

Aspect Ratio Issues

SGX Technical Bulletin 2007003.Rev1

When a file is submitted for a job, one of the first things that should be checked is how well the shape of image in the digital file matches the shape needed for the final job. If the installed image will be tall and thin, but the file is square, you may not be able to make this file work for this project.

The aspect ratio of an image is the ratio of the width to height of an image. Sometimes it reversed to be the ratio of the height to the width.

Aspect Ratio Example 1:

In a project for a California Winery, we were supplied with an excellent high resolution, 500 MB image. A scene had been professionally photographed onto an 8"x10" transparency, and then scanned with a high-end scanner. The file we received when opened in Photoshop was identified as 49.7" wide x 39.4" high at 300 ppi for a whopping 14922 x 11820 pixels. The aspect ratio of the file was 10:8. That is for every 10 inches wide it was, it was 8 inches high. It would seem that with this amount of digital information, you could make almost any image.

After several months of working with alternate photographs and various files, we were informed that this project was to produce 4 tiled panels that were each 6 ft wide x 8 ft high. The customer wanted to take this image that was shaped 10 wide x 8 high and turn it into a 24 wide x 8 high image.



We had this wonderful digital file that was the wrong shape. It was nearly square, but the desired final result was an image much wider than it was tall. We can't use the image as it exists to complete the project. However, there are some options that we have: we can stretch the image to the new shape; we can crop the right shape out of the original file; or use some combination of the two.

Original File



File Stretched to Fit Project



File Cropped from The Original Image



Stretch a Little and Crop from There



Option 2 is to crop out a section of image that is the correct aspect ratio. In the chart above, there is a small version at the original aspect ratio with a crop box shown that is the correct aspect ratio of the desired printed image. In this case you get a natural looking section of the image. If you can find a section that does not exclude any important portions of the image, this process may produce an acceptable image for the project. In the case of the vineyard image, the base of the vines and the main foliage are both important sections of the image. No image can be found that is the shape of the final print and that includes both of those areas.

Option 3 is a compromise solution where you first stretch the image as much as you can without making it look unnatural and then crop the best section from that image. In the example this approach gives a decent result. The image doesn't look distorted, and includes both the base of the vines and some of the main leaves. The nearest, large leaves are unfortunately cropped off, but that is as good as we can make it if we want to use this image to fit the final job shape.

If none of these Options works, you may need to either get a new image that is closer to the correct shape or redesign the project to make better use of the image you have.

Aspect Ratio Example 2

In the second example we received a digital file with the question, “Is this image ok for a 1650mm high x 730mm wide print? In this bulletin we will just consider the issue of whether the shape of the submitted file allows you to generate an acceptable image that is the shape of the project.



The first step is to enlarge the file, using only the initial pixels, so that the size needed for the project will just barely fit inside. Open the file in your imaging adjustment software (e.g., Photoshop or Elements). Make sure the Constrain Proportions checkbox is checked and the Resampling checkbox is unchecked. Now when you adjust the height or width dimensions, the software will just redistribute the pixels to the new size without changing the shape.

Set the width to the size needed for the project. If the height is now equal to or larger than the size needed for the project, you will use this file for the next step. If the height is less than the final height, then reset the height to the size needed for the project.

Now return to the main image screen. Select the rectangular Marquis selection tool. Go to the Option bar and select Fixed Size. Type in the width and height of the final desired image in the appropriate boxes. Click in the image and a selection box the correct size and shape needed for the project will appear.

If the aspect ratio of your file is perfect for your project, the selection box will be the exact size of your image. In most cases, the selection box will fit perfectly in either height or width and be less than the dimension in the other direction. Move the selection box around to find the best image that fits within the selection box



For this image, you can select image that includes all the people and the city view from the window. If the desired print was narrower, it might have forced cropping some of the people out and might have made the image unacceptable for the particular project.

If you cannot get an acceptable image as described here, you can consider stretching the image shape as described in the Winery Project above. However, if the image contains memory images like people, you probably won't be able to adjust the aspect ratio without making the image look unnatural.

Summary

When screening files for whether they can be used for a given project one need to consider whether the shape of the final installation can be produced from the digital file that was supplied. Often the aspect ratio of the digital file is significantly different from the aspect ratio needed for the project and some file modifications are required. Three methods are suggested in this Bulletin.

- 1) If the image does not contain memory images or requires only small adjustment in aspect ratio, the Designer should consider adjusting the aspect ratio by adjust file size with Constrain Proportions off. The only way to tell whether this will work acceptably is to try it and then determine whether the image still looks natural.
- 2) Another alternative is to extract a portion of the image that has the aspect ratio of the final project. This can work is there is a section of the original image that is in the necessary aspect ratio and does no exclude any important image elements.
- 3) The final approach is to partially stretch or compress the image as 1) above so that a larger section of the image can be extracted with the appropriate aspect ratio.

If none of these three methods allows you produce an image acceptable for the project, either the image file must be changed or the project must be modified to all for use of this image.