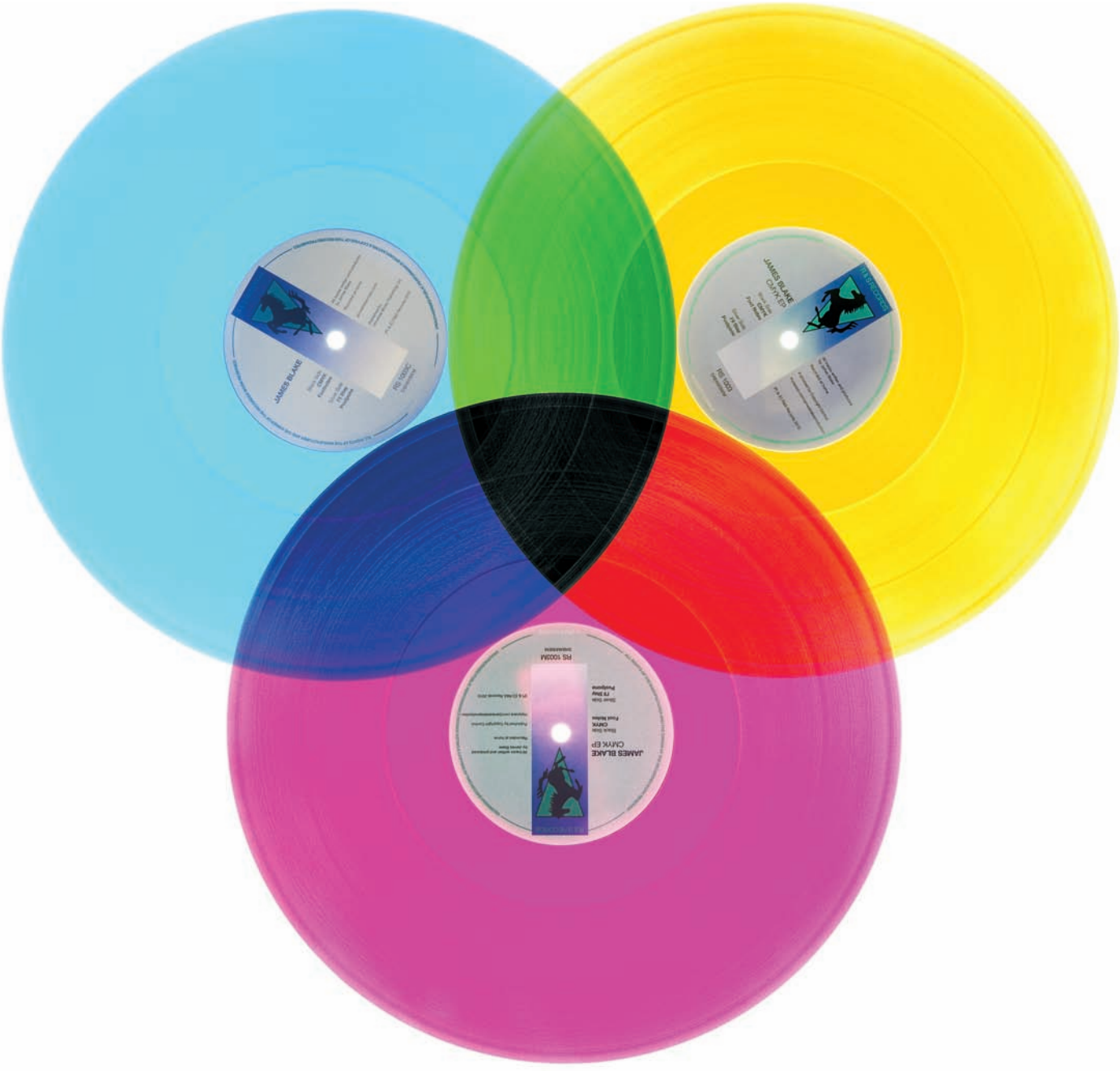
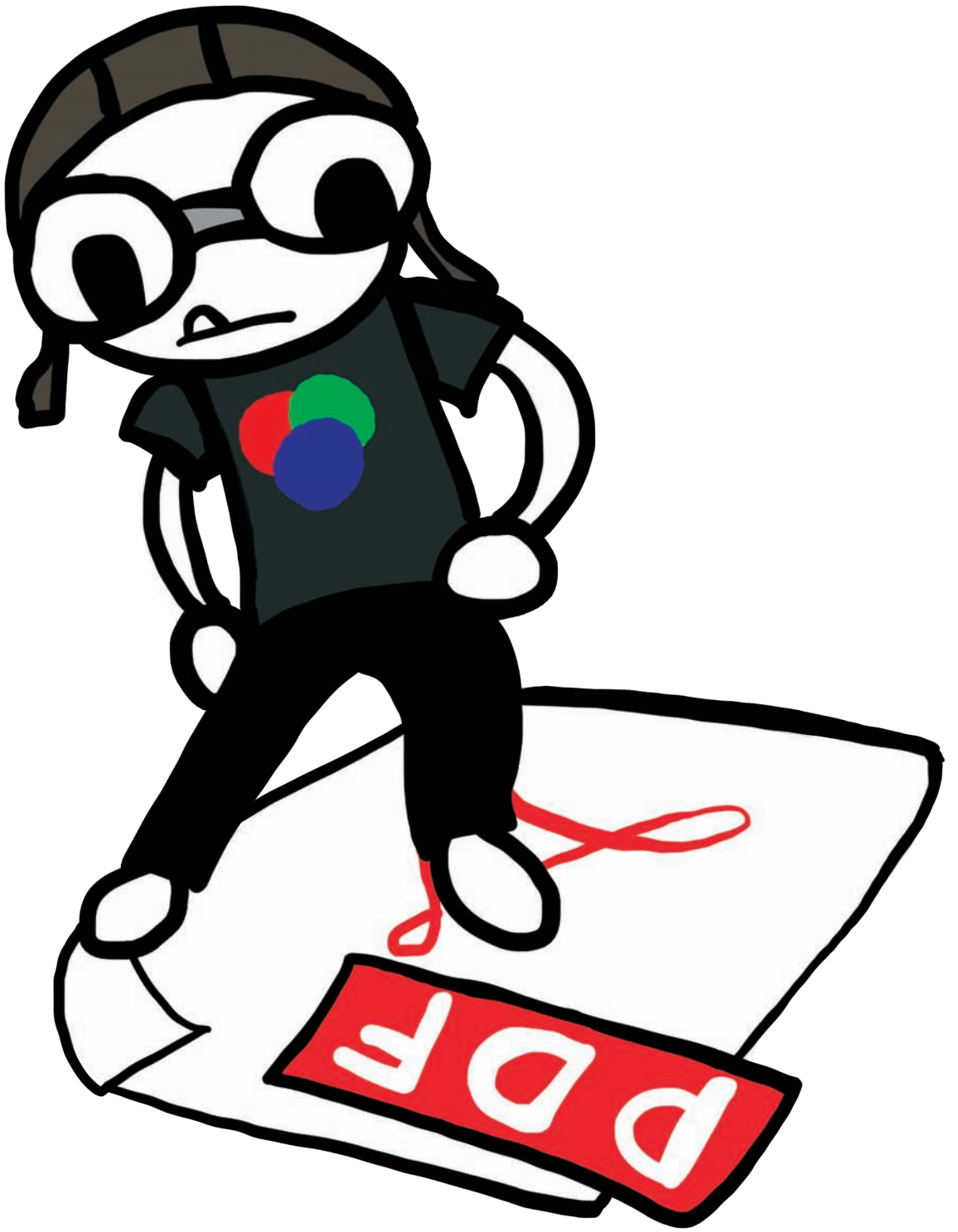
Preparing for Prepress



An overview of basic file preparation and creation of PDF for print.

Welcome to pre-prepress!

I'm putting together this guide in hopes it will help with some basic file preparation knowledge. Chances are you know most of this which is a good start, but I thought it would be nice to write down! The following is a basic guide for preparing files using Adobe InDesign and making a print ready PDF!



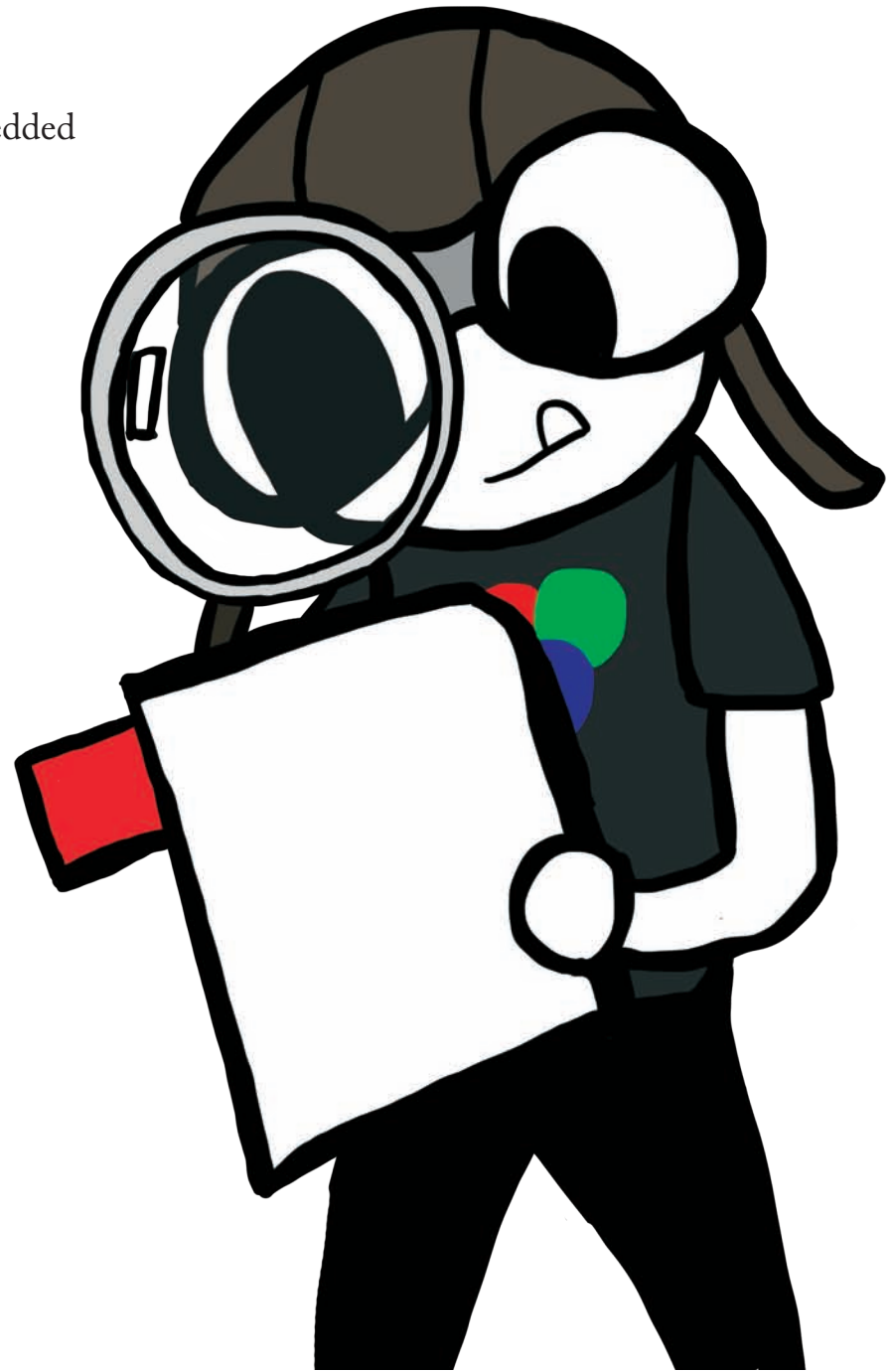
So what exactly are we looking for?

Technology is improving constantly and RIPs (Raster image processor) and prepress workflows these days can handle more than they could before, but nothing can substitute proper file handling and preparation from the start. The PDF workflow is a wonderful thing, but can definitely be a hassle if you don't have proper PDFs to work with. If you can eliminate the problems upstream when you prepare the file, you shouldn't have any problems when it comes time to print.

When it comes to preparing a document for print, a little knowledge of the printing process can go a long ways! So I'll cover a few things that can cause trouble in the workflow that awaits your file.

Such things Include:

- Links and Fonts that aren't embedded
- Low resolution Images
- No Bleeds
- Rich Blacks
- Small and Reversed out type
- Transparencies
- Incorrect color spaces

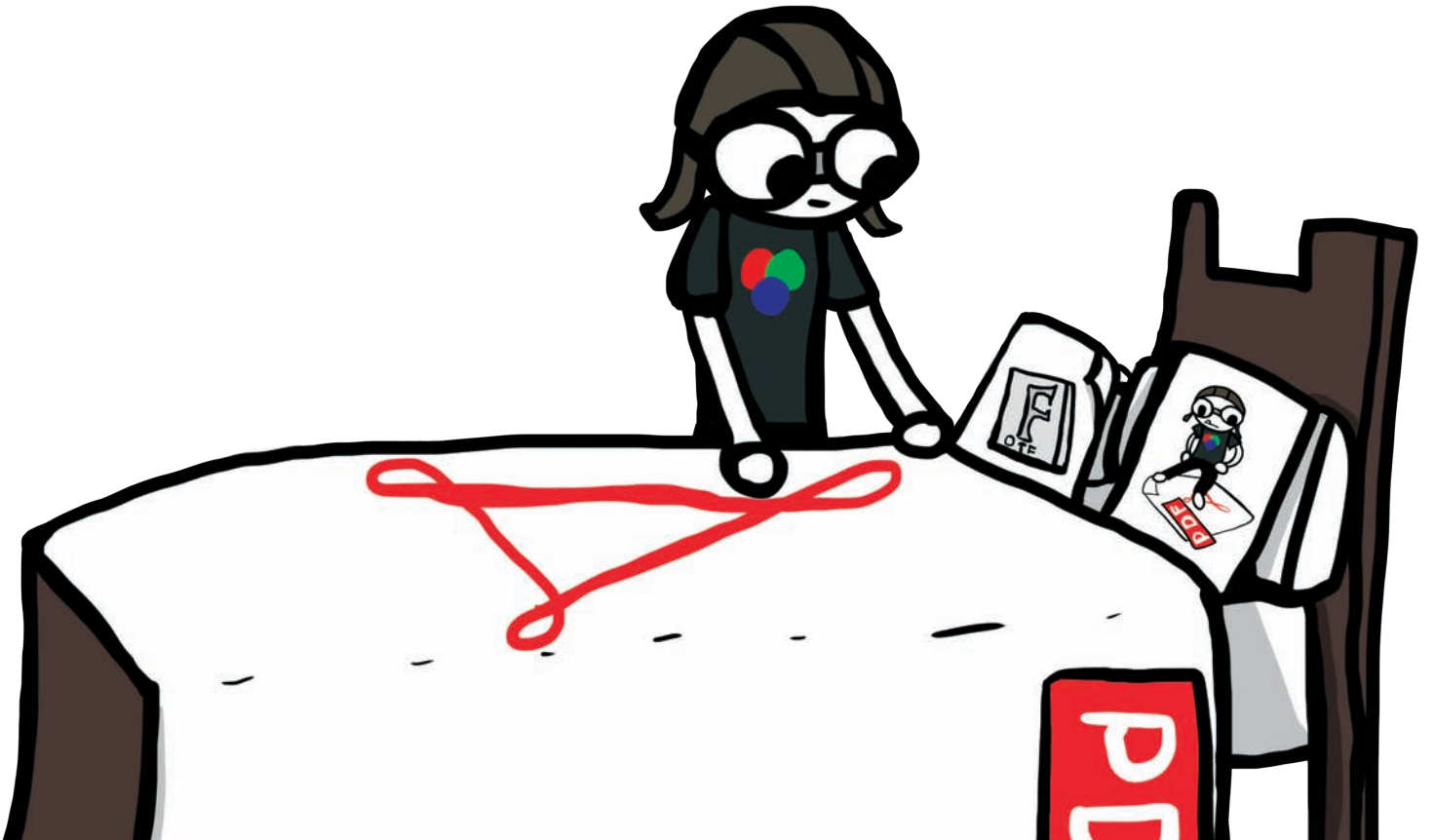


Embedding

One of the nice things about PDFs is that it wraps up everything needed into one nice document, kind of like burrito. Except sometimes people can forget to embed the rice and beans, leaving you with a very uneatable burrito. When you output a PDF, it makes sure to take with it all the fonts and images and containing it in the document.

Mmm, Adobe Garamond Pro style rice.

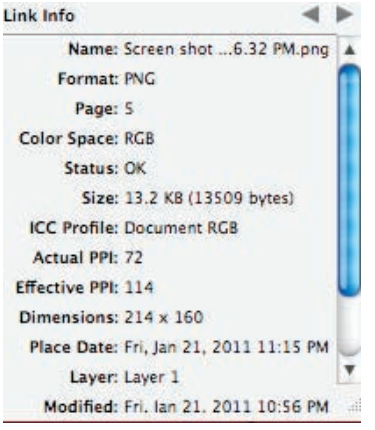
It can get confusing when fonts get into the picture. Some font licensing can restrict the embedding of fonts for intention to print, so you can still see the font but once you make the PDF those fonts will show up as missing or etc. because they couldn't actually be embedded in the PDF. If you are unaware of a missing font for long enough it may just show up as a substituted font that `looks something like this.` That font is known as Courier and is usually the default substitution font because of its noticeable monospaced properties and is a good heads up that a font might be missing.



Missing Links and Image Resolution.

Here is a sleepy MC Frontalot. Left image has an effective ppi of 300 and on the right, one of 70.

When you place an image into InDesign, it doesn't actually embed it into your InDesign document. What it does is refer to wherever the original file may be (i.e. your documents folder). When you move or rename that original file it creates a missing link. If a PDF is created from an InDesign document it will export it at a screen resolution of 72 ppi. 72 ppi as you may know is screen resolution and it will appear okay when viewed on a monitor or screen but does not have enough information in it and will print out "pixilated".



Make sure to check the effective PPI in the link info window.

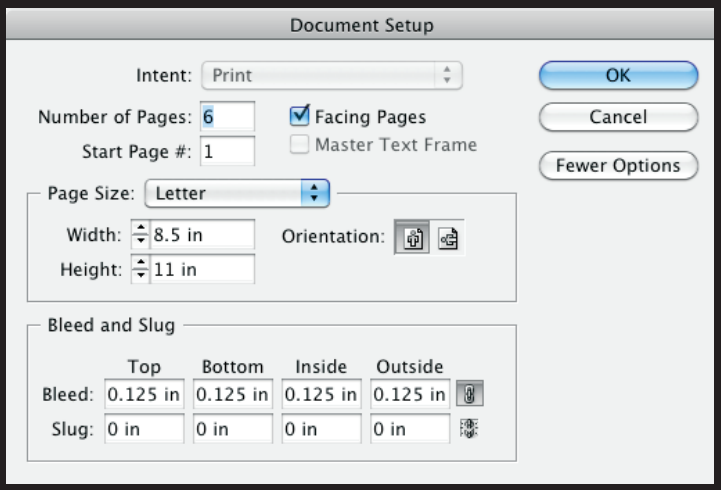
The ppi (pixels per inch) that you need to use depends on how it is intended to be printed and the lpi (lines per inch). If it is going to press the general rule is to have ppi that is two times as much as the lpi.

For example:

Something that is going to print 150 lpi (an old common commercial offset lpi) would be good at 300 ppi. If you were going to print at 100 lpi (a line screen for some color newspapers) a ppi of 200 would suffice.

Bleeds!

Did you include bleed? Something like that may sound as though someone is asking if you have done your weekly sacrifice to the print gods, but really, Bleeds are areas of color that extend past the intended trim size (final size) of the document. This is intended compensate for the margin of error in the cutting process so that no white space shows along the edges in the final process. This document was set to bleed at .125 inches (1/8 inch) which is a standard bleed setting. If you have an InDesign CS5 document designed with bleeds, then a red box should show you where your bleed margin is. The black line is the where the final trim will be.



The InDesign dialogue box can be found under "more options" in Document Setup and also when creating a new document.

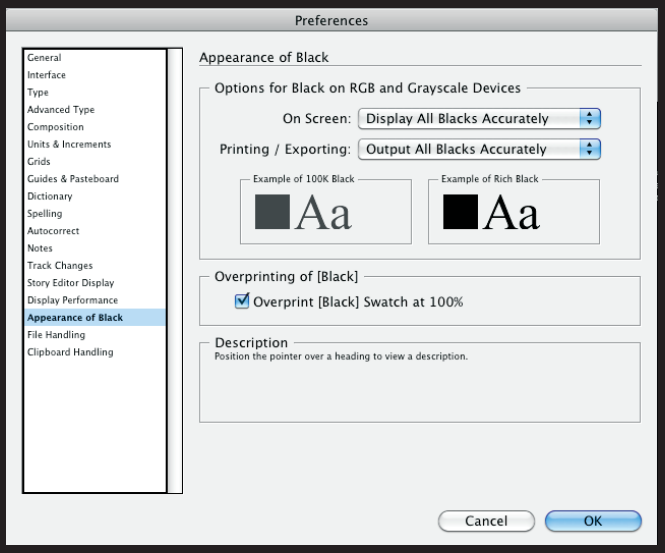
No, no, not that.

What is slug?

Slug is another area that extends past the bleed, this is used to put information such as job title, time, only if needed, this bit of information may be referred to as a slug line.

Appearance of black

As you may have noticed the black on the cover of this sheet may appears to be a darker black than the black background of this spread (in the digital file it is a lot more noticeable).



The default in InDesign is to display and export RGB and Grayscale elements as rich black. If your intent is to make anything for print, I like setting them as seen above so I can tell when designing.

Rest assured this spread is 100% black, the black on the cover, however, consists of more than just black color, it is a mix of cyan, yellow, magenta, and black which is known as rich black. Black that comprises of 100% of all four process colors is known as registration, for reasons that it is used by pressmen to make sure that all four printing units and colors are lined up and in register.

Rich black is sometimes a stylistic choice that adds more of a darker "richer" quality to the black, however it is not always welcome. Rich black poses the most problem when it comes to registration, and is usually less of a problem in digital print but should still be looked for. In any case We want to avoid rich black in normal type elements as it would be unnecessary and cleaner.

Reverse Type and fine lines

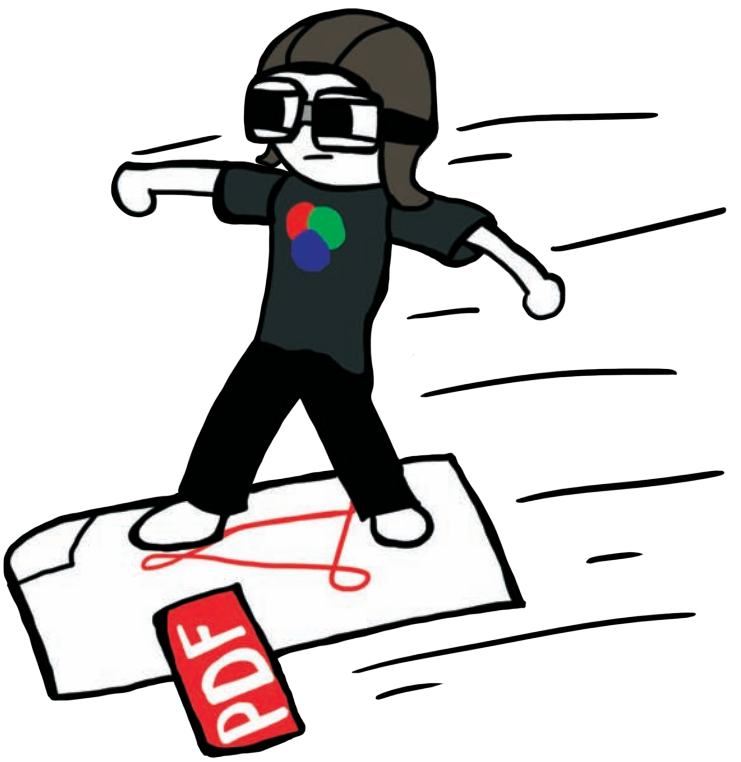
Ink, however viscous it , is still a liquid. Paper, however coated it is, still harbors absorbent properties. This lovely pairing leads to the wonder of dot gain (optical dot gain withstanding). The finer and finer, smaller and smaller a line gets, the harder it is going to reproduce. In the case of type there will be a point where you lose legibility because the ink has basically filled in the hole that was left by the type. The size of the line/type all depend on a combination of lpi, paper and ink type. So keep in mind very thin lines reversed out generally do not bode well. (Once again depending on many factors)

RGB vs CMYK

As you may know the basis of printing is four colors, Cyan, Magenta, Yellow and Black. With the combination of these four colors in dot patterns we can reproduce a myriad of colors! With CMYK, zero percent of all colors result in the substrate color (white is usually the case). The combination of all four will be black. Visual colorspaces work in RGB, which means Red, Green, and Blue lights. A mixture of all three of these would result in white, and the absence of all three will be black.

Printers and Presses use CMYK because they print with cyan, magenta and yellow ink. Monitors use RGB because they display with red, green and blue pixels. Now, this plays a role in prepress because colors will eventually have to be converted to CMYK for the final output.

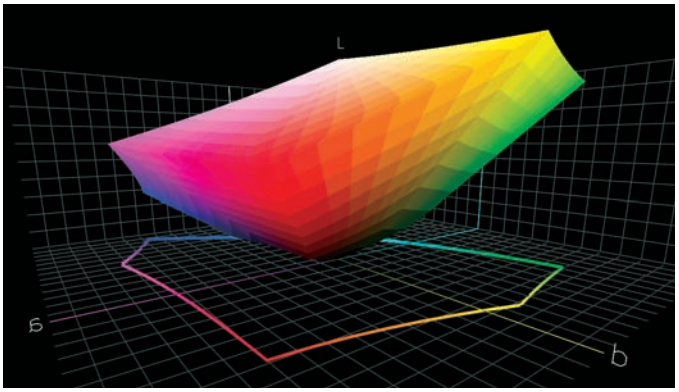
So how should you work? My preference is a mixed colorspace workflow. I personally like my images to be in RGB (unless they are meant to be grayscale in which case I change them to grayscale in Photoshop and not RGB) and my document colors to be in CMYK. This way when you export your PDF, you can convert the RGB elements to a selected press CMYK color profile and leave your working CMYK. Please do make note of your the colorspace you are working in, and more so what profile it is. You will get better results if you work in a colorspace that is more suited to how you are going to print!



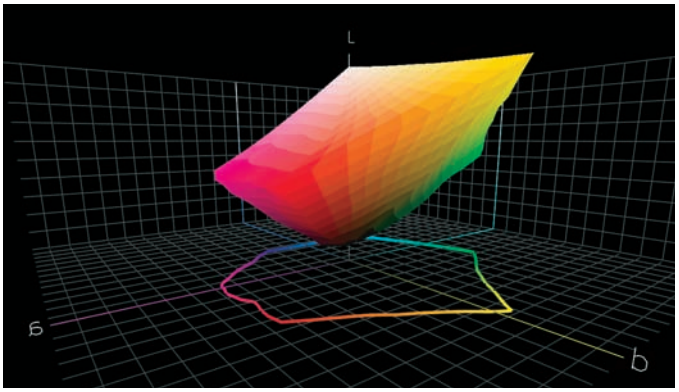
Color Profiles

So over to our left, I talked about RGB and CMYK colorspaces. Color Profiles are a way of describing those colorspaces. Different monitors, presses, printers, cameras, scanners can all be profiled to describe what areas of color they can output or display. Working with color profiles helps give you a better idea of how your document will look.

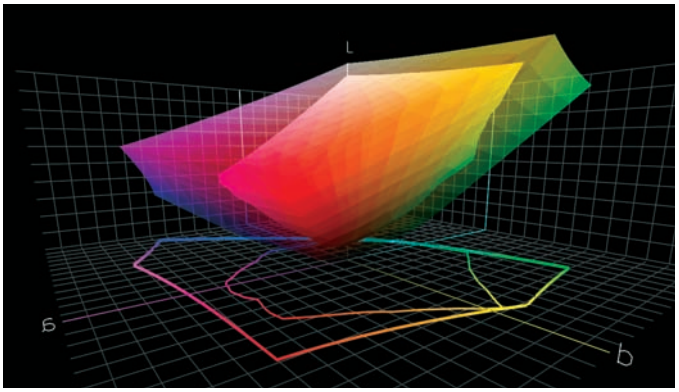
To better see what we're talking about I've taken some screen shots from Color Think Pro, which allows us to visualize and compare color profiles, and also look at pretty colors, which in my opinion, is always fun.



This is a RGB display profile.



This is a CMYK profile of an printing press.



And here are both of them together. As you can see The CMYK one is only a slice of the RGB profile. (Which is in part is only a slice of what we can visually see!)

Transparency!

Transparencies are mysterious things, but are becoming a problem of the past! In fact the new PDF/x standard even accepts live transparencies! In the past we would have to resort to flattening files in order for them to go through the rip or print right. However this would sometimes have the grace of smashing something with a hammer.

What are transparencies? Well things like layers with opacities, drop shadows, and various other effects. Most new prepress workflows are now using a PDF print engine, and can definitely handle live transparencies so you won't have to worry about it.

What to mainly be aware of is that in some cases whoever is printing may tell you to flatten your file, which is probably do to the capabilities of their rip and workflow. If this is the case then just check your results after you flatten because funky things can happen. I would recommend staying away from flattening unless you really have to. A note that if you save a PDF with acrobat 4 compatibility (PDF 1.3) It will be flattening.

PDF standards

They are actually many types of burritos out there, er, I mean PDFs. They can range from interactive PDF to what are known as PDF/X. PDF/X stands for PDF for eXchange. In ancient times rumored to be around the early 2000s a tribe known as the Ghent work group got together with some others and decided to make print standards for PDFs. This resulted in the first PDF/X. The idea behind these standards were that you could save this one PDF as this standard, and what you see will be what prints.

These print standards reflect mostly what current RIPS and prepress engines can handle. So it is good to know what these standards do so you can better build a document for print.

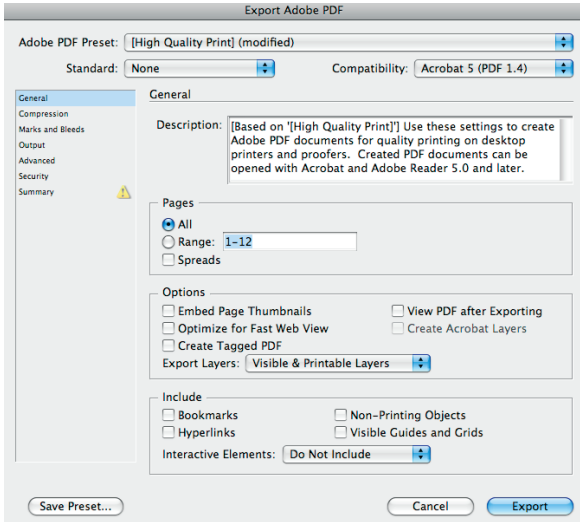
The main standards and some basics of what they do:

- PDF/X-1a: (2001) These converted everything to CMYK, flattened the document, embedded all fonts and images, did not support layers.
- PDF/X-3: (2002)Allows for other color spaces and ICC profiles, flattened document, embeds everything, did not support layers.
- PDF/X-4: First standard to support live transparencies! It also supports ICC profiles and embeds fonts and links, and supports layers.

Creating your PDF!

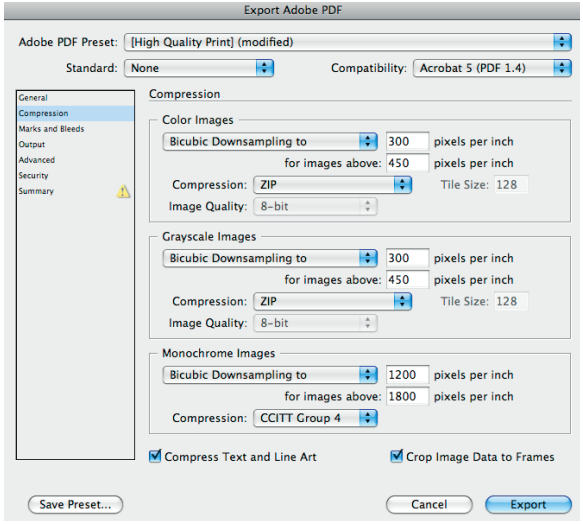
So, You've built this awesome document in InDesign or Illustrator and you are ready to export as a PDF. (Don't forget the spell check and proof read!) Now it is time to export your document as a PDF for print. Here are the more important parts of exporting and what the following settings do:

General Settings



In the General setting section you can choose from a PDF preset, or go ahead and start choosing your own settings. There are the options to export specific pages only, an option to export as spreads (generally used for preview and not final exports) and other small options which don't really apply to PDF's for print as well as selecting acrobat compatibility. Remember, if you select Acrobat 4 (PDF 1.3) compatibility, it will be flattening your PDF!

Compression and Downsampling

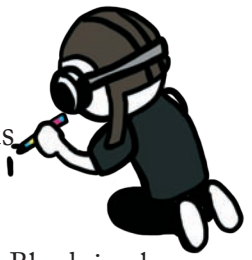


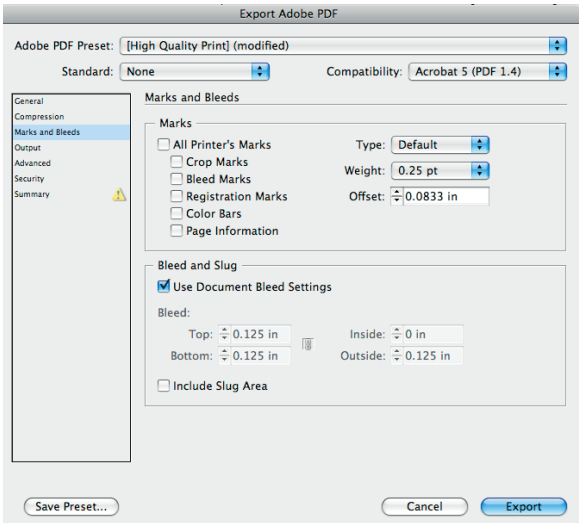
Under compression is where you choose options that effect size and final ppi of the images an in the file.

Downsampling an image will take anything with a resolution higher than one stated and reduce it to one specified. Downsampling to 300 ppi is okay for most printing processes. (Remember our talk about PPI and LPI) You shouldn't have to worry unless printing at a lpi or high resolution inkjet.

Compression effects how images are compressed. This can save you final file size. So if you do compress use Zip. Jpeg compression is harmful to images and can cause lose of quality, but it does save a lot of file size. If this is a PDF for print you shouldn't have to worry about image size. Zip compresses what it can without any loss of quality.

Marks and Bleeds



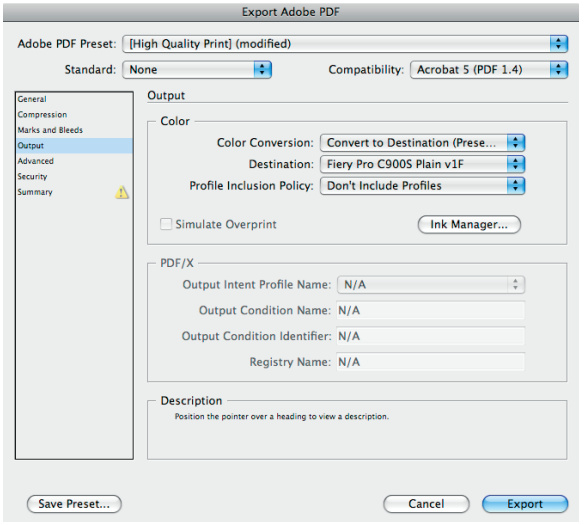


Marks and Bleeds is where you can select to export a PDF with crop marks, other printers marks and bleed.

Marks: This depends on how you're printing it. Some Print shops may want you to include bleed marks so they know where your bleed is or etc. Some may not want crop marks but would still want you to export with bleed which is in the step below it.

Bleeds: Here is where you select to include final bleed size in your exported PDF. So if your final document size is 8.5x11 inches and you built it with .125(1/8) inch bleeds then this will export your file as 8.75x11.25 (which is how you want it!). If you built your file correctly with bleeds, all it should require is a check in the box!

Output



Remember when I mentioned converting on export in RGB vs CMYK section? Well here's where that comes into play! There are many different ways to handle color. It really, as most things do, depends on the printer's workflow.

Here you have three drop down menus. Color Conversion, Destination, and Profile Inclusion policy. Color Conversion chooses what you want to do, Destination is the color profile that you are choosing to convert to and the inclusion policy is whether or not it leaves a ICC profiles attached to your document.

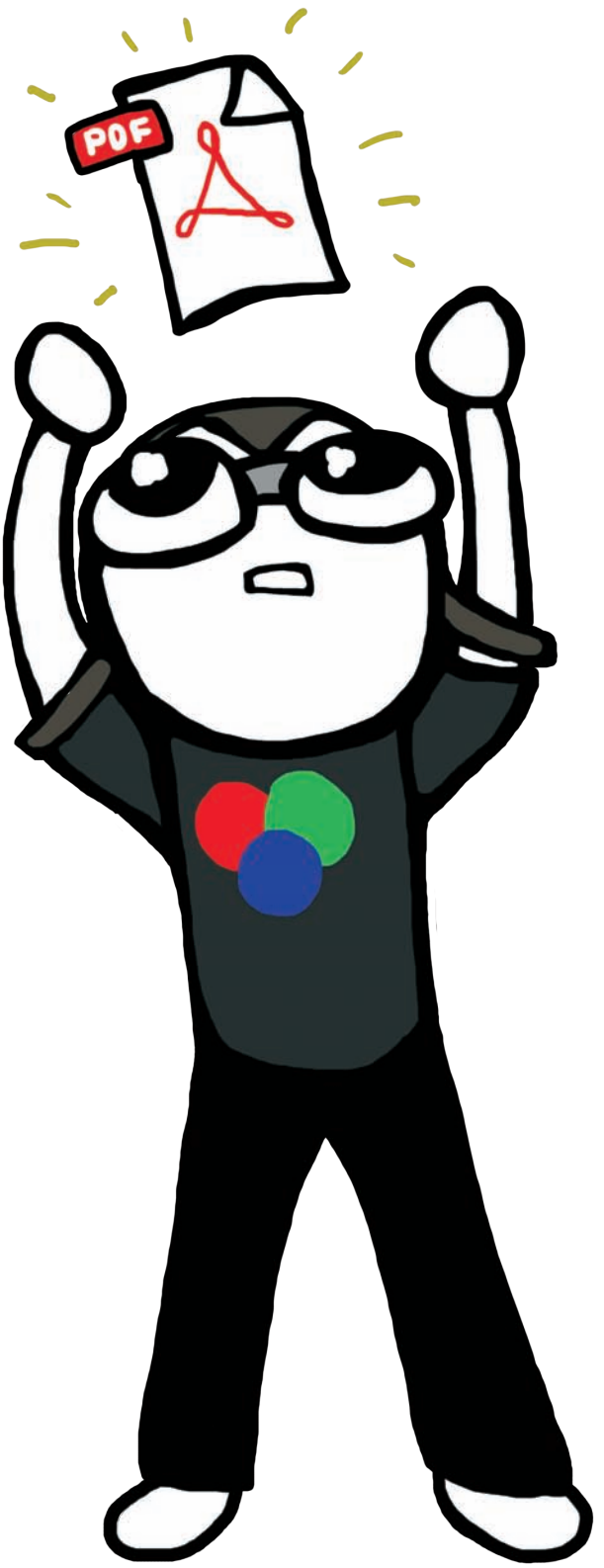
Under color conversion it will give you the three options, no color conversion, convert to destination and convert to destination (preserve numbers). No color conversion will ***not*** convert any of the colors, your RGB images will stay RGB images, and your CMYK will stay your working CMYK.

If you choose Convert to Destination, your ***entire*** document will be converted to the profile that you select in the Destination drop down. (This will affect everything including text).

If you choose Convert to Destination (preserve Numbers) Non-CMYK elements will be converted to the profile, and anything that is already in CMYK will not be affected as their numerical values should remain unchanged.

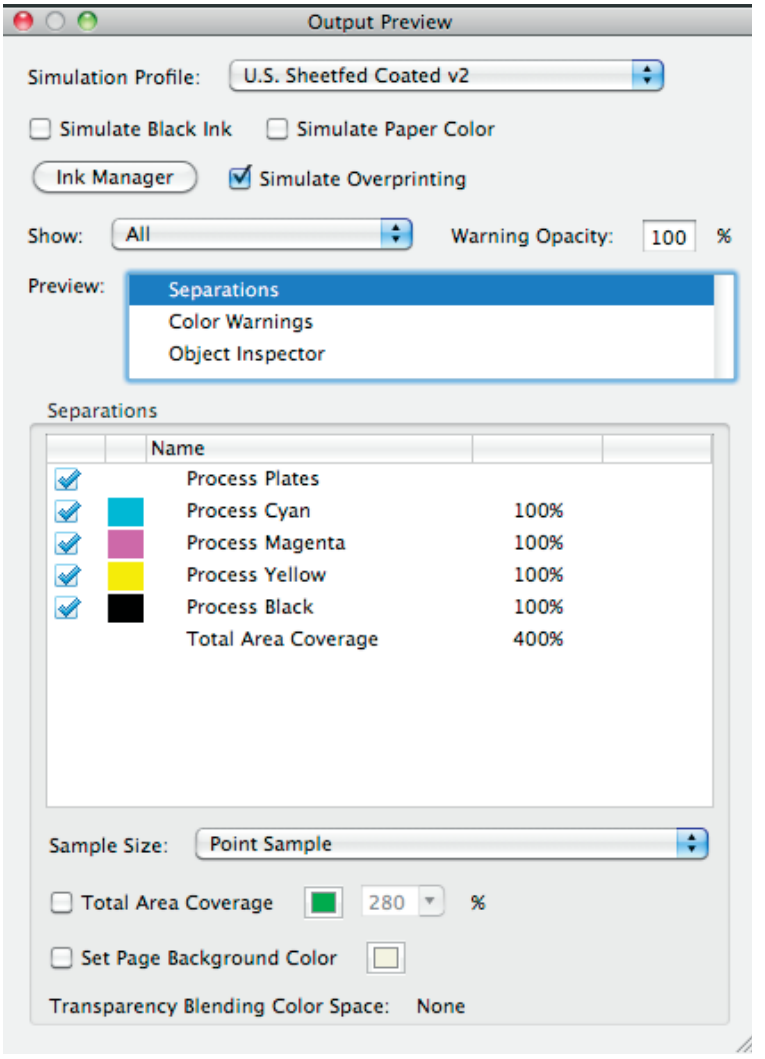
Click export and...

Print ready PDF acquired!



But wait! We're not done yet!

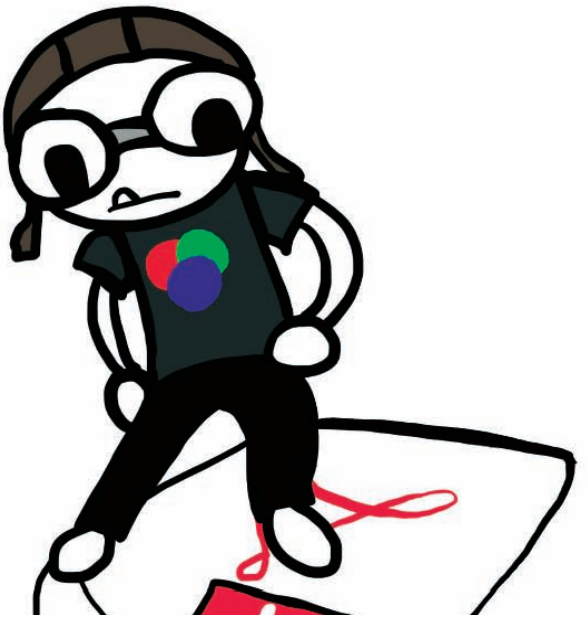
You may have been careful when and diligent when preparing your file, but It doesn't hurt to double check! If you have access to Adobe Acrobat, you have access to some pretty handy tools that let you check through your PDF for anything you might have missed and anything that may have happened in the conversion.

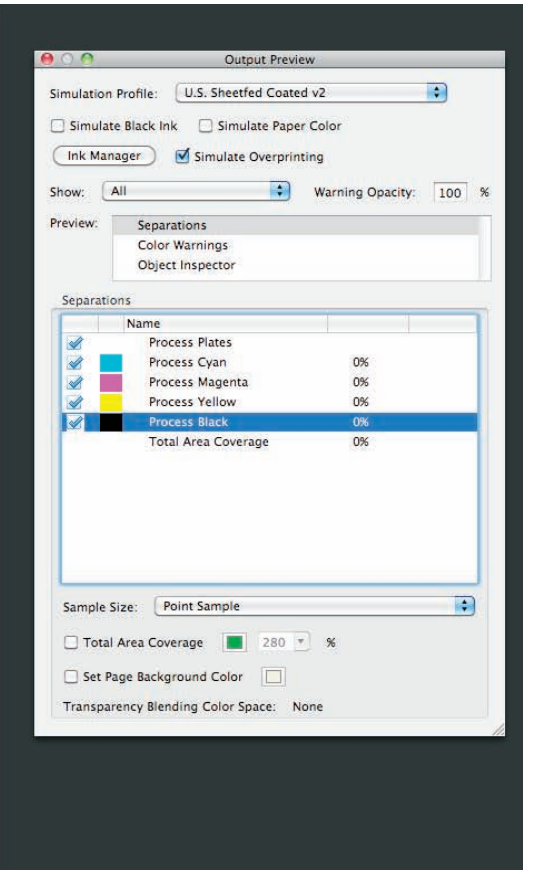


In Acrobat 9 you can find some tools if you go to the menu bar then Advanced >Print Production . In Acrobat X it's still there you just have to do some searching. The output preview option is rather handy for checking color and previewing your document. If selected it should bring up some kind of window that looks like the panel on the left. In the drop down menu "Simulation Profile" it will simulate your document with a color profile (if you converted in your export select the one you exported to in output intent!). Color accuracy depends on many things, such as a calibrated LCD monitor, but at the least it should give you a better idea of what the colors will look like.

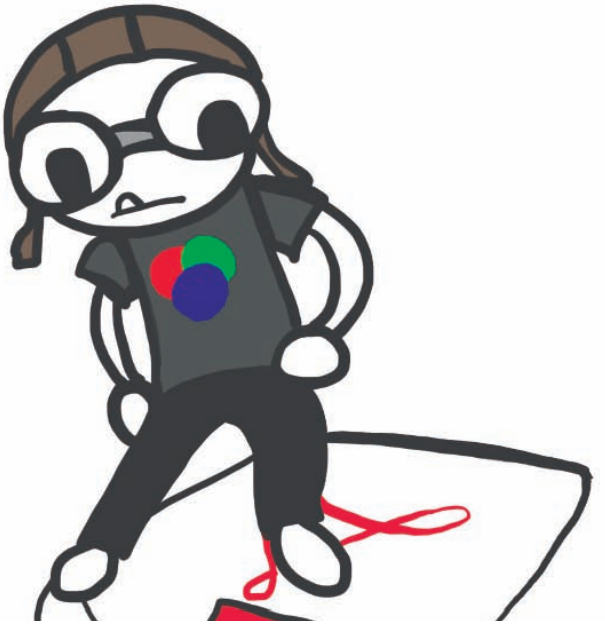
Welcome to pre-prepress!

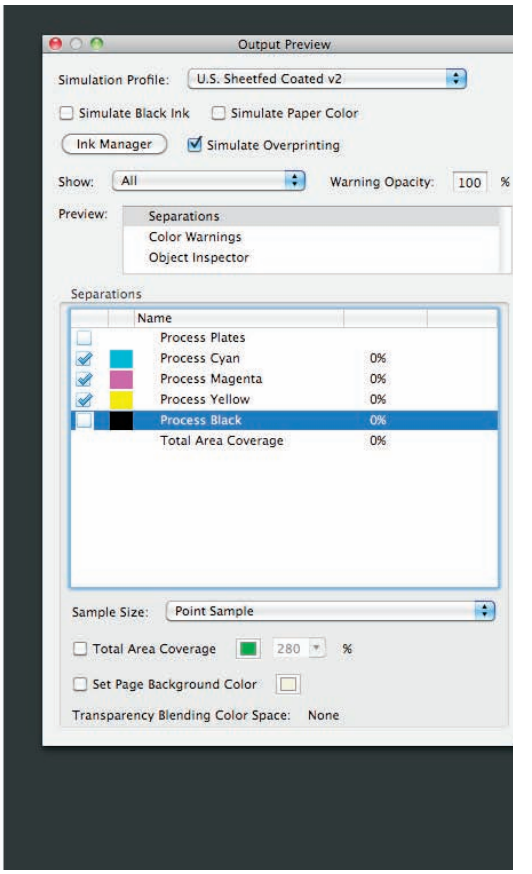
I'm putting together this guide in hopes it will help with some basic file preparation knowledge. Chances are you know most of this which is a good start, but I thought it would be nice to write down! The following is a basic guide for preparing files using Adobe InDesign and making a print ready PDF!

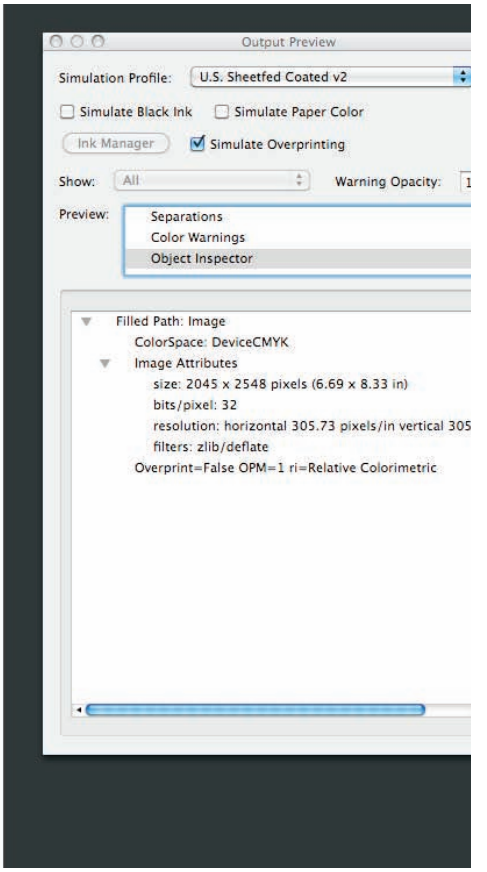




One thing I like to do is to check to make sure my text and objects aren't rich black. You can do this in color warnings, but I prefer to uncheck the process black separation so anything black will now be hidden and all that will be left on screen are images and objects composed of cyan yellow or magenta. If you still see text left behind then it was rich black! As you can see below, no text is showing so we are good to go on that page.





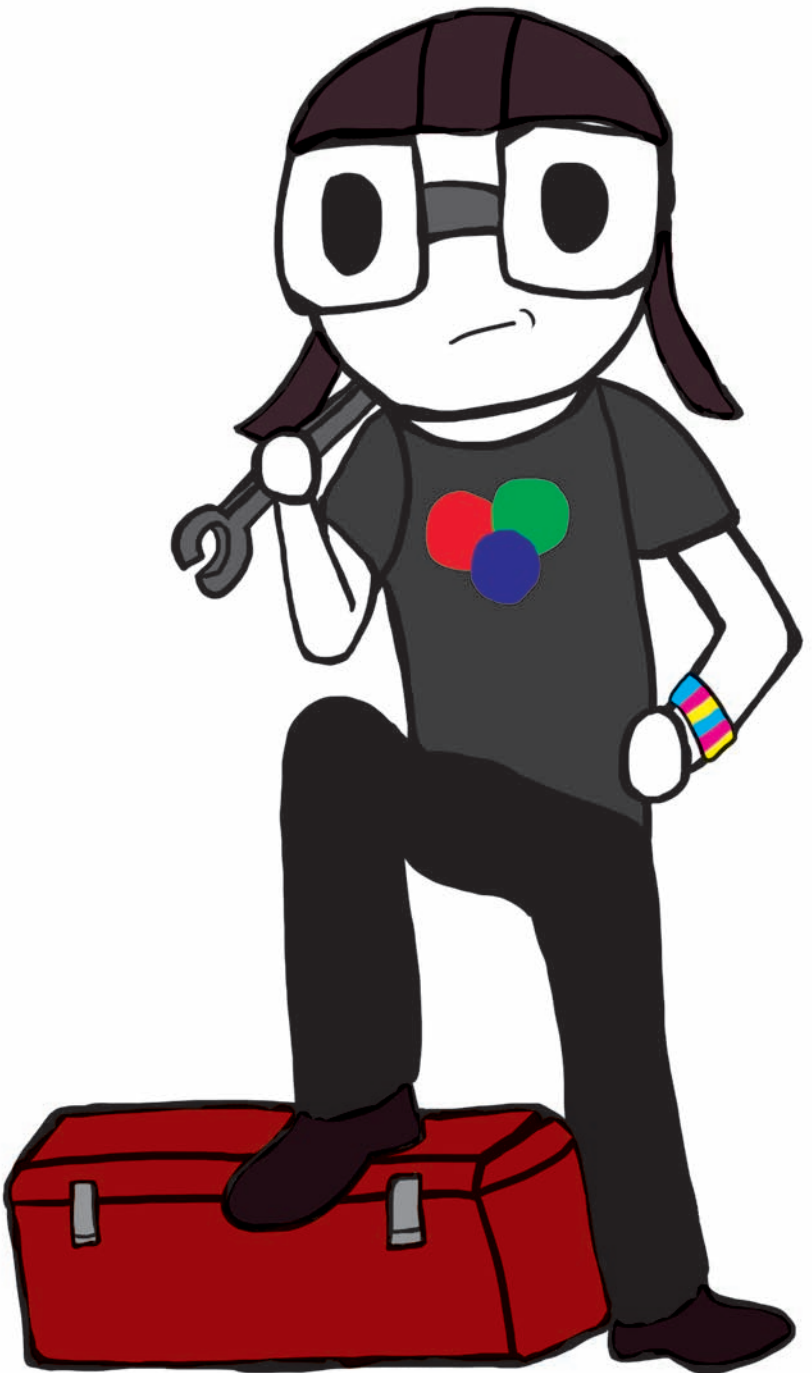


You can also check the image resolution and color spaces of photos and other image files inside your PDF with the output preview. This is done in the object inspector preview setting. When selected you can see the color space. In this case it is DeviceCMYK which is untagged CMYK because I exported this document to convert to a certain CMYK profile and not include color profiles, but if you did include them it will show here!

In the Image Attributes part we can see the what the ppi of this individual object is. In this case it is 305 ppi which is plenty good enough for the quality of print it is headed towards.

Fixin' It

If you found any errors in your PDF then you may have to go back to your InDesign document and edit and re-export it. (Practice makes you better!) Sometimes you will have to fix the original images (edit them in Photoshop) and what not, but it is all so worth it. Sometimes it is fun to fiddle around things to see how they work. (Be careful not to overwrite original files if something goes terribly wrong it won't be the worst thing in the world.)

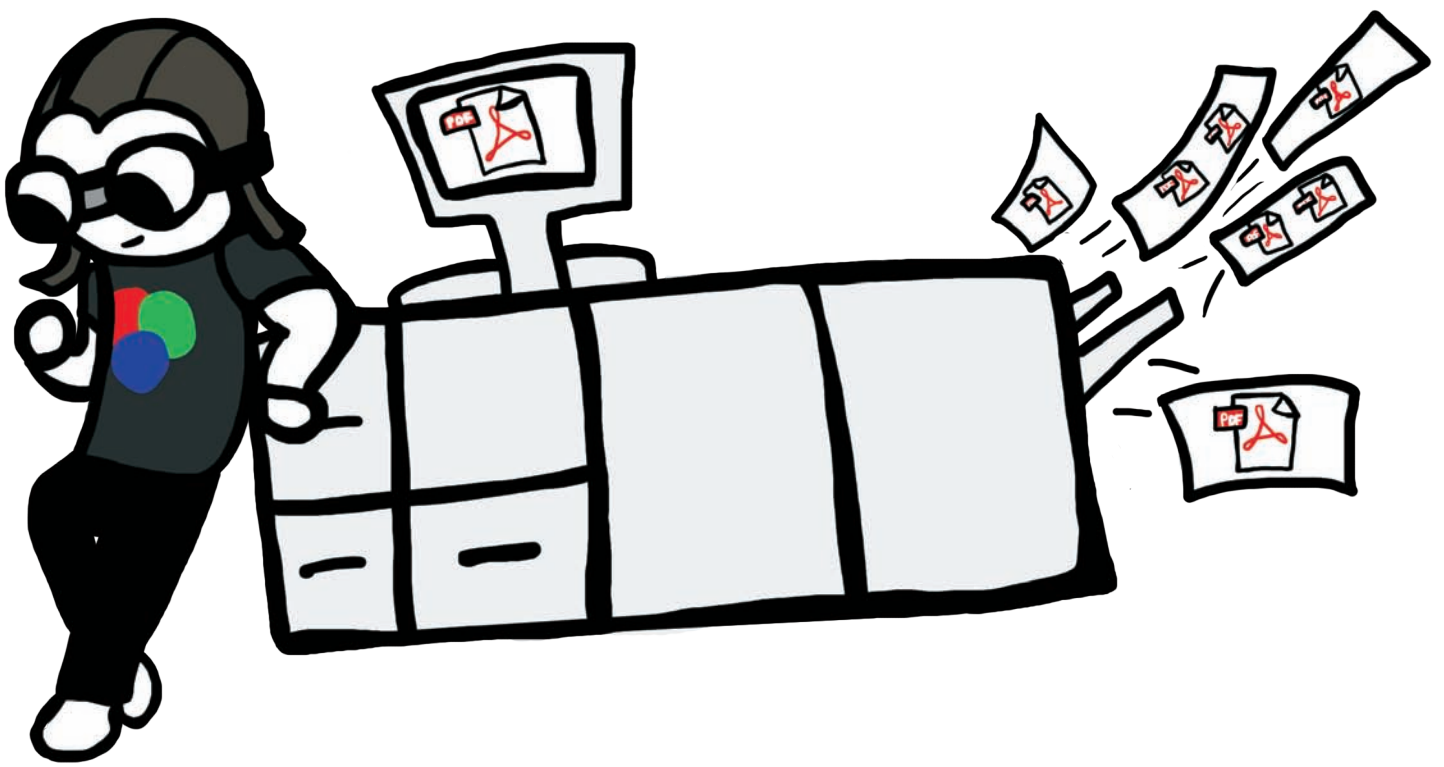


Finally! That took long enough.

So there you have it, a print ready document that shouldn't cause anyone down the line any grief! (Image color preparation being another topic entirely). Double checking never hurts though! (It also may help you catch any grammatical, spelling or typographical errors).

I hope this was at least a helpful start in beginning to understand basic ideas of preparing a file for print and more specifically a PDF! Remember, a printer can't make a file that doesn't look good originally look great, but they can take a great file and make it look equally great and handling the file and creating a PDF correctly is an important step toward that!

-Martin



A booklet by Martin Knobel

CMYK EP photo by Jan T. Scott.
Slug Photo from wikipedia commons
Illustrations and Mc Frontalot photo by M. Knobel
Typefaces used were Futura and Adobe Caslon Pro (and a little courier)
This was designed in Adobe InDesign Cs5
Illustrations drawn in Adobe Photoshop Cs5 with Wacom Tablet