

Seacoast Camera Club

Resizing your pictures for an XGA, (1024x768), Digital Projector

For NECCC digital competitions all submissions are to satisfy the following constraints: Width \leq 1024 pixels; Height \leq 768 pixels; Resolution 72 dpi. The general process of converting images to this standard is not as straight forward as it looks.

The size of digital images is defined by three measurement, (1) the number of pixels "P", (2) the dimensions "D", and (3) the resolution "R". Each has its own function in the size definition.

The number of pixels defines actual data content and file size. The dimensionality defines the picture print size. Resolution is a measure dot density relative to the dimensionality specification.

In all cases the following relationship holds true:

$$P = D * R$$

It should be clear from high school algebra that you can replace any one of the terms with "X" for unknown and that term can be determined from the other two values. Therefore, one of the terms is always redundant, which may cause issues when attempting to properly resize a digital image file, because one of the terms must be 'locked' when attempting to resize an image, otherwise the resize function is undefined. Unfortunately, it is not obvious which term is locked and when.

Figure 1 is the image size dialog from Photoshop with the resample box checked. It is possible to change both the pixel dimensions and image

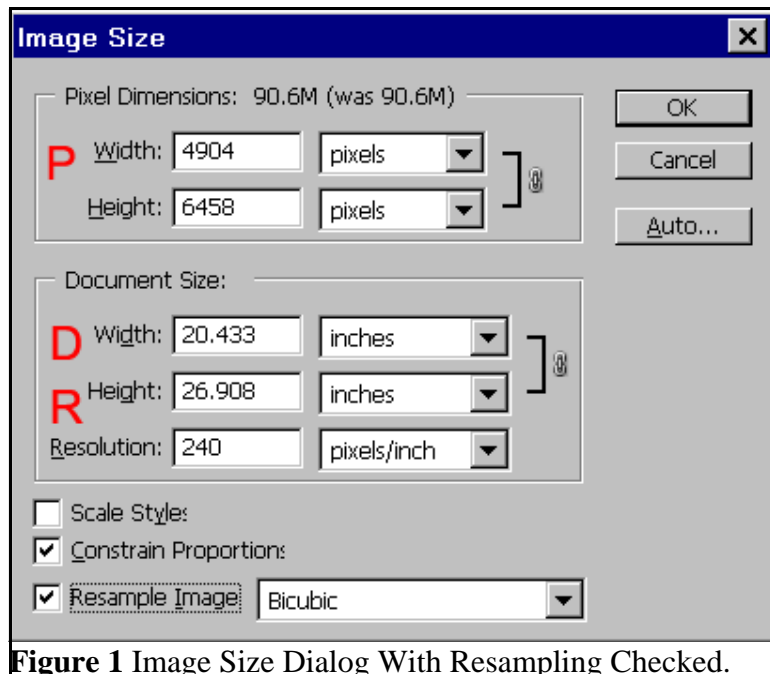


Figure 1 Image Size Dialog With Resampling Checked.

resolution from this dialog to specific values, provided it is done in exactly the right sequence.

First you must set the resolution because when the resolution is changed, the document size is locked. Second you must then change the pixel dimensions because now the resolution is locked.

If you change the pixel dimensions first, the resolution is locked and the document size is changed. But then when you change the resolution, the document size is locked, and the pixel dimensions are changed. This always results in the pixel dimensions being changed twice.

An alternative procedure would be to use a two step resize process.

First, invoke the Image Size Command with "Resample Image" checked as in **Figure 1**. Assign the desired pixel dimensions and click OK.

Second, invoke the Image Size Command again and uncheck, "Resample Image" as shown in **Figure 2**. Assign the desired document resolution, and click OK.

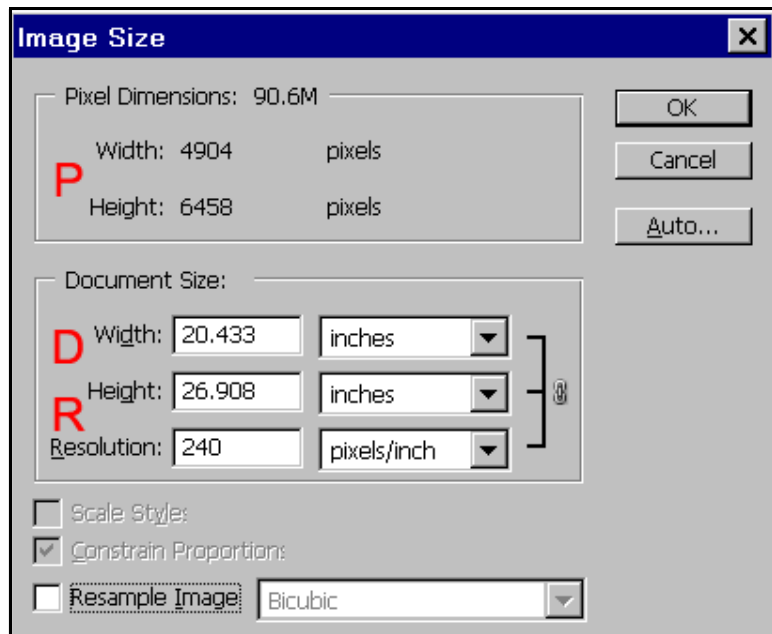


Figure 2 Image Size Dialog Without Resampling.

When "Resample Image" is unchecked, the pixel dimensions are 'locked' and the document width and height are adjusted.