

PANORAMAS

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Some helpful advice on taking digital '*PANORAMA*' shots so that they can be stitched together to make a wide view.

The program I use for this is the one that came with the Canon Camera called "Zoom Browser" - you may have another that you acquired somehow, or a Canon owner can give you a copy of the program to load onto your PC.

What is a Panorama? It is basically a wide-angle shot, usually of some outdoor scene (land-or sea-scape, or even indoors) where you wish to include as much of the vista that you see before you as possible. Even with some wide angle lenses you can't always get exactly what you desire in the photo, or you may get some distortion (horizon for example). It is possible, with today's digital technology, to "stitch" a series of photos side-by-side to result in as wide a shot as you want (possibly even 360°).

Overall Process:

In order to get an end result that is a wide panorama view it is necessary to take a series of photos of the scene in such a way that they overlap each other. Then with the proper software program you can attach/stitch them together and create the shot you want. (cropping, etc., afterward).

The main trick is taking the original photos correctly so that you end up with a pleasing end result, (and avoid some pitfalls). This is where I hope my experience with doing quite a bit of this will assist you in making it a smooth and effortless operation.

Setting Up:

When you are faced with the scene you wish to make into a panorama you should first decide how much you want to include in the scene (what will be your *extreme left and right edges*). Then for insurance sake, plan to take your photos about 1/3 of a frame '*beyond*' these edges to allow for cropping later. Take a few moments to get these edges fixed in your mind, and in the view in front of you.

It is **highly recommended to use a TRIPOD** for this shooting, simply so you can swivel the camera easily from side-to-side. This avoids the situation where you miss part of the ground or sky when doing it hand-held, and thus you end up having to crop later to a thinner picture than you wanted for the panorama. It isn't necessary, but you may also want to use either a cable/remote release, or put the camera on auto-timer to take the shots.

Then with the viewfinder (or digital screen) put the left edge of your view against the left side of your panorama. Then slowly '*pan*' the camera from left to right, until the right edge comes to the point of the right side of your panorama. [NOTE: you can work '*left►right*' or '*right►left*' – it does not matter for the software program – you can switch them around later). Do this a few times, and as you do judge approximately how many '*frames*' it is going to take to get in the entire panorama view.

Now consider that you should '*overlap*' each frame by at least 1/4 to 1/3 of the frame width for each shot you take. With that in mind you can now practice panning across the view again watching for 'landmarks' where you should stop and take a shot as you go.

You do not have to be precise in the amount of overlap BUT generally *the more the better!* Now you should have a perfect idea of just where you should start to pan, where you should stop for each overlap, and where you can stop. Only after you are confident with this should you START to take the photos you need..... In fact to be assured of good results, and since digital photos aren't costing you anything, I would highly recommend you take 2 or 3 sets of your panorama shots – even take one *set panning in the opposite direction!*

Lighting:

If photos are taken even with slightly different lighting conditions this difference will show up in your final stitched view – you will definitely see a line between any two of the shots where the camera compensated for the lighting. For outdoor shots I know you can't control the lighting but here are important points to remember especially for panoramas....

- ☞ Even for individual shots outdoors the lighting can change from moment to moment and the camera, if on automatic, will compensate for this.
- ☞ Clouds moving across the sun, thick or thin clouds, the angle you take relative to the sun, etc. can change the camera settings.
- ☞ Watch the sky and the sun to determine if lighting is going to change in any way while you are taking your shots – it may be prudent to wait until the sun is free (or covered) for the period you need.
- ☞ If you are taking shots directly away from, or into the sun, it may be a bit better, but definitely when panning around so that you go from away to towards the sun there will be a big difference between shots.
- ☞ For this reason if at all possible take all shots with the camera set to 'MANUAL settings'. Set your own ISO, aperture, or shutter speed as desired according to the shot, you do not have to worry about focus (i.e. you can leave on auto-focus). In this way you will have most, if not all of your shots, with the SAME exposure and make a smoother stitch.

Overlap:

The amount of overlap between frames can make a big difference in how well the panorama goes together depending on the distance from the subject. For far away landscapes, etc., or telephoto shots, it is not so important, but it is still better to have more than less overlap. However for closer in shots or indoor shots it can make a lot of difference in the end result. For these shots of there is not sufficient overlap then you will end up with a LOT of CURVATURE in the panorama.

This can sometimes be compensated for by doing a 'stitch' that is not the normal one you would do. Also if you don't have enough overlap the program will *refuse to stitch* the shots together. You can (in Zoom Browser) when on the MERGE page go to MERGE SETTINGS and specify that the shots were taken in parallel, or scanned in sections, and this will sometimes allow you to stitch them – but not always successfully. Again that is why it is best to a *good overlap and more rather than less frames* ... remember it isn't costing you anything!

Seams:

If you aren't satisfied with what the program (Zoom Browser) has done when it merged the shots you can pick "Display Seams" and then you can pick the appropriate seam and put the cursor over the left-hand shot and move it where you would like to try stitching it. You can play around with this to see if you can get it better than the program (you'll be surprised how often you can't better it!).

Movement:

The one big problem with stitching shots for a panorama is that if 'things' are moving in your view you will have some difficulty. For example, at a beach with waves coming at you, or people or vehicles moving around. Due to the delay in taking the series of shots things will have moved (even) slightly and sometimes a lot. And thus these discrepancies will show in your stitched panorama – the more movement or delay between shots the worse it will be.

Surprisingly if say a vehicle were moving at the edge of one frame and was not in the next, depending on the form the overlapping takes in the program you may not see it at all in the panorama!

Sometimes you will just have to accept it, if for example you want to capture a wonderful panorama of a gorgeous sunset at the beach – due to the longer exposure times at this time of day you will get wave movement. You could try faster ISO speeds or exposure times but this may lead to other lighting problems. You may just have to accept it as a great vacation shot but not so good for a competition, etc.

Saving and Sizing:

When you are satisfied with your stitching you may now SAVE the panorama using the save option, at which point the program will put a green border around the panorama so that there are no blank spots. You can accept this or move the borders where you want. I recommend that you *grab as much of the panorama* as you can as you can do your own cropping in more detail later. .

As it saves it will actually stitch the photos together at this point, then ask if you'd like to VIEW the result? You should say YES! And take a look at the final result before saving to a file. You will note that the panorama looks much better in this view than it did while working with it, as it is now at a higher resolution and a much clearer and detailed photo. Save the panorama to a specific file with an appropriate name so you can find and work with it later.

For the final tweaking and cropping you will want to bring it up in *Photoshop* and deal with those issues there. Also before the final 'save' you should *RE-SIZE* your panorama by picking *Image Size* and then changing the Pixel Dimensions (WIDTH) to about 1/3rd of what they currently are. This will still allow your image to have great detail, project well, and not take up so much disc space.

Alternative stitching:

If you have 2 (or 3) photos that are somewhat side-by-side or have little overlap and you still want to try putting them together into 1 image you can do this in Photoshop itself.

Bring up both photos, find the Image Sizes (in cm or inches) and write them down. Then pick say the left hand image, go to CANVAS SIZE and move the little 'white box' (the image you are working with) to the left. Then change the WIDTH (only) to the TOTAL WIDTH of both images. Say OK, and now you will have a new canvas with the first image on the left and a blank (or white space on the left – awaiting the 2nd image).

Now click on the 2nd image to choose it, go to SELECT, ALL (there will be a moving dotted line around it). Pick the MOVE tool (top right of tool box) and with this tool pick up and move the 2nd image onto the blank area of the enlarged canvas of the 1st image. Move it around until it suits you... and then save it as any type file you want.

Remember you can only move the 2nd image on top of the 1st, if you want to do the opposite you will have to start over and reverse your choices.

SUMMARY

- 1) Make sure you have Software to allow for stitching of shots together for a Panorama.
- 2) Shoot all shots in one of the 'MANUAL' modes.
- 3) Turn OFF Auto-White Balance.
- 4) Choose one shutter Speed & Aperture setting that works for all shots.
- 5) Use 1 focal length.
- 6) Shut OFF Flash.
- 7) Use a tripod if possible to keep camera on same plane.
- 8) Overlap shots by at least 25% to get good stitching. Remember it is better to have 'too many' than 'too few' shots to overlap.

9) Do a “practice - dry run” first by panning the scene to decide where to start and stop; to make sure you will get everything in you want (Especially top & bottom); to judge approximately where to overlap.

10) For long distance shots you can keep the overlap smaller, but for close-up scenes it is better to make a larger overlap to prevent distortion.

Have fun – Lawrence Spencer (Sept 19th, 2007)