COMPARING RGB CONTONE, CMYK CONTONE AND HALFTONE PRINTER DRIVERS

EFI XF products provide more than only one printer driver for some printer models. In EFI XF 4.1 new RGB contone printer drivers were introduced for a selection of Epson and Canon printers. For example:

• Epson Stylus Pro 9900/9910 **CT** (= CMYK contone)

• Epson Stylus Pro 9900/9910 **HT** (= halftone)

• Epson Stylus Pro 9900/9910 **RGB** (= RGB contone)

In this article we provide information about the different printer driver types and describe when to use each.

CMYK contone driver

The CMYK contone driver should be your first choice of printer driver — unless you are working in a photographic environment.

During the linearization process, EFI XF sets the right ink limits and creates the correct linearization curves for the primary colors (CMYK) only. During profile generation only these four main channels are profiled. The printer libraries from the printer manufacturer are used to determine how light inks and/or printer spot colors (e.g. Orange and Green, or Red, Green and Blue) are added to the output of the printer. EFI XF does not have any influence on this.

Advantages

• Easy linearization and profiling

• CMYK profiling allows dedicated control over the black generation

• Re-linearization possible

• Optimization possible

• Quick RIPping times for jobs, as only four channels need to be processed

• Dedicated printer manunfacturer libraries take care of printer spot colors and light inks

Disadvantages

- No influence on light ink limits

- No influence on light/norm ink transitions

- No influence on dithering

- Only indirect influence on the total ink limit via media type selection

- Printer manufacturer libraries are a black box — e.g. printer spot colors might be used differently from how the user wants

Main application for use

- Continous-tone proofing

CMYK halftone driver

The CMYK halftone driver is an advanced printer driver. EFI XF does not take into account the printer library of the printer manufacturer but, instead, directly accesses any norm ink, light ink, printer spot colors and even dithering. This allows users to control all ink limits, fine-tune light/norm ink transitions and, since EFI XF v4.1, even define how printer spot colors are used and whether they replace the primary colors (to save ink) or are added to them to maximize the color gamut.

This flexibility is achieved through a more complex linearization and profiling process. Users have to review and modify many more parameters than with the CMYK contone driver. Consequently, the CMYK halftone driver is only recommended for advanced users.

Advantages

- Influence on light ink limits

- Influence on light/norm transitions

- Direct influence on total ink limit

- Special media can be handled due to the advanced ink limiting control

- The ink consumption can be directly influenced

- CMYK/CMYKOG/CMYKRGB profiling allows dedicated control over the black generation

- Re-linearization possible

- Optimization possible

- The user can apply EFI dithering to noticeably increase one-bit dot sharpness

- Will often provide access to higher printer resolutions than the CMYK contone driver

Disadvantages

- More complex linearization process

- More complex profiling process for CMYKOG/CMYKRGB

- Advanced know-how strongly recommended

- Fine-tuning the linearization/profiling can be time-consuming (but rewarding)

- Longer RIPping times for CMYKOG/CMYKRGB media profiles (6/7 channels need to be processed)

Main application for use

- Halftone proofing (one-bit files/screened contone files)

- Use of special media (e.g. Bamboo Paper, Newspaper, Dotfilm, media from third parties)

RGB contone driver

RGB contone drivers are the latest additions to EFI software RIPs. Initially introduced with EFI eXpress v4.1, they are now also available in EFI XF v4.1.

The drivers were mainly created for photographic applications and provide two main value propositions: it is incredibly easy to create an RGB linearization and profile and the output quality is very close to what users are used to from the RGB printer drivers when they print from, for example, Adobe Lightroom, Adobe Photoshop, Apple Aperture or any other application that prints to an RGB system printer.

EFI software RIPs actually use the printer manufacturer printer libraries to handle the RGB linearizations. These linearizations are pre-defined and can be individually selected by choosing an appropriate media type. EFI has introduced a new RGB profiling algorithm in EFI XF v4.1 that leads to excellent results with regard to color gamut, modulation and smooth color transitions.

Some users also like to proof with the RGB contone drivers, although this is not the main use case. This feature was first made possible in the Color Manager Optimizer tool in EFI XF v4.1 and now also supports RGB media profiles. CMYK wedges can still be used in these proofing setups and the results (visually and dE) can be very good.

Advantages

- Ideal to print RGB image data (photo/production)

- Extremely easy linearization and profiling

- Optimization possible

- Extremely quick job RIPping times as only three channels need to be processes

- Dedicated printer manunfacturer libraries take care of printer spot colors and light inks

Disadvantages

- No influence on the black generation

- No re-linearization available

- No influence on light ink limits

- No influence on light/norm ink transitions

- No influence on dithering

- Only indirect influence on the total ink limit via media type selection

- Printer manufacturer libraries are a black box — e.g. printer spot colors might be used differently from how the user wants

Main application for use

- RGB photo printing

- Print4Pay applications