Unit 304

DIGITAL PRE-PRESS PROCESSES

Compatibility problems between software and hardware can be listed as:

- Incompatibility of computer operating systems:
  Mac, Windows, or Unix
- Different software versions used by the customer and pre-press
- Incompatibility of some fonts and image file types between platforms

There are software products available which will solve many of the issues of compatibility and they include:

- Specific software which allows different platforms to communicate across networks
- Converting fonts and images for use on different platforms
- Creating PDF files which will open on any platform

COLOUR

High Resolution colour images may exist in either RGB or CMYK mode and maybe composite or separated.

Colour separation of original images and conversion to CMYK mode can take place:

- When the original is scanned
- During or after any retouching using graphic software
- At the output stage from page make-up software
- When the document or file is sent to a colour printer
- When the file is 'ripped' for printing to an imagesetter or CTP system

It is critically important for reliable and predictable colour reproduction that the pre-press operator knows where any colour separation or colour mode conversion is taking place within the workflow. Colour management profiles and software colour settings need to be properly configured where there are mode conversion and colour separation.

Colour Management
The primary function of colour management software is consistency of colour tones and reproduction of colour on any hardware device, this is achieved by:

- Determining the standard and meaning of colour objects in an original document
- Translating the colour values of each object to values that give the same appearance when displayed or printed on different devices
- Maintaining files containing the colour characteristics or profiles of different devices and using the information contained in a device profile when printing or displaying to that device.

The following are areas in a pre-press system that need colour management:

Computer display
Scanner and separation software
Printers and imagesetters and their 'RIP' or printer drivers
Page make-up and graphics software

Terms Used in Digital Image Reproduction:

Screening: The process by which the tonal variations of a continuous tone image are simulated by a pattern of dots.
They are generated by a RIP

Bitmap: A digital image made up of dots or pixels

Vector: A digital image made up of lines and curves, these images can be enlarged without affecting the quality

Retouching
After pictures have been retouched the files should be converted to either:

- CIE LAB
- LAB

Below are a list of defects that may need to be retouched in a colour photograph:

- Contrast
- Brightness
- Moiré patterning
- Dust and scratches
- Tonal value range
- Colour cast
- Under or over exposure
- Saturation
- Hue shift
- Image sharpening

Scanning Line and Tone

Postscript Halftone Screening

Read notes and answer questions

Stochastic screening uses a pattern made up of very fine irregular shapes creating moiré free images.

If a photograph uses too few grey levels it will lead to banding in the printed image, this is because the change from one grey level to the next is too great.

Approximately 256 is the usual number of grey levels in high resolution printed work. The human eye cannot distinguish between more grey levels than 256. Also the 2 factors that determine the number of grey levels that can be produced on any output device is:

- Screen ruling being used
- Resolution of the output device, printer or imagesetter

Prior to the commencement of scanning the scanner must be calibrated and an accurate profile for the device correctly configured in the scanning software.

The dynamic range of a scanner will indicate the range of detail that can be obtained from the original and converted into digital format.

Scanners may scan images in RGB format and then convert the information to CMYK prior to displaying the image on the screen. Alternatively the RGB scan can be converted at a later stage of processing.

IMPOSITION
The aim of imposition is to:

- Optimise the printing and post print processes
- Achieve efficient use of materials
- Provide aids to maintaining quality

For most jobs being printed there are normally several imposition schemes that can be used, below is a list of factors that can influence the choice of scheme:

- Specification of the folding machine
- Number of folding plates
- Configuration of folding units
- Direction of sheet infeed (long or short edge)

Imposition Template
Before laying down pages to form an imposition it is worth producing an imposition template – this is to identify the various image positions as they will appear on a printed sheet. This can take the form of a rough drawing or can be an accurate drawing to scale showing all the pages and images.

Imposition Terms

Plate Clamp Allowance
The distance from the leading edge of the plate to the first position for the image, that will fall beyond the machine plate clamping mechanism.

Grip Allowance
The distance from the leading edge of the sheet to the first position for the image, that will fall beyond the machine gripper transfer mechanism.

Grip Edge of the Sheet
The edge of the sheet which will be held in the printing machine's gripper mechanism.

Lay edge
Refers to that edge of the sheet that is at right angles to the gripper edge and is used to maintain accurate registration of the image from side to side.

Image Carriers
Factors to be considered regarding image resolution in relation to the image carrier are:

- Screen ruling to be used
- Capability of image carrier

The following are image carrier systems available for digital pre-press:

- Lithographic printing
- Photogravure printing
- Screen Printing
- Digital file output

PROOFING AND OUTPUT TO FILM OR PLATE

Preparation For Output

Read notes and answer questions

Colour Profiles
This is the colour characteristic of a hardware device, such as a scanner printer or monitor. The main purpose of colour profiles and calibration is to ensure colour consistency across different systems and hardware.

Soft Proofing
The client checks their pages by viewing them on calibrated monitor. Not always good practice as the colour on the page will appear much brighter.

Raster Image Processor
Hardware or software, which converts a file in a page description language to a bitmap image for output at the correct resolution for the device.

File Formats

Read notes and answer questions

Advantages of Distilling Postscript Files to PDF Format

- Gives the opportunity to reduce the resolution of images and line artwork in the original document to a specified size
- Significantly reduce the overall size of the file
- Ensure that the subsequent use of the PDF is reliable.
- Provide a file which may be small enough to send as an email attachment for proofing by the customer

Preflight Software
Using preflight software performs a series of checks before output to an imagesetter. The results can be rectified before film or plates are wasted. Elements which can be checked are:

- Fonts for printing are embedded or available in the correct format
- Page layouts match any supplied proofs
- Image files are linked or embedded
- Image files are at a suitable resolution for output
- Image files are in a suitable colour mode and format for output
- Document settings are appropriate for the output device
- Colours are defined and named correctly
- Bleeds and trap specifications are correct
- Pages are available
- Correct substrate and printing process has been identified

Purpose of Flight Checking Before Imaging:

- Identify material intended for printing
- Identifying any components or settings that may prevent the document from correctly imaging
- Identifying any components or settings that may prevent the job form being printed and finished correctly

Elements to Be Checked After 'Ripping'

- Page orientation
- Position of printer's marks
- Colour separation
- Right/wrong reading
- Positive/negative
- Correct fonts
- Resolution of images
- Colour overprinting (knockout or trapping)
- Banding in tints or images