

AUTOBLEND, CELLCENTER AND PLATECELL IN IMAGINE ENGINE

PRE-RELEASE NOTES

Last update: 26-june-2014

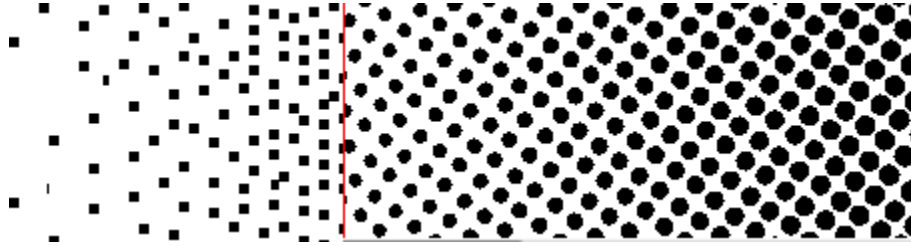
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AUTOBLEND

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 – μm .

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.

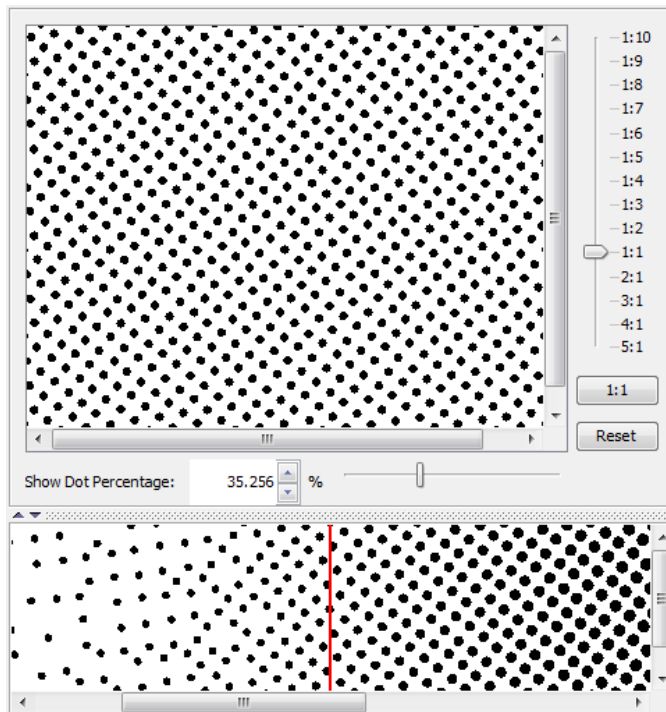
To use AutoBlend in Automation Engine, a user selects the generated custom screen in the Imagine Engine expose ticket.

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).

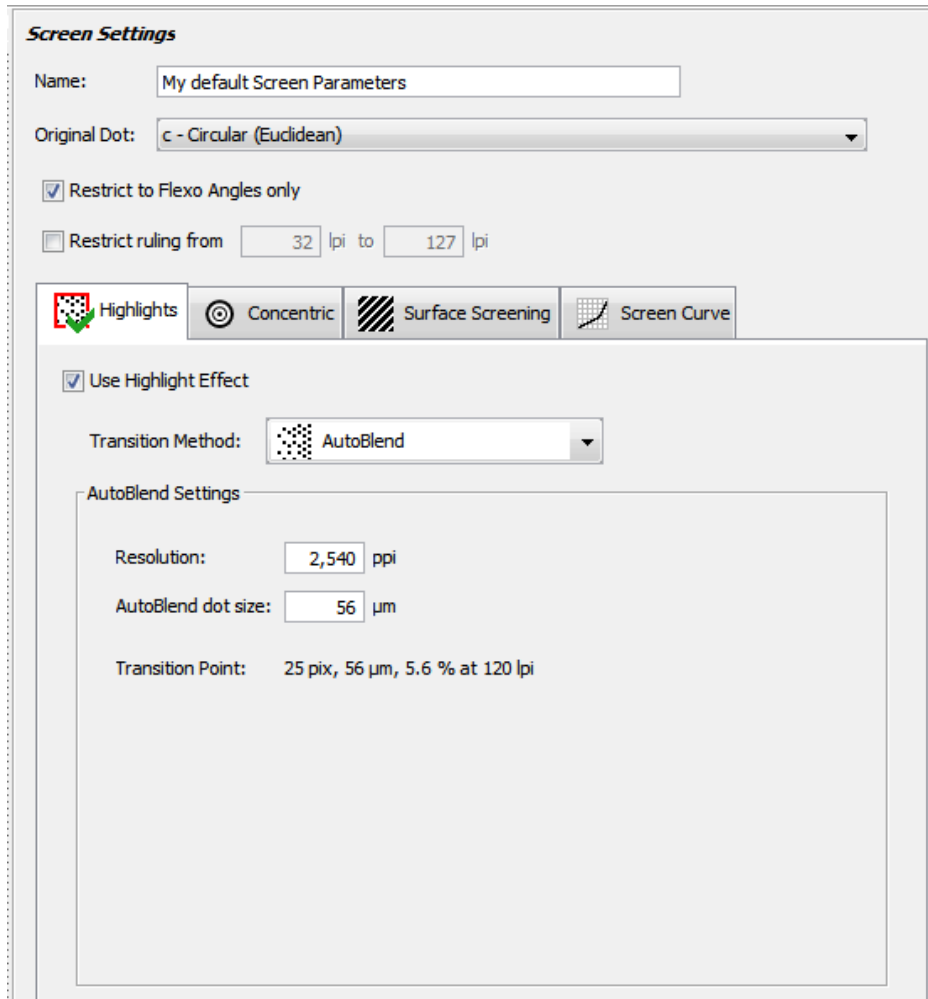
See the PerfectHighlight documentation for more details.

- 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:



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 ...

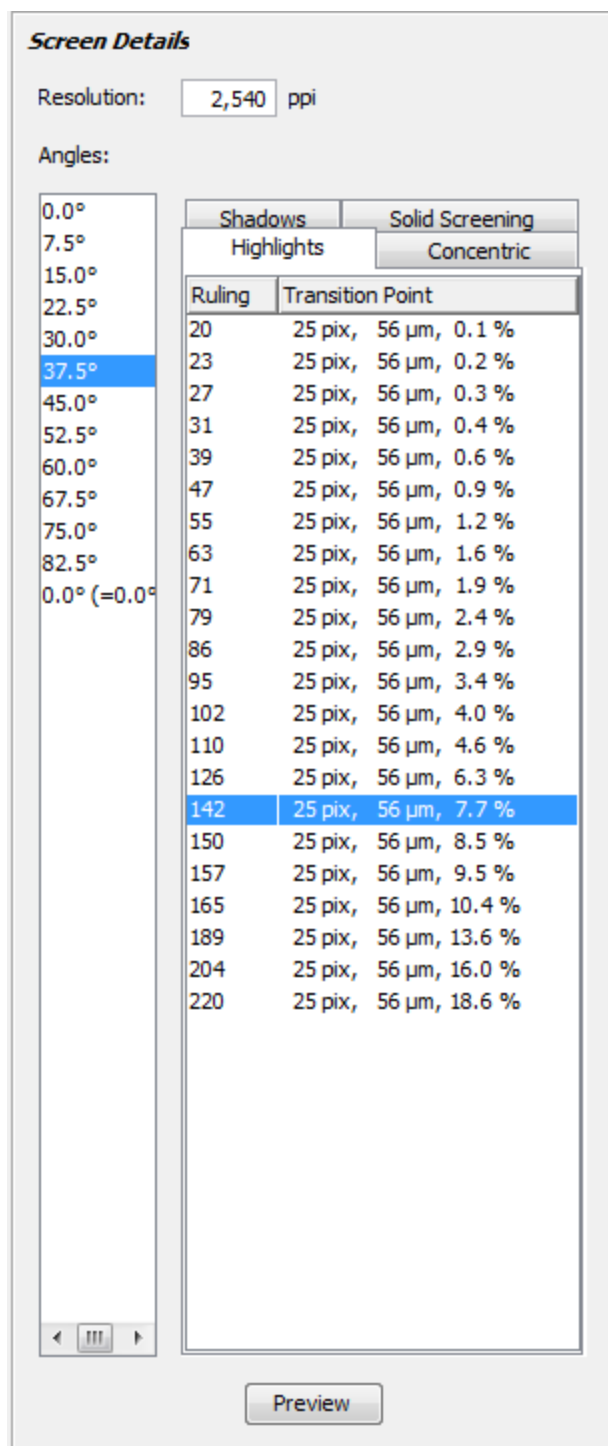


Figure 1: Transition point information

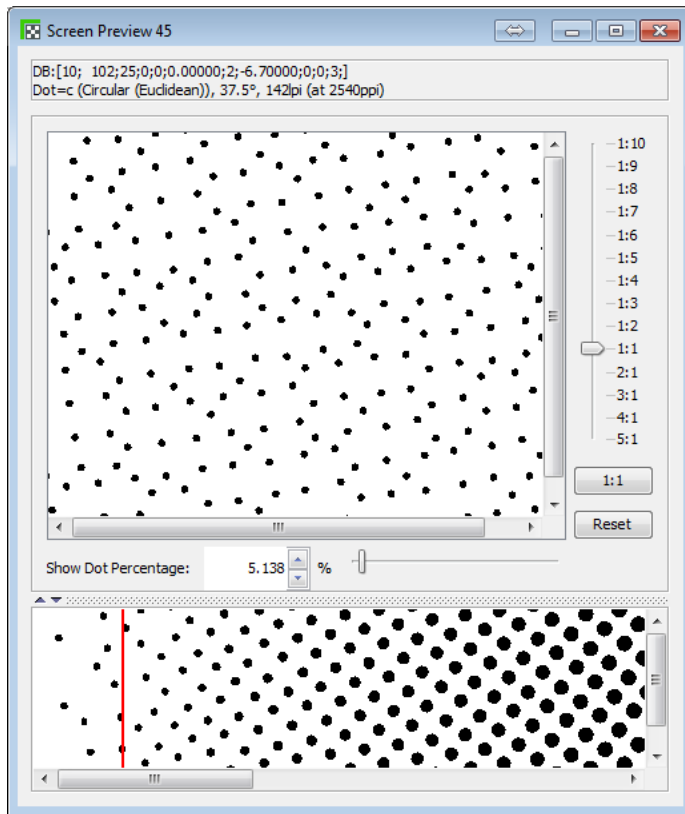


Figure 2: Preview of screen and effects

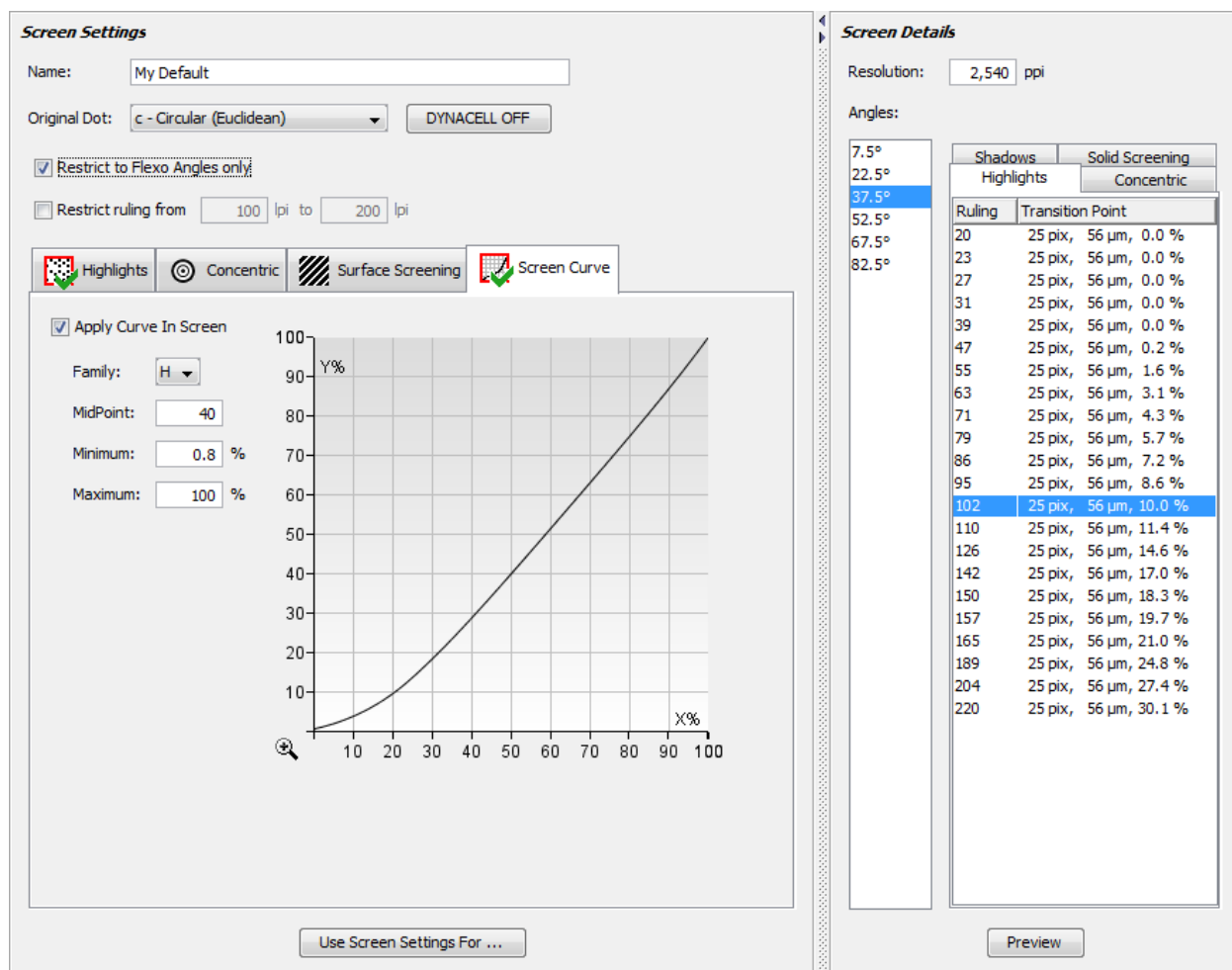


Figure 3: The effect of applying a PressSync curve on the transition point

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).

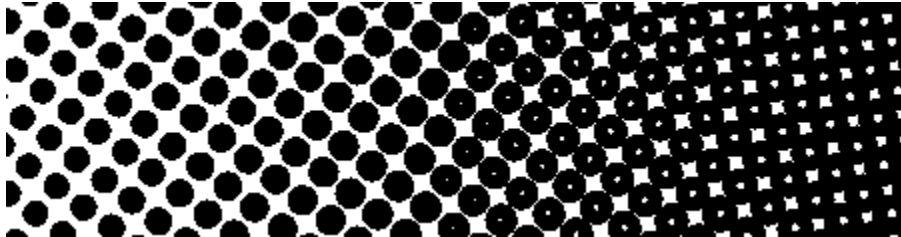
CellCenter technology

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.

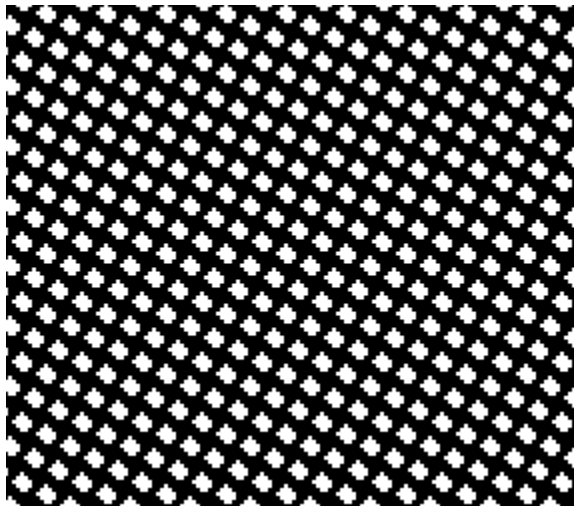


Figure 4: Solid PlateCell pattern

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 Settings

Name:

Original Dot:

☒ Restrict to Flexo Angles only

☐ Restrict ruling from lpi to lpi

☒ Highlights
 ☐ Concentric
 ☒ Surface Screening
 ☐ Screen Curve

☒ Use Surface Screening

Surface Screening Method:

Clustered Screen Settings

☐ PlateCell at 100%:

PlateCell Type:

Cell Size: %

☐ Convert Pattern to Screen

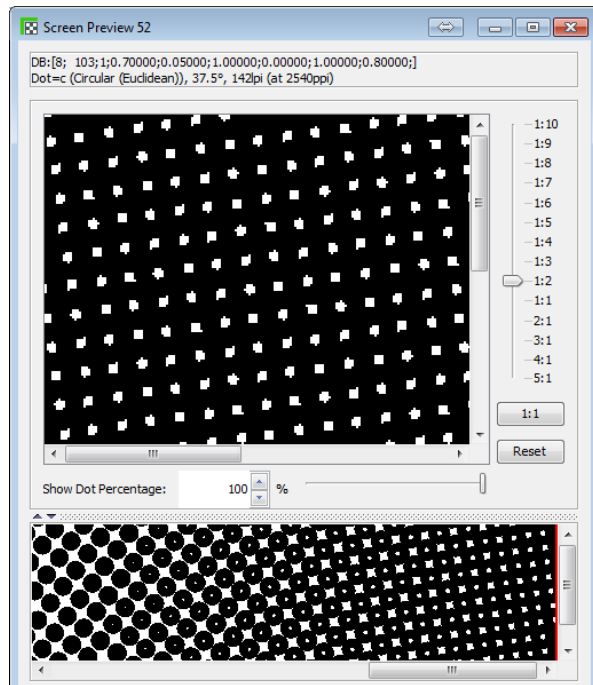
☒ Use CellCenter Screen

Start at: %

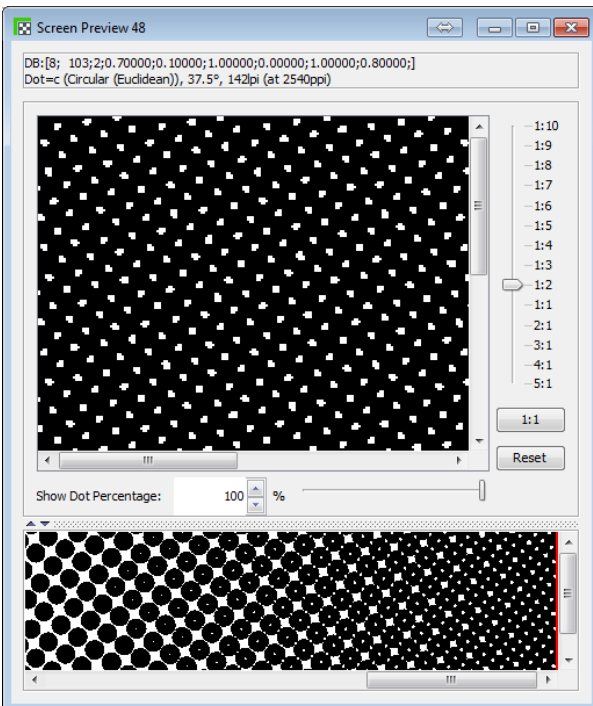
End Size: %

Frequency:

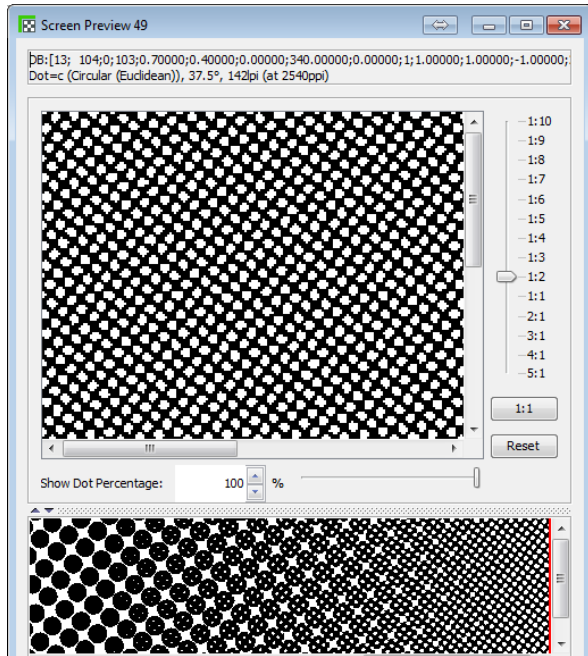
X1.4: SURFACE SCREEN IN SOLIDS WILL BE 1.4X THE FREQUENCY OF THE ORIGINAL DOT



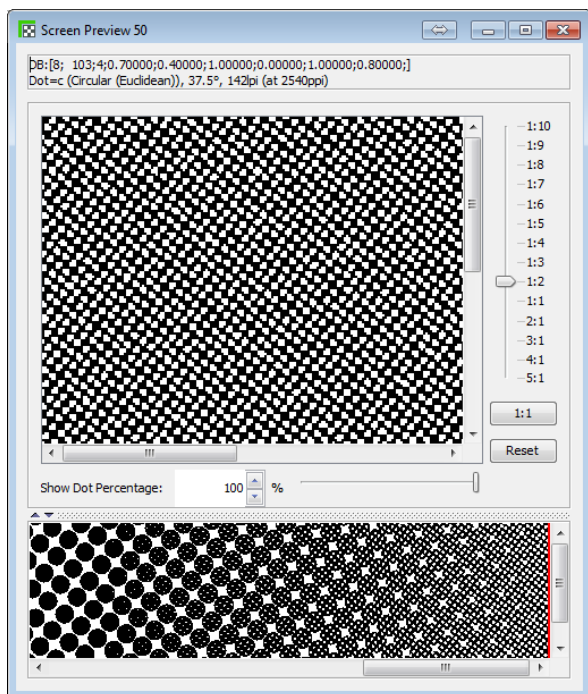
X2: SURFACE SCREEN IN SOLIDS WILL BE 2X THE FREQUENCY OF THE ORIGINAL DOT



X3: SURFACE SCREEN IN SOLIDS WILL BE 3X THE FREQUENCY OF THE ORIGINAL DOT

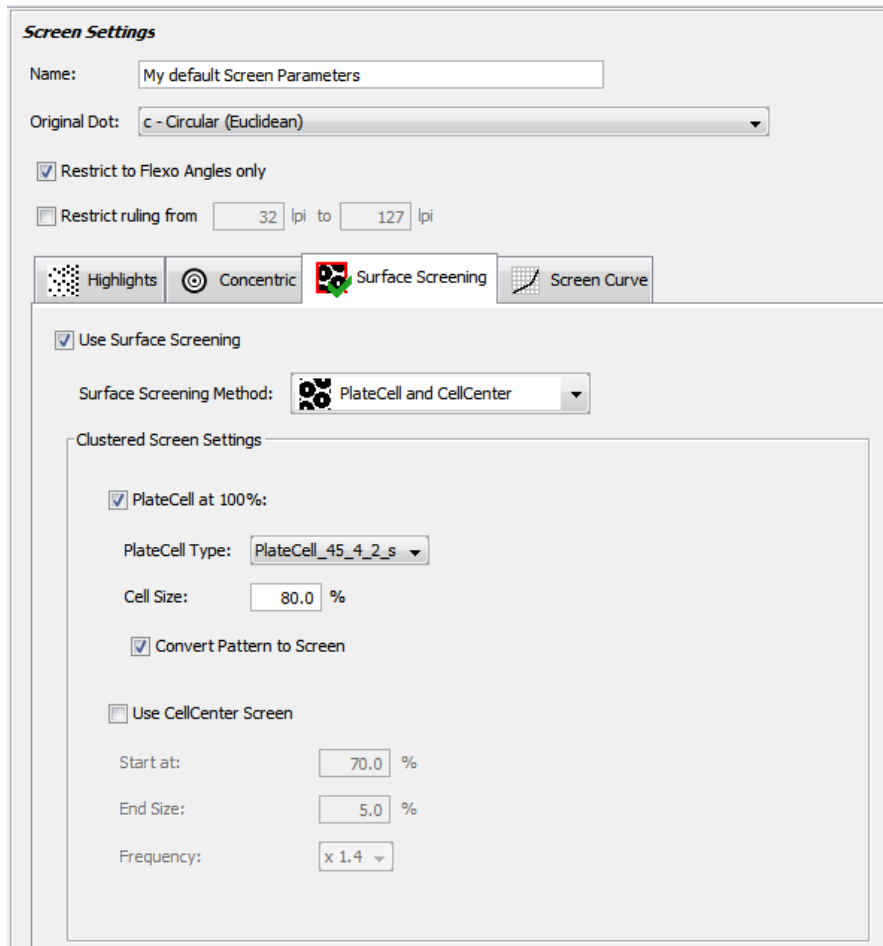


X4: SURFACE SCREEN IN SOLIDS WILL BE 3X THE FREQUENCY OF THE ORIGINAL DOT



PLATECELL

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



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 7.5o 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.

AutoBlend, CellCenter and PlateCell screening in Imagine Engine

Screen Settings

Name:

Original Dot:

☒ Restrict to Flexo Angles only

☐ Restrict ruling from lpi to lpi

☒ Highlights
 ☐ Concentric
 ☒ Surface Screening
 ☐ Screen Curve

☒ Use Surface Screening

Surface Screening Method:

Clustered Screen Settings

☒ PlateCell at 100%:

PlateCell Type:

Cell Size: %

☐ Convert Pattern to Screen

☒ Use CellCenter Screen

Start at: %

End Size: %

Frequency:

Screen Details

Resolution: ppi

Angles:

7.5°

22.5°

37.5°

52.5°

67.5°

82.5°

Ruling	Method	Screen	In Dot
20	PlateCell	(x3) 135 ° - 599 lpi	CellCenter
23	PlateCell	(x3) 135 ° - 599 lpi	CellCenter
27	PlateCell	(x-1) 135 ° - 599 lpi	CellCenter
32	PlateCell	(x3) 135 ° - 599 lpi	CellCenter
39	PlateCell	(x3) 135 ° - 599 lpi	CellCenter
47	PlateCell	(x3) 135 ° - 599 lpi	CellCenter
55	PlateCell	(x3) 135 ° - 599 lpi	CellCenter
63	PlateCell	(x3) 135 ° - 599 lpi	CellCenter
71	PlateCell	(x3) 135 ° - 599 lpi	CellCenter
79	PlateCell	(x3) 135 ° - 599 lpi	CellCenter
86	PlateCell	(x3) 135 ° - 599 lpi	CellCenter
95	PlateCell	(x3) 135 ° - 599 lpi	CellCenter
102	PlateCell	(x3) 135 ° - 599 lpi	CellCenter
110	PlateCell	(x3) 135 ° - 599 lpi	CellCenter
126	PlateCell	(x3) 135 ° - 599 lpi	CellCenter
142	PlateCell	(x3) 135 ° - 599 lpi	CellCenter
150	PlateCell	(x3) 135 ° - 599 lpi	CellCenter
157	PlateCell	(x3) 135 ° - 599 lpi	CellCenter
165	PlateCell	(x3) 135 ° - 599 lpi	CellCenter
189	PlateCell	(x3) 135 ° - 599 lpi	CellCenter
204	PlateCell	(x3) 135 ° - 599 lpi	CellCenter
220	PlateCell	(x3) 135 ° - 599 lpi	CellCenter

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

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

Show Dot Percentage: %

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, 52o.

AutoBlend, CellCenter and PlateCell screening in Imagine Engine

Screen Settings

Name:

Original Dot:

☒ Restrict to Flexo Angles only

☐ Restrict ruling from lpi to lpi

☒ Highlights
 ☐ Concentric
 ☒ Surface Screening
 ☐ Screen Curve

☒ Use Surface Screening

Surface Screening Method:

Clustered Screen Settings

☒ PlateCell at 100%:

PlateCell Type:

Cell Size: %

☒ Convert Pattern to Screen

☒ Use CellCenter Screen

Start at: %

End Size: %

Frequency:

Screen Details

Resolution: ppi

Angles:

7.5°

22.5°

37.5°

52.5°

67.5°

82.5°

Ruling	Method	Screen	In Dot
20	PlateCell	90° - 0 lpi	CellCenter
23	PlateCell	52° - 312 lpi	CellCenter
27	PlateCell	52° - 468 lpi	CellCenter
32	PlateCell	48° - 581 lpi	CellCenter
39	PlateCell	48° - 581 lpi	CellCenter
47	PlateCell	42° - 577 lpi	CellCenter
55	PlateCell	42° - 577 lpi	CellCenter
63	PlateCell	48° - 581 lpi	CellCenter
71	PlateCell	48° - 581 lpi	CellCenter
79	PlateCell	41° - 568 lpi	CellCenter
86	PlateCell	41° - 568 lpi	CellCenter
95	PlateCell	38° - 551 lpi	CellCenter
102	PlateCell	38° - 551 lpi	CellCenter
110	PlateCell	52° - 624 lpi	CellCenter
126	PlateCell	34° - 564 lpi	CellCenter
142	PlateCell	52° - 601 lpi	CellCenter
150	PlateCell	52° - 601 lpi	CellCenter
157	PlateCell	41° - 568 lpi	CellCenter
165	PlateCell	41° - 568 lpi	CellCenter
189	PlateCell	52° - 535 lpi	CellCenter
204	PlateCell	52° - 579 lpi	CellCenter
220	PlateCell	52° - 624 lpi	CellCenter

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)

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

Reset

Show Dot Percentage: %

SCREENMANAGER USER INTERFACE

CELLCENTER USER EXPERIENCE

Screen Settings

Name:

Original Dot:

☒ Restrict to Flexo Angles only

☐ Restrict ruling from lpi to lpi

☒ Highlights
 ☐ Concentric
 ☒ Surface Screening
 ☐ Screen Curve

☒ Use Surface Screening

Surface Screening Method:

Clustered Screen Settings

☐ PlateCell at 100%:

PlateCell Type:

Cell Size: %

☐ Convert Pattern to Screen

☒ Use CellCenter Screen

Start at: %

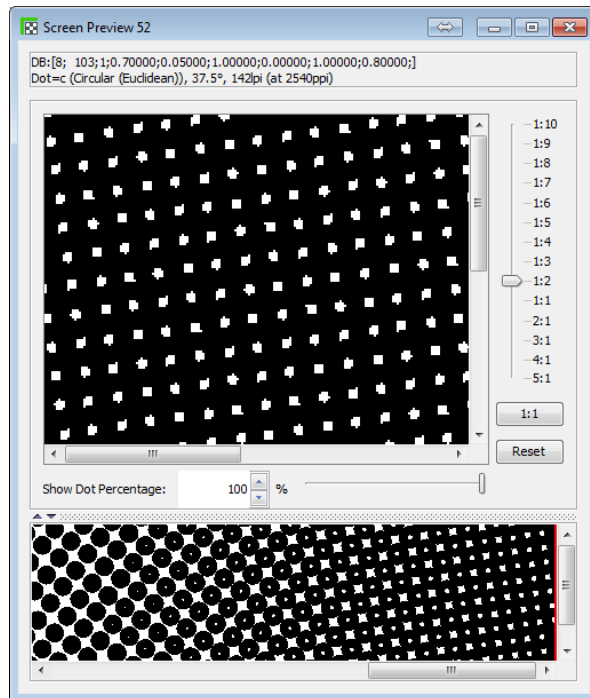
End Size: %

Frequency:

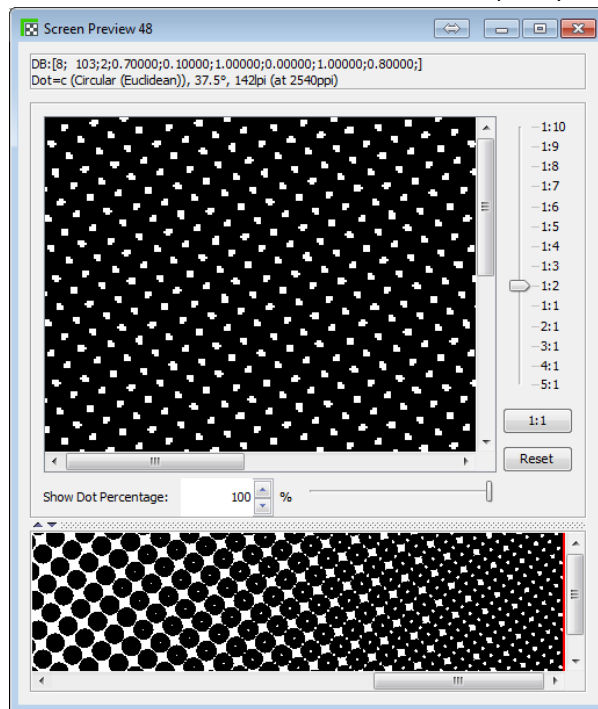
x 1.4
 x 2
 x 3
 x 4

- 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:

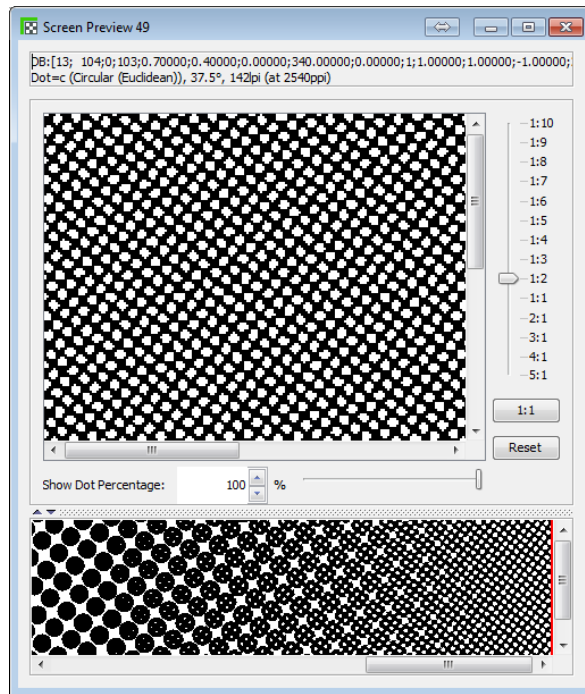
- X1.4: Surface screen in solids will be 1.4x the frequency of the original dot.



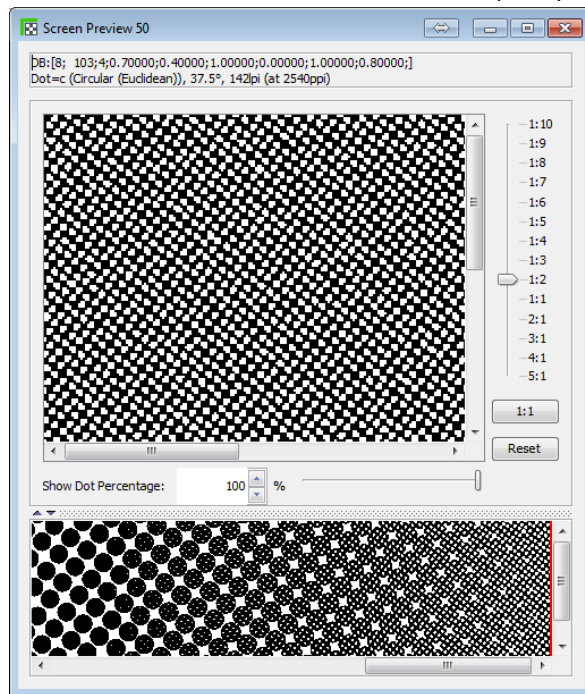
- X2: Surface screen in solids will be 2x the frequency of the original dot.



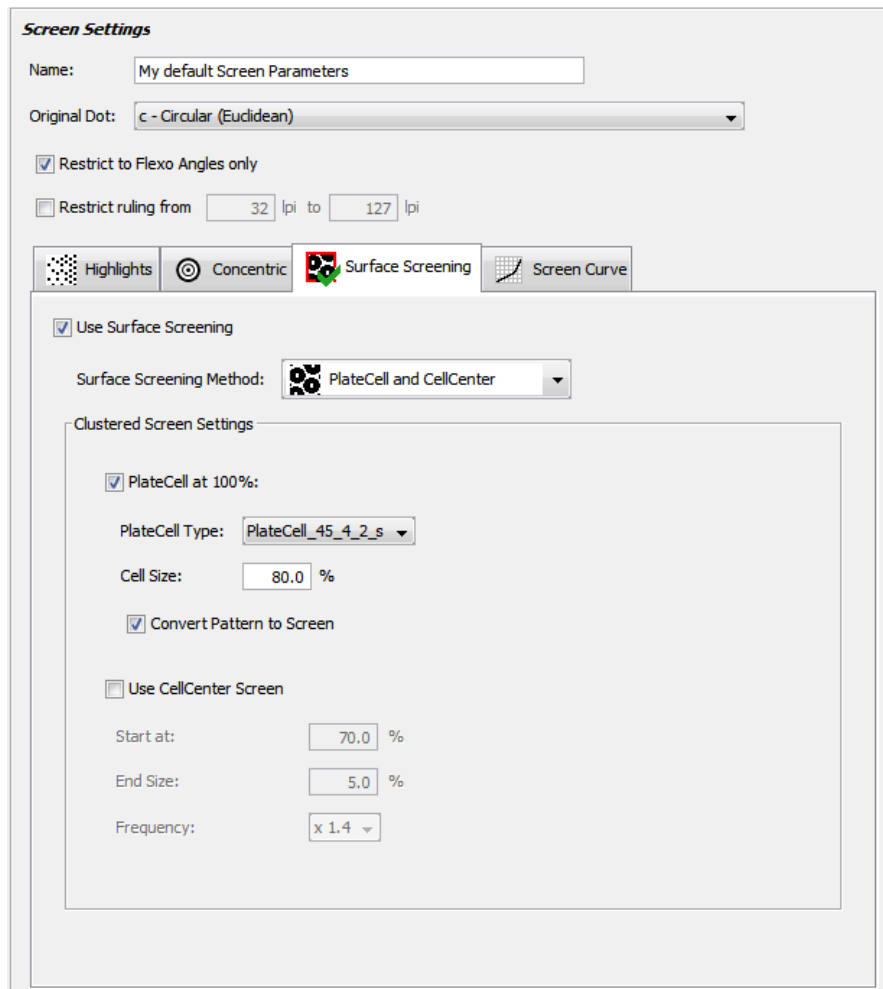
- X3: Surface screen in solids will be 3x the frequency of the original dot.



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



PLATECELL USER EXPERIENCE



Screen Settings

Name:

Original Dot:

☒ Restrict to Flexo Angles only

☐ Restrict ruling from lpi to lpi

☒ Highlights
 ☐ Concentric
 ☒ Surface Screening
 ☐ Screen Curve

☒ Use Surface Screening

Surface Screening Method:

Clustered Screen Settings

☒ PlateCell at 100%:

PlateCell Type:

Cell Size: %

☒ Convert Pattern to Screen

☐ Use CellCenter Screen

Start at: %

End Size: %

Frequency:

- 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 which 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

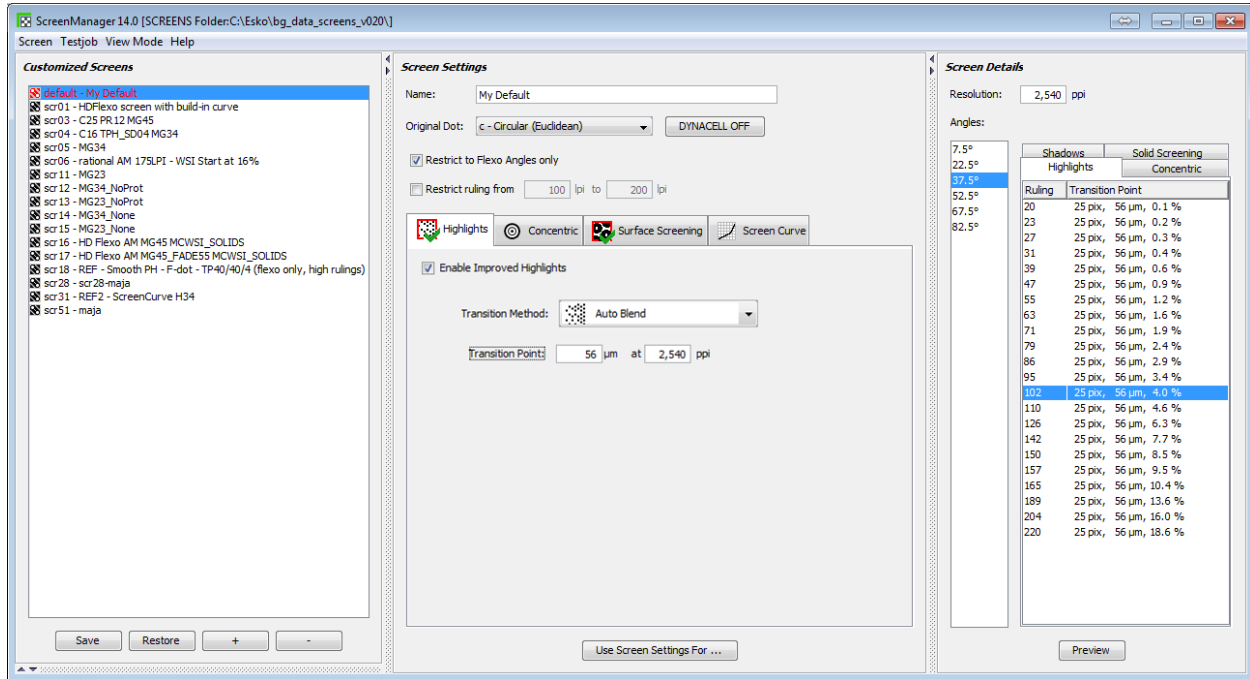
Important Note:

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

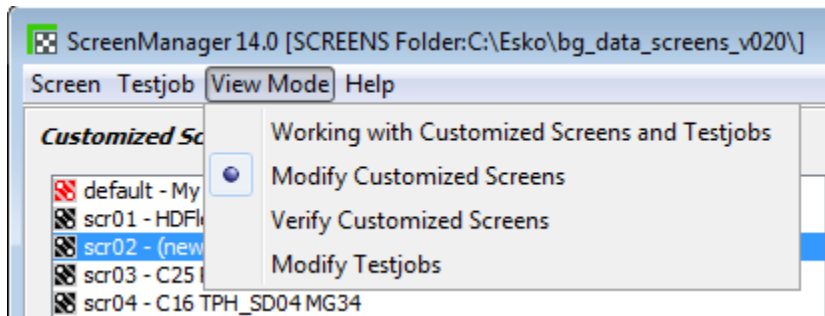
Without a license a user can already test these screening technologies: a preview of the screen can be made or a test job (LEN or TIF) with screened patches can be generated from ScreenManager.

DEFAULT MAIN SCREENMANAGER PANEL

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



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



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).