



EFI Dot Creator

General Information

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1 Used system configuration

This article relates to the following system configuration:

Software Version:

EFI Colorproof XF v2.6 and later, Dot Creator Option

Miscellaneous:

2 Topics

This article provides a quick overview about the general functionality of the EFI DotCreator as well as a description of current issues. Further more this article will mention standard screening files and ICC profiles which can be used for some printer paper combinations.

The following topics will be covered:

- General information
- Technical background
- Tested configurations
- Creation of ICC profiles for the Dot Creator.

2.1 General information

The EFI Dot Creator is a new product option which is available since version of EFI Colorproof XF v2.6. The Dot Creator creates a screen output of continuous tone data for example from a PDF file. This screened output can be utilized for two different strategies:

- Composite Output
- Separated Output.

Composite output means that all job related process color as well as included spot color will be printed on one page. The color will be on top of each other but according to a self defined screen ruling. The Dot Creator offers an interface where different screen ruling and screen angle in connection with printer resolution can get generated. This procedure will be explained more in detailed later on. The composite output offers the possibility to simulate different screening such as silk-screen screening or lower resolution offset screening on a off the shelf inkjet printer even if the input format is PDF or Post Script.

Instead of printing all color over each other it is also possible to print *each channel separated*. This is called gray separated output. The separated color can be printed onto transparent dot film which can be used in order to expose a plate or a silk-screen. Spot color will be printed as separated color as well. The screen ruling will be the same as used for the black channel (default but can be changed).

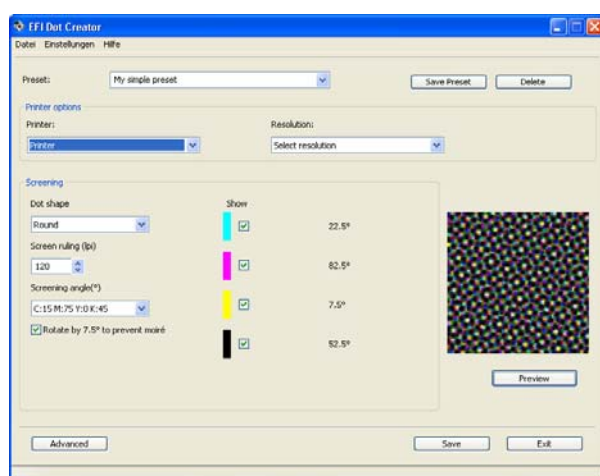
The composite proof is an interesting tool in order to simulate printing technologies which use low screen rulings. For example a silk-screen print uses very large screen ruling which are extremely visible in the highlight areas. A conventional contone inkjet proof would look too smooth and would not represent the future press result. Using the EFI Dot Creator it is possible to simulate even the rough screen impression in the highlight areas. Please note that this screen simulated output is not comparable to a screenproof output. A conventional screen proof takes the original 1-bit tiffs from the production or CtP-Rip. Therefore it can simulate the actual print result which will be printed on the press because it takes the original data. The Dot Creator takes PDF or PostScript files which still need to get ripped with the CtP or CtF RIP. Therefore it does not represent the final output.

The gray separated output targets the new Computer-to-Inkjet fil (CtIF) technology. This technology uses special prepared dot film media which can be used with conventional inkjet inks.

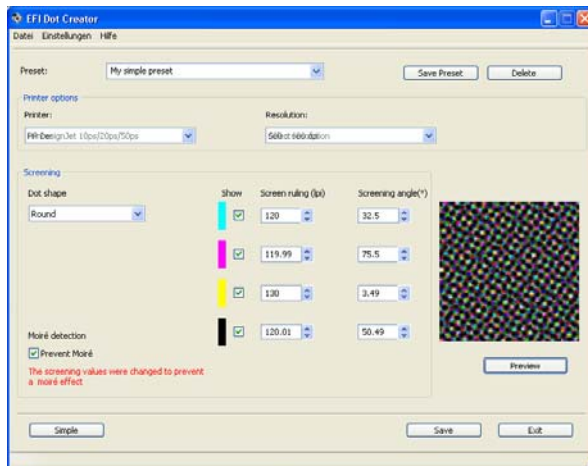
Please note that inkjet printer uses large ink drop sizes in comparison to image setter. Therefore it is not recommended to use any screen ruling size with any media.

2.2 Technical Background

The first step to a screen inkjet printout is the creation of a screening file using the EFI Dot Creator. The interface offers a "simple mode" and an "advanced mode". In the simple mode the user selects an inkjet device as well as the screen angle for the process color. These can be selected in a pull down menu.

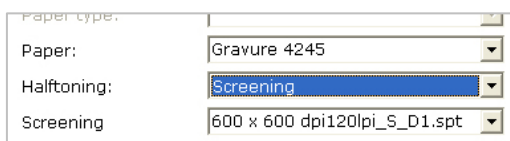


In the advanced mode the user can define the screen angle and the screen ruling independent for every channel. Spot color will get the settings of the black channel by default. But it will be possible at a later stage to change the default settings for the spot color to one of the settings from the other process color.

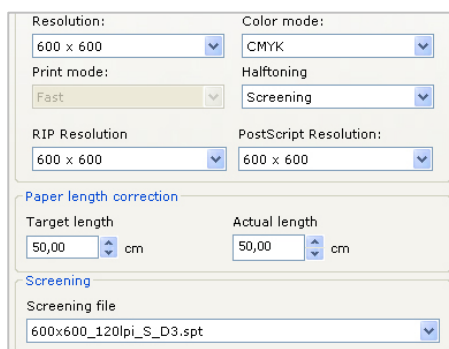


After clicking the “Preview” button the Dot Creator creates a screening file (.spt) which needs to be saved in the following folder: C:\Program Files\EFI\EFI Colorproof XF 3.0\Server\Screening.

Unfortunately the behaviour of the inkjet device will change if this screening file will be used in the Colorproof RIP. Therefore it is mandatory that a new linearization file as well as a new ICC paper profile gets created. The EFI Lintool and the EFI Color Manager offer the option to select a screening file in the settings window.



After creating the linearization file and the ICC profile the screening file will be patched into the linearization file. If the user now selects the created paper name in EFI Colorproof XF, all necessary files (ICC profile plus screening file) will be selected automatically.



2.3 Color reproduction

The conventional inkjet proofing technology uses the Color Management Module (CMM) in order to process incoming color information and send the recalculated color mixture to the printer driver. The printer driver now uses C, M, Y, K light Cyan and light Magenta ink to realize the demanded color mixture.

Using now the modified linearization file which contains the screening file, the Colorproof RIP addresses the printer in a different mode. Everything what comes from the RIP will be printed in screened output. Therefore it is not possible to send already color managed files to the printer. The RIP will send only C, M, Y, K information to the printer. The actual Color Management happens now by printing the dots on top of each other or next to each other (comparable with conventional offset technology). Even spot color will be mixed out of the four process color.

One disadvantage of the previously described method is the effect of a so called "printer moiré". This printer moiré can be described as an interaction between the work of the printing head, the resolution and the desired screen ruling. Therefore it is not possible to use every combination of resolution in combination with a screen ruling. Only specific combination will lead to the desired results without a printer moiré.

2.4 Tested configurations

EFI is currently in the process of finding appropriate combinations of printer, resolution, screen ruling, screen angle and paper.

At the moment we recommend the following configurations:

Printer	Paper	Screen ruling	Resolution	Dot shape
HP 30/90/130	EFI Premium Proof 8260 Semiglossy	114 lpi	1200 x 1200	Ellipse
HP 30/90/130	ZP 55	50 lpi	600 x 600	Ellipse
HP 4000	ZP 55	106 lpi	600 x 600	Ellipse
Epson 4000, 4800, 7600, 7800, 9600, 9800	EFI Premium Proof 8260 Semiglossy	60 lpi	1440 x 720	Ellipse
		Screen angle: 15/75/0/4		
OKI 9600	EFI 92 M	120 lpi	600 x 1200	round
		Screen angle: 15/75/0/45		

2.5 Creation of ICC profiles for the EFI Dot Creator

The creation of a linearization file and the matching ICC profile is different for composite output and separated output. Even the selection of a measurement device is mandatory. In order to create a linearization file for the composite output, every supported spectrophotometer can be used. For the creation of a linearization file for the separated output a densitometer is recommended.

The creation of a linearization file and an ICC profile for the composite output is not different than for a conventional contone inkjet proof. The only difference is that the created screening file (.spt) needs to get selected in the first step "Settings". From there on, the procedure is standard.

The creation of a linearization file for separated output is described in the Know-How article "Use of dot film on Epson printer.doc". This article is available in our Know-How Guide download area as well.

3 Executive Summary

Article summary

The EFI Dot Creator is an option for EFI Colorproof XF. It creates screening files which enables the RIP to create screened printout with standard PDF or PostScript input format. It can be used for

- Composite screened output
- Separated screened output.

Area of application

The Dot Creator targets two markets:

- Composite output for a more accurate simulation of printing technologies which uses large screen rulings.
- Separated output in order to print on dot film media using standard inkjet printer.

The composite proof provides a more accurate simulation of wide screen rulings especially in the highlight areas. Customer will be prepared how the final print result will look like.

The separated output can replace traditional image setter technologies for those technologies which uses wide screen rulings like silk-screen industry.

Please note that the EFI Dot Creator is not meant to simulate screen rulings up to 150 lpi. Due to the limitation of the inkjet drop size, it is not possible to achieve acceptable results.