Henry Ling Limited

Supplying files

Version History;

2.4   Sep 2009

2.5   Aug 2010

2.6   Aug 2011

2.7   Dec 2011
    Altered Word PDFing instructions

2.8   Aug 2012
    Altered PDF printers and Word PDFing instructions

2.9   Apr 2013
    Added Serif PagePlus instructions

2.95   Jan 2014
    Updated InDesign, Quark and Word/Publisher sections

3.0   Jan 2015
    Removed PostScript and PageMaker instructions, general updates throughout

3.1   Jul 2015
    Included Adobe DC and Quark 2015 instructions

3.2   Feb 2017
    Added Quark 2016 instructions and updated Microsoft Word/Publisher sections

3.3   Jun 2018
    Updated Quark instructions

3.4   Apr 2020
    Updated Word/Publisher/PDF printers, added Affinity Publisher, general updates throughout

3.5   Jan 2021
    Updated all settings to include new colour profiles

3.6   Feb 2023
    Updated Introduction and Affinity Publisher pages

3.7   Feb 2025
    Updated InDesign, Quark and Photoshop sections plus general updates throughout

Introduction

The purpose of this document is to confirm the procedures and settings required to make a file suitable for print with little or no additional work required on the part of Henry Ling Limited. It is intended that this guide not only saves our customers time but ultimately money. Please note that this guide contains links, _underlined in italic_, to files, web sites and also to other sections of this guide – click the link to follow it.

When a job has been created for print using a page layout program there are two possible ways to submit the job for printing; sending the document(s) with all the fonts and images you have used in the job, or by creating a 'finalised' file in a format designed for that purpose. Henry Ling Limited encourages customers to submit work in this finalised format as this will decrease any possible delays or problems in production. Common problems when sending documents rather than final files to a printer include not sending all of the images used in your document and not sending the correct font files required for us to output your pages. Also, some problems with images may not be apparent until the final file is made. We do accept documents but find that often with the help of the information contained in this guide most customers who want to can benefit from the cost and time savings that supplying finished files can bring. _This does not necessarily involve buying any additional software._ This section covers the general principles of this process – see following sections for specific settings for your software.

The original 'finalised' format, the PostScript page description language, was designed specifically to address the problems of reproducing complex jobs on a variety of hardware. Developed by Adobe in 1985 to accurately describe pages to a laser printer, it was adopted by the print industry as a standard way to transfer files from the creator to the printer. Rather than the information describing the pages going directly to a laser printer it is saved as a file and sent to a professional printer to be output by using their hardware. This is a 'final file', as it contains all the fonts and images for your job and the instructions required for our hardware to reproduce your pages exactly as they appeared on your computer. PostScript quickly became the cornerstone of the prepress industry and is still used today.

After ten years Adobe refined the PostScript language to address its shortcomings and launched a new improved format – PDF (Portable Document Format). PDF is now the format of choice as it has several advantages over PostScript; much smaller file sizes, can easily be viewed on screen, can be printed to non-PostScript printers (e.g. desktop models), it's more reliable and more flexible. For these reasons we prefer files supplied as PDFs. Some methods of creating PDFs involve making a PostScript file first (as PDF is still based on the PostScript language) which is then processed by Adobe's Acrobat Distiller program to make a PDF file based on the settings you have defined to suit your requirements. Alternatively most programs can now create PDF files directly.

Creating 'final' files

Depending on the number of copies ordered we have the option of using our digital presses, for short-run work, or litho presses (using printing plates) for longer runs. Please check how your job will be printed. Before making your final file the job will have to be correctly formatted, including the final edit of the text and images. Your document should be made to the correct size (the trimmed size of your publication) with the margins (the white space surrounding your text) as you want to see them in the finished product. When you create a PDF file you are in effect locking it down so it can't be changed (or more importantly, so it can't change without you knowing it) so it is best to check and adjust the basics before making your final file. There are facilities for editing PDF files but they are relatively limited and not usually recommended if the original application files are available.

It's important to note that when any element on the page is intended to print up to the very edge of the page it will actually have to extend 3mm _beyond_ the trimmed area in your file so when the job is trimmed to size any small variations in the folding or cutting won't result in a white line down the edge of the page where the printed area stopped just before the edge of the page. This extra image area is known as 'bleed'. See illustration _below._

Images used in your files should not contain a halftone screen. This is the dot pattern that is applied when continuous tone images are
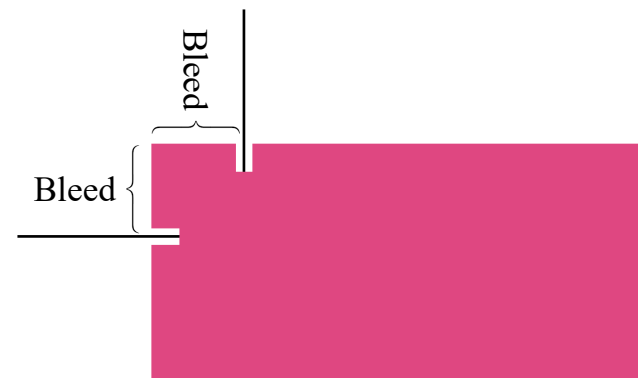
we (like any other printer) will have to apply a halftone screen before we print your images and an interference pattern between our screen and the screen in your image can occur. This is called moiré and how noticeable it will be is not known until the image is printed. See *here* for more information. It can range from being very distracting to barely noticeable, but it is always best to avoid supplying a PDF containing images with a halftone screen.

The best time to deal with a halftone screen is when the images are being scanned – most scanning software has an option to remove a halftone screen during the scanning process. Once an image has been scanned it is still possible to remove (or minimise) a screen – special software exists that will do this, or you can blur the image in an image editing program (in Photoshop the Gaussian Blur filter usually gives the best results).

Our automatic preflight check cannot identify this sort of content – it has to be done manually. If we see any images with a halftone screen we will raise the issue but we cannot check every image in every file so cannot be held responsible for any moiré seen on press from images we have not originated ourselves.

It is recommended to always arrange to submit a sample PDF for testing in advance of sending your first job to us. This will help to iron out any minor issues prior to the demands of deadlines. If you use Adobe InDesign or have Adobe Acrobat we recommend where possible that you 'preflight' your files before submitting them. See program-specific sections of this guide for more information. This will check for basic errors such as missing fonts and low resolution images. Please check if any of the programs you plan to use include a preflight check feature.

This guide covers what specific settings to use in the most popular page layout programs we encounter but the following page describes the basic specification we require for 'finished' files.

prepared for printing (see illustration *above*) – these may be present if you are using an image which has been scanned from previously printed material. When we output your file for printing

Basic specification for files

See the individual sections for settings specific to your program, but the following is our basic requirements;

- PDF files, made to the PDF/X-1a standard where possible. PDF/X is an ISO standard for graphic content exchange – click _here_ to find out more. If your software can't create PDF/X files we will accept any PDF with all fonts _embedded and subsetted_. See this guide for files that will setup your programs, to create suitable PDF files.
- Our CMYK destination profiles are _PSO Coated v3_ for printing on coated paper and _PSO Uncoated v3 (FOGRA52)_ for printing on uncoated paper. Please ask your Henry Ling contact if you are unsure what paper type your job will use. Click _here_ to download these. The files made by our settings are suitable for litho ("conventional") printing. Please get in touch for settings if your publication has been quoted to print on our digital presses.
- Pages should be supplied with crop marks where possible (not all software, such as Microsoft Word, can do this). Text pages should be supplied as single pages not spreads. Covers should be supplied as spreads, i.e. the first page of your file is the Outside Back Cover/spine (if applicable)/Outside Front Cover and the second page (if applicable) Inside Front Cover/spine (if applicable, blank)/Inside Back Cover.

- Your page size should match the trimmed size of the job, with all the text positioned correctly within that page. Any blank pages required in your publication should be included in the PDF, but we can add these if required. Bleed allowance is 3mm.
- Any colour in the PDF should ideally be either CMYK or properly specified Pantone colours. Where your software allows, using our settings will convert any RGB colours to CMYK when the PDF is made, but not Pantone colours so please don't include any unwanted Pantone colours in your PDFs. See _Appendix_ for more information regarding CMYK/RGB colours and colour management.
- Where your software support this, overlapping colour objects should be set to overprint or knockout correctly. See _Adobe Acrobat_ section for more on this. Please do not apply any trapping.
- We recommend the following resolutions for your images; 300dpi for normal halftones (photographs), 500dpi for fine-art halftones/those containing text or fine lines, and 1270dpi for line work (1-bit bitmap images). If your job will be printed digitally the resolutions can safely be lower. NB All resolutions stated are at their _finished size_ (i.e. as they appear on the page). This may be different to the resolution the images were photographed/scanned at. If an

image is enlarged on the page it will reduce the effective resolution of the image, and if it is reduced the effective resolution is increased (if you half the size, you double the resolution, and vice versa).
- Images used in your files should not contain a halftone screen, to avoid moiré on press.
- It is recommended all your colour images have ICC profiles as most software will use these to manage their colours through the process, which will give the best results.
- We recommend saving your images in a file format which uses lossless compression; TIF (with LZW compression) rather than JPG (which uses lossy compression, where some quality is sacrificed to keep file size down). If you are saving images as JPG, if your software gives you the option, avoid saving in the 'Progressive' or 'Baseline Optimised' format as this may not behave as expected with regard to their ICC profile when placed in a page layout program – use 'Baseline ("Standard")' instead.

Adobe Acrobat/Adobe Reader

Adobe's PDF format is integral to our prepress processes. It offers reliable output and is undoubtedly the best way to transfer files to us. We always recommend that you check through your PDF before submitting it. When viewing a PDF in Adobe Acrobat or Adobe Reader;

- *Turn off (untick) 'Use Local Fonts'*   This will simulate how the PDF file will appear to those who don't necessarily have your fonts installed (i.e. us). Any text in the PDF that looks strange or has been substituted by bullets is *not* embedded so the PDF should be remade with different settings or by a different method. To turn off 'Use Local Fonts'; Adobe Reader 6 and 7 – in the `Document` menu; Acrobat 6 and 7 – in the `Advanced` menu; Acrobat/Adobe Reader 8–11 and DC in `Preferences>Page Display` (Preferences settings are reached through the `Edit` menu in Windows and the `Adobe Reader` menu on a Mac). NB The latest versions do not have this setting.

- *Always view files with 'Overprint Preview' on*   This option simulates how the file will actually print. When one or more colour prints on top of another ("overprints") the colours will combine to make a new colour, which may not have been your intention. A common example of an overprint problem is white text set to overprint. In print, white is achieved by an absence of ink rather than with white ink, so *overprinting* white (nothing) onto another colour means the white text effectively disappears. See illustration, *right*. This will only be noticeable when the overprint setting is honoured,

either when it is printed on a device which honours overprint instructions (don't rely on desktop printers for this) or when viewed in Acrobat/Reader with 'Overprint Preview' on. To turn on 'Overprint Preview'; Acrobat 6 and 7 – in the `Advanced` menu; Acrobat 8 – in the `Advanced>Print Production` menu; Adobe Reader 7 and 8 (Overprint Preview not available in previous versions of Reader) – `Preferences>Page Display`; Acrobat/Adobe Reader 9–11 and DC – in `Preferences>Page Display`, change `Use Overprint Preview` to `Always`.

- *Assessing colours on-screen*   Unless you have a colour calibrated monitor, correct viewing conditions and are correctly using Acrobat's colour management you should not rely on your screen displaying colours as they will be printed. If you require colour accurate proofing please request hard copy colour proofs when ordering your job.

- *Check all fonts are embedded*   You can check whether a PDF has all its fonts embedded or not – this is particularly useful when you are
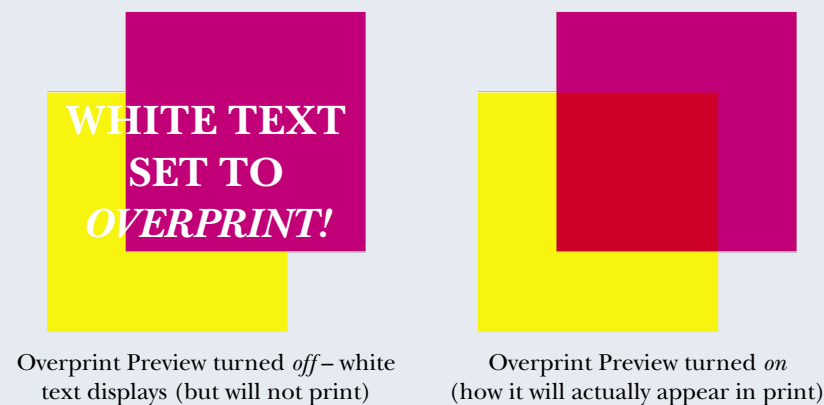
using a new method of creating the PDF. With the PDF open in Adobe Acrobat (or Adobe Reader) press Ctrl-D (⌘-D on a Mac) to get the `Document Properties` window open. Go to the `Fonts` tab and you'll see a list of all the fonts used in that file. Next to every one it needs to say "Embedded" or "Embedded Subset" – any font that doesn't have one of these descriptions after it is *not* embedded and that is a problem. The file needs to be made again with different settings. All fonts must be embedded for us to be able to use the file.

Us supplying proofs to you as PDF files helps save time but because how the PDF is viewed/printed is out of our control problems can occasionally occur. For the ultimate in reliability a proof that has been created by the same methods that will create the final printing is the best prepress proof available. We can supply such a proof, either a hard copy proof or 'soft proof' for viewing on screen. In both cases these are created by the same software that will process the files when they are actually printed. This is not necessary for every job but may be wise for the first job you place with us or if you have concerns about the outputting of a particular job.

Output Preview

The "Professional" version of Acrobat 6 and above has a feature called Output Preview (Separation Preview in version 6) which allows you to preview a colour file to see how it will separate out. Colour in print is separated out into cyan, magenta, yellow and black (CMYK) impressions (see *Appendix* for more information on CMYK) and/or plates for special 'spot' colours

Effects of Acrobat's Overprint Preview feature

WHITE TEXT SET TO *OVERPRINT!*

Overprint Preview turned *off* – white text displays (but will not print)

Overprint Preview turned *on* (how it will actually appear in print)

This text is RGB

(Output Preview dialog box)
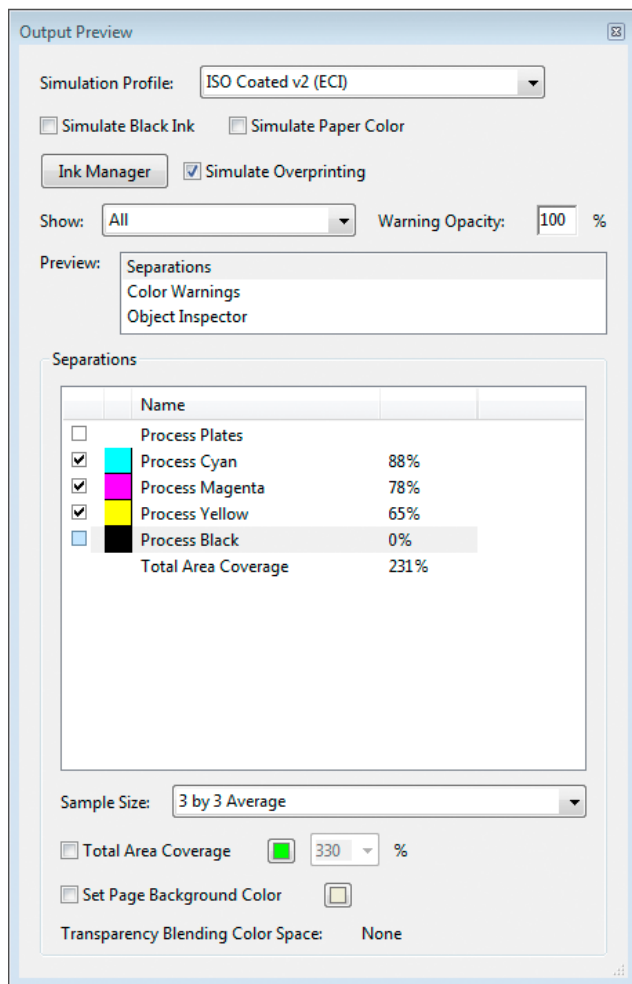
(colours which print on their own plates, usually Pantone colours).

You can use the Output Preview feature to preview how the colours will be separated when plated. This can be useful, for example, where you want to check for unwanted spot colours or RGB text. Spot colours will show in a separate line, underneath the CMYK colours. Unticking `Process Plates` will hide those colours, only

showing spot colours on your pages. To find any RGB elements in your file you can change `Show: All` to `Show: RGB`, which will hide everything except RGB elements. To find text which is either RGB black or CMYK black (made out of all four colours, which can be a problem) then make sure `Show: All` is selected and untick the `Process Black` plate. Any text still visible is either made out of RGB (which is displaying as CMYK in this preview, since that is how it will be separated) or CMYK colours. See screenshot *right*.

To open the Separation/Output Preview window; in Acrobat 6 – `Advanced>Separation Preview`; in Acrobat 7 – `Advanced>Output Preview`; in Acrobat 8 and 9 `Advanced>Print Production>Output Preview`; in Acrobat 10 and 11 – `Tools>Print Production>Output Preview` (if `Print Production` doesn't show in `Tools`, click the `Show or hide panels` button in the top right hand corner of the Tools area to display a list); in Acrobat DC – select `Print Production>Output Preview` from the Tools area on the right-hand side (if `Print Production` doesn't show in the Tools area, go to the `Tools` menu in the toolbar, find `Print Production` and press `Add` – this will add `Print Production` to the list in the Tools area on the right-hand side).

Preflight

The "Professional" version of Acrobat (not Reader) has a useful preflight feature where the PDF file is checked against predefined criteria for things that will affect the quality of print, such as unembedded fonts, low resolution images and RGB colours. We have made available files that you can use to automatically setup Acrobat's preflighting to our requirements – click *here* to download them.

To install the file; Adobe Acrobat 6 – go to `Document>Preflight>Edit>Import`; Adobe Acrobat 7 and 8 – go to `Advanced>Preflight>Options>Import Preflight Profile`; in Acrobat 9 – go to `Advanced>Print Production>Preflight`; in Acrobat 10 and 11 – go to `Tools>Print Production>Preflight>Options>Import Preflight Profile` (if `Print Production` doesn't show in `Tools`, click the `Show or hide panels` button in the top right hand corner of the Tools area to display a list); in Acrobat DC – go to `Tools>Print Production>Preflight>Options>Import Preflight Profile` (if `Print Production` doesn't show in the Tools area, go to the `Tools` menu in the toolbar, find `Print Production` and press `Add` – this will add `Print Production` to the list in the Tools area on the right-hand side).

Once the preset is loaded, open the PDF you want to preflight, select our preflight profile in the Preflight palette (*Henry_Ling_preflight*) and press `Execute`. This will examine the PDF and create a report on what it finds. Some things cause the preflight to reject the file as they are so serious we would not accept the file (e.g. unembedded fonts) whereas some things will only cause Acrobat to warn you about the contents of the file (e.g. images below a certain resolution). In most cases you can double-click on an item in the preflight report and Acrobat will take you to the page and highlight the offending element. If you are supplying a PDF with things found in the preflight report that you cannot address (e.g. low resolution images or RGB colours) please mention this when you supply the file(s).

Acrobat Distiller/PDF printers

In the past Adobe's Acrobat Distiller was the industry standard method of creating PDF files. This program converts PostScript files created by your page layout program into PDF files. More and more programs can now export directly to PDF thus missing out the PostScript>Distiller stage altogether. This is a valid method – see the relevant pages of this guide for details on how to setup InDesign and QuarkXPress to output suitable PDF files directly.

The PDF format is very flexible and there are many options to configure when making a PDF file from most programs – choosing the right ones can make the difference between your job being ready to print and not. This guide illustrates all the correct options to choose and provides files to download which will automatically configure the correct options (if your software supports this feature). Where possible, if a program can export PDFs directly, we prefer PDFs made to the PDF/X-1a standard (2001 or 2003). PDF/X is an ISO (International Organization for Standardization) standard for graphic content exchange, to make the flexible PDF format more reliable for print – click _here_ to find out more about PDF/X. PDF/X files are just normal PDF files which have been made to the published ISO standard and verified as such by the software producing it. Supplying PDF/X files reduces the chance of problems with your job. PDF/X-1a files can only contain CMYK and Pantone colours – no RGB colours are allowed. Colour profiles are not supported but they contain an _Output Intent_, which is stating that the file has _already been colour managed_ to be output to that specific destination. The file is only valid for that destination. See _Appendix_ for more on colour management.

The PDF files made by the settings in this section are not being colour managed (unless your page layout program is colour managing the files) – if colour accuracy is critical and you are using one of these PDFing method please get in touch.

Whichever method you use to create PDF files (but especially if you are using a free method) check the file through in Acrobat (or the free Adobe Reader) to confirm things look as you expect – see the _Adobe Acrobat/Adobe Reader_ section of this guide for more information on this. If you are creating a PDF using a method not mentioned on this page then please definitely check that the fonts are embedded in your PDF (see the _Adobe Acrobat/Adobe Reader_ section for more details). We recommend submitting a sample PDF for testing in advance of sending the completed job. This will help to iron out any minor issues prior to the demands of deadlines.

Acrobat Distiller

Acrobat Distiller is a separate program but is installed with Adobe Acrobat. The free Reader program does not contain Distiller or any other method of creating PDFs. See _over_ for some free methods of creating PDFs.

All the settings used to create a PDF in Distiller can be saved into a file (.joboptions) which can be shared. Click _here_ to download our .joboptions files to make Distiller create PDFs suitable for press. NB There are different joboptions files for the different versions of Distiller, to handle the new features introduced with each new version. For Distiller version 6 or above you can just drag the joboptions file onto the main program window and release it – the
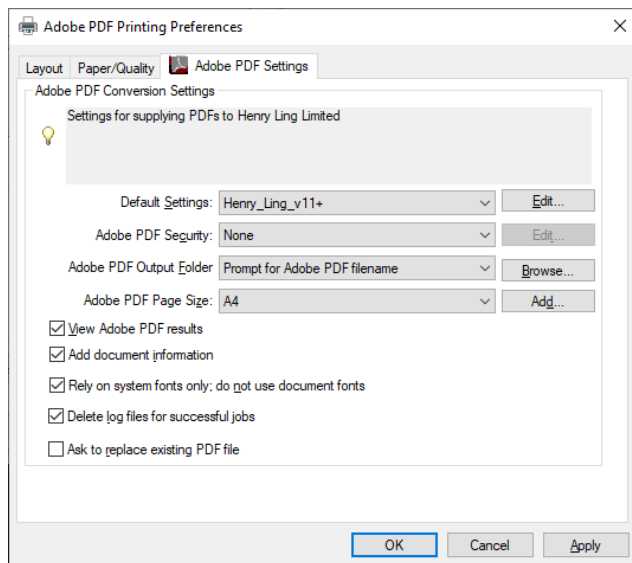
joboptions will automatically be installed and will show in the `Default Settings:` area.

When Acrobat was installed you should have a printer called 'Adobe PDF'. If you have this printer available to you this is often the best method to create PDFs, providing you configure the Adobe PDF printer to our settings. If our joboptions file is installed into your copy of Distiller the 'Henry_Ling' settings will be available and should be used. You can make these settings the default for Adobe's PDF printer (if for example you only ever create PDFs for us), otherwise you would have to double-check that the 'Henry_Ling' settings are selected each time you make a PDF.

To make these settings the default in Windows, go to the Printers control panel and open the properties of the Adobe PDF printer;
- Windows 7 – go to `Start>Devices and Printers`, then right-click on the Adobe PDF printer and choose `Printer properties`.
- Windows 8 – right-click on Windows/Start button and choose `Control Panel` then `Devices and Printers`. Right-click on the Adobe PDF printer and choose `Printer properties`.
- Windows 10 – go to `Start>Control Panel>Devices and Printers`. Right-click on the Adobe PDF printer and choose `Printer properties`.
- Windows 11 – go to `Settings>Bluetooth & Devices>printers & Scanners`. Click on the Adobe PDF printer and choose `Printer properties`.

Once you have the printer's properties open, under the `General` tab choose `Preferences`, then under the `Adobe PDF Settings` tab choose the 'Henry_Ling' setting as the

On a Mac, choose the appropriate settings from the `PDF Options` part of the Print dialogue box, once the Adobe PDF printer is selected, and then save this as a preset from the `Presets:` box at the top of the window. This can be used each time you want to make a PDF to our settings.

If for some reason a font cannot be embedded in the PDF by Distiller during the PDFing process the process will fail (when our settings are used) – see the log file that is produced for details on which font(s) can't be embedded. This will happen if either the font is unavailable to Distiller for some reason or that the font vendor has forbidden the embedding of their font.

Free PDFing methods

There are free methods of creating PDFs available. None are perfect but some will make a suitable PDF.

Windows 10 and 11 users should have a printer called 'Microsoft Print to PDF'. This does a good job in most situations and shouldn't need any configuration. Check your PDF is the correct size – you may need to change the printer's

preferences if the PDF size does not match your document size.

MacOS also features a way to export to PDF. In your page layout program go to print your document and in the bottom of the print dialogue box will be a drop-down box `PDF`. Click on that and choose `Save as PDF...`

conversion setting, see *above* (make a note of the current setting so you can go back to it after producing the files for us). Press `OK`. You need to do the same in `Printing Defaults` under the `Advanced` tab (you may need to authenticate as an administrator by clicking `Change Properties` to do this). That should mean any PDF you create by printing to Adobe's PDF printer will be made using our settings.

Adobe InDesign

InDesign offers the ability to export direct to PDF without the need to own a separate PDF creation program, such as Acrobat Distiller. PDF export settings can be saved to a 'preset' file – load our preset file into InDesign, select it from the top of the Export PDF dialogue box when making a PDF and all the settings will automatically be set to our specifications. Our settings make PDF files to the PDF/X-1a standard. PDF/X is an ISO standard for graphic content exchange – to find out more click _here_.

InDesign features the ability to use transparency effects. These transparency effects are not supported in PDF/X-1a files so have to be 'flattened' (where transparent objects are converted to opaque objects with the same appearance) before the PDF can be made. Our settings will therefore flatten any transparency, using appropriate settings for our equipment, so you need to be aware of flattening issues if you use transparency. If you are going to use transparency effects in your design (this includes drop shadows) you can read chapters 1 and 2 of Adobe's own advice regarding handling transparency – click _here_ to download this.

ICC profiles

If colour fidelity is important to you then we recommend that your images have ICC profiles. This provides information to InDesign's colour management system so are required to get the best results.

To display whether placed images have an ICC profile in InDesign open the `Links` panel (`Window>Links`), go to the "Options" icon in the top right-hand corner of the panel and choose `Panel Options`. In the list of entries you can select, make sure `ICC Profile` is ticked

on for both columns (`Show Column` and `Show in Link Info`). Now in the `Links` panel next to the names of your placed files you can see the ICC profile each has (see screenshot _below_). You may need to expand the columns/panel to see this. If any image says `Document RGB` (or `Document CMYK`) that means the image in question has no ICC profile and so InDesign will use the _document's_ RGB (or CMYK) profile for the image, which is not necessarily correct and could lead to unexpected results. We recommend addressing any missing profiles.

Even if you check your images in Photoshop it is useful to check here because some JPGs, when saved with certain options, can have their ICC profiles ignored by InDesign and show as having no profile – so worth having InDesign display ICC profile information here as a double-check.
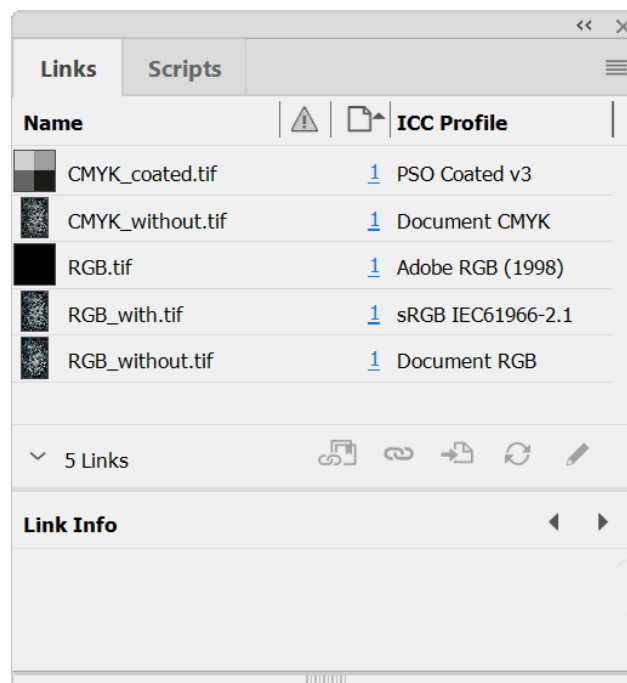
Colour Settings

Unless you have a reason not to, we recommend leaving RGB images as RGB and InDesign will convert them to our CMYK destination profile when you make the PDF using our export settings. If you want to convert your images to CMYK beforehand (or you have been supplied with CMYK images) then you may need to take some extra steps to ensure they are the correct CMYK ICC profile in the final PDF.

Open InDesign's Colour Settings (`Edit>Colour Settings`) and look in the `Colour Management Policies` area. Under `CMYK` if `Preserve Embedded Profiles` is selected that means that any CMYK images placed in InDesign will get colour managed to the correct CMYK ICC profile in the final PDF. You are safe to place any CMYK images (with ICC profiles) if you are exporting to PDF using our settings.

However, under `CMYK` if `Preserve Numbers (Ignore Linked Profiles)` is selected that means that any CMYK images placed in InDesign will _not_ be converted to our CMYK destination ICC profile when the PDF is made, irrespective of the ICC profile the image(s) use. Do not change the `Colour Management Policies>CMYK` setting as it may affect other work, but if your CMYK policy is `Preserve Numbers (Ignore Linked Profiles)` we recommend that any CMYK images placed in InDesign are converted to our CMYK ICC profile _before_ being placed. Your InDesign is configured not to colour manage these images so they should be colour managed before being placed. If you have chosen to convert your RGB images to CMYK please convert them directly to our CMYK ICC profile.

If you have been supplied CMYK images with a different ICC profile then convert them to our CMYK ICC profile in Photoshop (do not just assign the profile) before placing them. See our *Photoshop* section for more information on this process if required.

InDesign's Preflight feature

InDesign can check your document for things that will affect the quality of print, such as missing fonts and low resolution images. In versions 2 to CS3 choose `File>Preflight` to run the check before you make your PDF and investigate and avoid as many problems as possible. Please make us aware of any problems you can't fix. NB This will not be able to look inside any EPS or PDF files in your document, so any low resolution images inside those files will not be reported.

InDesign CS4 and above has an improved preflight feature, called *Live Preflight*, where your document is being checked as you work on it. You can download our preflight profile *here* – to install, unzip the .idpp file then in InDesign go to `Window>Output>Preflight`. Next, in the Preflight window that opens, click the options icon in the top right hand corner and choose `Define Profiles`. In the next window click the option arrow and `Load Profile`. Select our file and press `Open`, then `OK`. Back in the Preflight window, with a document which will be printed by us open, select our preset from the `Profile:` area and click the paperclip symbol next to it to embed the preflight profile into your document. Do this for all documents which will be printed by us. Next, click the options icon, choose `Preflight Options` and make sure for `When Opening Documents` that `Use Embedded Profile` is selected. When you want to preflight your document open the Preflight panel and any

problems are displayed and a solution suggested. NB Our preflight profile requires the document to have a 3mm bleed allowance – this can be added via `File>Document Setup` if your document doesn't already have it. EPS and PDF files in your document will be examined for low resolution images but only one image will be reported (if more than one low resolution image is found the one reported will be indicated as `(lowest)`, meaning this is the lowest but there are other low resolution images present. It is probably best to preflight any PDF files you plan to use in InDesign with Acrobat Professional first if you have it (see the *Adobe Acrobat/Adobe Reader* section).

Rich black text

Please note that any black text coloured using RGB colours (e.g. R:0, G:0, B:0), either keyed directly into your document or contained within a PDF or EPS file placed in your document, will be converted to a 'rich black' when output using our settings (it will print using all four CMYK colours). Using RGB like this should be avoided – it's problematic to print and can affect legibility in the printed product. To check if your document contains this, use InDesign's Separations Preview feature, which allows you to preview a colour file to see how it will separate out into CMYK. Colour in conventional/litho jobs is separated out into cyan, magenta, yellow and black (CMYK) plates (see *Appendix* for more information) and/or plates for special 'spot' colours (colours which print on their own plates, usually Pantone colours).

Go to `Window>Output>Separations Preview` to open the panel and select `Separations` from the `View:` menu. To find text which is RGB black, click on the 👁 symbol next to the Black plate to deselect it. Any text still visible

is either made out of RGB (which is displaying as CMYK in this preview, since that is how it will be separated) or CMYK colours. See screenshot *below*. Spot colours (if any) will show in a separate line, underneath the CMYK colours – click on the 👁 symbol next to CMYK to hide those colours, only showing spot colours on your pages. NB If you have made your PDF already you can also do this in Acrobat.
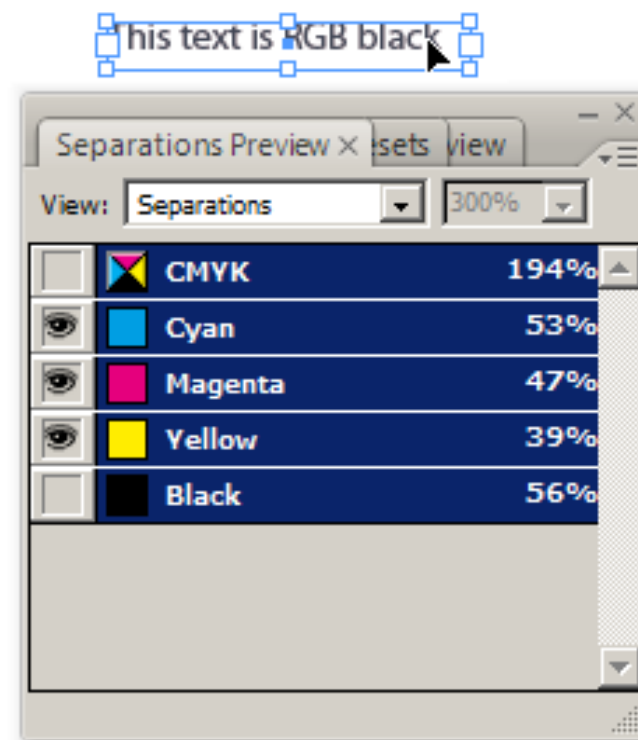

See instructions on the following page for creating PDFs from your version of InDesign.

Settings for InDesign CS3–6 and CC

Click _here_ to download the settings required to make a suitable PDF file for all versions since CS3. First unzip the files. Included are separate files for printing on both _coated_ and _uncoated_ paper – please ask your Henry Ling contact if you are unsure what paper type your job will use. The two sets of PDF export presets (.joboptions files) each require a particular CMYK ICC profile (.icc file) to be available on your computer _before_ it is loaded. The ICC profile is included with each preset file; _PSO Coated v3_ for printing on coated and _PSO Uncoated v3 (FOGRA52)_ for printing on uncoated paper. To load the colour profiles we use in this guide;

- **Windows:** Right-click the .icc file and choose _Install Profile_. NB No confirmation is given.
- **Mac OS X:** The .icc file should be placed in Macintosh HD>Users>[username]>Library>ColorSync>Profiles. NB The User's Library folder is hidden by default. To temporarily make it visible in order to access it: with either the Desktop or a Finder window as the front-most application, hold down the option/alt key and select the Go menu. Library will be listed as one of the items in the menu. Click it, and a Finder window will open showing the contents of the Library folder. When you close the Library folder's Finder window, the folder will be hidden from view again. _If you find the Library folder does not contain the ColorSync or Profiles folder just create them._

Once the colour profile is installed open any document(s) you are producing which will be printed by us and assign our colour profiles to the document. To do this go to Edit>Assign Profiles and match the screenshot _right_, in the CMYK Profile section choosing either _PSO Coated v3_ or _PSO Uncoated_
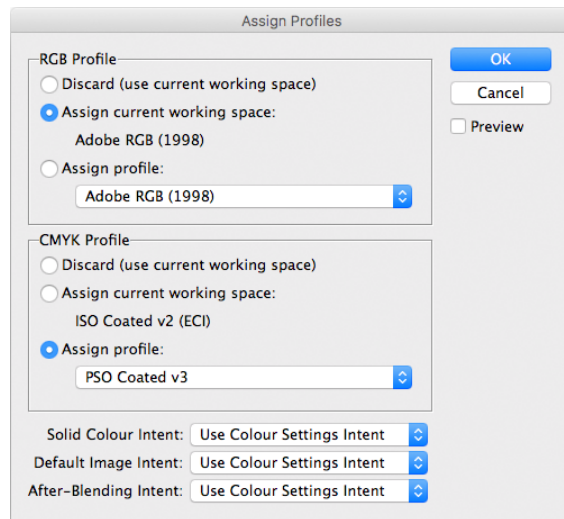
v3 (FOGRA52). Save the document and do this with all documents that will be printed by us on that paper type. Other documents will be unaffected. _Do not proceed to installing the PDF export preset until InDesign has recognised the .icc profile._ For Mac users – if the profile is not in the list, even after restarting the Mac, install it into the following folder and check again – Macintosh HD>Library>Application Support>Adobe>Color>Profiles>Recommended.

When these documents are reopened a Profile or Policy Mismatch window may appear, see screenshot _right_. This is asking how you want to handle the difference in profiles between InDesign's default colour profiles and the profiles now used by that document. You may be asked about this twice for each document – once for the RGB settings and once for the CMYK settings. To overcome these warnings always choose Leave the document as is. This keeps the profiles you have assigned to those documents. Choosing the other option (Adjust the document to match current colour settings) will undo that. If you had never seen
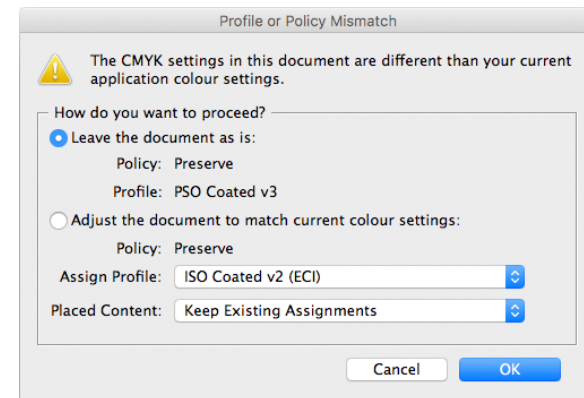
the Profile or Policy Mismatch window before you will only see it when you open the documents you are preparing for us.

To install our PDF export preset, choose Adobe PDF Presets from the File menu, then Define. Next, press Load and browse to find the .joboptions file you downloaded (from the Coated or Uncoated folder as appropriate), then Open. If you see a warning The preset specifies source profiles that don't match the current color settings file you can safely ignore it – if you have assigned our profiles to your document(s) it will not be an issue. Installing the file creates a PDF Export preset called _Henry_Ling(PDFX-1a)(51L-Coated)_ if you chose the Coated option, or _Henry_Ling(PDFX-1a)(52L-Uncoated)_ if you chose the Uncoated option – select this from the top of the Export PDF dialogue box when making a PDF and all the settings will automatically be set to our specifications. This will create a PDF/X-1a:2003 compliant PDF file with crop marks turned on, composite CMYK colour space (any RGB colours will be converted to CMYK but any Pantone colours will be retained), graphics downsampled to an appropriate resolution, a 3mm bleed allowance on each edge and any transparency effects flattened at an appropriate resolution.

11

QuarkXPress

QuarkXPress 7–10, 2015–2025

In QuarkXPress versions 7 and above you can export directly to PDF – this is our preferred output method.

Colour management is *always on* in QuarkXPress 7 and above so must be configured to suit the specific needs of your job.

To do so, first open a document you are producing which will be printed by us and (with no other documents open) open the colour management options – this is found under `QuarkXPress>Preferences [or Settings]>Print Layout>Colour Manager` on a Mac and `Edit>Preferences>Print Layout>Colour Manager` on Windows. Your `Colour Manager` settings should match the screenshots *right*. Save the document – when you output the file using our settings it will be colour managed correctly. Do this with all documents that will be printed by us. Other documents will be unaffected.

NB If you are trying to match a job that was previously processed in a version of QuarkXPress prior to 7 then it is recommended using `QuarkXPress Emulate Legacy` as your `Source Setup` (in the `Colour Manager` options) for that document. That is provided to process colours in a similar way as versions 6 and earlier. For all *new* documents we recommend using `QuarkXPress Default` (called `QuarkXPress 7.0 Default` in QuarkXPress 7–10, 2015 and 2016) as this will give better results than using than `QuarkXPress Emulate Legacy`. Also, QuarkXPress versions 10 onwards use a different colour engine to versions 7–9 so you may get a slightly different RGB>CMYK conversion between older and newer versions.
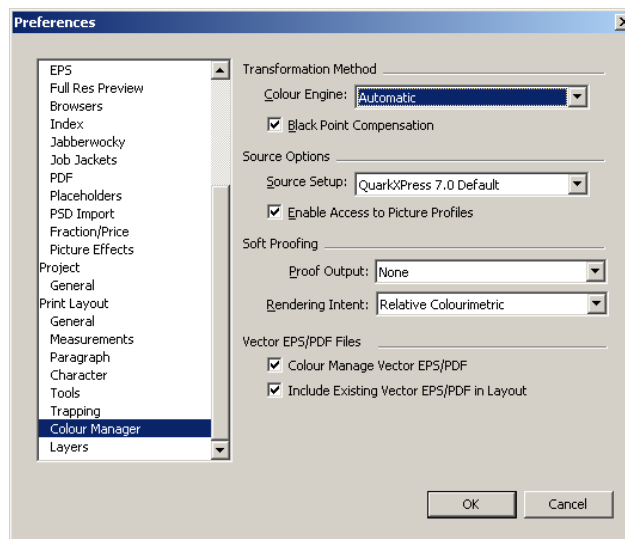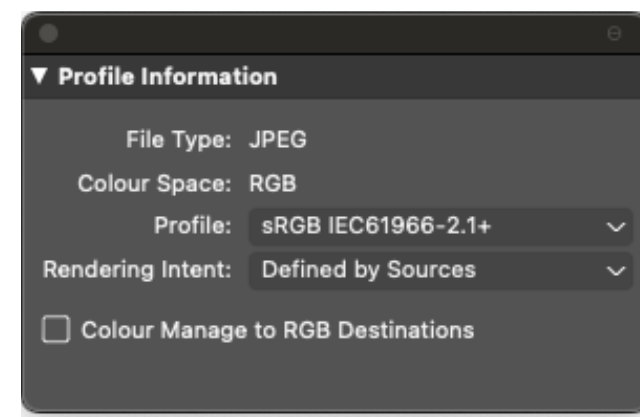
QuarkXPress 7–9 Colour Manager options
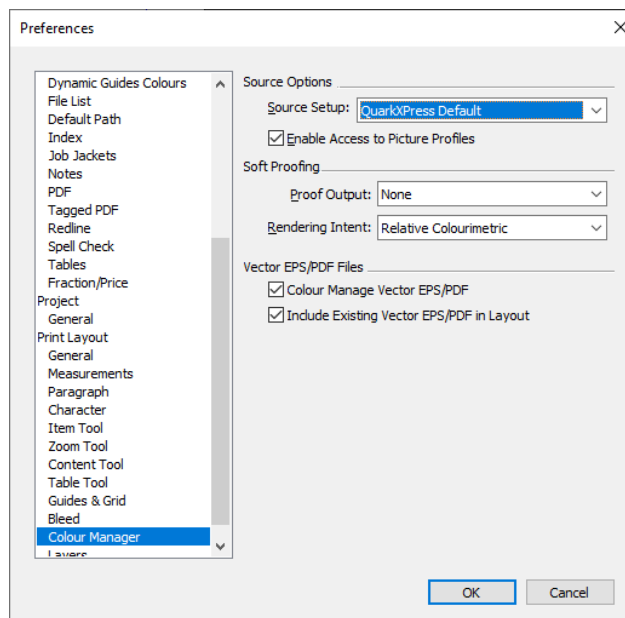
QuarkXPress 10, 2015–2025 Colour Manager options. Note that the correct Source Setup in QuarkXPress 7–10, 2015 and 2016 is called `QuarkXPress 7.0 Default`.

Please note, to get the best results it is recommended your colour 8-bit image files (e.g. photographs) should always have ICC profiles. For RGB images if no profile is present QuarkXPress must assume the profile to use when converting your images to our CMYK profile on output, which may give unexpected results in the PDF if the assumed profile is different from the profile the image was made using. Images can be confirmed to have ICC profiles in Photoshop before placing in QuarkXPress but to check this after placing them, open the `Profile Information` panel (`Window>Profile Information`). Select an image and the image's `Colour Space` and `Profile` will be displayed (see *below*). If `Profile` shows as `Default` the image file has no ICC profile. We recommend this is addressed before proceeding. It is useful to check here because some JPGs with ICC profiles (saved with certain options) can have their ICC profiles ignored by QuarkXPress and show as having no profile. Images which are reported as having a `Colour Space` of `Grey` are not converted so don't need ICC profiles and there is no need to worry about

them. See _Appendix_ for a description of colour management and ICC profiles.

In recent versions of QuarkXPress you can do this more quickly by viewing a list of all the images in your document in the `Picture Links` panel. Open up the `More Information` area below that and this will show you the `ICC Profile` information for each one as you click on each image in the list.

QuarkXPress will convert RGB image files to our destination CMYK profile when our settings are used. You can convert them to CMYK before placing the images but unless you have a good reason to do so I recommend letting QuarkXPress convert them when it makes the PDF. If you are manually converting images to CMYK (or you are supplied CMYK images) please ensure you convert them to our destination profile before placing them as QuarkXPress will not convert images with other CMYK profiles to the correct one on output. See the _Adobe Photoshop_ section for more information on this if required.

If you have placed a PDF file which contains RGB you may get a warning when exporting a PDF using our settings; `The PDF file was created successfully but it failed the PDF/X1a evaluation error. See the error log for more specific error information.` This is because not all versions of QuarkXPress can convert the RGB in a placed PDF file to CMYK and therefore cannot export a PDF to the PDF/X-1a standard. There should be a pdxError log file produced which will mention RGB (if the Log Errors option is on in `QuarkXPress>Preferences>Application> PDF`). Check any PDF files which have been placed in your document and convert any RGB to CMYK. As a last resort you could rasterise the PDF to a CMYK image – use our CMYK profile. The latest versions of QuarkXPress do not have this issue.

To download settings required to make a suitable PDF from QuarkXPress versions 7–10, 2015–2025; Mac users click _here_, Windows users click _here_. Unzip the files to your desktop. Included are separate files for printing on both _coated_ paper and _uncoated_ paper – please ask your Henry Ling contact if you are unsure what paper type your job will use. The two sets of PDF export presets (.xml files) each require a particular CMYK ICC profile (.icc file) to be installed on your computer _before_ the export preset is imported into QuarkXPress. The appropriate ICC profile is included with each preset file; _PSO Coated v3_ for printing on coated and _PSO Uncoated v3 (FOGRA52)_ for printing on uncoated paper. To load the colour profiles we use in this guide;

- **Windows:** Right-click the .icc file and choose _Install Profile_. NB No confirmation is given.
- **Mac OS X:** The .icc file should be placed in `Macintosh HD>Library>ColorSync> Profiles`.
  NB You may need to provide administrator credentials to paste the profile(s) into this folder. Adding a colour profile to the system folder for storing colour profiles is not going to damage your system. If the profile(s) already exist in that folder no need to overwrite them. _If you find the Library folder does not contain the ColorSync or Profiles folder please create them._

Before proceeding, check QuarkXPress recognises the newly installed profile(s). Open the Profile Manager in QuarkXPress (`Utilities>Profile Manager`) – if the new profile doesn't appear in the list then press `Update`. If it still doesn't appear, restart your computer. _Do not proceed to installing the PDF preset until QuarkXPress has recognised the .icc profile._

To load the PDF export settings file into QuarkXPress go to `Edit>Output`
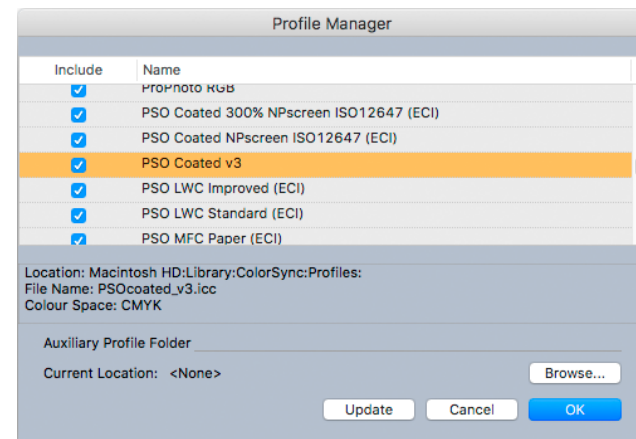
QuarkXPress Profile Manager options

`Styles>Import` and load the .xml file (from the Coated or Uncoated folder as appropriate). Press `Save`. Our output style will create a file with crop marks turned on, DeviceN colour space (any RGB colours will be converted to CMYK – see earlier comment about RGB in placed PDFs – but any Pantone colours will be retained, colourised images and Multi-Inks will output correctly), graphics downsampled to an appropriate resolution, 3mm bleed allowance included on each edge and with transparency effects flattened at an appropriate resolution.

To export a PDF directly from QuarkXPress, check it is configured to export to PDF rather than to PostScript – in the `PDF` options in `Preferences/Settings` (which is found under the `QuarkXPress` menu on the Mac and the `Edit` menu on Windows) make sure `Direct to PDF` is selected and not `Create PostScript for Later Distilling`. Also, tick the `Log Errors` checkbox.

Export your document to PDF by going to `File>Export As>PDF` (`File>Export>Layout as PDF` in QuarkXPress 2016 and earlier) and choose our preset, called _Henry_Ling(PDFX-1a)(51L-Coated)_

if you chose the Coated option, or *Henry_Ling(PDFX-1a)(52L-Uncoated)* if you chose the Uncoated option, from the `PDF Style` drop-down box and all the settings will automatically be configured to our specifications.

Our presets make PDF files to the PDF/X-1a standard. PDF/X is an ISO standard for graphic content exchange – to find out more click *here*.

Quark introduced transparency features in version 7. Transparency is not supported in PostScript or QuarkXPress PDFs (since an intermediate PostScript file is made) so has to be 'flattened' before the PDF can be made. Flattening is the process where transparent objects are converted to opaque objects with the same appearance. Although the PDF format supports 'live' (i.e. unflattened) transparency QuarkXPress always flattens any transparency when exporting PDFs so you need to be aware of flattening issues if you use transparency. Our presets include flattening settings to suit our equipment. If you are going to use transparency effects in your design you can click *here* to read Quark's own advice regarding handling transparency.

Potential issue

One thing to be aware of using QuarkXPress *prior to the 2019 version* is how Bold and Italic formatting is applied. Failure to correctly apply this formatting can result in bold/italic characters which don't look right in your final file. Best be aware of this issue while working in QuarkXPress as even preflighting the PDF file will not necessarily highlight this issue.

It is recommended not to use the 'bold' and/or 'italic' command in the Measurements palette (P B I) unless you know you have the correct bold or italic font files loaded. For example, if you are using the font Minion Pro don't use the

'bold' or 'italic' command in the Measurements palette unless you actually have a Minion Pro Bold or Italic font loaded on the system. If the appropriate bold or italic font file is not available QuarkXPress will fake the effect. These faux fonts often don't look much like the proper versions and will not necessarily output correctly on our equipment. Best to always choose bold/italic etc fonts from the font sub-menu (see *below*) rather than styling the current font using P B I .
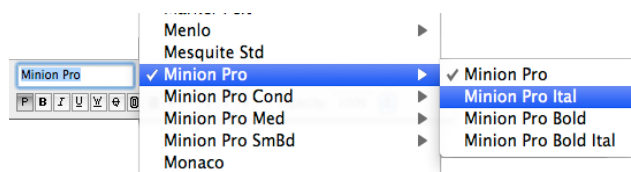

If you *do* have the proper font files available to QuarkXPress then styling the plain font in the Measurements palette QuarkXPress *should* automatically use the proper font instance – you can check it has done this in the `Utilities>Usage` dialogue box, by looking in the `More Info` section of the `Fonts` area when you have a particular font selected. But safer to apply the font style from the font sub-menu.
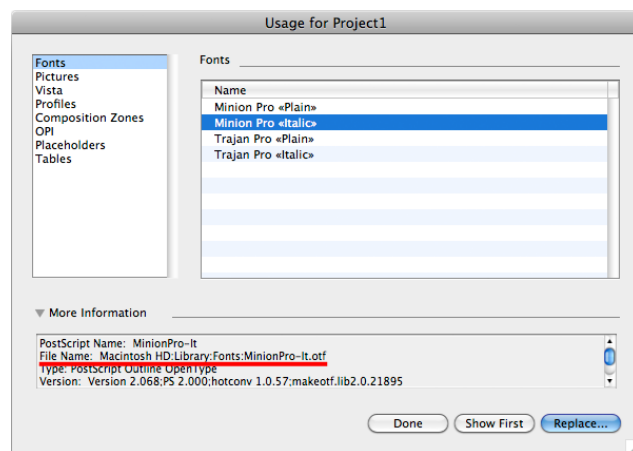
In the two examples *below* the first is correct (Minion Pro «Italic» is using an italic face – MinionPro-It.otf) but the second is not (Trajan Pro «Italic» is using a regular face, TrajanPro-Regular.otf) and so QuarkXPress will make a faux italic which will not look as good and may not output correctly.

QuarkXPress 2019 onwards does not have this issue and will not allow font styling unless the appropriate font file exists. Using keyboard commands to apply styles where a font file does not exist will not work.

If a document from a previous version of QuarkXPress is opened any faux fonts *should* be displayed as such (e.g. [Faux Bold]) whereupon ideally these should be fixed to use font files with the appropriate styling, or at least check the faux fonts in your PDF output. However faux fonts may *not* always be recognised and identified in the later versions of QuarkXPress, so it is recommended that faux fonts should be identified and fixed in the old version, or all fonts checked in the new version after opening the document.
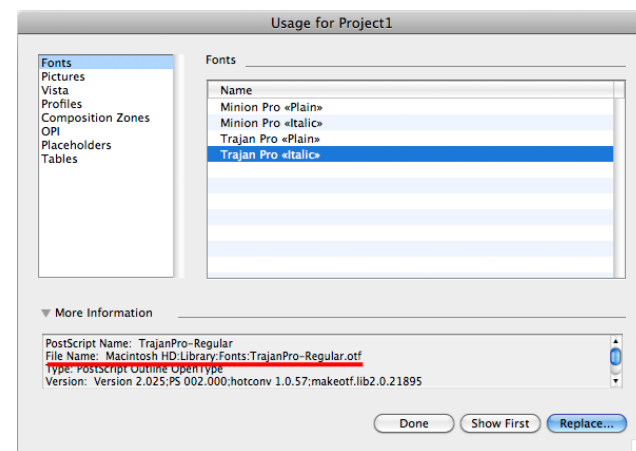
Adobe Photoshop

Even if you are using a page layout program like InDesign or QuarkXPress to convert your colour images from RGB to CMYK, it is best to check that your images have ICC profiles first, if colour fidelity is important to you. These will be used by your page layout software to convert the colour values of your image to our CMYK destination profile (so called as it describes our printing presses – the destination for your files). Using an image in your page layout software *without* a profile may lead to unexpected results as our PDF export settings in those programs will convert your images *to* our destination profile, and for that to work optimally it needs to know what profile it is converting it *from*. See *Appendix* for a description of colour management and colour profiles.

Although you can discover what profile an image uses (if any) in programs like QuarkXPress or InDesign, opening in Photoshop is a good way to check what profile images use and you can fix it if not. If you are going to open your images in Photoshop you need to make sure you don't unnecessarily change any colour management the images already have, and, if you are going to convert images from RGB, that you convert it to the correct profile.

If you are working on your images in Photoshop, before saving them you may want to convert them to one of our destination profiles. If you are going to re-use your images (for example on a web site or in another publication by a different printer) you may want to leave them as RGB and let your page layout software convert them to our destination profile for the job we are printing. That way you can re-use your RGB files which gives you more flexibility

compared to re-using CMYK files converted to our specific destination profile.

If the images are only being used for this print job you may choose to convert them to our destination profile in Photoshop. Click *here* to download our CMYK destination profiles; *PSO Coated v3* for images on coated paper and *PSO Uncoated v3 (FOGRA52)* for images printing on uncoated paper. First unzip the files and then to install our CMYK profile(s);

- **Windows:** Right-click the .icc file and choose *Install Profile*. NB No confirmation is given.
- *Mac OS X:* The .icc file should be placed in `Macintosh HD>Users>[username]> Library>ColorSync>Profiles`. NB The User's Library folder is hidden by default. To temporarily make it visible in order to access it: with either the Desktop or a Finder window as the front-most application, hold down the option/alt key and select the `Go` menu. `Library` will be listed as one of the items in the menu. Click it, and a Finder window will open showing the contents of the Library folder. When you close the Library folder's Finder window, the folder will be hidden from view again. *If you find the Library folder does not contain the ColorSync or Profiles folder just create them.*

Check to make sure Photoshop can see the profile by going to `Edit>Color Settings` and in the `Working Spaces` section go to the `CMYK:` area and click on the drop-down box to the right of it. Our profile(s) should appear in the list. If it does, press `Cancel` to leave the window *without making any changes*. If not, restart Photoshop and try again. For Mac users if that still doesn't work copy the profile into this additional folder and check again –

`Macintosh HD>Library>Application Support>Adobe>Color>Profiles> Recommended`.

To show what profile an image is using when in Photoshop you can choose to display it at the bottom of the document window – next to the zoom percentage. Click the arrow and choose `Document Profile` from the list of options. See screenshot *above.*

In Photoshop, colour management is always on so should be configured so you can at least see what Photoshop is doing with the colours. In `Edit>Color Settings` we recommend changing the `Color Management Policies` section to match the screenshot *below.* Make a note of your current settings first, in case you want to go back to them. What this does is keep an image's ICC profile even if it is different from
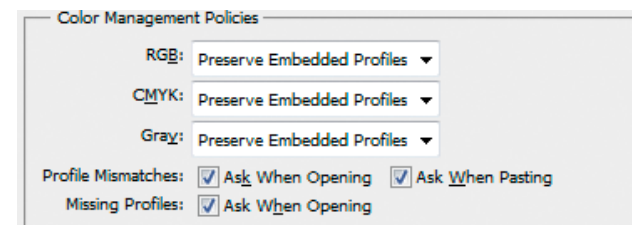
Photoshop's default profile, and warn you when it finds such discrepancies when opening an image, or pasting one image into another. This will make sure you are always aware of an image's colour management.

Opening images

When you open an image in Photoshop, *once your Colour Management Policies match the settings above*, one of three things will happen;

1. If Photoshop doesn't ask about profiles then the image must have the same profile as your working space. This is good – your image has a profile.
2. If a dialogue box appears saying the image does not have an embedded profile then choose `Leave as is (don't colour manage)` and press `OK`. As soon as it is open in Photoshop assign an appropriate profile using `Edit>Assign Profile`. Select whichever profile makes the image look "correct". Without asking whoever supplied the file(s) there's no way of knowing what the source space of the image actually was if it is not saved with the file, but intelligent guesses are 'sRGB' or 'Adobe RGB' for RGB images. If there are a lot of images all without profiles then it might be worth asking whoever created the files, as choosing the wrong profile can seriously influence how the colour appears. When you assign a profile to an image you are essentially deciding how the image will appear – to see this in practice take an RGB image and assign the 'sRGB' and then 'Adobe RGB' profiles to see the difference it can make. Depending on the image, assigning the wrong profile can make a noticeable difference. It is not recommended to use a CMYK image without an ICC profile as the image(s) may have ink limits higher than

we require and assigning the wrong one can determine whether these images get converted to the correct ink levels or not.
3. If a dialogue box appears saying the image has an embedded profile that does not match the working space then choose `Use the embedded profile (instead of the working space)`. Press `OK` to open into Photoshop.

Once you have the image open in Photoshop you can either leave it as RGB for your page layout software to convert to CMYK or convert to our CMYK profile in Photoshop.

Converting to Destination Profile

If you have an RGB image open in Photoshop with an appropriate source profile and you have decided to convert the image to our CMYK destination profile use `Edit>Convert to Profile`. As long as the image has the correct source profile and is converted to the correct CMYK destination profile then there should be little colour shift for most images, except for images with very bright, intense, saturated colours. See screenshot *above right* for settings. The `Intent setting` gives you some options into how Photoshop converts colours from one space to another, especially relating to

how it deals with colours which will be out of gamut in the destination space. `Relative Colorimetric` is usually best but sometimes `Perceptual` can be more pleasing, especially for RGB colours out of gamut in CMYK.

Converting to profile is intended not to change the appearance of your image but to change the values so that the original appearance can be maintained on a particular device (our presses in this case).

Saving images

If you are going to apply some sharpening this should be done last, after any pixel transformations involved in editing, colour conversion and resampling have been done.

When finished working on your images make sure you save the image with its profile. Check that the `ICC Profile:` box is ticked in the `Save` dialogue. This will save the ICC profile with the image so it is available to the colour management process in the next program, be it a page layout application or another image editing application. We recommend saving your images in a file format which uses lossless compression; TIF (with LZW compression) rather than JPG (which uses lossy compression, where some quality is sacrificed to keep file size down).

If you are saving images as JPG, in the `JPEG Options` displayed after choosing the file name/location always choose `Baseline` ("Standard") from the `Format Options`. JPGs saved with `Baseline Optimized` or `Progressive` format options may not behave as expected with regard to their ICC profile in InDesign and QuarkXPress. We recommend `Quality` should be set to `Maximum`, to minimise the risk of jpg artefacts.
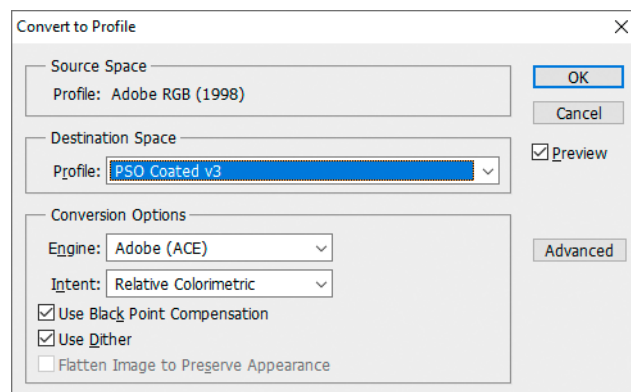
Microsoft Word

Print jobs created in Microsoft Word can have a bad name in the print industry as Word is really designed for general word processing duties rather than producing files for professional printing. However, if Word is all that is available to you for making-up pages it can be made to produce acceptable work if you are aware of its shortcomings and work around them. The more complex your file the more chance you have of experiencing problems.

By default Henry Ling Limited is not keen to receive documents from Word. Rather, we have found it is more cost effective in the long-run for the customer to supply PDFs, thus avoiding time spent here getting around some of its drawbacks. This need not be difficult and if the correct steps are taken the PDF file we receive will give us no more problems, and incur no more expense, than a file created from a professional prepress program costing many times as much. Always check you are happy with the PDF before supplying it and tell us if you want us to convert any colour to mono. Otherwise, see below for workarounds required to deal with Word's shortcomings. If you are including colour images and are concerned about colour accuracy then we recommend *not* using Word – all versions have problems in this regard.

Text flow

Word will flow the text based on whatever printer is selected at the time. Consequently, if you select a different printer the text in your document may flow differently, which could push words or whole lines from one page to another. The most successful method of working round this problem is to *always* output your pages using the method you will use to supply the finished

files to us (output to PDF), which should mean that the layout never changes. Always outputting to PDF (and then when you want a hard copy printout printing it from Adobe Acrobat/Reader) may take a little longer but avoids any chance of the text flow changing.

Image quality/resolution

By default, when you insert an image onto your page Word embeds the image file into the document. Once images are embedded into the document they are compressed, which will reduce the quality slightly and, depending on which version you are using and how you are outputting the PDF, their resolution in the PDF can be capped at around 200dpi (which is a little low for a PDF being printed professionally). Recent versions of Word feature an option to help with this. In `Options > Advanced > Image Size and Quality` tick the box `Do not compress images in file`, if your version has this option. For `Default Resolution` choose `High fidelity` – this can help under certain circumstances. Note that both these changes should be done *before you add any images to your document* – if you change this setting *after* adding images those existing images will *not be affected by the changes*.

Image Size and Quality Document1.docx ⌄

☐ Discard editing data ⓘ

☑ Do not compress images in file ⓘ

Default resolution: ⓘ High fidelity ⌄
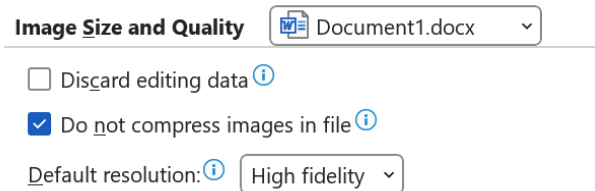
If you are using Word 2016 or earlier it would be beneficial to *Link* to the original

image files on your computer rather than *Inserting* the images. This allows these versions of Word to access to their full resolutions and without compression. Professional page layout programs link images by default. See the PDFing instructions for your version of Word on the following pages – you may need to use the following method when placing images to get a good result in your PDF.

To link image files rather than embed them; when you are importing your picture click the arrow on the right hand side of the `Insert` button. This will give you the option to `Insert` or `Link to File` – choose the latter (*see below*). Obviously this means that the image files must stay in the same place (and have the same name) once you have linked them, otherwise the program won't be able to display or print the image, so it makes sense to organise where the image files are going to stay before linking them.
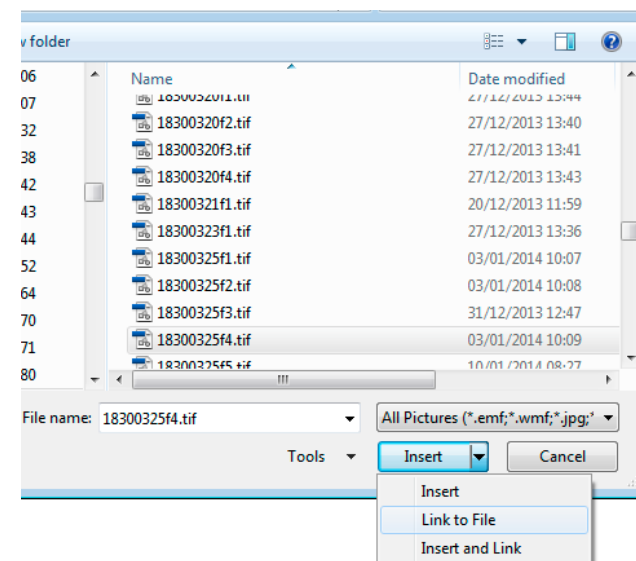
If an image file is renamed or moved Word will not warn you when you open the document. Missing images in Word will not display in the document or in the PDF.

Colour

See *Appendix* for a detailed description of RGB and CMYK colour spaces, but please be aware that if you supply files in RGB that are to be printed in colour then we must (like any other printer) convert the files to CMYK before we can print them, and colours can change during that process. Word can only work with RGB colours and cannot create CMYK or spot colours at all. If you are using CMYK images Word will convert them to RGB.

PDFing: Word 2019/Word for Office 365

It is recommended you adjust the `Options > Advanced > Image Size and Quality` option *before* placing your images, as mentioned on the previous page.

The best option for saving a PDF is to use the "Microsoft Print to PDF" printer, which is installed with Windows 10 and 11.

If you do not have the "Microsoft Print to PDF" printer Word 2019 and Word for Office 365 provide the ability to save directly to PDF files. We *don't recommend* using this method if your document contains images as this will cap all image resolutions at about 200dpi. If your document contains *no images* then this method is perfectly acceptable but otherwise we recommend you use an alternative method to export a PDF from Word. To save a PDF directly from Word using the "Save As" method, go to `File > Save As` and choose PDF as the `Save as type:` and choose a file name and location. Choose `Standard` in the `Optimise for:` section then press the `Options` button and use the settings from the screenshot *right*.

If you have a copy of Adobe Acrobat installed you will have an 'Adobe PDF' printer installed. This uses Acrobat Distiller and is the second best way to create a PDF from Word (when our settings are used). This will give you full resolution images. This, and another third-party method of creating PDFs which can give you full resolution images are covered in the *Acrobat Distiller/PDF printer* section.
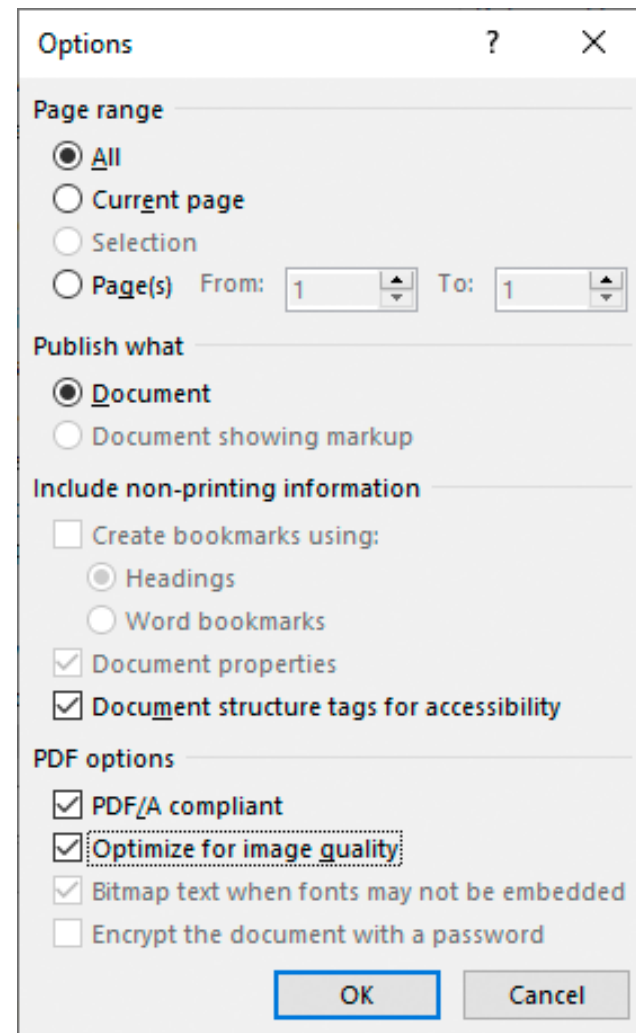
PDFing: Word 2007–2016

Note that when images are *embedded* into a Word 2007–2016 document their resolutions will always be capped at about 200dpi regardless of which method you use to create the PDF, so if you are using images please link them (see *Image quality/ resolution* section).

Word 2007–2016 provides the ability to save directly to PDF files. We *don't recommend* using this method if your document contains images as this will cap all image resolutions at about 200dpi (*even images that are linked rather than embedded*). If your document contains *no images* then this method is perfectly acceptable but otherwise we recommend you use an alternative method to export a PDF from Word. To save a PDF directly from Word 2007–2016 using the "Save As" method, go to `File>Save As` and choose PDF as the `Save as type:` and choose a file name and location. Choose `Standard` in the `Optimise for:` section then press the `Options` button and use the settings from the screenshot *right*.

If you have a copy of Adobe Acrobat installed you will have an 'Adobe PDF' printer installed. This uses Acrobat Distiller and is the best way to create a PDF from Word (when our settings are used). This can give you full resolution images when images are linked. The 'Adobe PDF' printer, and another third-party method of creating PDFs, are covered in the *Acrobat Distiller/ PDF printer* section.
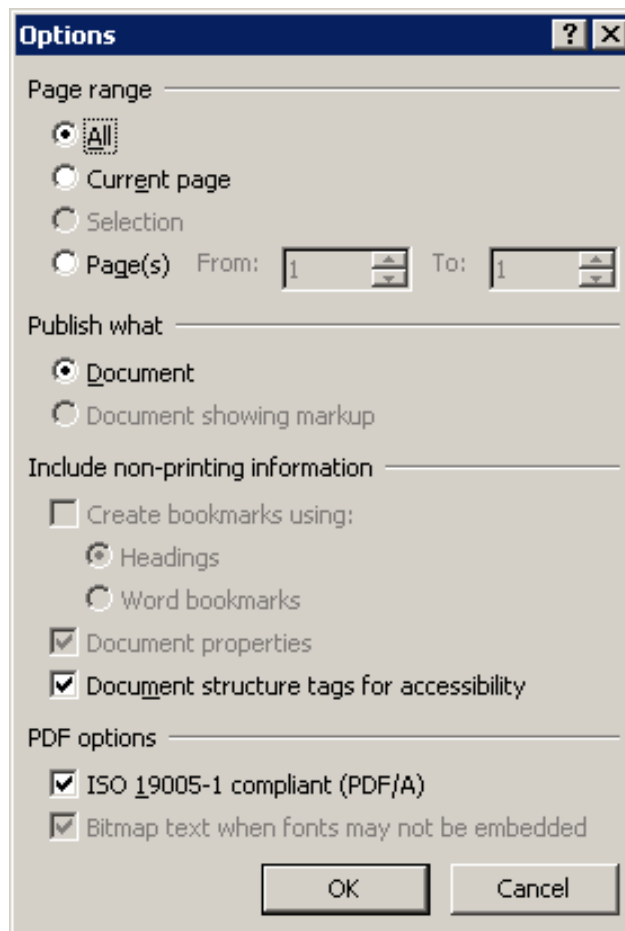
Microsoft Publisher

Print jobs created in Microsoft Publisher can have a bad name in the print industry as Publisher is missing some features of professional page layout software. However, if Publisher is all that is available to you for making-up pages it can be made to produce acceptable work if you are aware of its shortcomings and work around them. The more complex your file the more chance you have of experiencing problems.

By default Henry Ling Limited is not keen to receive documents from Publisher. Rather, we have found it is more cost effective in the long-run for the customer to supply PDFs, thus avoiding time spent here getting around some of its drawbacks. This need not be difficult and if the correct steps are taken the PDF file we receive will give us no more problems, and incur no more expense, than a file created from a professional prepress program costing many times as much. Always check you are happy with the PDF before supplying it and tell us you want us to convert any colour to mono. Otherwise, see below for workarounds required to deal with Publisher's shortcomings. If you are concerned about colour accuracy then we recommend *not* using Publisher – all versions have problems in this regard.

Text flow

Publisher will flow the text based on whatever printer is selected at the time. Consequently, when you select a different printer the text in your document may flow differently, which could push words or whole lines from one page to another. The most successful method of working round this problem is to *always* output your pages using the method you will use to supply the finished files to us (output to PDF), which should mean that the layout never changes. Always outputting to PDF (and then when you want a hard copy printout printing it from Adobe Acrobat/Reader) may take a little longer but avoids any chance of the text flow changing.

Colour

See *Appendix* for a detailed description of RGB and CMYK colour spaces, but please be aware that if you supply files in RGB that are to be printed in colour then we must (like any other printer) convert the files to CMYK before we can print them and colours can change during that process.

Earlier versions of Publisher can work in CMYK mode but can't always output the CMYK to PDF so it is best to specify colours as RGB within Publisher and use RGB for colour images – we will convert RGB to CMYK here. Please advise us if any pages need to be reproduced in mono. See PDFing section for your version of Publisher for more details.

PDFing: Publisher 2019/Publisher for Office 365

The best option is to create a PDF direct from Publisher 2019/365, using Microsoft's "Save As" PDF method. Note that this will result in all images being RGB but any CMYK/spot colours defined in Publisher will be maintained. To do this go to `File>Save As` and choose PDF as the `Save as type:` and choose a file name and location. Next, press the `Options` button and match the settings shown in the screenshot *over*. These settings are based on the built-in *Commercial Press* settings but will give slightly higher quality output. Unfortunately there's no way to save these settings so you must check/re-enter them each time you re-open the program. Once you have entered the PDF settings but before you close the dialogue box press `Print Options` and turn on the `Crop Marks` and `Allow Bleeds` options. To allow these to appear on your PDF you have to increase the 'paper' size the PDF is output onto – choose `Custom` as the `Size` and then increase both the `Width` and `Height` by 2cm (0.79"). This will create a PDF with crop marks and bleed, which will be trimmed off by us when bound.
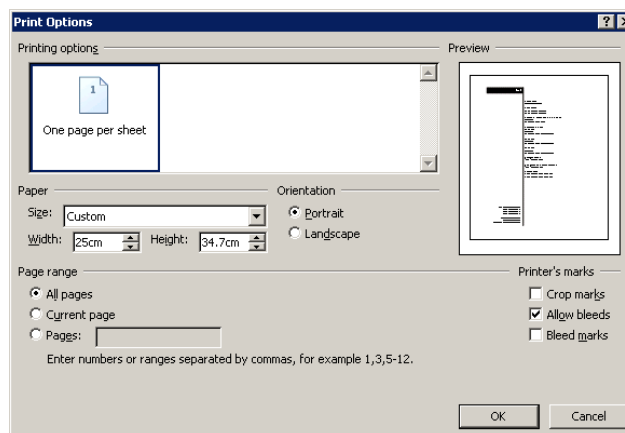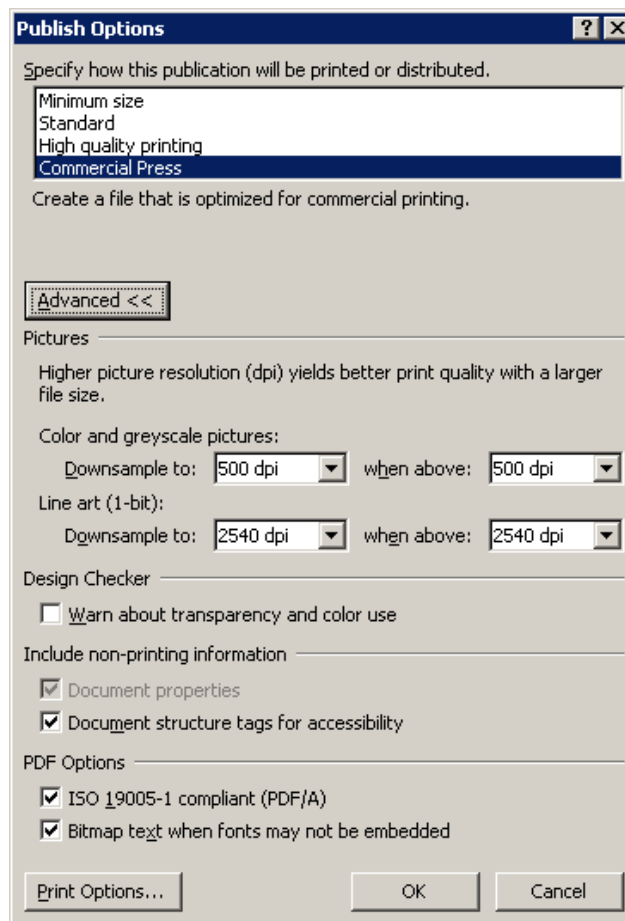
PDFing: Publisher 2016

The best option is to create a PDF direct from Publisher 2016, using Microsoft's "Save As" PDF method. Note that this will result in all colour (even CMYK/spot colours created within Publisher) being converted to RGB in the PDF. To do this go to `File>Save As` and choose PDF as the `Save as type:` and choose a file name and location. Next, press the `Options` button and match the settings shown in the screenshot *right*. These settings are based on the built-in *Commercial Press* settings but will give slightly higher quality output. Unfortunately there's no way to save these settings so you must check/re-enter them each time you re-open the program. Once you have entered the PDF settings but before you close the dialogue box press `Print Options` and turn on the `Allow Bleeds` option (the PDF will *not be output* if you tick the `Crop Marks` option). To allow the bleed to appear on your PDF you have to increase the 'paper' size the PDF is output onto – choose `Custom` as the `Size` and then increase both the `Width` and `Height` by 0.6cm (0.24"). This will create a PDF 3mm larger on each edge than your trimmed size, which will be trimmed off by us as bleed when bound.
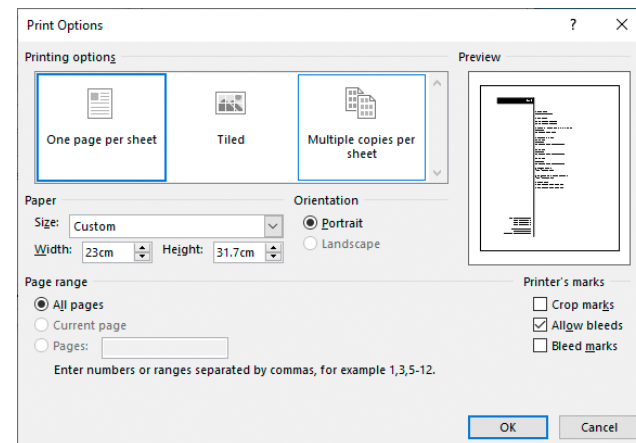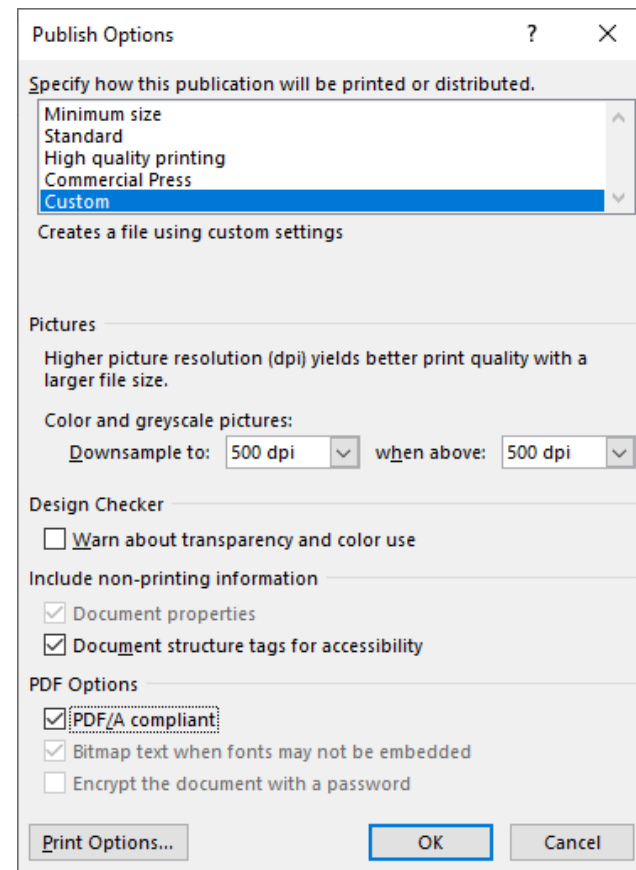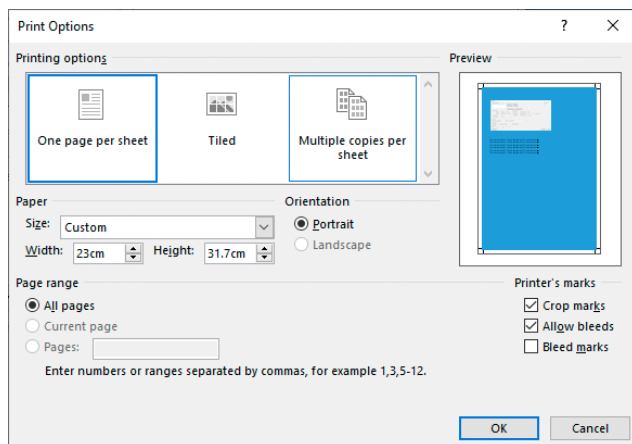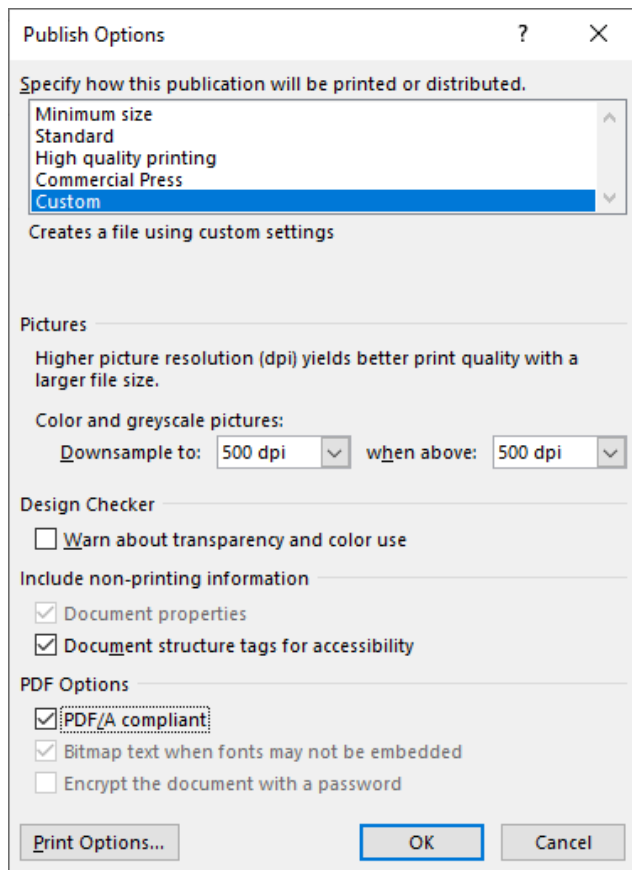
PDFing: Publisher 2013 and 2010

The best option is to create a PDF direct from Publisher 2013 and 2010, using Microsoft's "Save As" PDF method. Note that this will result in all images being RGB but any CMYK/spot colours defined in Publisher will be maintained. To do this go to `File>Save As` and choose PDF as the `Save as type:` and choose a file name and location. Next, press the `Options` button and match the settings shown in screenshot *right*. NB `Line art (1-bit)` option not available in all versions. These settings are based on the built-in *Commercial Press* settings but will give slightly higher quality output. Unfortunately there's no way to save these settings so you must check/re-enter them each time you re-open the program. Once you have entered the PDF settings but before you close the dialogue box press `Print Options` and turn on the `Allow Bleeds` option (the PDF will *not be output* if you tick the `Crop Marks` option). To allow the bleed to appear on your PDF you have to increase the 'paper' size the PDF is output onto – choose `Custom` as the `Size` and then increase both the `Width` and `Height` by 0.6cm (0.24"). This will create a PDF 3mm larger on each edge than your trimmed size, which will be trimmed off by us as bleed.

Apple Pages

Pages is the page layout program in Apple's iWork suite. This can be used to make-up your pages and is able to export directly to PDF.

To create a PDF first confirm that everything is how you want it to appear in your document. It is not usually cost effective for us to make corrections to the PDF. By default Henry Ling Limited is not keen to receive documents from this program. Rather, we have found it is more cost effective in the long run for the customer to supply 'finished' files (i.e. PDFs) to us. Make sure you check the PDF through in Adobe Acrobat/Adobe Reader before supplying it (see the *Adobe Acrobat/Adobe Reader* section for more information).

To create a PDF go to the `File` menu, then `Export To>PDF` then choose `Image Quality:` is set to `Best`. Press `Save`, then choose a file name and location for your PDF file and press `Export`. See screenshot *below*.

Everything created within Pages will be RGB in the PDF, even colours you specified with CMYK colours. CMYK images placed in your document should not be affected however. Please bear in mind that there may be some colour shift when we convert the RGB colours in your PDF to CMYK. See *Appendix* for a description of RGB/CMYK.
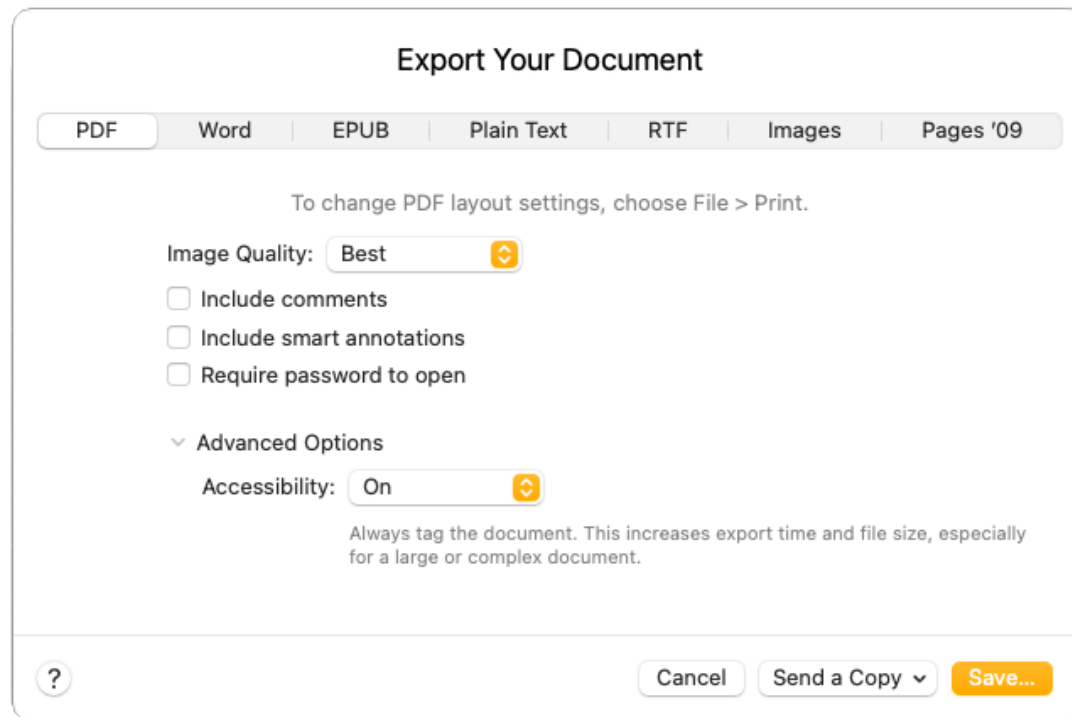
Serif PagePlus

Serif PagePlus is a low cost but feature-packed page layout program (Windows only) that can export direct to PDF. We have created two preset files which can be downloaded and installed into PagePlus, for printing on *coated* or *uncoated* paper – please ask your Henry Ling contact if you are unsure what paper type your job will use. Using one of these presets to export your PDF will mean it is made using suitable settings for us.

To download our PDF export presets (which PagePlus refers to as a "Publish profile") click *here*. Download the file, unzip it to your desktop and then copy both of the (.PDF_Profile) files. In PagePlus, with a document open, press the `Publish PDF` button (or go to `File > Publish as PDF`). The `Publish PDF` dialogue box appears – at the foot of the `General` tab, click the drop-down box next to `Publish profile:` and choose `Browse....` This opens a window showing the location where PagePlus stores the preset files – click the white background next to the list of files and paste the two presets into that folder. `Cancel` out of that window and `Cancel` again to close the `Publish PDF` window. When you next export a PDF our two presets will be available in the `Publish profile:` area. When you are making a PDF file for us please choose from the `Publish profile:` area either
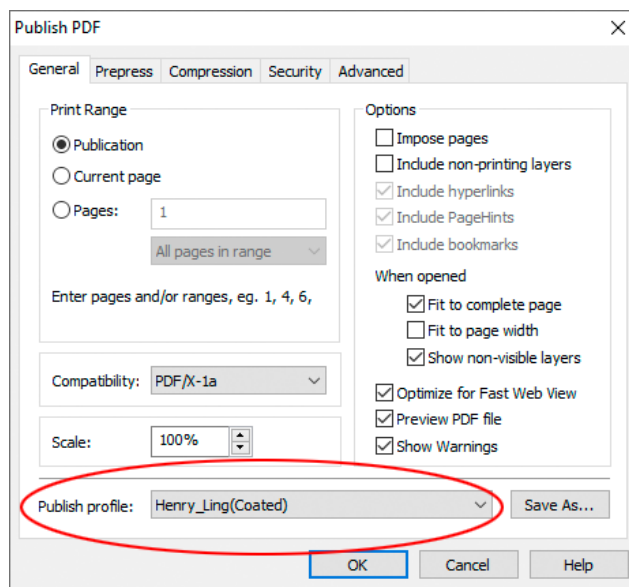
"Henry_Ling(Coated)" for printing on coated paper or "Henry_Ling(Uncoated)" for printing on uncoated paper. See screenshot *above*.

Some versions of PagePlus have some limitations regarding colour management. See *Appendix* for a detailed description of RGB and CMYK colour spaces. We recommend using RGB images with ICC profiles rather than CMYK images. Greyscale images are okay. See table below for details on how each version performs;

- *PagePlus X5 and earlier* – we only recommend using RGB images (with ICC profiles). Using CMYK images with our PDF export preset will *not* produce accurate colour, even when the images use the same ICC profile as our PDF export preset.
- *PagePlus X6 and later* – using RGB images (with ICC profiles) or using CMYK images with the same ICC profile as our PDF export presets (FOGRA39 for jobs printing on coated paper and FOGRA29 for jobs printing on uncoated paper) will produce accurate colour. Using CMYK images with ICC profiles different to that used by our PDF export preset will *not* produce accurate colour.

The ICC profiles used above are not necessarily the most up-to-date but PagePlus can only output PDFs to certain profiles. Our presets use the best ones from the limited selection.

Always check the PDF through before supplying the file to us, paying particular attention to any areas where transparency has been used. If colour accuracy is critical please bear in mind the above recommendations and request a hard copy colour proof of at least some pages.

Please note that PagePlus X5 and later support using layered tif images (including Photoshop adjustment layers) and Photoshop EPS files containing vector text. Vector text in Photoshop PDFs will be rasterised.

PagePlus may not output 1-bit (line images) correctly. If used in your layout these may be downsampled and converted to a rich black (i.e. colour) 8-bit image in the PDF. If you are hoping to use 1-bit images please ask us to check a sample PDF.

Version	Create PDF/X file with preset?	RGB > CMYK conversion	CMYK > CMYK conversion	Maintain CMYK colours when image ICC = output ICC
PagePlus X4	Yes	Okay	Poor	Poor
PagePlus X5	Yes	Okay	Poor	Poor
PagePlus X6	Yes	Good	Poor	Good

Serif Affinity Publisher

Serif Affinity Publisher has replaced Serif PagePlus. Affinity Publisher is a low cost but feature-packed page layout program available for Windows and Mac that can export direct to PDF. It works slightly differently from other software so please see the 'Potential issues' at the end of this section, preferably *before* creating your document(s).

Even if your document contains *no* colour we recommend you output your PDF to our CMYK ICC profile *and also* change the colour format and colour profile associated with your document (ideally before working on it) to CMYK, as described on the following pages. It can be hard to stop Affinity Publisher converting your black to CMYK black otherwise (which is not what you want).

Unfortunately Affinity Publisher does not currently support the export/import of PDF presets, however once you have configured your settings to those recommended by us you can save them as a PDF preset to be re-used on work to be printed by us. Click *here* to download the colour profiles used by our recommended settings; *PSO Coated v3* for titles on coated paper and *PSO Uncoated v3 (FOGRA52)* for titles printing on uncoated paper – please ask your Henry Ling contact if you are unsure what paper type your title will use. To install our CMYK profile(s);

- **Windows:** Right-click the .icc file and choose *Install Profile*. NB No confirmation is given.
- **Mac OS X:** The .icc file should be placed in `Macintosh HD > Users > [username] > Library > ColorSync > Profiles`. NB The User's Library folder is hidden by default. To temporarily make it visible in order to access it: with either the Desktop or a

Finder window as the front-most application, hold down the option/alt key and select the `Go` menu. `Library` will be listed as one of the items in the menu. Click it, and a Finder window will open showing the contents of the Library folder. When you close the Library folder's Finder window, the folder will be hidden from view again. *If you find the Library folder does not contain the ColorSync or Profiles folder just create them.*
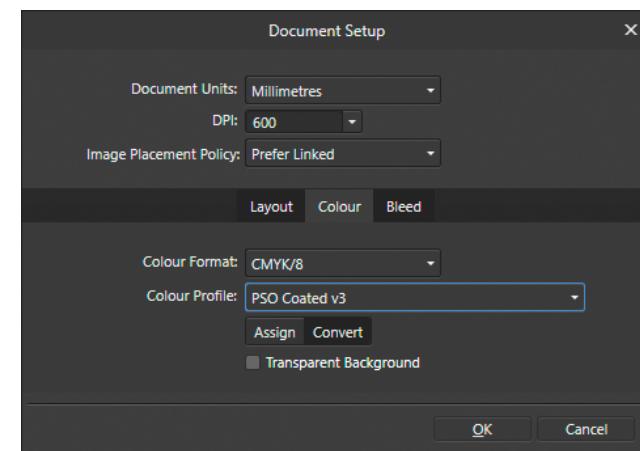
See *Appendix* for a detailed description of RGB and CMYK colour spaces and ICC profiles.

The following settings cover printing on coated or uncoated paper for Affinity Publisher 1 and Affinity Publisher 2. Please follow the instructions appropriate for your software version and paper type.

Affinity Publisher 1
Coated paper

With your document open, go to `File > Document Setup` and change the settings in the `Color` area to match the screenshot *below* (`Colour Format` to *CMYK/8* and `Colour Profile` to *PSO Coated v3*). While in `Document Setup`, if your document contains bleeds, go to the `Bleed` tab and add 3mm in all four boxes – this will give your document a bleed guide 3mm away from the edge of your document. Ensure any elements you wish to bleed extend out beyond the document edge and touch this guide.

When exporting your PDF choose `Area: All Pages` (for multi-page documents). Note this setting is not 'sticky' so needs to be chosen each time for documents that have facing pages. Press `More...` to open up the extended options and match them to our screenshot *over*. Note on Macs the greyed out `Convert image colour spaces` box may be ticked – that's okay. This will create a PDF file with crop marks and bleeds, all RGB will be converted to an appropriate CMYK profile for us to print on coated paper.
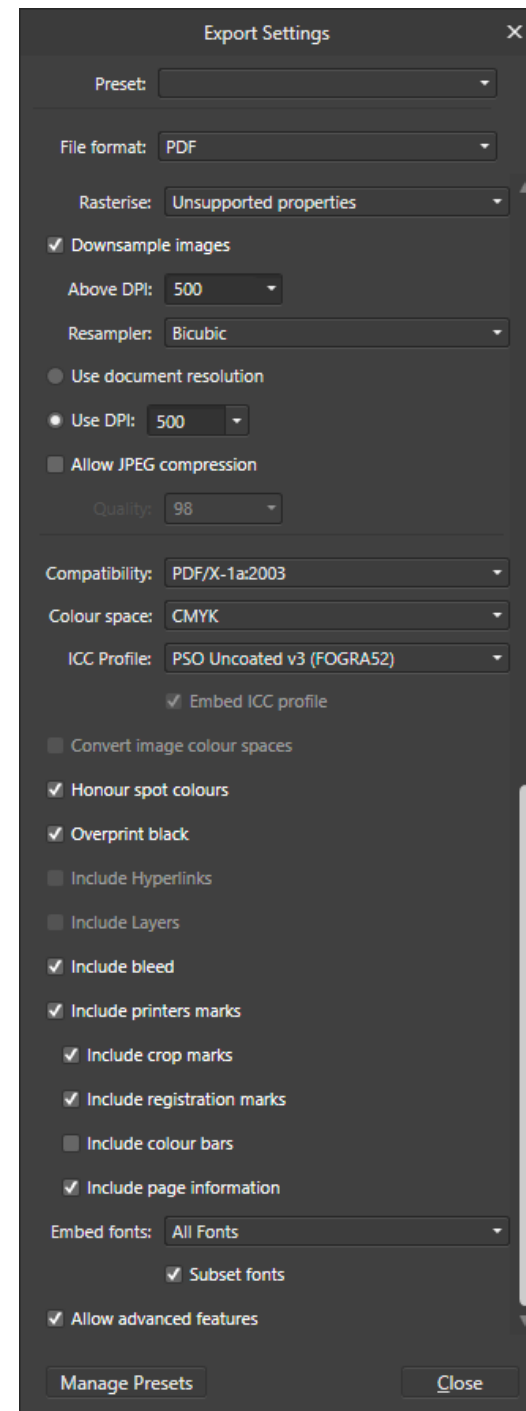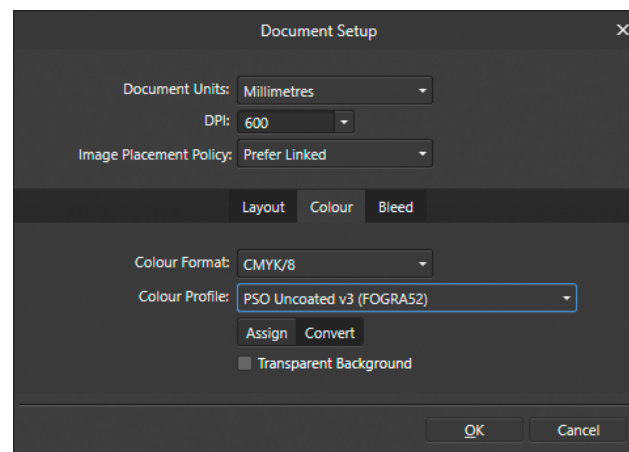
Once you have matched the settings we recommend you save them as a preset so you can use them again. Click `Manage Presets > Create preset...` and name it something descriptive like *Henry_Ling(PDFX-1a) (51L-Coated)*.

Uncoated paper

With your document open, go to `File > Document Setup` and change the settings in the `Color` area to match the screenshot *below* (`Colour Format` to *CMYK/8* and `Colour Profile` to *PSO Uncoated v3 (FOGRA52)*). While in `Document Setup`, if your document contains bleeds, go to the `Bleed` tab and add 3mm in all four boxes – this will give your document a bleed guide 3mm away from the edge of your document. Ensure any elements you wish to bleed extend out beyond the document edge and touch this guide

When exporting your PDF choose `Area: All Pages` (for multi-page documents). Note this setting is not 'sticky' so needs to be chosen each time for documents that have facing pages. Press `More...` to open up the extended options and match them to our screenshot *right*. Note

on Macs the greyed out `Convert image colour spaces` box may be ticked – that's okay. This will create a PDF file with crop marks and bleeds, all RGB will be converted to an appropriate CMYK profile for us to print on uncoated paper.
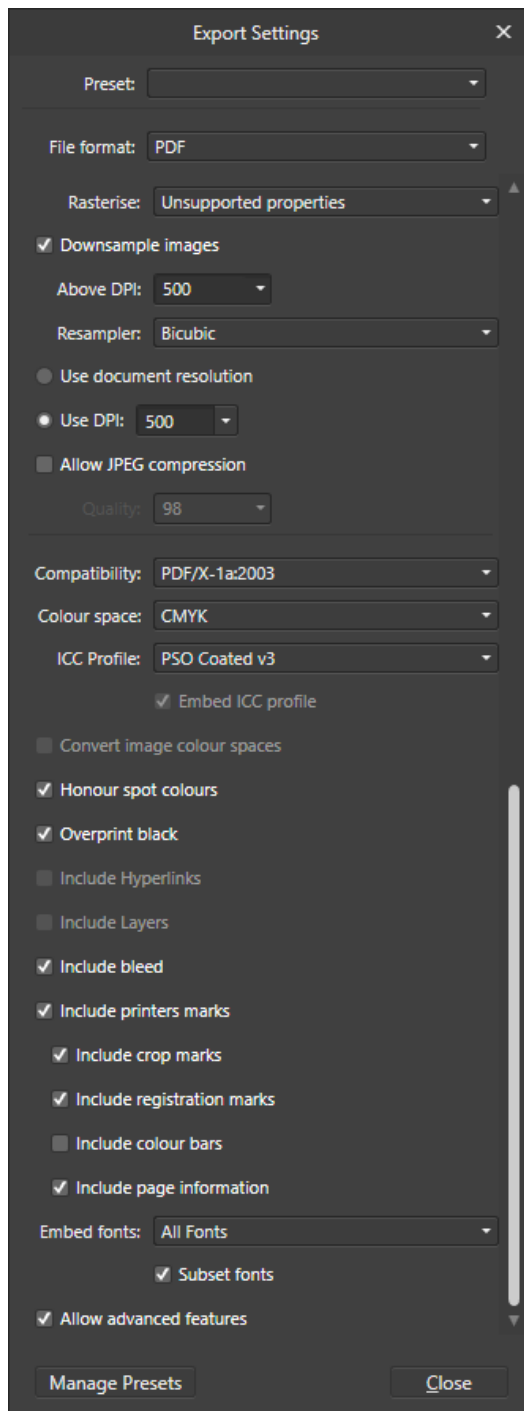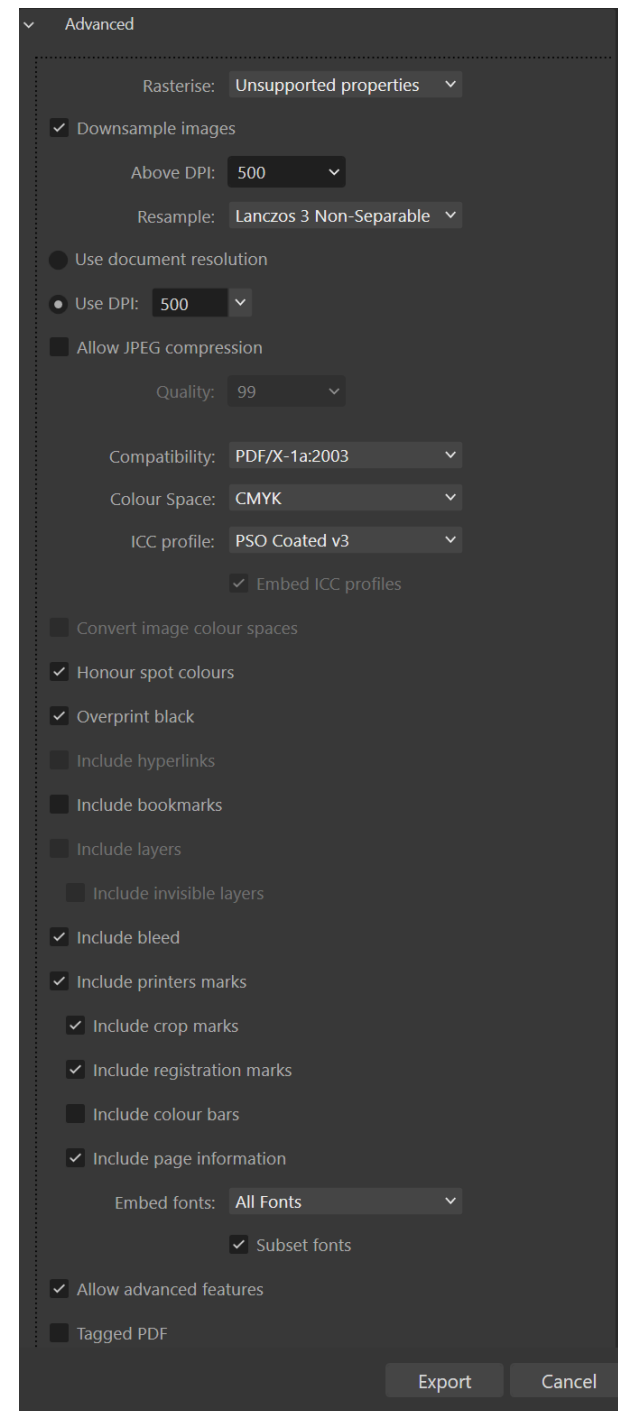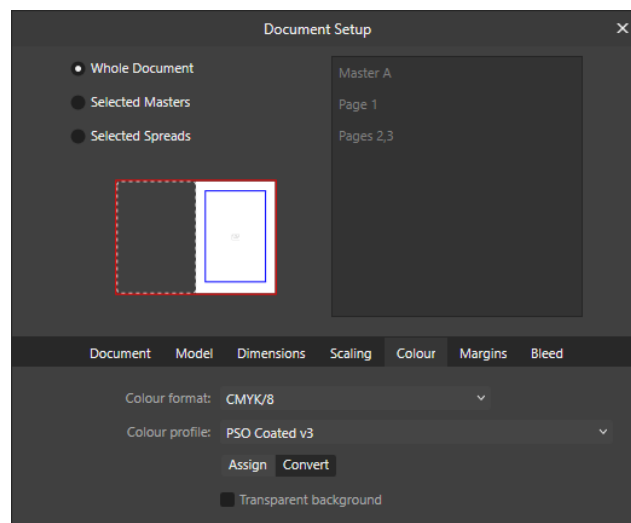
Once you have matched the settings we recommend you save them as a preset so you can use them again. Click `Manage Presets > Create preset...` and name it something descriptive like *Henry_Ling(PDFX-1a) (52L-Uncoated)*.

Affinity Publisher 2 (based on v2.5.7)
Coated paper

With your document open, go to `File > Document Setup` and change the settings in the `Color` area to match the screenshot *below* (`Colour Format` to *CMYK/8* and `Colour Profile` to *PSO Coated v3*). If you had already applied CMYK values to content in the document *before* applying our colour profile those CMYK values may have changed (this includes our *BLACK* swatch, see 'Potential issues' at the end of this section). Check/adjust the values before creating the PDF (to our export settings). While in `Document Setup`, if your document contains bleeds, go to the `Bleed` tab and add 3mm in all four boxes – this will give your document a bleed guide 3mm away from the edge of your document. Ensure any elements you wish to bleed extend out beyond the document edge and touch this guide

When exporting your PDF choose `Area: All Pages` (for multi-page documents). Note this setting is not 'sticky' so needs to be chosen each time for documents that have facing pages.

Press `Advanced` to open up the extended options and match them to our screenshot on the *previous page*. Note on Macs the greyed out `Convert image colour spaces` box may be ticked – that's okay. This will create a PDF file with crop marks and bleeds, all RGB will be converted to an appropriate CMYK profile for us to print on coated paper.

Once you have matched the settings we recommend you save them as a preset so you can use them again. Click the options button to the right of `Advanced` then click `Create preset...` and name it something descriptive like *Henry_Ling(PDFX-1a)(51L-Coated)*.

Uncoated paper

With your document open, go to `File` > `Document Setup` and change the settings in the `Color` area to match the screenshot *below* (`Colour Format` to *CMYK/8* and `Colour Profile` to *PSO Uncoated v3 (FOGRA52)*). If you had already applied CMYK values to content in the document *before* applying our colour profile those CMYK values may have changed (this

includes our *BLACK* swatch, see 'Potential issues' at the end of this section). Check/adjust the values before creating the PDF (to our export settings). While in `Document Setup`, if your document contains bleeds go to the `Bleed` tab and add 3mm in all four boxes – this will give your document a bleed guide 3mm away from the edge of your document. Ensure any elements you wish to bleed extend out beyond the document edge and touch this guide

When exporting your PDF choose `Area: All Pages` (for multi-page documents). Note this setting is not 'sticky' so needs to be chosen each time for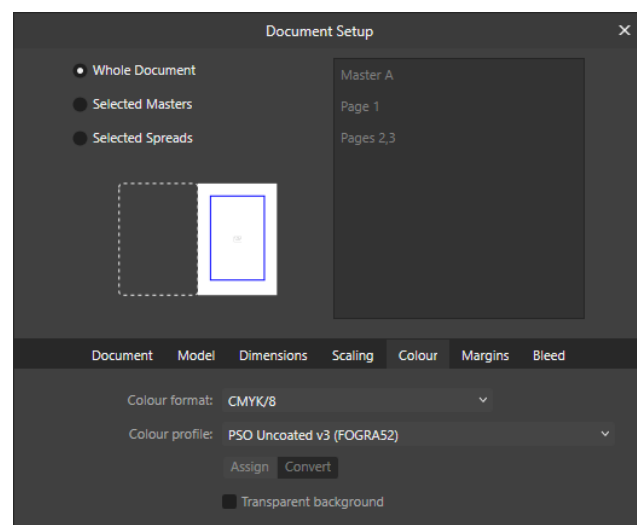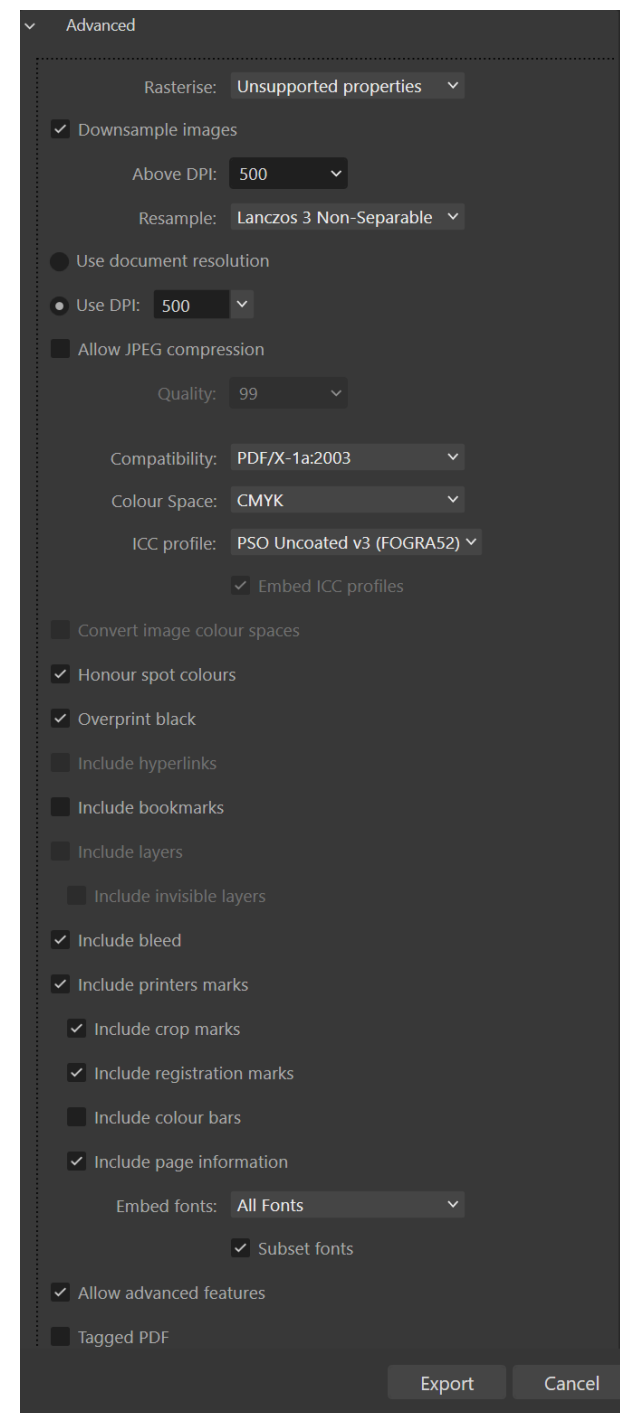 documents that have facing pages. Press `More...` to open up the extended options and match them to our screenshot *right*. Note on Macs the greyed out `Convert image colour spaces` box may be ticked – that's okay. This will create a PDF file with crop marks and bleeds, all RGB will be converted to an appropriate CMYK profile for us to print on uncoated paper.

Once you have matched the settings we recommend you save them as a preset so you can use them again. Click the options button to the right of `Advanced` then click `Create preset...` and name it something descriptive like *Henry_Ling(PDFX-1a)(52L-Uncoated)*.

Potential issues

Please be aware of these issues;

- Neither version of Affinity Publisher can handle the use of 1-bit (line) images. If used in your layout these will be downsampled and converted to a rich black (i.e. colour) 8-bit image in the PDF. To avoid the image being colour you can select the image on the page and choose `K only` from the toolbar, but your document colour needs to be CMYK (in `Document Setup`) for this. Hopefully 1-bit support will be added in future versions.

- For black elements in your document to print black only they will need to be CMYK black (0/0/0/100, i.e. printing black only) or else the black will get converted to a *rich* CMYK black (i.e. printing out of all four colours) in the PDF. The best way to do this is to create a colour swatch with these CMYK values which you can use to apply to multiple objects easily. We have made a file which you can import into Affinity Publisher which includes this black swatch – click *here* to download the file. Unzip the file to your desktop then with no document open go to the `Swatches` panel and click the options button in the top right. Choose `Import Palette>As Application Palette`, browse to find the .afpalette file you downloaded, select it and press `Open`. This will import a palette in the `Swatches` panel called 'Henry_Ling', containing the black colour swatch (called

'*BLACK*'). This will be available to all your documents – please use it to colour all objects you create in Affinity Publisher (e.g. text, rectangle frames) that should print black only. You can add other colours to this palette by having it selected in the `Swatches` panel, going to the `Colour` panel and choosing your values from the sliders (make sure it `CMYK` is chosen as the colour space), press the options button and choose `Add Colour to Swatch`. To avoid any confusion leave the `Colour` panel on `CMYK` colour space. Don't use any colours from the `Greys` swatch in the `Swatches` panel as these will get converted to CMYK on export.

- Greyscale (8-bit) images will output as greyscale with our document and PDF settings. Other combinations of settings could lead to them being output as CMYK. Note that if you add a greyscale image to an RGB document it will output to CMYK in the PDF. Converting an RGB document to CMYK stops greyscale images added *after that point* converting to CMYK but will not make any greyscale images *already in the document* output as greyscale – you will have to select such images on the page and choose `K only` from the toolbar.

- The document resolution (seen when creating a new document or in `Document Setup`) does not need to be configured for our purposes. Images are placed at whatever

size makes the image resolution match the document resolution. Affinity Publisher ignores the physical dimensions of images which you may have set in software like, for example, Photoshop. Images on the page can be scaled up or down on the page and their 'placed resolution' will go up or down accordingly, as expected, even if the placed resolution ends up greater than the document resolution. Bear in mind our PDFing settings will downsample any higher resolution images to 500dpi when output. An example to demonstrate; a 10cm wide image which is 400dpi will get placed in a 200dpi document at 20cm wide (the image is placed so the 'placed resolution' will match the document resolution, 200dpi). If the image is scaled to 50% on the page it will be 10cm wide at 400dpi – as intended – and will output at 400dpi when the PDF is created using our settings.

- If you have placed any PDFs in your document they will probably be rasterised on output, depending on their content, which may not be desirable. Please send us a sample PDF made to our settings and the PDF you have placed so we can suggest alternative PDF export settings to get a better result.

Always check the PDF through before supplying the file to us, paying particular attention to any areas where transparency has been used.

APPENDIX   Colour management

In the past, colour in print was used sparingly due to the costs involved. Colour images were produced and manipulated by experts using expensive proprietary equipment to ensure that when the job was printed the colours were correct. Nowadays including colour in print jobs is much cheaper and within the reach of most customers. It's now possible to produce colour files that would be suitable for professional printing without the need for expensive equipment and years of experience. This has been made possible by technology allowing colour to be 'managed' throughout the process so that predictable results can be achieved more consistently.

The human eye has receptors in the retina which are sensitive to three different types of light – red, green and blue. In the absence of all of these three types of light we see black (i.e. darkness). When we see full strength light of all three types we see white light. By receiving different amounts of these three colours the brain can experience almost every conceivable colour. Scanners, digital cameras and monitors work with colours in a red, green, blue (RGB) *colour space*. A colour space (also known as a 'colour model') is a system for describing colours mathematically. The RGB colour space works by manipulating red, green and blue light to make your eye experience different colours. For example, the red, green and blue phosphors on televisions and monitors interact to make the colour image you see on-screen. Scanner and digital camera sensors break down light and record the red, green and blue components digitally.

In printing however, colours can only be represented by putting ink on paper. Since paper cannot emit red, green or blue light the printing process influences the RGB light received by your eye indirectly, by mixing inks together to absorb (i.e. remove) the red, green and blue components of light reflected from the paper surface. This reflected light enters your eye having had some or all of the red, green and blue components removed by the inks. Cyan, magenta, yellow inks are used as they absorb red, green and blue light respectively (they are known as the 'opposing colours' of red, green and blue).

Although a solid mass of cyan, magenta and yellow inks should absorb all the red, green and blue light, so the eye sees pure black, this is not the case as inks can never be made pure enough. Also it would be an inefficient way to make black, using a lot of ink. So, black ink is used in the process – mixing Cyan, Magenta, Yellow and blacK (CMYK) inks together to give many other colours. This is known as "Four Colour Process" printing. When you print solid cyan, magenta, yellow and black inks you get a deep, rich black, as all the light has been absorbed. In contrast, in the RGB colour space when you add 100% red, green and blue light together it makes white light.

It should be clear then that *any* files in the RGB colour space in a job must be first converted to representative CMYK colours before they can be printed. Only by managing this conversion from RGB light to CMYK inks, are you likely to get the results you expect.

Unfortunately, the range of colours made available by mixing CMYK inks together doesn't quite match the range of colours available by mixing red, green and blue light (not least because ink pigments can never be made pure enough to actually achieve the range of colours

theoretically possible by mixing CMYK inks). This means that when you have some RGB colours in a file that fall outside the *gamut* (the total colour spectrum available) of CMYK then when the file is converted some colours are obviously going to have to change. Generally speaking these are bright, intense colours which, when converted to CMYK, will become duller and less vibrant. Equally, there are some colours available in CMYK that can't be represented in RGB.

RGB and CMYK colours are known as *device dependent* colours as the colours made by a particular set of RGB or CMYK values are specific to a particular device – if the same values are used on a different device a slightly different colour will be experienced. The classic example of this is in a television showroom – televisions showing the same signal all display it slightly differently, even televisions of the same make and model. This is how, when colour management is not used, the perceived colour in a publication can change drastically from when it is first created to when it is printed. A colour management system (CMS) works by assigning *actual colour meanings* to the RGB or CMYK numbers output *on a particular device*. By determining the actual colour meaning of a set of RGB or CMYK values it enables that actual colour to be output on another device by changing the values that are input, to cater to the characteristics of that device.

This is made possible because the CMS uses internally a colour space based on the human perception of colour rather than simply the RGB or CMYK values that are input to a device. This colour space is called *CIE L* a* b** (usually referred to as LAB). This was developed by

colour scientists to describe mathematically the colours experienced by people with normal colour vision when exposed to a specific colour under precisely specified viewing conditions. LAB colour is used by a CMS to represent the *perceived* colours that specific RGB and CMYK values produce on a specific device. It translates the numbers between two devices – "to get *this* colour output on *that* device you need to input *these* set of numbers".

To make this work the precise colour characteristics of each device needs to be known – this information is stored in an ICC *profile* file (usually referred to as "colour profiles" or just as "profiles"). Conforming to the International Color Consortium specification these profiles describe the actual colours output from a specific device given specific input numbers. This is often referred to as a device profile as the profile describes a specific device. A profile is created by outputting a special test image on the device, made up of dozens or hundreds of different colours. The actual colour of this output is then measured using a very sensitive colour measuring device and, using sophisticated software, compared to the actual colour values sent to the device. The two sets of numbers are used to make the ICC profile for that device which can be thought of as a translation table. Not every possible colour is measured (that would make profiles too large to be practical) but sample colours throughout the full range of colours are measured and the colours in the gaps are extrapolated by the CMS.

If each device in the process is *profiled* in this manner then the CMS can manage the colour as it passes from one device to another. For example, a CMYK image with a colour profile of a red apple displayed on screen – the red is composed of C:0 M:96 Y:98 K:0 in the file and you are happy how that red displays on your monitor. As the monitor has been profiled the CMS within the software displaying the image knows what colour values to display on the monitor to accurately display that CMYK colour. It converts the actual colour values (in LAB) to whatever the destination device (in this instance RGB for your monitor) needs to display those LAB values. It can only do this because it knows the characteristics of the device using its profile. When you print the file on a profiled colour inkjet printer the CMS knows what colour values have to be sent to the printer to output the same red colour as you saw on your monitor. The CMS knows what colours you *actually* saw when those CMYK values were displayed (thanks to the monitor's profile) and sends what new set of colour values is required to reproduce those actual colours on the printer. It may have to change the outputs of the printer to C:4 M:100 Y:100 K:1 to ensure you see the red you expect when printed on that device. This is how a CMS allows the colour data created by scanners or digital cameras to be transformed so that when printed it looks as close to the original capture as is technically possible. Achieving the *exact* same appearance using ink on paper as light emitted from a screen is not really possible.

Once you have turned colour management on in your programs, using suitable profiles is equally important in getting a good result. If the profiles available to the CMS are inaccurate then colour transformations between devices will be inaccurate. Ideally every device used throughout the process, by yourself and also by us, should be profiled and the profiles used as part of a CMS. Profiling your own screens and printers has never been cheaper or easier but we appreciate that not everyone wants to take the time or money to do so, nor would it be cost-effective unless you plan to use it regularly. Devices like scanners, monitors and printers usually come with ICC profiles made by the manufacturer, specific to a particular model. They will not describe your particular device (no two devices are made exactly equal, and devices change over time) but are better than using no profile at all. Rather than individually profile each of our different printing presses we use a profile that describes the results you can expect given a standard set of printing conditions – when we meet these conditions on a press then this generic profile will give an accurate result.

So, colour management and profiles are very important and should be used whenever possible – they attach specific colour meaning to RGB or CMYK values. If a program handles an image with no colour profile it has no idea where the image came from and it can never accurately output it. Most software designed for image creation and page layout will be able to use colour profiles to manage the colour of your files – no extra software should be required.