've used 7 times the full capacity of your camera's sensor, e.g. 70 MegaPixels or more.... so expect your computer to be struggling!). It will, however, even with the straightest set of shots possible, have some exposures which are bigger or smaller than the rest, making quite a lot to crop off - which is why I stress the importance of having the most level setup you can manage. For the moment, save this huge file in PSD format, so you can re-visit it if necessary.

OK, you flatten all the layers, and you crop off what's unnecessary. Think about resolution for a minute..... as Raw files to start with, they are probably still sitting on your computer as 300 pixels per inch (ppi) each. If you go to 'Resize' and just experiment with the image dimensions, you will see what happens with the resolution (PPI). You can shrink the image and a very high resolution, perhaps as much as 600ppi..... much more than is necessary for a top quality print. Give the dimensions some thought, though. If you're printing your own, you need to think about how wide your printer is (and even then it will need paper on a roll to accommodate the length). If that's the case, reduce your panorama's height to what fits.... it may be 12 inches, or maybe 16 inches. But now see what happens to your panorama's length.... it may still be about 8 foot long! If you don't envisage hanging that print on a wall, think again about reducing the height (which will reduce the length in proportion) or cropping off the extreme edges of your shot. If you're prepared with a large frame (which may have to be custom made) and a large wall to hang it on, you have a chance to make a stunning, high-resolution print

If you have a masterpiece and want it printed at Costco or similar, think about the cost and size equation and crop/resize accordingly.

Framing.... now there's another huge question!

There's a link on the Workshop/Learning page of the website to a simple run-through of the technique using an older version of PS Elements (PSE5). There are a couple of free "photo-stitching" programs available on the web, but none do a more elegant job than PS or Elements.

