AUTOBLEND, CELLCENTER AND PLATECELL IN IMAGINE ENGINE

PRE-RELEASE NOTES

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CONTENTS

CONTENTS	1
AUTOBLEND	2
IMPLEMENTATION IN NEXUS RIP	2
IMPLEMENTATION IN IMAGINE ENGINE	
ScreenManager User Interface	4
AutoBlend User experience	4
Requirements	
CELLCENTER AND PLATECELL	9
IMPLEMENTATION IN NEXUS RIP:	9
IMPLEMENTATION IN IMAGINE ENGINE	
CellCenter	
PlateCell	
ScreenManager User Interface	
CellCenter User experience	
PlateCell User experience	20
REQUIREMENTS	21
DEFAULT MAIN SCREENMANAGER PANEL	

AUTOBLEND

IMPLEMENTATION IN NEXUS RIP



This is an AM screen with an FM screen automatically blended in.

The FM screen uses a fixed dot size that is specified by the user, expressed in physical units – μ m.

The FM screen is blended into the AM screen at a specific tone, determined from the FM dot size: the AM screen will change into FM at the tone where the AM screen has the same dot size as the user specified FM dot size.

IMPLEMENTATION IN IMAGINE ENGINE

The AutoBlend screening technology will be available from the ScreenManager application: a user will generate a custom screen that is based on a specific known dot shape (e.g. Paragon Elliptical), with the AutoBlend technology applied on it.

To use AutoBlend in Automation Engine, a user selects the generated custom screen in the Imagine Engine expose ticket.

The exact AutoBlend technology will not be supported in ScreenManager. However, a similar (and superior) technology already available in ScreenManager/ Imagine Engine will be used instead: traditional PerfectHighlight screens (SambaFlex Screens). See the PerfectHighlight documentation for more details.

- The AutoBlend transition method can be applied on all AM-modulating screen types.
- AutoBlend cannot be applied on stochastic screens (Monet and Organic).
- AutoBlend cannot be applied in combination with other highlight effects.
- AutoBlend can be applied on HDFlexo screens, if these screens are not using any highlight effect (e.g.
 'High Volume' HDFlexo screens).



SCREENMANAGER USER INTERFACE

The ScreenManager user interface is adapted as follows for AutoBlend:

Screen Setti	ngs
Name:	My default Screen Parameters
Original Dot:	c - Circular (Euclidean) 👻
🔽 Restrict t	o Flexo Angles only
Restrict r	uling from 32 lpi to 127 lpi
Highlig	hts 💿 Concentric 🎆 Surface Screening 🗾 Screen Curve
🔽 Use Hig	hlight Effect
Transit	ion Method:
AutoBle	nd Settings
Res	olution: 2,540 ppi
Aut	oBlend dot size: 56 µm
Trar	nsition Point: 25 pix, 56 µm, 5.6 % at 120 lpi

AUTOBLEND USER EXPERIENCE

- To use the AutoBlend highlights effect, a user first selects the 'Highlights' tab.
- In this tab, the user checks 'Enable Improved Highlights', which enables the highlight effects properties.
- The user selects the 'AutoBlend' transition method to select AutoBlend effects and properties.
- The user types in the AutoBlend FM dot size in micrometer, and the intended output resolution for which this dot size applies.

The user will have the same ScreenManager feedback tools as for other screening technologies: preview of screens, effect of screen ruling on transition point, effect of curves on transition point, generating screen evaluation LEN/TIFF charts ...

Screen Deta	ils			
Resolution:	2,540	ppi		
Angles:				
0.0°	Shad	ows	Solid S	Screening
7.5°	High	Highlights Concentric		
15.0°	Puling	Transitio	n Point	
22.5°	20	25 pix	56.000	0.1.%
30.0°	20	25 pix,	56 um	0.2%
37.5°	27	25 pix,	56 um.	0.3 %
45.0°	31	25 pix,	56 µm,	0.4%
52.50	39	25 pix,	56 µm,	0.6 %
67.50	47	25 pix,	56 µm,	0.9 %
75.09	55	25 pix,	56 µm,	1.2 %
82.50	63	25 pix,	56 µm,	1.6 %
0.09 (=0.09	71	25 pix,	56 µm,	1.9 %
0.0 (-0.0	79	25 pix,	56 µm,	2.4 %
	86	25 pix,	56 µm,	2.9 %
	95	25 pix,	56 µm,	3.4 %
	102	25 pix,	56 µm,	4.0 %
	110	25 pix,	56 µm,	4.6 %
	126	25 pix,	56 µm,	6.3 %
	142	25 pix,	56 µm,	7.7 %
	150	25 pix,	56 µm,	8.5 %
	157	25 pix,	56 µm,	9.5 %
	165	25 pix,	56 µm,	10.4 %
	189	25 pix,	56 µm,	13.6 %
	204	25 pix,	56 µm,	16.0 %
	220	25 pix,	56 µm,	18.6 %
4 III +				
		Drawiew		
		Preview		

Figure 1: Transition point information

AutoBlend, CellCenter and PlateCell screening in Imagine Engine



Figure 2: Preview of screen and effects



Figure 3: The effect of applying a PressSync curve on the transition point

REQUIREMENTS

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

- ScreenManager 14.0 or later
- an AutoBlend license
- FlexRIP 14.0 or Imagine Engine 14.0

Important Note:

The AutoBlend screening technology is in pre-release, and its options can still change in the released version.

Without a license a user can already test the AutoBlend screening technology: a preview of the screen can be made, or a test job (LEN or TIF) with screened patches can be generated from ScreenManager.

CELLCENTER AND PLATECELL

IMPLEMENTATION IN NEXUS RIP:

CellCenter and PlateCell are surface screening technologies supported by Nexus RIP. Surface screening technologies are used to improve ink transfer between the flexo plate and the substrate. By perforating solid areas or dots with patterns, ink is transferred more efficiently (no pinholes and a more even ink layer).

CellCenter technology

This is used in solids and dots.

At a certain tone value specified by the user, the center of the AM dot is perforated by a very small dot. From that tone onwards, the perforating dot will grow.

When the tone reaches 100% (solid), the perforated dot reaches its maximum size.

This maximum size is set by the user, in the form of a percentage of the perforating screen.



PlateCell patterns

This is only used in solids.

The solid of the screen is perforated with a specific pattern, selectable by the user.

The user can also specify the size of the individual cells of the pattern.



Figure 4: Solid PlateCell pattern

IMPLEMENTATION IN IMAGINE ENGINE

CellCenter and PlateCell surface screening technologies will be available from the ScreenManager application: a user will generate a custom screen based on a known specific dot shape (e.g. Paragon Elliptical), with the CellCenter and/or PlateCell AutoBlend technology applied on it.

To use these technologies in Automation Engine, the user selects the generated custom screen in the Imagine Engine expose ticket.

CELLCENTER

CellCenter will be supported by ScreenManager with more advanced features: the user will have the option to perforate dots with higher cell frequencies.

Screen Settin	gs
Name:	My default Screen Parameters
Original Dot:	c - Circular (Euclidean)
Restrict to	Flexo Angles only
Restrict ru	ling from 32 lpi to 127 lpi
Highligh	hts 💿 Concentric 💽 Surface Screening 📝 Screen Curve
🔽 Use Surf	face Screening
Surface	Screening Method: PlateCell and CellCenter -
Clustere	d Screen Settings
E F	PlateCell at 100%:
Pl	ateCell Type: PlateCell_0_2_0_s 👻
C	ell Size: %
	Convert Pattern to Screen
V (Jse CellCenter Screen
Sta	art at: 70.0 %
En	d Size: 5.0 %
Fre	equency: x 1.4 - x 1.4 x 2 x 3
	x 4



X2: SURFACE SCREEN IN SOLIDS WILL BE 2X THE FREQUENCY OF THE ORIGINAL DOT





X4: SURFACE SCREEN IN SOLIDS WILL BE 3X THE FREQUENCY OF THE ORIGINAL DOT



PLATECELL

PlateCell will be supported by ScreenManager but in a more restricted way.

Screen Settin	ngs
Name:	My default Screen Parameters
Original Dot:	c - Circular (Euclidean) 🔻
🔽 Restrict to	Flexo Angles only
Restrict ru	ling from 32 lpi to 127 lpi
Highlig	hts 💿 Concentric 💽 Surface Screening 🗾 Screen Curve
🔽 Use Sur	face Screening
Surface	Screening Method: PlateCell and CellCenter
Clustere	d Screen Settings
	PlateCell at 100%:
P	lateCell Type: PlateCell_45_4_2_s
C	ell Size: 80.0 %
[Convert Pattern to Screen
	Use CellCenter Screen
St	art at: 70.0 %
Er	nd Size: 5.0 %
Fr	equency: x 1.4 👻

PlateCell technology is implemented by merging the PlateCell pattern into the original screen tile.

Depending on the screen ruling and angle used, not all PlateCell patterns will fit the original screen tile seamlessly. The original tile will be multiplied so that more PlateCell patterns can fit, but this cannot be unlimited: the screen tile has specific maximum size limits.

This multiplication required to fit a specific PlateCell pattern into a specific screen is indicated in ScreenManager's 'Screen Details' panel.

In the image below you can see that PlateCell_45_4_2_s is selected.

In the screen details table you can see that when the Circular screen is used at 7.50 and 142LPI, the tile will be multiplied by 3 to make the PlateCell fit seamlessly: the 'Screen' column shows (x3) in the 142LPI row. But you can also see that when 27LPI is used, there is no solution possible: the 'Screen' column shows (x-1) in the 142LPI row.

4 Screen Details Screen Settings Name: My default Screen Parameters Resolution: 2,540 ppi Angles: Original Dot: c - Circular (Euclidean) Highlights Concentric Shadows Surface Screening Restrict to Flexo Angles only 22.5° Ruling Method Screen In Dot 37.5° Restrict ruling from 32 lpi to 127 lpi (x3) 135 ° - 599 lpi 20 PlateCell CellCenter 52.5° 20 23 27 (x3) 135 ° - 599 lpi CellCenter 67.5° PlateCell (x-1) 135 ° - 599 lpi CellCenter (x-1) 135 ° - 599 lpi CellCenter (x3) 135 ° - 599 lpi CellCenter (x3) 135 ° - 599 lpi CellCenter PlateCell Highlights 💿 Concentric 🔛 Surface Screening 📝 Screen Curve 82.5° 32 39 47 55 63 71 79 86 95 PlateCell PlateCell Vise Surface Screening (x3) 135 ° - 599 lpi CellCenter (x3) 135 ° - 599 lpi CellCenter PlateCell PlateCell (x3) 135 ° - 599 lpi CellCenter Surface Screening Method: PlateCell and CellCenter PlateCell • PlateCell (x3) 135 ° - 599 lpi CellCenter (x3) 135 ° - 599 lpi CellCenter PlateCell Clustered Screen Settings (x3) 135 ° - 599 lpi CellCenter (x3) 135 ° - 599 lpi CellCenter PlateCell PlateCell PlateCell at 100%: 102 PlateCell (x3) 135 ° - 599 lpi CellCenter 110 PlateCell (x3) 135 ° - 599 lpi CellCenter (x3) 135 ° - 599 lpi CellCenter PlateCell Type: PlateCell_45_4_2_s 👻 126 PlateCell Cell Size: 50.0 % 150 PlateCell (x3) 135 ° - 599 lpi CellCenter (x3) 135 ° - 599 lpi CellCenter 157 PlateCell Convert Pattern to Screen 165 PlateCell (x3) 135 ° - 599 lpi CellCenter (x3) 135 ° - 599 lpi CellCenter 189 PlateCell 204 (x3) 135 ° - 599 lpi CellCenter PlateCell Use CellCenter Screen 220 PlateCell (x3) 135 ° - 599 lpi CellCenter Start at: 70.0 % End Size: 5.0 % Frequency: x 1.4 👻 ⇔ 🗆 🗖 📈 🗠 Screen Preview 5 DB:[8; 103;1;0.70000;0.05000;0.00000;0.00000;1.00000;0.80000;] Dot=c (Circular (Euclidean)), 7.5°, 142lpi (at 2540ppi) 1:10 ð, 1:9 -1:8 -1:7 -1:6 -1:5 -1:4 -1:3 = -1:2 -1:1 -2:1 -3:1 4:1 5:1 1:1 Reset 100 🔶 % Show Dot Percentage: 4 ÷ 4

AutoBlend, CellCenter and PlateCell screening in Imagine Engine

An alternative to a PlateCell pattern is to use an equivalent high frequency screen that is in sync with the original screen. The result is a surface screen in sync with the original screen, but with a non-uniform pattern. This alternative is enabled when a user checks the 'Convert Pattern To Screen' option. In that case, the 'screen details' will change and will indicate the actual surface screen angle and ruling.

In the image below you can see that the alternative used for PlateCell_45_4_2_s pattern at 142LPI is a surface screen of 601LPI, 520.

Screen Details Screen Settings Name: My default Screen Parameters Resolution: 2,540 ppi Original Dot: c - Circular (Euclidean) Angles: 7 Highlights Concentric Shadows Surface Screening Restrict to Flexo Angles only 22.5° Ruling Method Screen In Dot 37.5° Restrict ruling from 32 lpi to 127 lpi 20 23 PlateCell 90 ° - 0 lpi 52 ° - 312 lpi CellCente 52.5° PlateCell CellCenter 67.5° 27 52 ° - 468 lpi CellCenter PlateCell Highlights 🔘 Concentric 💽 Surface Screening 🏒 Screen Curve 82.5° 48 ° - 581 lpi 32 39 47 55 63 71 79 86 95 102 CellCenter CellCenter PlateCell 48 ° - 581 lpi PlateCell 42 ° - 577 lpi 42 ° - 577 lpi Vise Surface Screening PlateCell CellCenter PlateCell CellCenter 48 ° - 581 lpi CellCenter Surface Screening Method: PlateCell and CellCenter PlateCell • PlateCell 48 ° - 581 lpi CellCenter 41 ° - 568 lpi CellCenter Clustered Screen Settings PlateCell 41 ° - 568 lpi 38 ° - 551 lpi PlateCell CellCenter PlateCell CellCenter ✓ PlateCell at 100%: PlateCell 38 ° - 551 lpi CellCenter 110 PlateCell 52 ° - 624 lpi CellCenter PlateCell Type: PlateCell_45_4_2_s 👻 34 ° - 564 lpi 126 PlateCell CellCenter Cell Size: 50.0 % 150 PlateCell 52 ° - 601 lpi CellCenter 41 ° - 568 lpi 157 PlateCell CellCenter Convert Pattern to Screen 165 189 PlateCell 41 ° - 568 lpi CellCenter 52 ° - 535 lpi CellCenter PlateCell 204 220 PlateCell . 52 ° - 579 lpi CellCenter Use CellCenter Screen 52 ° - 624 lpi PlateCell CellCenter 70.0 % Start at: End Size: 5.0 % x 1.4 👻 Frequency: ⇔ 🗆 🗖 🗙 Screen Preview 6 DB:[8; 103;1;0.70000;0.05000;0.00000;0.00000;1.00000;0.80000;] Dot=c (Circular (Euclidean)), 7.5°, 142lpi (at 2540ppi) 8 × 1:10 1:9 1:8 1:7 -1:6 -1:5 1:4 -1:3 1:2 -1:1 -2:1 3:1 4:1 -5:1 1:1 b. Reset Show Dot Percentage: 100 🔔 % 29 Ì ¢

AutoBlend, CellCenter and PlateCell screening in Imagine Engine

SCREENMANAGER USER INTERFACE

CELLCENTER USER EXPERIENCE

Screen Settin	gs
Name:	My default Screen Parameters
Original Dot:	c - Circular (Euclidean) 🔹
Restrict to	Flexo Angles only
Restrict ru	ling from 32 pi to 127 pi
Highlig	hts 💿 Concentric 😨 Surface Screening 🏒 Screen Curve
Vuse Sur	face Screening
Surface	Screening Method: Screening Method:
Clustere	d Screen Settings
	PlateCell at 100%:
PI	ateCell Type: PlateCell_0_2_0_s 👻
0	ell Size: %
	Convert Pattern to Screen
V (Use CellCenter Screen
St	art at: 70.0 %
En	d Size: 5.0 %
Fr	equency: x 1.4 - x 1.4 x 2 x 3
	x 4

- To use the CellCenter surface screening technology, a user selects the 'Surface Screening' tab.
- In this tab, the user checks 'Use Surface Screening' and 'Use CellCenter Screen'.
- The user enters the start of perforation in the 'Start at' field.
 - The dots' perforation will start at that tone.
- The user enters the perforating dot size at 100% in the form of a percentage in the 'End Size' field.
 This is the coverage of the CellCenter screen that is used at 100% (solid).
 The surface screen will vary gradually from 0% (starting at the 'Start at' tone), to this 'End Size' percentage (at 100%).
- The user selects the frequency of the surface screen in the 'Frequency' list. The following frequencies are supported:

• X1.4: Surface screen in solids will be 1.4x the frequency of the original dot.



• X2: Surface screen in solids will be 2x the frequency of the original dot.



• X3: Surface screen in solids will be 3x the frequency of the original dot.



• X4: Surface screen in solids will be 3x the frequency of the original dot.



PLATECELL USER EXPERIENCE

Screen Settin	gs
Name:	My default Screen Parameters
Original Dot:	c - Circular (Euclidean)
🔽 Restrict to	Flexo Angles only
Restrict ru	ling from 32 lpi to 127 lpi
Highlig	hts 💿 Concentric 💽 Surface Screening 🗾 Screen Curve
🔽 Use Sur	face Screening
Surface	Screening Method: PlateCell and CellCenter
Clustere	d Screen Settings
	PlateCell at 100%:
P	ateCell Type: PlateCell_45_4_2_s 🔻
c	ell Size: 80.0 %
[Convert Pattern to Screen
	Use CellCenter Screen
St	art at: 70.0 %
Er	d Size: 5.0 %
Fr	equency: x 1.4 -

- To use PlateCell patterns in solids, a user selects the 'Surface Screening' tab.
- In this tab, the user checks 'Use Surface Screening', and checks 'PlateCell at 100%'.
- The user selects the desired PlateCell pattern from the 'PlateCell Type' list.
- The user enters the Cell Size. This is the percentage or coverage at with the PlateCell pattern will be used.
- If the PlateCell pattern does not fit properly to the screen, the user can check the 'Convert Pattern to Screen' option. This will convert the pattern into a high frequency screen that is close to the pattern frequency and orientation, and that is in sync with the original screen.

The user will have the same ScreenManager feedback tools as for the other screening technologies: preview of screens, effect of screen ruling on transition point, effect of curves on transition point, generating screen evaluation LEN/TIFF charts ...

REQUIREMENTS

In order to use PlateCell and/or CellCenter technology, you need the following:

- ScreenManager 14.0 or later
- a PlateCell and CellCenter license
- FlexRIP 14.0 or ImagineEngine 14.0

Important Note:

The PlateCell and CellCenter screening technologies are in pre-release, and so their options can still change in the released version.

Without a license a user can already test these screening technologies: a preview of the screen can be made or a test job (LEN or TIF) with screened patches can be generated from ScreenManager.

DEFAULT MAIN SCREENMANAGER PANEL

ScreenManager will open by default in 'Customize Screens' mode. That means that no test job generation options will be visible.

ScreenManager 14.0 [SCREENS Folder:C:\Esko\bg_data_screens_v020	J	
Screen Testjob View Mode Help		
Customized Screens	Screen Settings	Screen Details
N: Befault = MM: Default St 201 - HDFExx screen with build-in curve St 201 - EDFExx Screen Curve Screen with build-in curve St 201 - EDFExx Screen Curve H34 St 201 - EDFExx Screen Curve H34	Name: My Default Original Dot: - Graular (Euclidean) DYNACELL OFF If Restrict to Flexo Angles only Restrict ruling from 100 pi If Highlights Image: Concentric image: Surface Screening Screen Curve If Enable Improved Highlights Transition Method: Auto Blend Image: Screen Curve If ransition Points 56 pi at 2,540 ppi	Resolution: 2,540 ppl Angles: 2,550 55,57 22,59 37,57 22,59 57,57 52,59 57,57 52,59 32,59 23 25 pix, 56 µm, 0, 1 % 20 25 pix, 56 µm, 0, 1 % 23 25 pix, 56 µm, 0, 0 % 21 25 pix, 56 µm, 0, 0 % 31 25 pix, 56 µm, 0, 0 % 27 25 pix, 56 µm, 0, 0 % 51 µm, 0, 0 % 55 30 25 pix, 56 µm, 0, 0 % 55 µm, 50 µm, 16 % 67 30 25 pix, 56 µm, 1, 2 % 56 µm, 0, 0 % 55 25 pix, 56 µm, 1, 2 % 51 25 pix, 56 µm, 1, 2 % 56 µm, 1, 2 % 56 µm, 1, 2 % 56 52 25 pix, 56 µm, 1, 2 % 56 µm, 1, 2 % 56 56 52 25 pix, 56 µm, 1, 3 % 51 µm, 1, 4 % 56 25 pix, 56 µm, 1, 3 % 100 25 pix, 56 µm, 1, 3 % 51 µm, 1, 4 % 56 25 pix, 56 µm, 1, 3 % 126 25 pix, 56 µm, 1, 3 % 51 µm, 1, 3 % 59 µm, 1, 10 % 59 µm, 25 % 101 <t< td=""></t<>
Save Restore + -	Use Screen Settings For	Preview

A user can switch to a test job generation screen mode via the 'View Mode' menu.

ScreenManager 14	.0 [SCREENS Folder:C:\Esko\bg_data_screens_v020\]	J
Screen Testjob View	Mode Help	
Customized Sc	Working with Customized Screens and Testjobs	
😵 default - My 🔍	Modify Customized Screens	
S scr01 - HDFk	Verify Customized Screens	
Scr02 - (new Scr03 - C25 (Modify Testjobs	
Scr04 - C16 TPH_S	D04 MG34	

Note:

'Verify Customized Screens' is a mode in which custom screens are not generated but loaded.

So selecting a specific custom screen and requesting a screen preview will load the screen tile instead of generating the screen and screen effects. This mode is useful to verify existing custom screens (e.g. verify implementation versions).