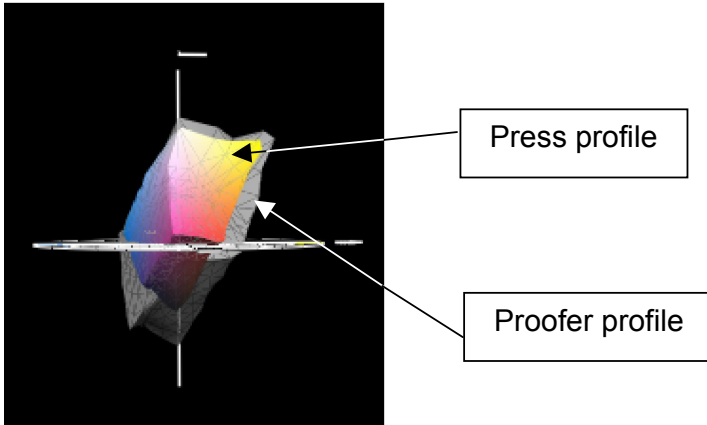# Digital Proofing

Ian Calhaem, Forensic Imaging Limited, Auckland

Proofing devices are only useful if they are able to display the colours produced by the Printing Press. This is only possible if the colour gamut is larger than that of the press. The colour profile then manipulates the colour data so that can be accurately displayed.

It should be noted that an RGB monitor cannot display process yellow, as used in the CMYK printing process. Therefore a soft proof will always show reduced yellow.

Press profile

Proofer profile

Soft Proofs

A soft proof is obtained by sending the colour information from the application through the Press profile and on to the monitor. Thus the colours that arrive at the Monitor are those that can be produced on the Press. The Monitor profile is then used, automatically by applications such as Photoshop, to convert the CMYK Press values into appropriate RGB values for displaying on the Monitor.

Soft Proof settings
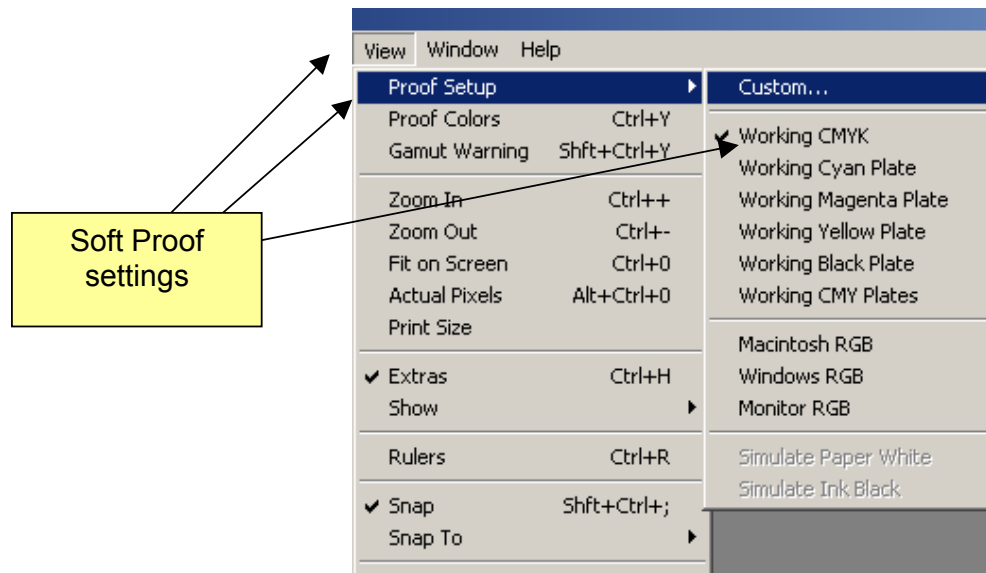
Hard Proofs

The hard proof is obtained in a similar way. The colour information in the image is first output through the Press Profile, and then sent to the Proofer profile.

Selecting Working CMYK chooses the Press Profile, then the Proofer profile is chosen in the Print output dialogue. The rendering intent for the conversion from the original RGB to Press CMYK is usually perceptual if the image is a photograph. Because the resulting image only contains colours that are printable on the Press, and because the proofing

device has a larger gamut than that of the Press, all colours should be printable on the proofing device. Therefore the correct rendering intent is "Absolute" if the paper in the proofer is different to that on the Press, or "Relative" if the paper is the same colour as used in the Press. Absolute and Relative rendering indents treat the white points differently.
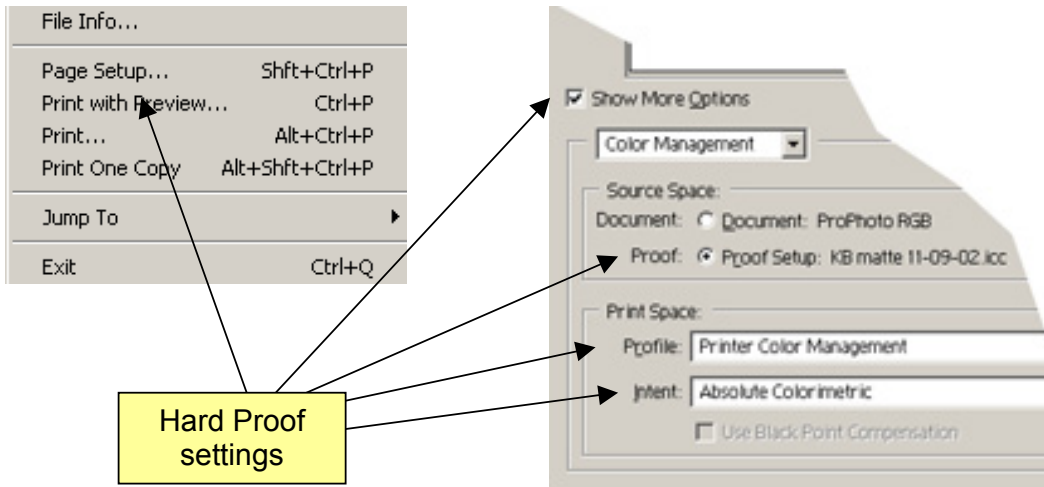
Testing the Digital Proof

The final stage is setting up a reliable colour managed workflow is to test it. As the colour information moves through the system it is processed through a number of different mathematical calculations. It is possible for small errors to creep in.

A simple test of the process is to print the test chart that was used for profiling the press on the proofing device. By definition the colours in the Press output are in Gamut. That is, they fall within the colour capability of the Press. Therefore when outputting the test chart the rendering intent should be set to *Relative* to convert the original CMYK to LAB, and then *Relative* again to convert to the proofer colour space.
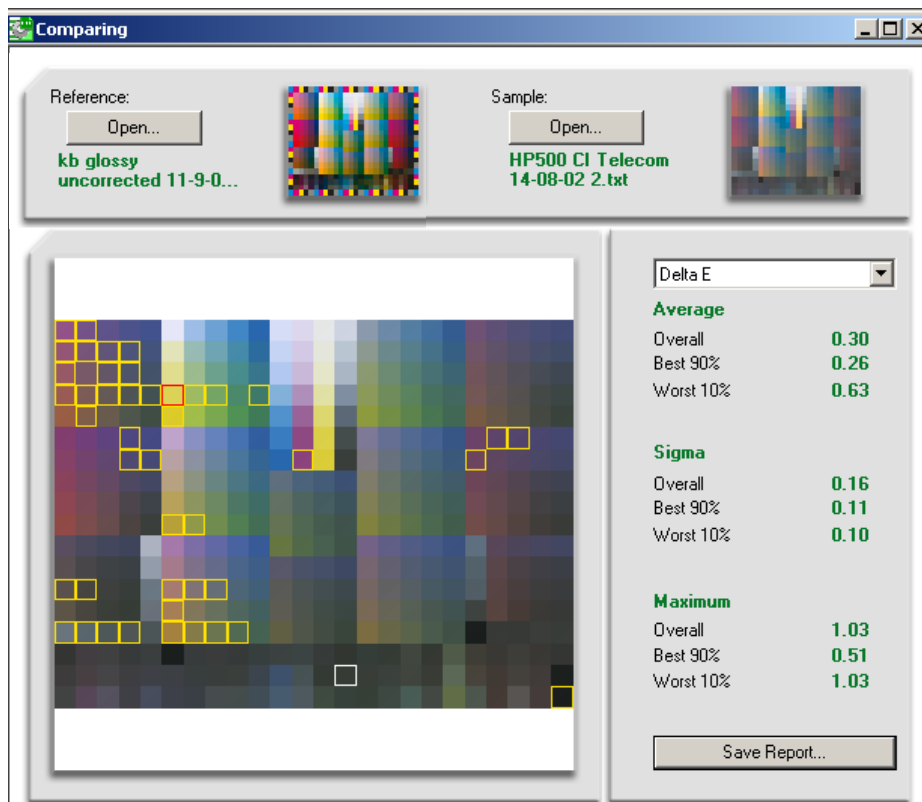
In general when a profile is tested certain colours will require editing to obtain the best possible results. These colours tend to be those that the human eye is more sensitive to. I.e. blues and purples. The other area usually requiring editing is the white point.

White Point Correction

Each ICC profile contains the white point that was measured on the test chart. When a number of profiles are combined in a colour workflow the white point often needs slight modification to prevent the image taking on a colour caste. Software such as GretagMacbeth ProfileEditor allows fine-tuning of the workflow white point. The results can be seen during editing on a test image.
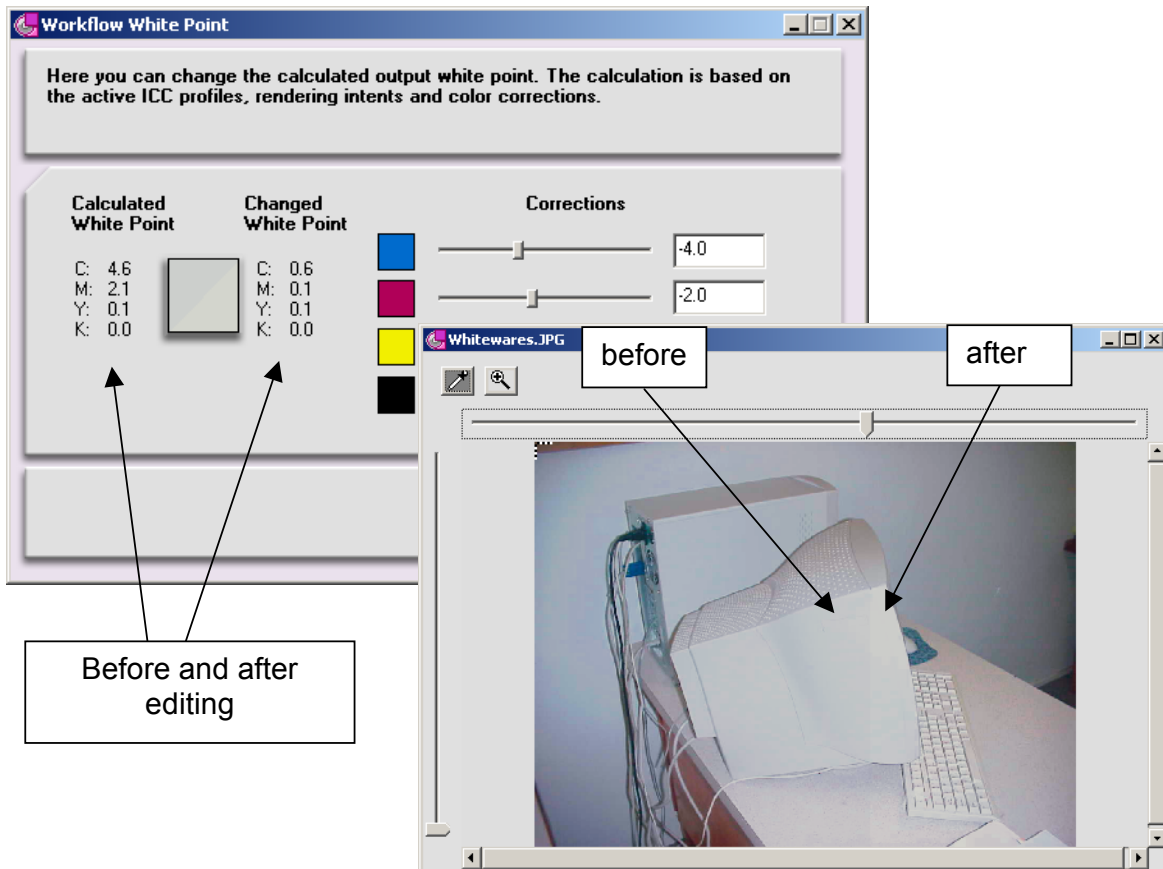
Summary

A colour-managed workflow removes the uncertainty of colour printing. It is possible to achieve excellent results for both soft and hard proofs. The profiles need to be created carefully with a sound knowledge of which areas are critical to obtain high quality output. And when created they should be fine tuned to ensure that the proofs are as accurate as possible.

A good proofing system is time consuming to set up, but pays for itself many times over. Press set up time is reduced; rescans are a thing of the past, and Customers expectations are realistic. The colours seen in the proofs are what will be achieved on the Press.

A Final Reminder….

Colour management is just that -- It produces predictable results; it does not correct a bad original.

Colour Management

LET FORENSIC IMAGING MAKE COLOUR MANAGEMENT WORK FOR YOU

Ian Calhaem	David Brown
ph (09) 579-0512	ph (09) 529-2318
Mob (025) 936-785	Mob (021) 594-715
Email IanCalhaem@Forensic-Imaging.co.nz	Email David.Brown@Forensic-Imaging.co.nz

Forensic Imaging Limited