

HOW TO PREPARE YOUR DIGITAL FILES IN SPM FOR PROJECTION

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This is a brief tutorial on the topic and assumes that you know how to transfer your digital files from your camera to the computer, and accordingly the tutorial starts from that point to “ready for projection” file. A more comprehensive tutorial will cover in the future everything from taking the pictures through projection.

Whether you have a single camera and are using it with the “cha-cha” method, or you have a rig composed of two synchronized digital cameras, or are lucky and have the new Fuji stereo camera, in each case you need to do a little work to prepare your images for projection.

At the 3D Center, as well as at our club meetings and in fact in most stereo clubs around the world, the most common method used to show digital pictures to the audience is by projecting these using two digital projectors. The computer that runs the projectors relies on some software program so we can use polarizing glasses to view the pictures in 3D.

There are several programs that are all capable of doing a good job of preparing the images, but this tutorial is focused on using Stereo Photo Maker (SPM) to help us achieve our goal. The advantage of using SPM is that it is a free program that is being updated frequently by its generous Japanese author Masuji Suto, whom I had the pleasure of meeting recently in person and by the fact that one can prepare images for a digital show in just a few minutes.

In most cases when using a digital stereo rig, the files are saved as JPEGs in an aspect ratio of 4:3, which is the same aspect as most standard television screens. If your rig is composed of two digital SLRs (which are considered either a prosumer or a professional type of cameras) then more than likely the aspect ratio of these digital cameras is 3:2 which is the same aspect ratio of film cameras using 35mm film.

We will assume that your camera gives you files that have a 4:3 ratio, which is fortunate as our digital projection system uses the same aspect ratio, as do most systems in stereo clubs around the world.

To get started, let's assume that you remember the basic rules of stereo photography:

Keep the closest's object 8 feet from the camera, don't tilt the camera sideways and take more than one shot of the same subject. This is a good prevention approach which will give you an appropriate stereo window, and will keep you from having to painfully correct your mistakes later.

OK, enough theory, so let's get to the chase...

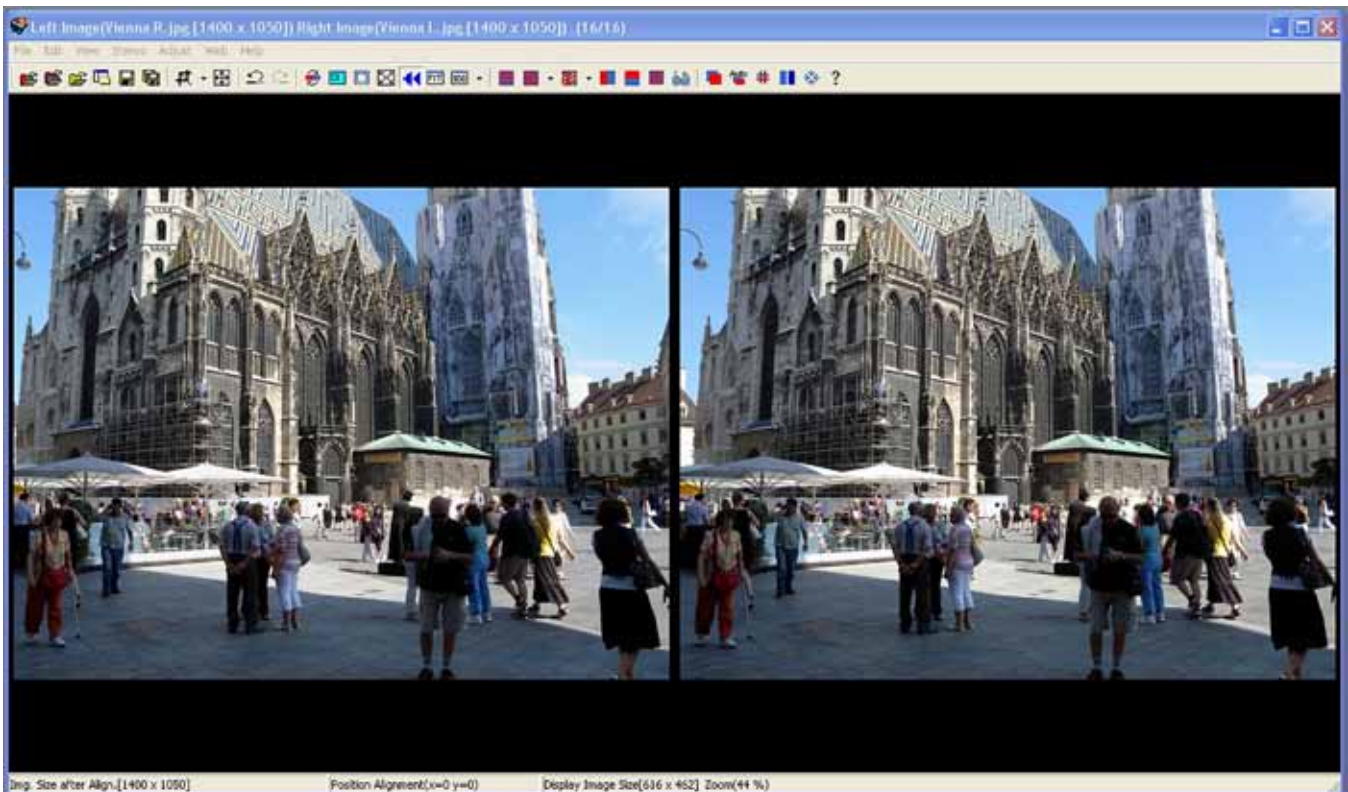
First we open the left and right pictures just as they came out of the camera in Stereo Photo Maker, see next page.



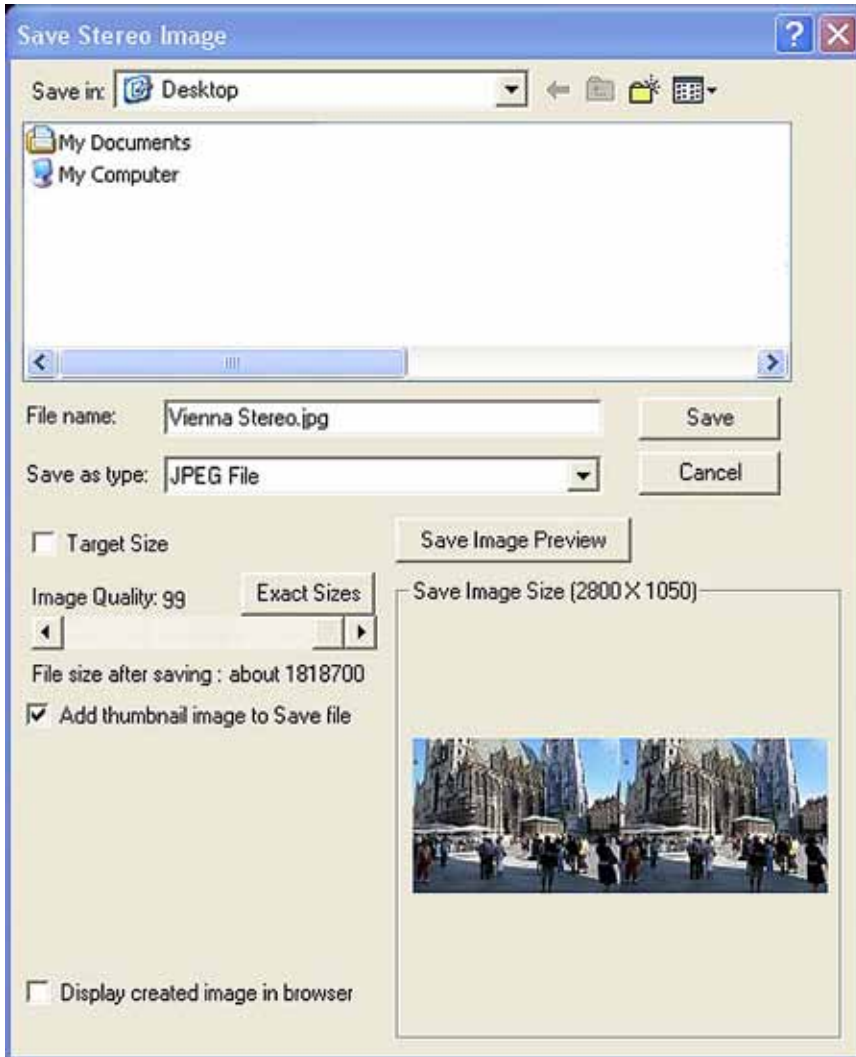
The original left - right images of St. Stephen's Cathedral (Stephansdom) in Vienna, Austria. These came directly from the camera and have not been processed yet. I am using a two-camera digital rig, and the aspect ratio of these pictures is 4:3, just as I need it.

The first step is to perform automatic alignment, done with all new images.

The second step, below, is to open the two separate images in SPM. **File > Open Left/Right Images** and to resize it like that on right. **Edit > Resize**. In the X box we write 1400 and in the Y box we write 1050, the current resolution we shall be working with. Check the "Keep aspect ratio with border" button.



The third step is to save the two separate images as one stereo image. We do this easily by going to **File > Save Stereo Image**. The image is saved at the resolution we designated in the previous stage.



Notice the “Save Image Size” preview area at the lower right side of the Save window, which displays the resolution that this stereo image will be saved, the location on your computer and the type of file it is. It also gives the size of the file after saving it. I use the highest Image Quality allowed by SPM, which is 99.

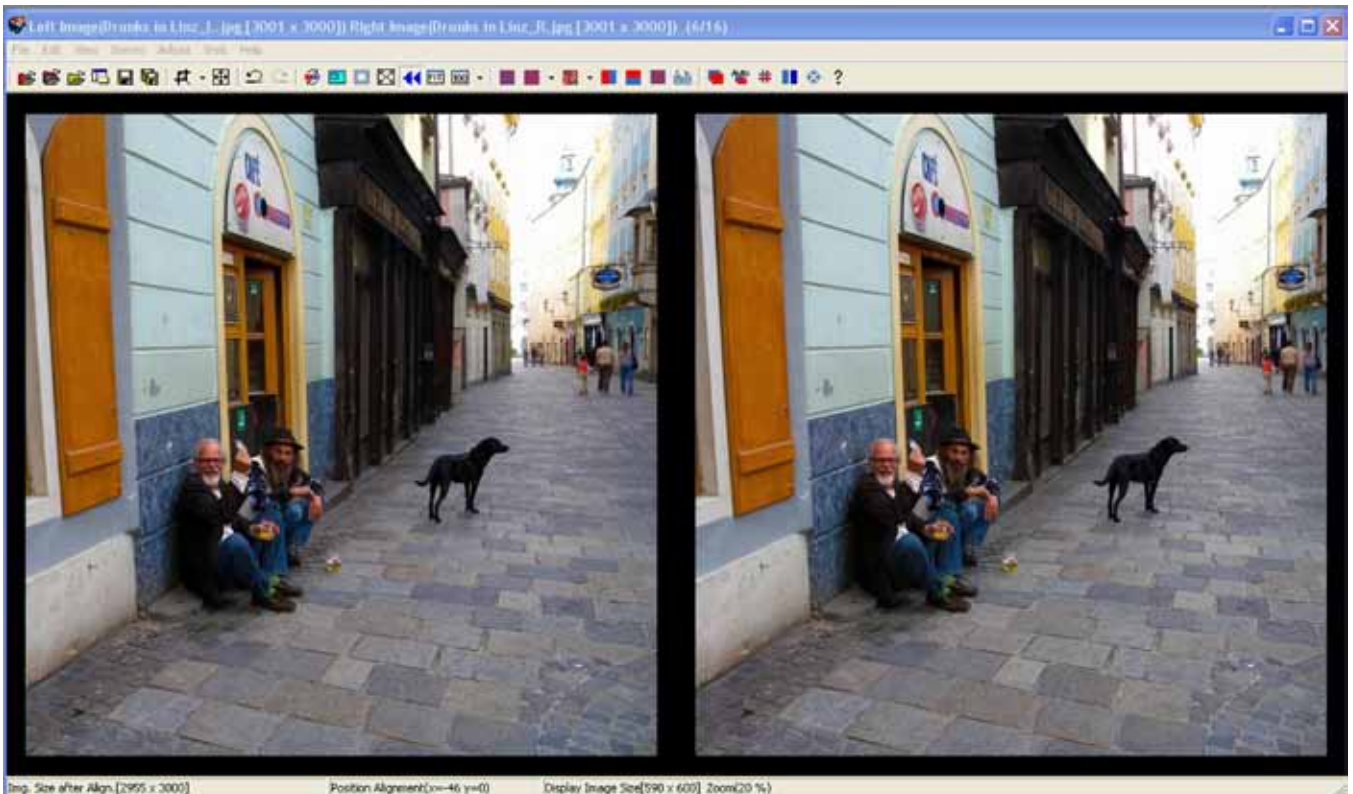
Below is the final stereo image at the correct resolution ready to be projected. Process all of your images like that and bring them with you on a USB thumb drive or on CD to be included in the next daily show.



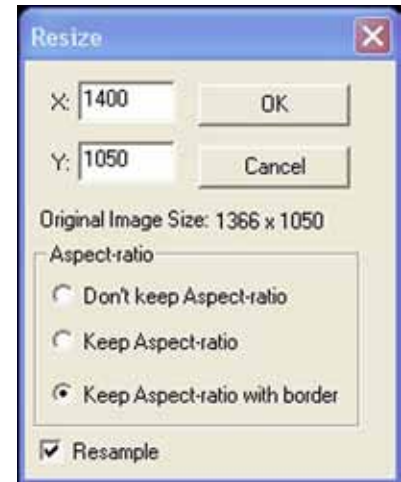
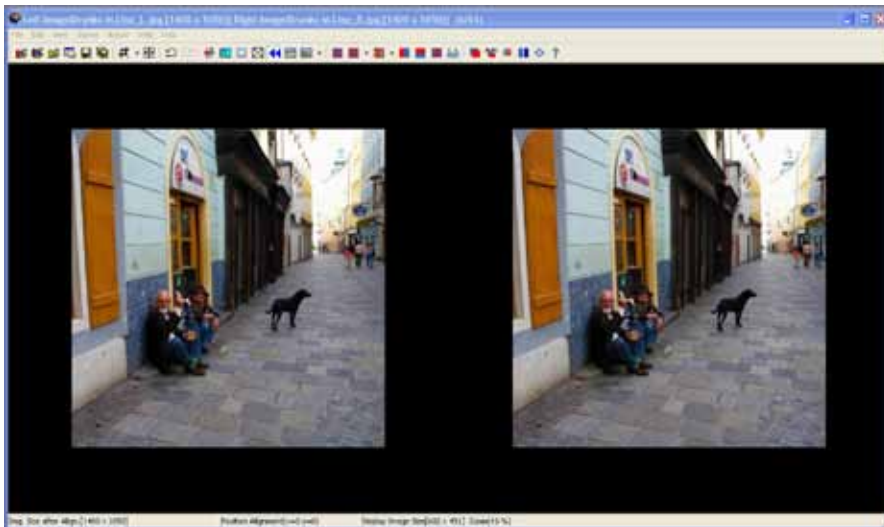
The same technique may be used for images that are not full size, for example the two images below:



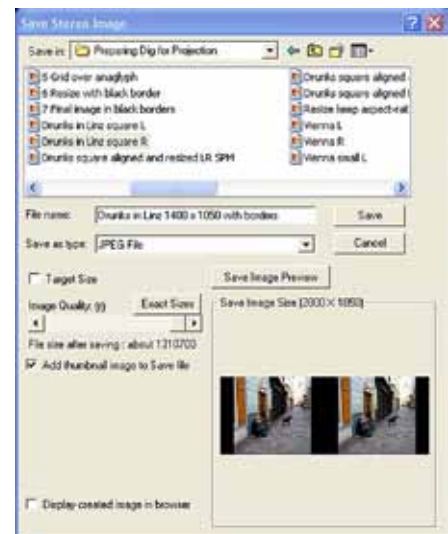
If these images are to be projected, we need to place them in blanks that have an aspect ratio of 4:3 rather than squares as above. So we open them in SPM as shown below. After opening, we immediately perform an automatic alignment. We do this step with all new images regardless of how confident we feel about our photography. SPM does its trick and crops the images as necessary to align them, giving us a full report.



The next stage is to re-size the images while keeping the aspect ratio correct and to place the necessary black borders around the images like that:



Notice in the captured screen above, that the black borders appear to be all around the pictures. In reality as we will see momentarily, that is not the case since we are asking SPM to save the images as a stereo image. We are using the window on the right giving it the correct information of an image sized 1400 x 1050 pixels for each half or a total of 2800 x 1050 pixels as shown in the window here.



The final image is shown below, now ready for projection.

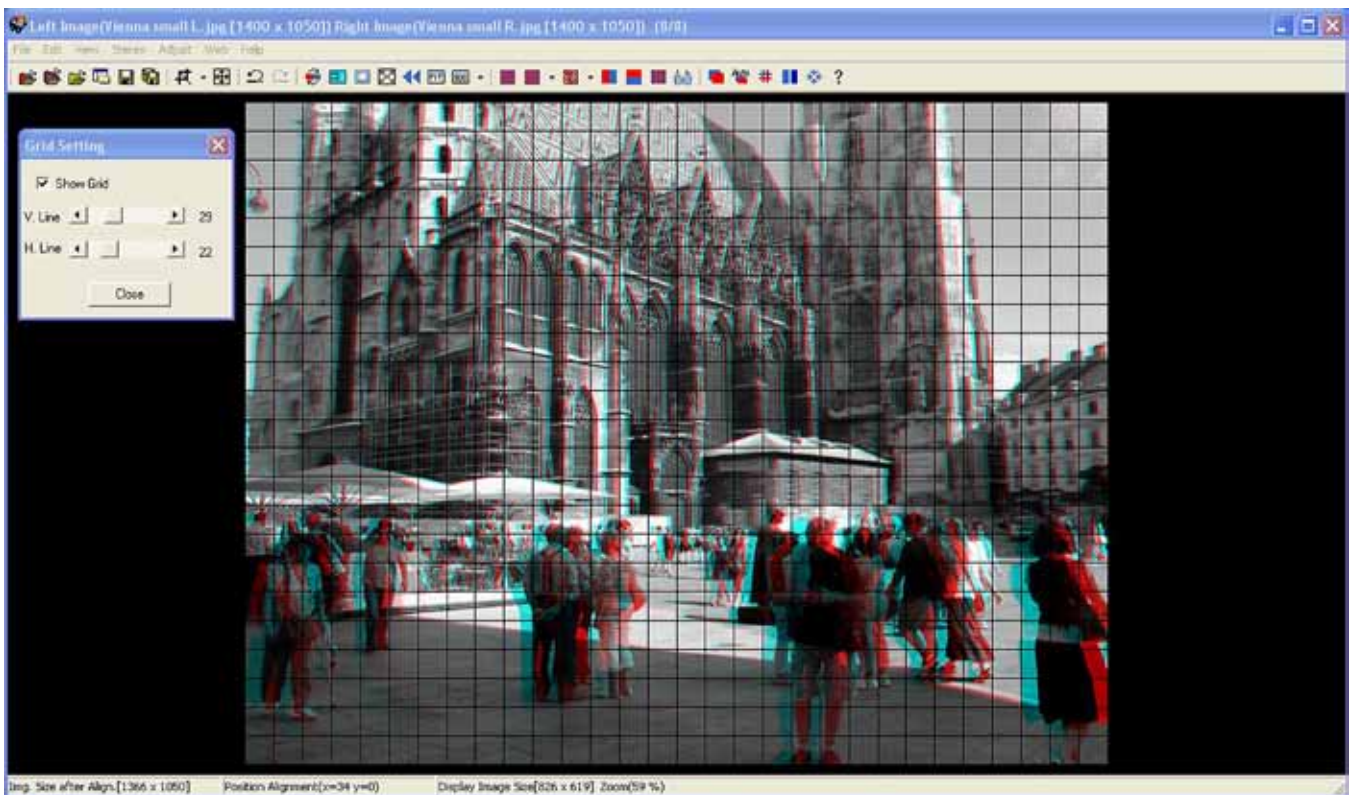


The following section is for perfectionists who strive for...perfection.

If you have followed your basic rules for taking stereo pictures, there is a good chance that the files you just processed would be correct and the audience would enjoy them and be grateful. This should happen in most of the cases. However, occasionally in spite of all your efforts to be good, some error may creep in to spoil your work. In such case you will need to fix the problems. Examples of problems could be: too much separation of the infinity points as a result of too wide a stereo base, or an occasional rotational error, or shift in the vertical alignment, etc.

Luckily, Stereo Photo Maker comes to the help. But rather than finish the work and then discover something is wrong, you can routinely force SPM to do basic corrections as part of the process. In that case after you load your original files into SPM and after you do the sizing, but before saving the two files as a stereo image (that would be after step 2 and before step 3) you will ask SPM to do a basic alignment. You do this simply by clicking on the alignment icon under the main menu, or by going to **Adjust>Auto Alignment**. This should take only a few seconds for SPM and once the program is finished, then you can go to step 3. But wait, there is more...

Although SPM did a good job of aligning, etc, are your images perfect for projection? Most programs that do automatic corrections rely on generalized systems to achieve that task. In some cases the corrections are not perfect. So, if you are a perfectionist, after going through the alignment step, and after saving your two files as a stereo image, you want to check if the infinity points are within an acceptable range or if you need to do some manual refinements.



Again, SPM gives us the tools to do so. After saving your stereo file, we can open it in anaglyph mode to see if the infinity points are set correctly or to correct these as necessary.

We will rely on a rule here which states that in order to see a projected stereo image comfortably, the distance between the homologues of the left and right images, should be 1/30 of the width of one of the images. In other words, if the width of one image is 1400 pixels, than the distance between two homologues should be 1/30 of 1400, or no more than 46 pixels.

To find out if that is so, we will place a grid of 30 spaces over the anaglyph and if necessary move the top layer so the distance is only one division. (We can invoke the Grid by going to **Grid>Grid Setting** or clicking **Ctrl-G**)

Examine the picture on the previous page and observe that even the farthest point (or infinity points) of the red and cyan layers are separated by less than one vertical division. If that were not the case, we could move the top layer by using the arrows on the keyboard and then re-saving our stereo image as in this window on right.



If necessary, SPM will place our image inside black borders so that the overall size of 1400x1050 pixels is maintained, while the corrected stereo image is displayed correctly on the screen as shown in the perfected image below.

