

AutoBlend Screening in ScreenManager and Imaging Engine Release Notes

Peter Morisse
v. 1.0, 27-jan-2015
v. 1.1, 14-apr-2015

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2 Requirements

In order to use the AutoBlend screening technology, you need the following:

- ScreenManager 14.1 or later.
- AutoBlend license.
- Imaging Engine 14.1 or later.

3 Description

3.1 AutoBlend screening basics

Depending on plate or plate-making limitations, dots imaged on plates must have a minimal size. Below this size printing would be unstable. However, this limitation in dot size can result in not being able to reproduce light tones when a standard AM screen is used.

Therefore hybrid screens exist, that use different tone modulation types in different parts of the screen: tones in the highlights are modulated in an FM way, whereas darker tones are modulated in an AM way.

In the highlights a fixed dot size is used, and tone is increased by increasing the number of dots, while in darker tone areas tone is increased by increasing dot size.

AutoBlend screening is a variation of such a hybrid screen, it was introduced and supported in NexusRip and it is now also supported in Imaging Engine.

3.2 Implementation in Nexus RIP

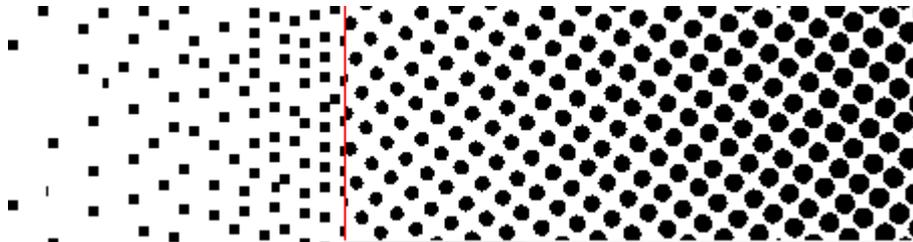
'AutoBlend' indicates the automatic blending from FM to AM: the FM screen modulation changes into AM screen modulation at the tone where the FM dot size is equal to the AM dot size.

This FM dot size can be specified by a user and is obtained from plate/printing resolution specifications and restrictions.

The image below represents a vignette object screened with AutoBlend screening as implemented on Nexus.

Left from the vertical red line dots are arranged in a stochastic grid, tone increases by adding dots.

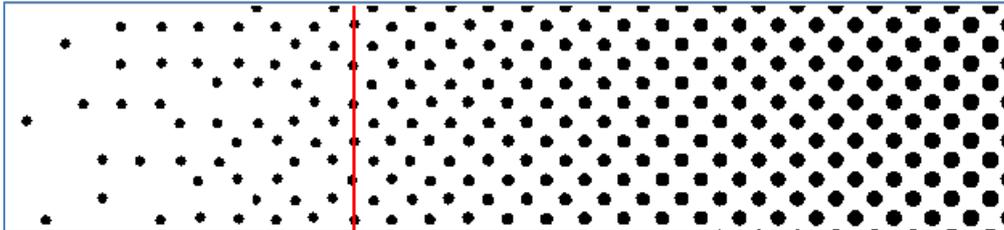
At the red line the FM dots have the same size as the AM dots. Right from the line the screen uses AM modulation.



3.3 Implementation in Imaging Engine

AutoBlend screening is supported from Imaging Engine 14.1 onwards. However, there are some differences compared to AutoBlend screening in Nexus Rip:

- The AutoBlend FM dot size is set up in a dedicated screening application – ScreenManager. It cannot be specified in an Automation Engine expose ticket.
- AutoBlend screening uses a different algorithm compared to the original implementation in Nexus RIP. The new screen is similar to the Samba screens known in FlexRIP. This algorithm results in a smoother blending from FM to AM.



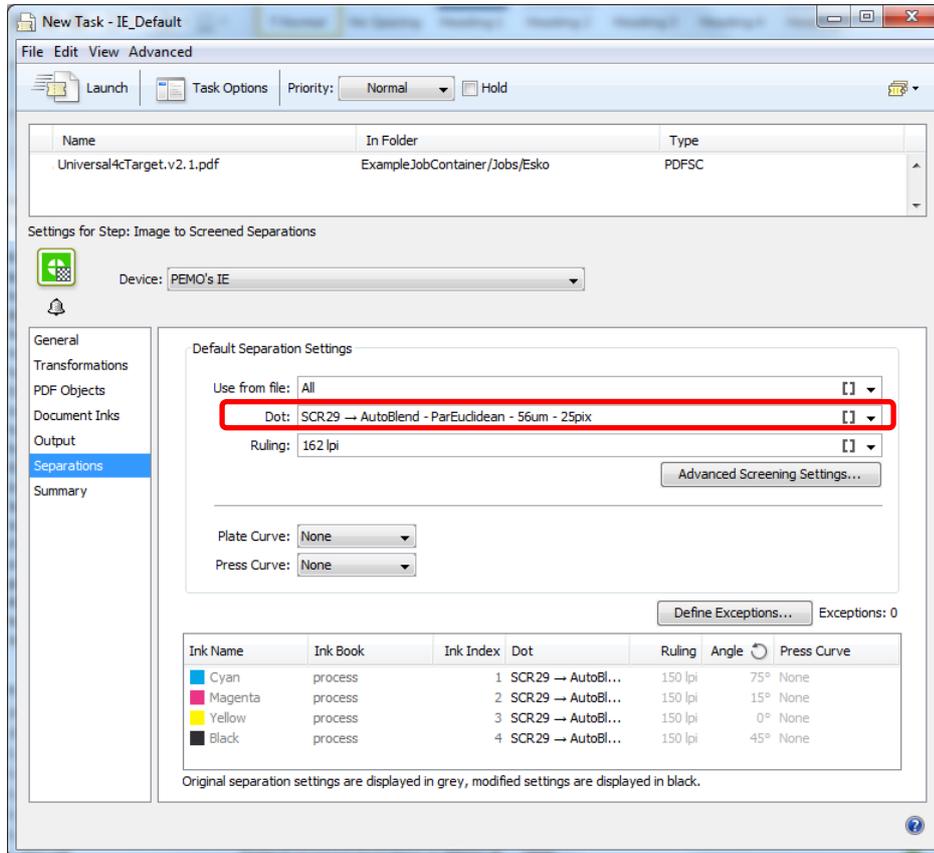
See the Samba and PerfectHighlight screens documentation for more details.

Other properties of the AutoBlend screen on Imaging Engine:

- AutoBlend screening requires a separate screen technology license.
- AutoBlend screening can be applied on all Esko Classic and Paragon screens that use AM modulation.
- AutoBlend screening cannot be applied on stochastic screens (Monet and Organic).
- AutoBlend screening cannot be applied in combination with other highlight effects (PerfectHighlight screen variations).
- AutoBlend screening can be applied on HDFlexo screens, if these screens are not already using a highlight effect (e.g. HDFlexo screens that can be found under the 'High Volume' screen sets).
- If seamless screening is used, the FM part of the AutoBlend screen will not be seamless.

4.2 Using an AutoBlend screen in Imaging Engine

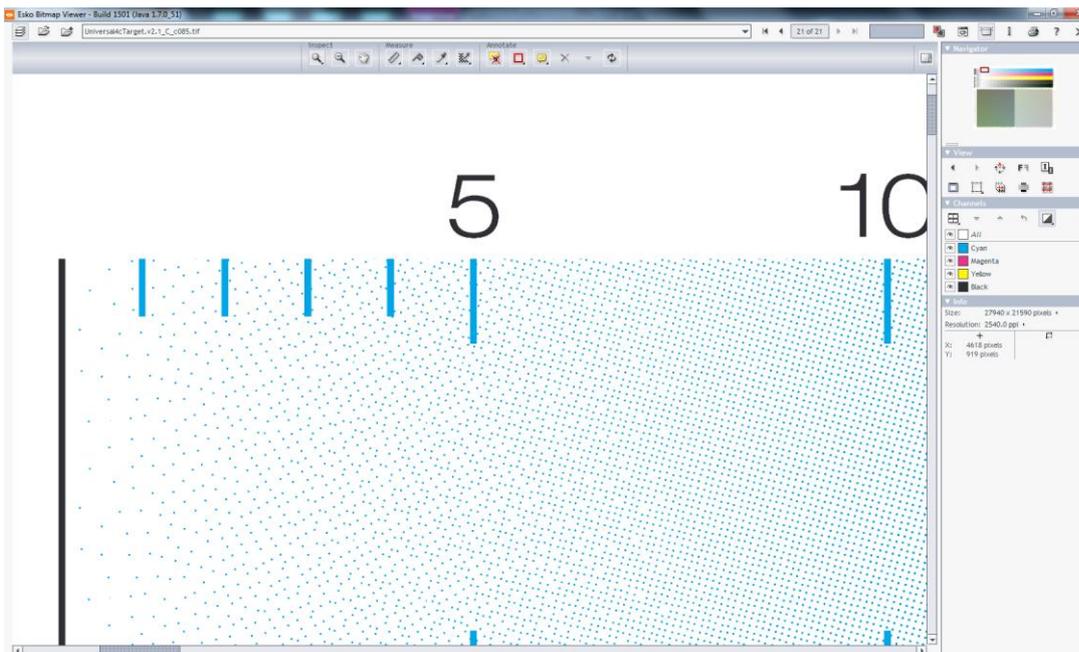
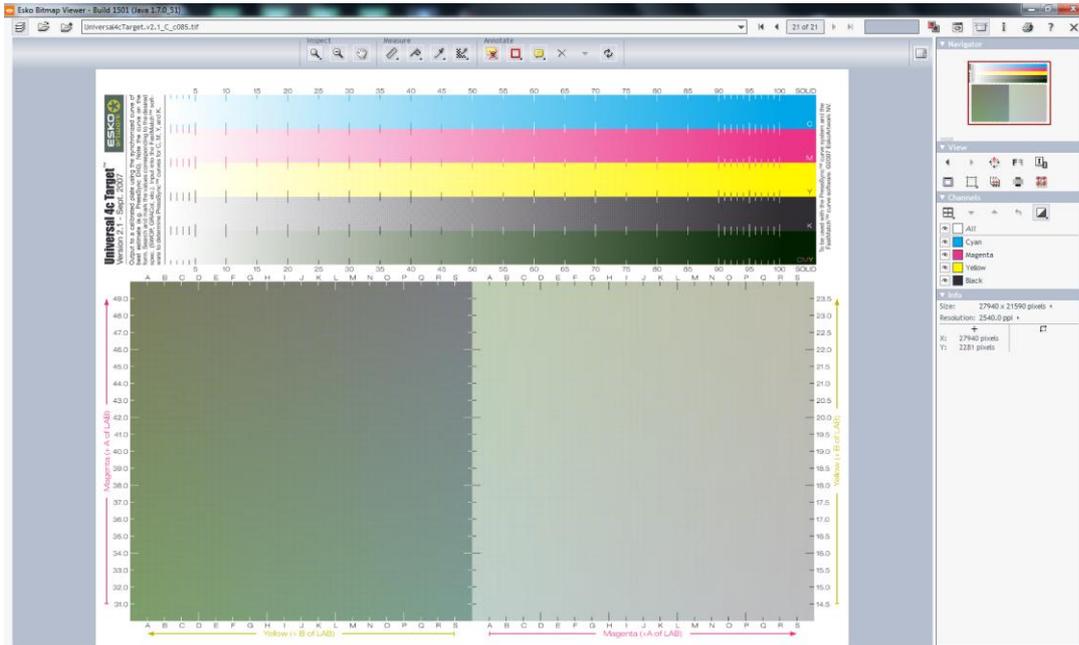
To use AutoBlend screening on a job, select the AutoBlend screen that you have set up with ScreenManager in the 'Dot' drop down box of an Imaging Engine expose ticket.



When you launch this expose ticket, your file's separations will be screened with the AutoBlend screen.

You can examine the generated screened output with Bitmap Viewer.

In this example we separated the Universal Target PDF job. You can see that the vignettes in the highlights use the AutoBlend screen. Verify the FM dot size and the transition point.



5 The transition point of an AutoBlend screen

5.1 Information and preview

When a specific resolution and dot size is specified for the AutoBlend screen, ScreenManager calculates the exact tone where the FM screen will change to the AM screen. This is the 'Transition Point' of the screen, and this point or tone is different for each different screen ruling.

The 'Transition Point' information that is displayed below the 'AutoBlend dot size' in ScreenManager shows the physical FM dot size (in microns) that will be measured on the plate, the dot size (in pixels) that will be found in the screened output file, and the transition point tone where FM changes into AM when the screen would be used at 120 lpi.

Resolution:	<input type="text" value="2,540"/>	ppi
AutoBlend dot size:	<input type="text" value="56"/>	µm
Transition Point:	25 pix, 56 µm, 5.6 % at 120 lpi	

The 'Screen Details' table on the right shows this transition point information for all screen angles and rulings.

Screen Details	
Resolution:	<input type="text" value="2,540"/> ppi
Angles:	
0.0°	
15.0°	
45.0°	
75.0°	
90° (=0°)	
	Surface Screening
	Highlights Concentric Shadows
	Ruling Transition Point
	64 25 pix, 56 µm, 1.6 %
	75 25 pix, 56 µm, 2.2 %
	85 25 pix, 56 µm, 2.8 %
	99 25 pix, 56 µm, 3.9 %
	112 25 pix, 56 µm, 4.9 %
	119 25 pix, 56 µm, 5.6 %
	127 25 pix, 56 µm, 6.4 %
	138 25 pix, 56 µm, 7.4 %
	150 25 pix, 56 µm, 8.7 %
	179 25 pix, 56 µm, 12.5 %
	200 25 pix, 56 µm, 15.4 %
	226 25 pix, 56 µm, 19.5 %
	256 25 pix, 56 µm, 25.5 %
	276 25 pix, 56 µm, 29.6 %
	299 25 pix, 56 µm, 34.7 %
	327 Invalid TP

5.2 Effect of curves on the transition point of AutoBlend screens

When applying a curve to an AutoBlend screen, the transition point or the tone where FM changes into AM will move. It can be useful to know where this tone will be moved to.

ScreenManager has an option to generate a screen with a user-defined built-in curve. This feature can also be used to verify the effect of a curve on the transition point.

Select the 'Screen Curve' tab, and specify the curve (set by the curve Family and Midpoint - see the PressSync documentation for more information about these settings).

Also a curve 'Minimum' and 'Maximum' can be set to mimic bump curve settings.

Screen Settings

Name:

Original Dot:

Restrict to Flexo Angles only

Restrict ruling from lpi to lpi

Highlights Concentric Surface Screening Screen Curve

Apply Curve In Screen

Family:

MidPoint:

Minimum: %

Maximum: %

Screen Details

Resolution: ppi

Angles:

Angles	Shadows		Solid Screening	
	Highlights	Concentric	Concentric	
	Ruling	Transition Point		
7.5°				
22.5°				
37.5°				
52.5°				
67.5°				
82.5°				
20	25 pix, 56 µm	0.0 %		
23	25 pix, 56 µm	0.0 %		
27	25 pix, 56 µm	0.0 %		
31	25 pix, 56 µm	0.0 %		
39	25 pix, 56 µm	0.0 %		
47	25 pix, 56 µm	0.2 %		
55	25 pix, 56 µm	1.6 %		
63	25 pix, 56 µm	3.1 %		
71	25 pix, 56 µm	4.3 %		
79	25 pix, 56 µm	5.7 %		
86	25 pix, 56 µm	7.2 %		
95	25 pix, 56 µm	8.6 %		
102	25 pix, 56 µm	10.0 %		
110	25 pix, 56 µm	11.4 %		
126	25 pix, 56 µm	14.6 %		
142	25 pix, 56 µm	17.0 %		
150	25 pix, 56 µm	18.3 %		
157	25 pix, 56 µm	19.7 %		
165	25 pix, 56 µm	21.0 %		
189	25 pix, 56 µm	24.8 %		
204	25 pix, 56 µm	27.4 %		
220	25 pix, 56 µm	30.1 %		

When the curve is specified, you will notice that the transition point information in the 'Screen Details' table on the right is updated: the transition point tones are re-calculated in sync with the curve.

Also, if you click 'Preview', the screen preview will show all the gray levels of the screen with the selected curve applied.