



GRC 101
INTRODUCTION TO
GRAPHIC COMMUNICATIONS
**PHOTO RESIZING &
QUALITY MAINTENANCE**

Information
Sheet No.

510

How to resize images and maintain quality

If you're confused about getting your digital photos ready for print-out or for web use, then check these ways of going about it without sacrificing image quality

INTERPOLATION

Resampling, downsampling and upsampling are all terms used to describe interpolation: the process of adding or subtracting pixels from your image. The colour of new pixels is based on an average taken from surrounding pixels, but with a compromise in sharpness. If smaller parts of your image are transformed to fit in a montage project, they too are interpolated using the default interpolation mode as set in the Preferences.

The physical dimensions of a digital image are not exactly straightforward and not as easy to visualise as a 6 x 4 glossy photographic print. Training materials on image editing variously and confusingly describe images as high resolution or low resolution, 2, 3 or more megapixels and even talk about them in straightforward megabyte terms. Basically, the original file size of a digital image is will have an enormous bearing on the print size and quality you can reasonably expect to produce from it.

The best way of describing the size of a digital image is in terms of its pixel

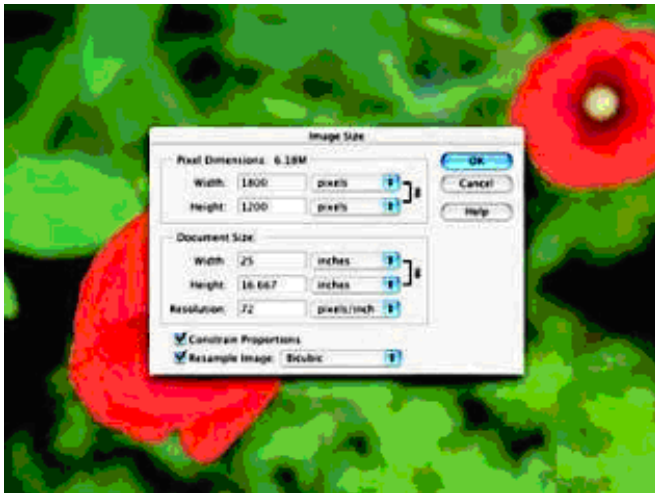
dimensions. This measurement is the horizontal and vertical count of the image when first scanned or captured with a digital camera. 1800x1200 pixels is the kind of image size produced by a mid-price digital compact and by default, in line with all other digital cameras, this is packaged with a fixed 72 pixels per inch or ppi resolution.

However, the higher the resolution of a picture, the better the quality and you can change the resolution to using the Image Size Dialog box. This will alter the physical size of the final image you produce (the higher the res, the smaller your print out or web image will be) but most importantly, your file size and pixel dimensions will remain the same. Resolution can be set at 300, 200 or 72 ppi for commercial repro, inkjet and web output respectively. At 300 ppi, an 1,800 x 1,200 image will make a 6 x 4 inch print and at 200 ppi, the same file will make a 7.5x6 inch print.

Preparing the right resolution for output needs to be the very first task you undertake using the Image Size control, but most crucially, this needs to be done with the Resample box left unchecked. If you leave this switched on, this option will either introduce new pixels to your image to make it larger but at the expense of sharpness, or throw away original pixels and make it smaller and lower quality.

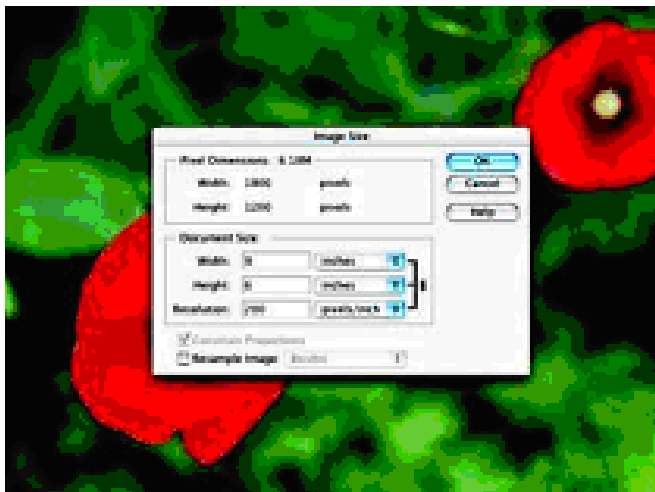
CHANGING RESOLUTION

The key element of the Image Size Dialog box is the Resample Image checkbox set in the bottom left corner



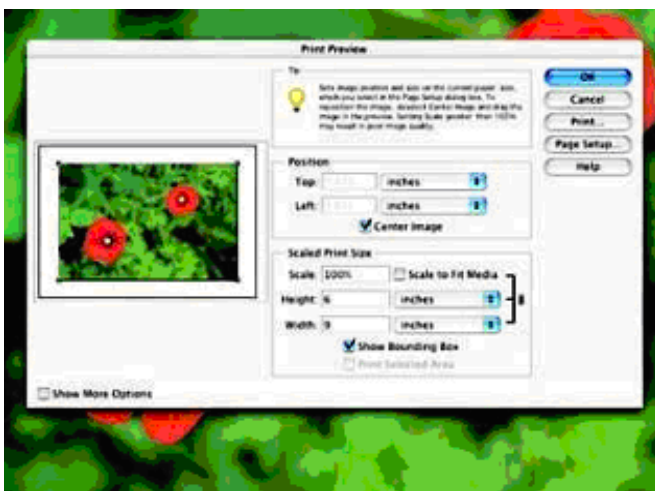
1. PRINTING AT MAXIMUM QUALITY

After uploading the image from your digital camera or scanner, open the image in Photoshop and do Image > Resize > Image Size. Here, you are faced with the image size dialog box that confirms the 1,800 x 1,200 Pixel Dimensions in the top panel, and the current file size alongside.



2. CHANGING THE RESOLUTION

Turn the Resample Image option off and in the Document Size half of the dialog box, change the Resolution from 72 to 200 pixels/inch. Notice the Pixel Dimension has remained unchanged, but the Document Size has shrunk because your pixels are much more concentrated.

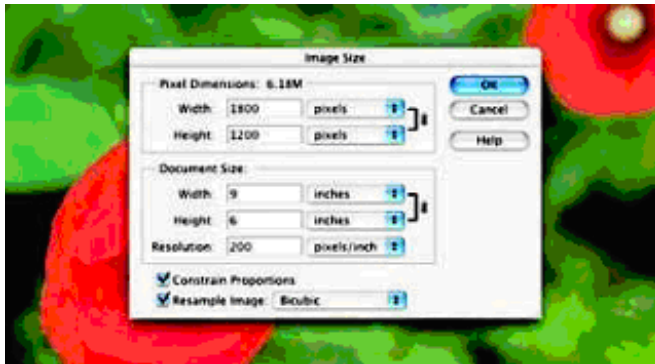


3. PREVIEWING THE PRINT

Now you've altered the resolution, Click OK and return to your image window. To confirm your new print size, do File > Print Preview and check that your image sits within the margins of the currently selected paper size and that it fits the portrait or landscape orientation correctly.

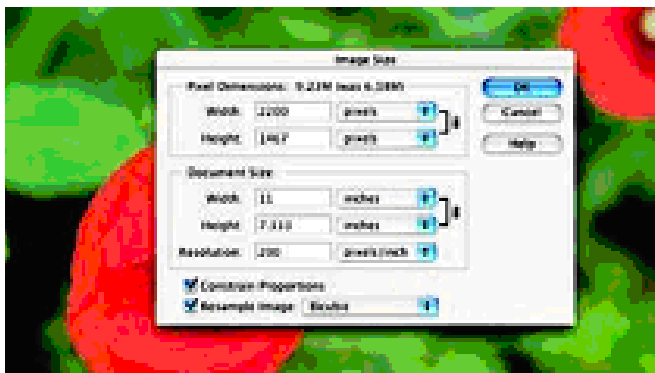
ENLARGING OUTPUT SIZE

Remember that distortion can be a problem when you enlarge your images, so take some necessary precautions:



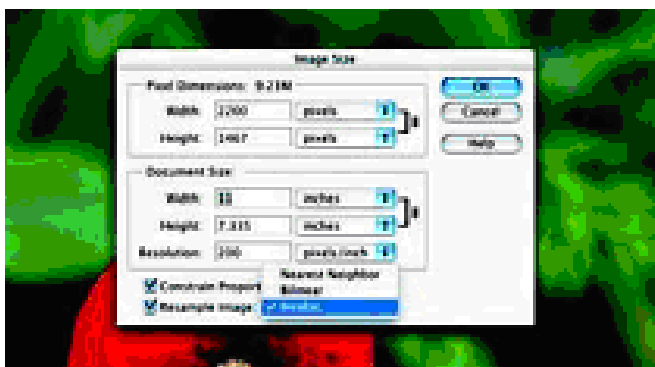
ADDING NEW PIXELS

Enlarging a digital image means adding new pixels to your original ones. Stay in the Image Size dialog box, but check the Resample Image option before starting. Ensure the Constrain Proportions option is selected, or your picture will be distorted.



SETTING THE NEW PRINT SIZE

Type in the desired size in the Document Size text box and watch how both file size and Pixel Dimension increase. Be realistic at this stage and don't enlarge your image by more than 25 per cent or you may lose quality and colour saturation.



CHOOSING THE RIGHT INTERPOLATION MODE

To the right of the Resample Image option are two modes for introducing new pixels. Choose Bicubic for best results from photographic images and Nearest Neighbor for hard edged graphic images.

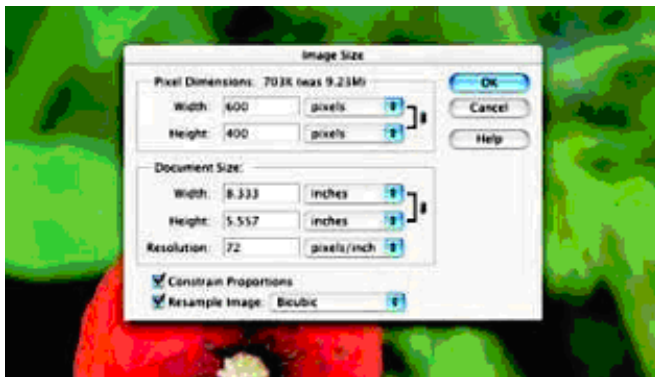
REDUCING OUTPUT SIZE FOR WEB

The important thing to consider for web resizing is monitor resolution.



MATCHING MONITOR RESOLUTION

Reducing a digital image is called downsampling – throwing away original pixels to make it smaller for web only use. Start by changing the Resolution to 72 pixels/per inch, as this matches the resolution of most monitor screens.



THINKING IN PIXELS

Use the Pixel Dimension read out, rather than centimetre or inch scale, as monitor resolution is based on pixels. Remember that even at 600 pixels wide, an image will look huge on a web page and download slowly. Set your size, press OK.



CHECKING THE SIZE

Confirm the exact size your new image will appear on the web by viewing it at 100 per cent or by choosing View>Actual Size. Don't be disheartened if it looks poor quality at 200 per cent, as it will never be seen at this magnification by others.

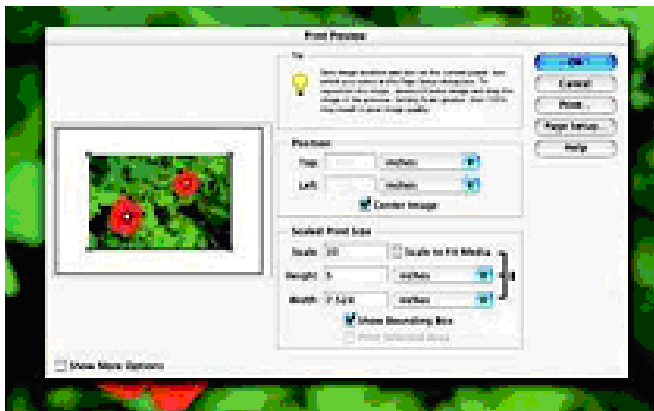
USING PRINT PREVIEW DIALOG

A less sophisticated method of resizing images but handy in a hurry!



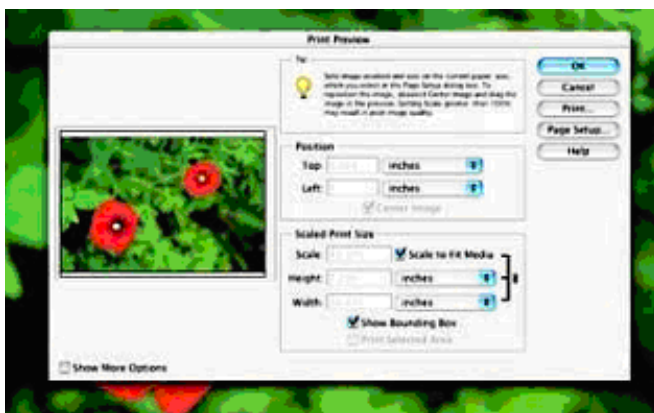
VISUALISING YOUR RESULTS

You can change your print size using the File>Print Preview option but you won't be able to choose your image res or interpolation method (adding or subtracting pixels). You should also use the Unsharp Mask filter (USM) before printing.



SCALING THE PRINT SIZE

The scaled print size option is a good device providing you've set your print resolution beforehand. It's better than the percentage option in most printers, because you see the result before printing out and your image will be interpolated.



SCALING TO FIT MEDIA

Forcing your image close to the edge of the printing paper is the crudest solution to size problems, but useful when time is limited. Check that your printer can print to the edges of the paper before using this option though.