Optimising PDF Files

Choose the Right PDF Profile

PDF files can be optimised in several ways — the easiest way is to use the Web Normal or Web Compact profiles on the Publish to PDF dialogue instead of the default setting. These profiles will downsample images and compress them using JPG compression, and this alone will greatly reduce PDF file sizes.

However, there is a trade-off — image quality is poor. The Web Normal profile downsamples images to 150 dpi and the Web Compact profile downsamples them to 96 dpi. This may be acceptable if the images are viewed at 100% zoom level, but if the user zooms in, the poor quality will be very obvious.

If the original document contains screen shots of dialogue boxes, toolbars, and other Software interface elements, you will find that they appear blurred even when using the Web Normal profile. The problem is that JPG compression is a very poor choice for such images, although it is the best choice for true colour photographic images in most cases.

Optimising Images

My advice is to avoid downsampling images when publishing to PDF, but instead to optimise them before placing them in your original document. Decide on the resolution and quality that you need, bearing in mind the zoom level that users will generally be viewing your document at when fitting the page to the width of their PDF Viewer.

Since this document is A3 portrait, when viewed at fit to width, it will be zoomed to 110% — an A4 document will be zoomed to about 156%, whilst an A5 document will be zoomed to about 221%

So, if I was creating an A5 document I would need to use at least 300 dpi for ordinary photographs, or 600 dpi for high quality art work. Don't worry about the high dpi too much, if you want fine detail then that is what you must use. To reduce file size of photographs use JPG compression, which is what it was designed for — reducing file size as much as possible, while not losing too much quality.

If you want to optimise file size for photographs use the RIOT plug-in for IrfanView. The export optimiser in PhotoPlus does not give nearly such good results for the same file size.

The image of the castle was a high resolution image, that when placed at the size I wanted was 1,357 dpi — far higher than I need for this A3 document. I used the RIOT plug-in to reduce the number of pixels to give a placed resolution of 300 dpi, and chose a JPG compression quality of 30, which gave me a file size of just 56 Kbytes. I used

high compression to keep the file size reasonably low. To check the quality, I selected the image and zoomed to 400%, but even at that high magnification the JPG compression artefacts are not too obvious.


When using the Web Normal profile, PagePlus will downsample the image to 150 dpi, and use average JPG quality. If I do this to the same image, you can compare the quality with the image below. The file size is only 18 Kbytes — but the trade-off in quality is obvious — a lot of detail is lost and there are ugly artefacts.

Keep full control over image quality by deciding the DPI and compression settings that best suit each image.

Choosing the Right Image Format

When using screen shots of dialogue boxes such as that below, JPEG is the wrong format to use. Text will be blurred even at the highest quality, and file sizes will be larger than if saved as a Portable Network Graphics image (PNG). This dialogue was initially 127 Kbytes as a PNG image when exported from PagePlus, but we can improve on that by using the right tools.
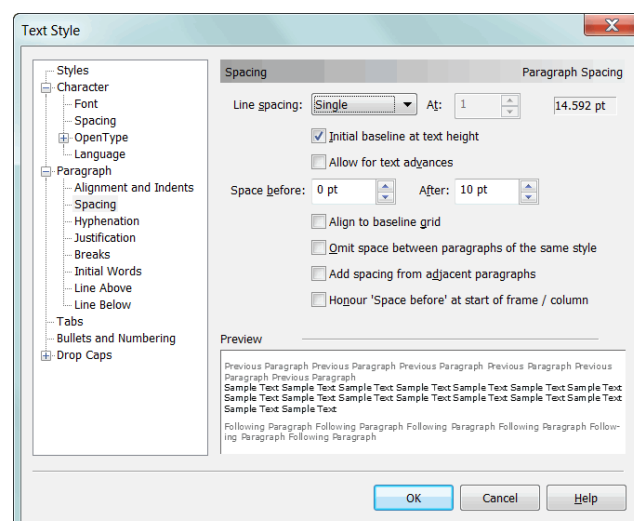
Instead of just using Alter Printscreen to capture dialogue boxes, install a dedicated screen capture utility like

FastStone Capture. This utility, or something like it, is indispensable for working with images. Version 5.3 is free, while the latest Shareware version does video capture too. Configure it to run when Windows starts, then Alter Printscreen will open the image ready for saving.

Having captured and saved the image from FastStone Capture, the file size is now only 38 Kbytes.

A dialogue like this is small enough already, but we can do better, and if the screen shot is a whole window it is well worth doing the next step.

Open the image in IrfanView and reduce the colours from the Image menu to 256. This dialogue contains 2,448 unique colours so we can reduce the file size without destroying the quality of the image. Use undo to compare the before and after results. In this case, there is no obvious difference, but the file size is now only only 17 Kbytes (17,470 bytes).

Still not satisfied? Then try using the PNGOUT export option from IrfanView. It reduced this image from 17,470 bytes to 16,431 bytes. Barely worth it for a 6% saving, but for larger PNG images it may sometimes save 10% or more, and since it takes just a few clicks it is worth trying.

Windows Meta Files

The WMF above is only 13 Kbytes, but if placed as raster it will bloat this PDF from 269 to 288 Kbytes, so clear the "Place as Raster" checkbox.

Images are the most important factor in determining the size of PDF files. If you optimise the images carefully your PDF files will be as small as possible.

- Decide on the quality you need for the zoom range likely to be used by those viewing your document
- Resize to the required dimensions
- Resample to a suitable resolution
- Reduce the number of colours
- Use optimal compression

Fonts

Fonts can also bloat PDF files. Use fewer fonts, and never use italics or bold unless the font has an italic or bold type style. If italic or bold type styles are not found on publishing a PDF file, all text using those styles will be simulated, which will look ugly. Embedding fonts will greatly increase PDF file sizes, so avoid using to many different fonts.