

# Imaging Engine 21.07

## User Guide

07 - 2021

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# 1. Copyright Notice

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Correspondence regarding this publication should be forwarded to:

Esko Software BV

Kortrijksesteenweg 1095

B - 9051 Gent

info.eur@esko.com

## 2. What is Imaging Engine?

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### **An Adobe PDF Print Engine Based RIP**

Imaging Engine is Esko's **Raster Image Processor (RIP)**, based on the industry standard Adobe PDF Print Engine.

On top of Adobe PDF Print Engine, Imaging Engine includes Esko's renowned [color management](#), [screening](#), [dot gain compensation](#) and [output formats](#).

You can use Imaging Engine to both [proof and RIP](#) your files.

### **A RIP Integrated Seamlessly into Automation Engine**

Imaging Engine is completely integrated into Automation Engine. This means that the Automation Engine Pilot is your single point of contact for using Imaging Engine (you do not need to launch or use any separate software).

You can run the [Imaging Engine tasks](#) on any PDF or Normalized PDF.

### **A Powerful Multi-Files Processing RIP**

Taking advantage of Adobe PDF Print Engine's capabilities (64-bit, multi-threaded, multi-process architecture), Imaging Engine is powerful and highly scalable.

You can add more RAM and cores to your server hardware to process more files in parallel, and faster.

**Note:** The amount of parallel processing you can do also depends on your [license](#).

## 3. Using Imaging Engine for Proofing and RIP'ing

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Files coming from a graphic designer often need a lot of prepress work before being printed. You can do this prepress work in Automation Engine for example.

After that, you can use Imaging Engine to both **proof** and **RIP** your files. When using the same solution for both proofing and RIP'ing, your proof will look much more like your final print than if you had used two different solutions.

### Proofing with Imaging Engine

You can use Imaging Engine for both **content proofing** and **contract proofing**.

- You typically make a **content proof** to check whether the contents of your file (layout, text, barcodes...) are correct.
  - You can make a **physical** content proof with Imaging Engine's [Proof for Content Approval](#) task (this uses the Esko Proof Server and your proofer of choice).
  - You can make a **digital** content proof with Imaging Engine's [Image to Content Proof \(RGB\)](#) task (this generates a high resolution preview file).
- You typically make a **contract proof** once you are satisfied with the content proof, to check that the colors of your proof also look as expected, and to show it to your customer as final proof before printing.

To ensure that your proof is as color accurate as possible, you [color manage](#) your job when making a contract proof.

You can do this with Imaging Engine's [Image to Unscreened Proof](#) task.

#### Tip:

If you also want to unquestionably **verify** the color accuracy of your proof against your customer's criteria when **contract proofing**, we recommend you use **Pack Proof** together with Imaging Engine.

See the [Pack Proof documentation](#) for more information.

### RIP'ing with Imaging Engine

After the proof is approved, the RIP is the last essential step to make sure your files are ready to send to your **output device**.

Imaging Engine can generate **screened** or **unscreened** files, depending on the device you want to use.

- You typically need **screened output** to send to a platesetter or filmsetter (for offset or flexo for example).

You can do this with Imaging Engine's [Image to Screened Separations](#) task.

- You typically need **unscreened output** to send to a device that will take care of the screening, or a device that doesn't need screened input (for gravure for example).

You can do this with Imaging Engine's [Image to Unscreened Separations](#) task.

See [Screened or Unscreened Output?](#) for more information.



You can also use Imaging Engine to generate *ink distribution data* for the files you want to send to your offset press (so that the press can automatically calculate the amount of ink needed for each separation of your RIP'ed files, without needing manual adjustments from the press operator).

You can do this with the *Calculate Ink Key Settings (CIP3)* task.

## 4. What Does Imaging Engine Do?

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When **proofing** with Imaging Engine, you can:

- perform general file transformations to make sure the output is as expected (select the right page box, rotate/invert/mirror the file as needed, apply a distortion to pre-compensate for substrate distortion...),
- [color manage](#) objects in your file, or the whole file, so they look as expected on press (for contract proofing),
- [rasterize](#) the vector graphics to continuous tone bitmaps,
- output your file either [directly to your proofer](#), or to the [file format](#) needed for your proofing workflow or device (TIFF, PDF or JPEG).

When **RIP'ing** with Imaging Engine, you can:

- perform general file transformations to make sure the output is as expected,
- [rasterize](#) the vector graphics to continuous tone bitmaps,
- if needed, [screen](#) those bitmaps at the correct resolution for your output device and with the screening settings most applicable to your printing method,
- add [dot gain compensation](#) to compensate for plate and/or press dot gain,
- output your file to the [file format](#) needed for your imaging device (TIFF, LEN, LENX, or PDF).

### Note:

Make sure you have done all other necessary prepress before sending your file(s) to Imaging Engine, either in your editor of choice or in Automation Engine.

For example if you are working with a file that has different versions or languages, and you need to merge one of the "language" separations with one of your base separations, you can do this using a PDF action list before sending your file to Imaging Engine.

You can make this PDF action list in ArtPro+, and use it in Automation Engine's **Apply PDF Action List** task. See the [Automation Engine - Merging Separations using PDF Action Lists](#) knowledge base article.

### 4.1. Color Management

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Color management is making sure that colors are reproduced consistently at different stages of the printing process.

This consistency is especially important for specific "brand" colors, that have to look the same when printed on different substrates (cardboard, paper, plastic...).

#### 4.1.1. Devices and Color Spaces

Different devices (a digital camera, computer monitor, proofer, press...) display or reproduce colors in different ways.

Colors in photographs are generally defined in the **RGB** color space (Red, Green, Blue), and monitors also use RGB to display colors.

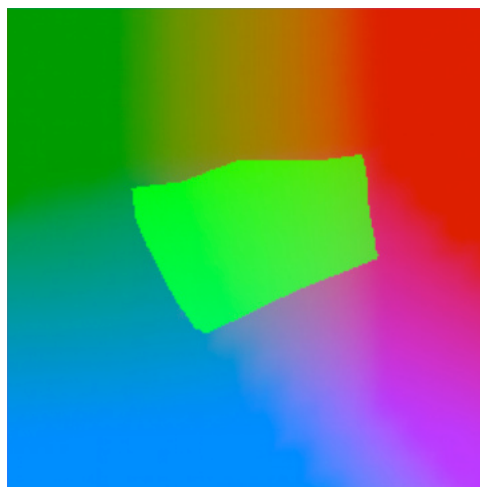
Proofers and presses use **CMYK** (Cyan, Magenta, Yellow and Black -or "Key") for printing, and sometimes additional inks (for example Orange, Green and Blue, to be able to reproduce more colors, or one or two **spot colors** -generally Pantone inks- used in a particular file).

Files coming from a graphic designer may contain CMYK, spot colors and sometimes images in RGB.

### 4.1.2. Devices' Profiles

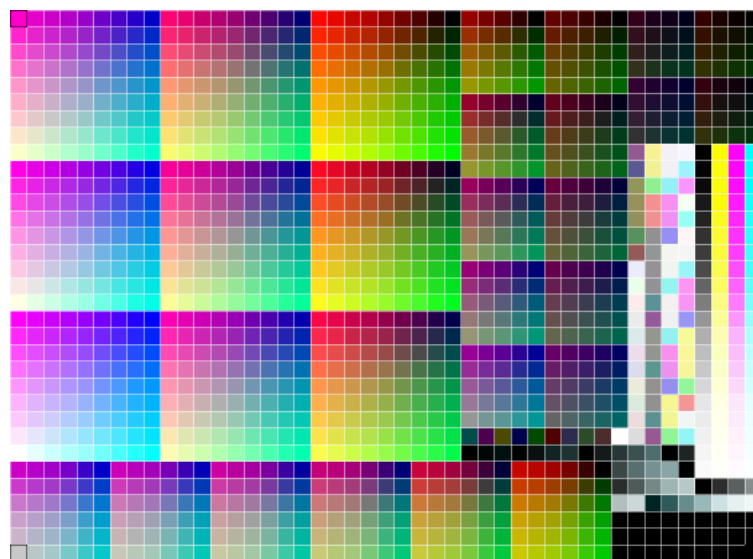
Even within one color space, different devices can reproduce colors differently. For example, two CMYK proofers from different brands may print completely differently.

A device's **gamut** is the totality of the colors that device can reproduce (for example, the area shown in light green below).



This is captured in the device's **profile**, which describes all the colors achieved when using different combinations of percentages from the base colors (RGB, CMYK, or CMYK + extra colors).

To create a profile for a press or proofer, you need to print and measure a profiling chart containing these combinations of percentages.



See the [Color Pilot documentation](#) for more information about creating profiles.

Imaging Engine support the following types of device profiles:

- Esko profiles, created in Color Pilot,
- ICC profiles, created in a third party application and written in a standard format.

### 4.1.3. Using Profiles for Color Management

You need to have a profile for **each of your devices** to perform color management.

**Note:**

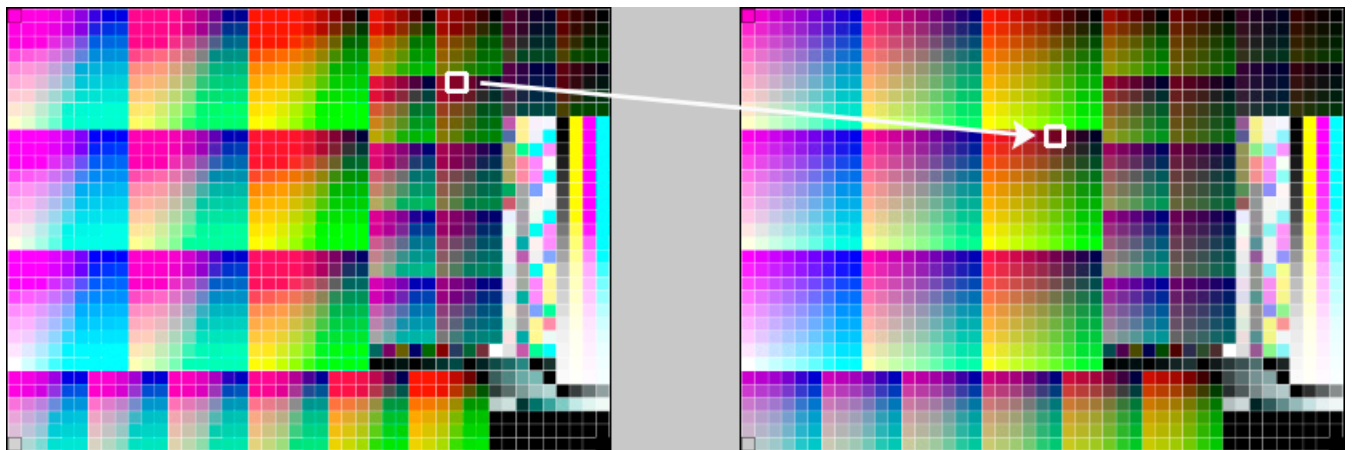
Proofers and presses' profiles need to reflect the device's exact printing characteristics (inks, substrate...).

So if for example you change your substrate, you need to make a new profile taking that substrate into account.

Once you have made the profiles, you can perform a **controlled conversion** of the colors between the different device profiles.

For example if you are printing a photograph, you need to convert its colors from the digital camera's RGB profile (the **source profile**) to the printer's CMYK profile (the **destination profile**).

This means that every color in the source profile is converted to the closest possible color that can be reproduced by the destination profile.



**Note:**

If you want to proof a file that will be printed on your press, you are trying to reproduce your **press'** colors on your **proofer**.

This means that the press profile is your **source** profile, and the proofer profile is your **destination** profile.

#### 4.1.4. Color Strategies

If you want to refine your color management, you can use **color strategies**.

A color strategy is a bundle of color management settings that contains at least the source and destination *profiles* of the devices you are using, and can contain other color management settings (*dot gain compensation curves*, settings like *rendering intent* for converting *out-of-gamut* spot colors and the background color, other settings for converting specific spot colors, etc).

Your company's color management expert can create these color strategies in Color Pilot, and you can simply select the one you need in your proofing ticket.

For more detailed information about Color Strategies, see the [Color Pilot documentation](#).

#### 4.1.5. Rendering Intents

A **Rendering Intent** is a part of your *color strategy* that handles the conversion of *out-of-gamut* spot colors and of the background color.

Each rendering intent does this in a different way, so you should choose the one that is more adapted to the way you are printing and the result you want to achieve:

- Use the **Relative Colorimetric** rendering intent if you don't want to simulate the source background (the point that has 0% of all inks in the source profile).

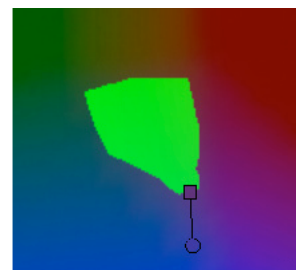
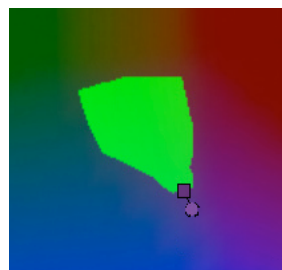
This will proof your file as if the proofer substrate was exactly the same as the substrate defined in your source profile.

For example: your press prints on cream colored card stock whereas your proofer prints on bright white paper, but you don't want to simulate the cream background on your proof.



With this rendering intent, colors from the source profile that cannot be reproduced by the proofer will be converted to the closest color(s) the proofer can reproduce.

In some cases several colors will be converted to the same color, which means that you can sometime lose some detail, especially in dark saturated areas and the dark parts of gradations.



Note that typically the proofer profile has a bigger gamut than the press profile, so there are not many colors that the proofer cannot reproduce.

- Use the **Absolute Colorimetric** rendering intent if you want to simulate the source background to get as exact a color match as possible.

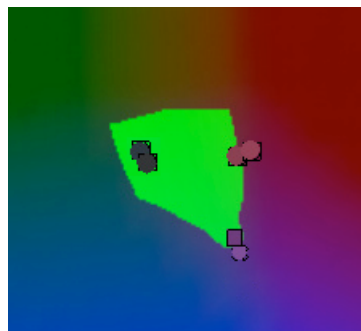
For example: you do want to simulate the cream colored card stock used on your press on your proofer substrate, to see how the final output will look like (this doesn't only affect the white but all the colors in your file).



As with the Relative Colorimetric rendering intent, colors from the source profile that cannot be reproduced by the proofer will be converted to the closest color(s) the proofer can reproduce, meaning you can sometime lose some detail, although there are typically not many press colors that a proofer cannot reproduce.

- Use the **Perceptual** rendering intent if you are not trying to get an exact color match but want the proof to look visually pleasing.

If there are colors from the source profile that cannot be reproduced by the proofer, this will shrink the source gamut to fit inside the gamut of the proofer, so that all colors are converted (even the colors already in the proofer's gamut), but the relationship between colors is kept.



This means that colors won't be really accurate, but you won't lose detail in dark saturated areas or gradations.

This rendering intent is most commonly used in commercial printing (for newspapers, magazines, posters...).

- Use the **Saturation** rendering intent if you mostly want to make sure the colors on your proof are saturated enough.

Colors from the source profile that cannot be reproduced by the proofer will be mapped onto close saturated colors that are in the proofer's gamut.

This rendering intent is most commonly used for business presentations containing graphics, or cartoons/comics.

**Note:**

- If you are working with Esko source and destination profiles, you can use the **Absolute Colorimetric** or **Relative Colorimetric** rendering intent.
- If you are working with ICC source and destination profiles, you can use any rendering intent.

## 4.1.6. The Color Management Database

All your [profiles](#), [color strategies](#) and inks are stored in a color management database (also called "CMS database").

You install this color management database when installing Automation Engine. You can install it on your Automation Engine server or on another server (the server you install your color management, [curves](#) and [screens](#) databases on is called the "resources server").

After this, the profiles, color strategies and inks in your color management database are automatically available in the [Imaging Engine tasks](#).

**Important:**

If you are using Imaging Engine [for proofing](#), you should also install Color Pilot when installing Imaging Engine.

This will enable you to create your own profiles, color strategies and inks, and to access [PantoneLIVE inks](#) (if you have a PantoneLIVE license).

## 4.1.7. PantoneLIVE

PantoneLIVE® is a database of Pantone inks in the cloud. It contains information about how different tints of an ink look like, and how the ink will look like on different substrates.

Because it is in the cloud, the same color data is accessible to every actor of the packaging production, globally (while being protected by a login). This ensures that you get predictable and accurate color every step of the way, saving time and costs.

To use PantoneLIVE inks, you need Color Pilot and a PantoneLIVE license.

After logging on to the PantoneLIVE cloud from Color Pilot, you will be able to download PantoneLIVE ink books from the cloud, and use PantoneLIVE inks in your files.

Please see the [Color Pilot documentation](#) for more information about accessing PantoneLIVE ink books.



**Note:**

If you don't have a PantoneLIVE license, any PantoneLIVE ink in your files will be treated as an unregistered ink (an ink not present in your color database), and you will not be able to proof or RIP it accurately.

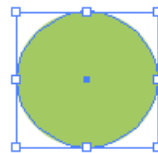
In this case you should ask the file's designer to replace the PantoneLIVE ink by an ink that is present in your color management database.

## 4.2. Rasterizing Vector Graphics to Bitmaps

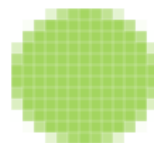
---

Files coming from a graphic designer may contain **vector graphics** or "linework" (especially for fonts or logos).

Vector graphics are highly scalable without any loss of quality (as they are not based on pixels but on mathematical formulas), but they are not printable.



To be able to print those graphics, you need to **rasterize** them with a RIP (Raster Image Processor). This means converting them to **bitmap images**, or "contones" (continuous tone images), which are based on pixels.



Low-resolution bitmaps can look pixelated, but Imaging Engine generates high-resolution bitmaps.

In Imaging Engine, you can choose to:

- output your files as contones if you need [unscreened output](#) (you can do this with the [Image to Unscreened Separations](#) and the [Image to Unscreened Proof](#) tasks).
- screen those contones to get "halftones" if you need [screened output](#) (you can do this with the [Image to Screened Separations](#) task).

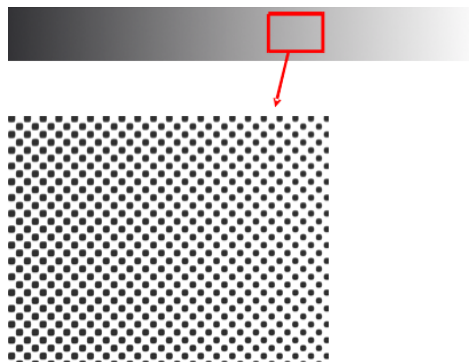
## 4.3. Screening

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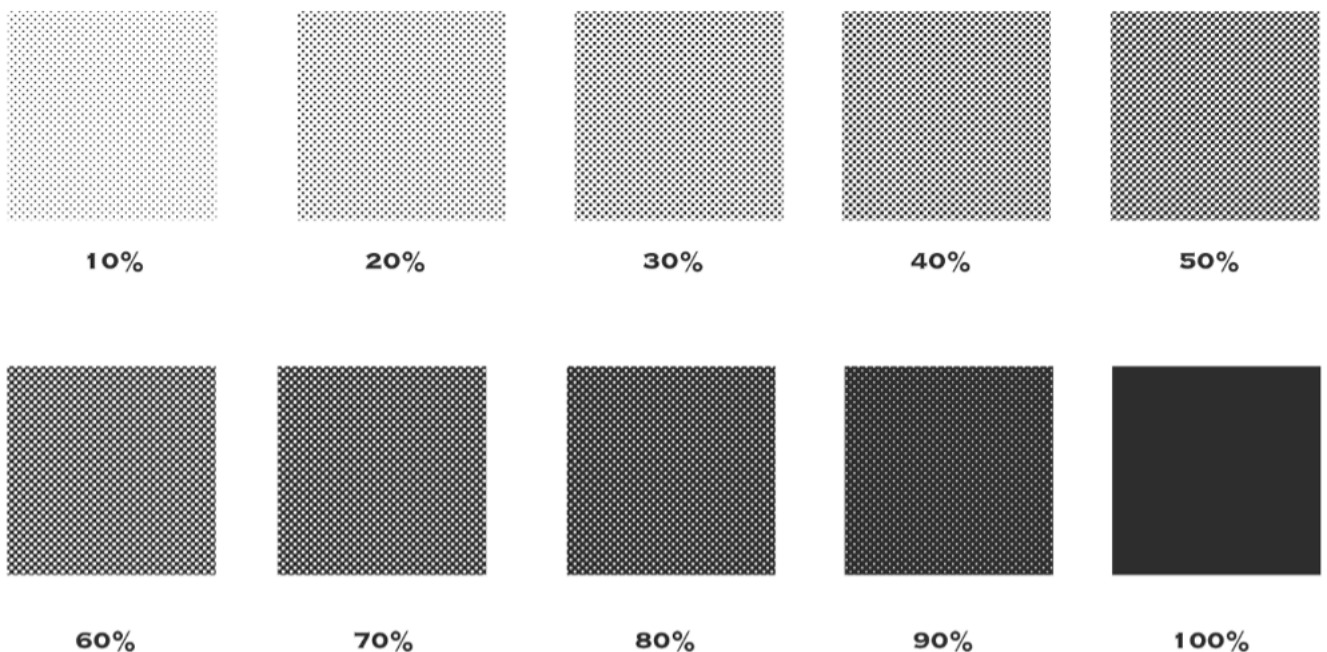
### 4.3.1. What is Screening?

When printing an image on press, each ink (Cyan, Magenta, Yellow, Black and any additional ink) is laid out separately on the substrate, and the super-imposition gives the final colors.

At a high detail level, the press can either print ink or not print ink, so to create differences of color intensity within one ink, you use a small scale pattern of dots of varying size, called a screen.

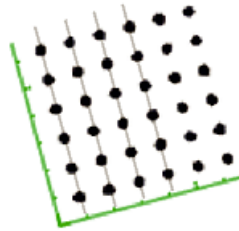


When viewed from a regular distance, this pattern looks like a lighter or darker shade of that color, depending on how big the dots are (what percentage of the area they cover).

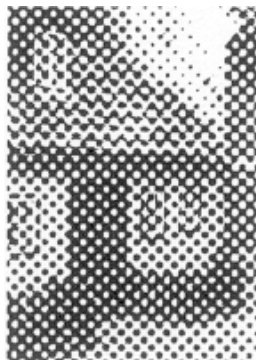


### Screen Ruling

The screen can also be coarser or finer, so that you have to be more or less far away to see it as shades of a color. This depends on how many lines of dots can fit in a certain measurement. This is expressed in lines per inch (**lpi**), lines per centimeter (**lpcm**) or lines per millimeter (**lpmm**), and is called the **screen ruling**.



A low screen ruling as below left looks very coarse, and the quality improves as the screen ruling gets higher.



25 Lpi



45 Lpi

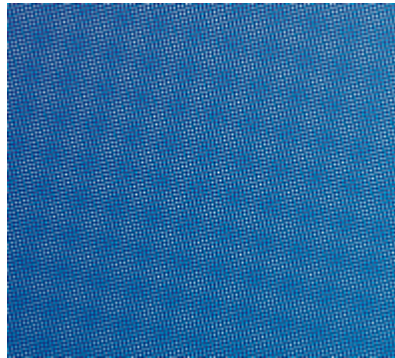


85 Lpi

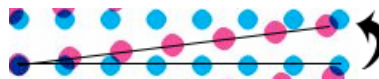
### 4.3.2. Screen Angles and Moiré

#### What is Moiré?

When placing the screens of two or more separations on top of each other, a visually disturbing effect called moiré can occur.



This is caused by the way the screen patterns are positioned relative to each other.



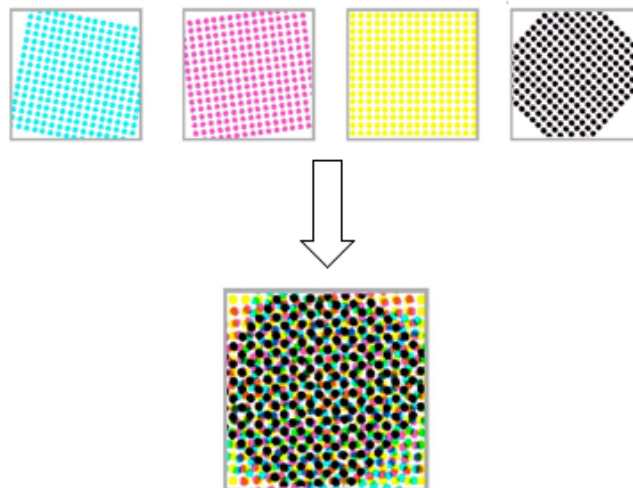
The most noticeable moiré patterns happen when the screens have a very small difference in angle between them:

Screens with a 10° angle difference	Screens with a 20° angle difference

### Screen Angles

To minimize moiré, the different separations' screens are placed at a sufficiently big angle from each other.

For CMYK, the most "visible" inks (Cyan, Magenta and Black) are placed at 30° intervals, and Yellow at a 15° interval.



The exact screen angles used depend on the printing process:

- Basic offset angles are: Y at 0 degrees, C, M, and K at 15, 45 or 75 degrees depending on the application.
- Basic flexo angles are: Y at 7.5 degrees, C, M and K at 22.5, 52.5 or 82.5 degrees depending on the application (or Y at 82.5 degrees, C, M and K at 7.5, 37.5 or 67.5 degrees depending on the application).

Flexo angles are different from offset angles due to the anilox roll used in flexo presses (a cylinder which is engraved with millions of small cells that carry a thin film of ink which is deposited on the plate).

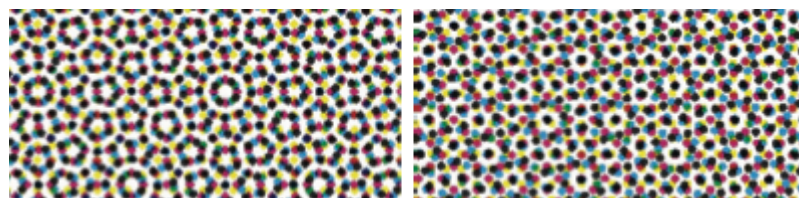
Putting the flexo screens on angles based on a 7.5° offset is needed to prevent moiré between the screen and the pattern of the inking cells of the anilox roll.

### Rosettes

When overlaying the screens of the different separations at *their respective screen angles*, you get a type of *moiré* which is much less visible and distracting at a normal viewing distance. This is called a rosette pattern.

A rosette pattern can be clear centered or dot centered.

- Clear centered rosettes (also called hole centered rosettes)(below left) are built up around a hole, and generally considered to be more stable.
- Dot centered rosettes (below right) are built up around a dot, and can give a more saturated result.



### Yellow Moiré

In four color printing, you may get "yellow moiré" or "4 color moiré" because the Yellow separation is only *at a 15° angle* from the Cyan.

This is typically less visible than *other types of moiré*, but may be a problem if:

- the yellow becomes contaminated by other inks on your press,
- you are printing lots of yellows, light greens and/or skin tones.

If you run into this problem, you need to adjust your yellow screen pattern so that it interferes less with other separations' screen patterns.

You can do this in Imaging Engine by automatically adjusting the yellow *screen ruling*.

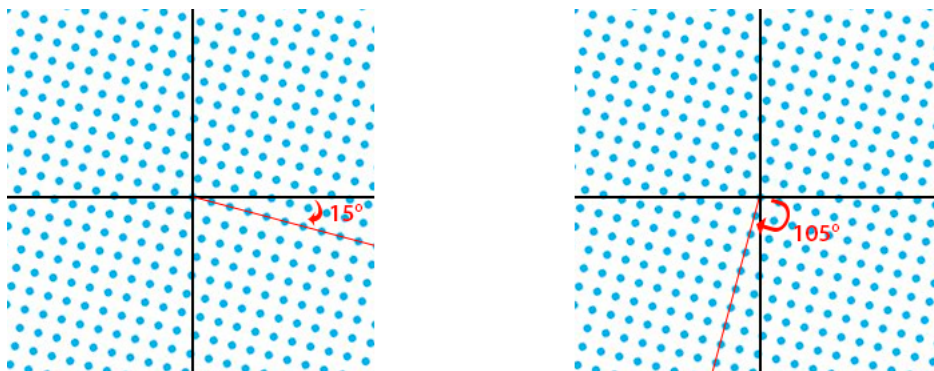
### Screen Angle Range

Conventional screens can either work with a 90° or a 180° screen angle range.

#### Modulo 90 Screens

Modulo 90 screens are screens that only work with screen angles between 0° and 90°.

This is because when you rotate such a screen 90°, it looks exactly the same.



When working with such screens, you cannot place two different separations at angles that are 90° apart (if you did, the smallest registration error would cause severe *moiré*).

You need to place all separations between 0° and 90° (typically the most visible separations are placed 30° apart, and the least visible 15° from other separations).

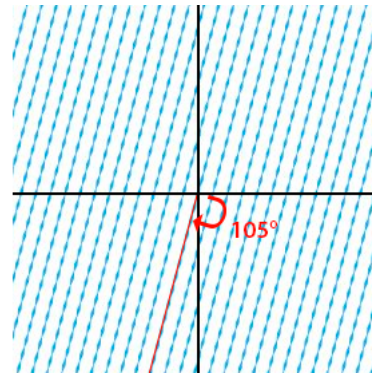
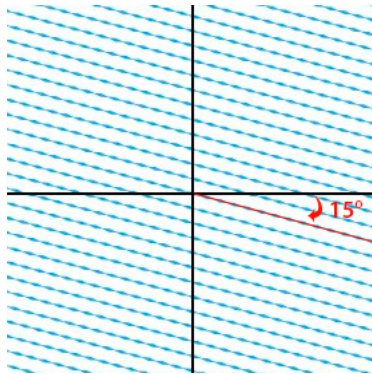
Modulo 90 screens are usually screens that have a symmetrical dot shape, for example the *Circular* dot.

However, some modulo 90 screens can have an asymmetrical dot shape, like the *Rugby* dot.

#### Modulo 180 Screens

Modulo 180 screens are screens that work with screen angles between 0° and 180°.

Such screens look the same when rotated 180°, but not when rotated 90°.



When working with such screens, you can place all separations between 0° and 180° (typically separations are placed 60° apart).

Modulo 180 screens are usually screens that have an asymmetrical dot shape, such as the [Eccentric](#) series of screens.

**Note:** You can check the characteristics of a screen in ScreenManager: in the screen details, a modulo 90 screen only lists angles from 0° to 90°, while a modulo 180 screen lists angles from 0° to 180°.

### 4.3.3. Types of Screens Supported

Imaging Engine supports different types of screens:

- [screens with standard dot shapes](#),
- [screens with advanced dot shapes](#),
- [stochastic \(FM\) screens](#),
- [legacy screens](#) (screens that you have from an old version of FlexRip or Nexus RIP),
- [custom screens](#) (screens you have created in the Print Control Wizard, ScreenManager or HD Flexo).

Depending on your particular license, some of these screens will be included in your Imaging Engine, and others can be purchased as an option.

Please check the sales material of your product to know what is included.

Screens have a short name and a long name. For example **R** -> **Round Fogra** (**R** being the short name and **Round Fogra** the long name). When selecting a screen, they are listed alphabetically by short name.

**Note:**

Imaging Engine's halftone phase origin (the point where it starts screening the input file) is the top left corner.

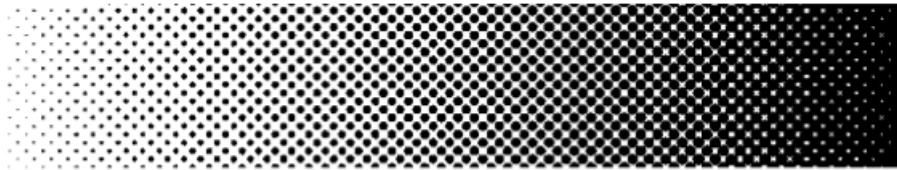
This is the same origin point as FlexRip and Nexus RIP, so you should be able to re-run old jobs and get the same alignment (you may notice 1 pixel difference with old Nexus jobs).

#### Screens with Standard Dot Shapes

Depending on your license, your Imaging Engine product may include the following screens:

**Circular (Euclidean) (short name: C)**

This screen uses circular dots, that grow continuously circular until 100%.



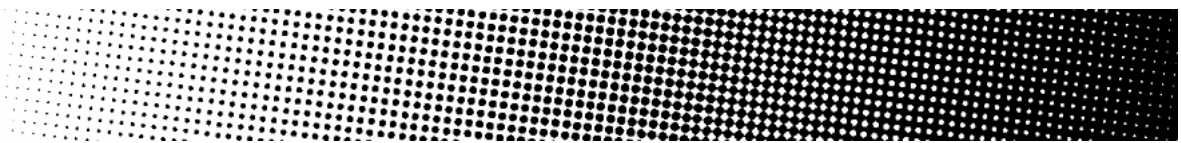
The circular dot is typically used for **flexography** and **letterpress**.

This dot gives good results in many situations. However in some printing conditions the holes in the shadows can fill in, which can result in unstable or high dot gain, and cause a loss in tonal range.

In this case consider using the Round Fogra dot instead.

**Double Circular (short name: F)**

This screen has circular dots in the highlights and mid-tones, and circular holes in the shadows.



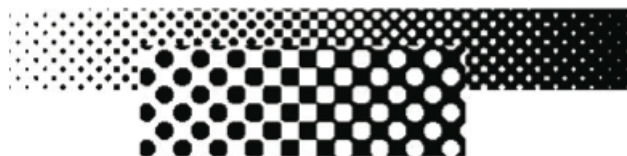
Note that this screen can cause irregular ink bridging ("bridges" between dots) around the mid-tones, which can give unstable dot gain in that tonal range.

In this case use the Round Fogra dot instead.

**Paragon Euclidean (short name: PAREUC)**

Paragon screens are designed for **offset** and **flexo** environments, to eliminate rosette drift and suppress red and green patterns.

This is a Paragon screen with a round dot in the highlights, a checkerboard pattern in the 50% region, and a negative round dot in the shadows.



**Round Fogra (short name: R)**

This screen uses the Round Fogra dot, that closely resembles the elliptical and circular dots, and can be used the same way. It is also a better alternative for square dots.

It goes from a round dot to a round hole, with a square/diamond shape in the mid-tones.



As with elliptical dots, the touching of the dots at the four corners at 50% (leading to a 50% intensity jump) is avoided by using a more elongated dot shape so that the dots first touch around 45% forming a chain and touching for the second time around 55%. This causes less artefacts and less dot gain when printing.



The Round Fogra dot can be used for virtually all printing processes. It is very popular for **offset** printing, but it can also be used for **flexography, letterpress, silk screen printing** and for making films for **offset-helio conversion**. Only chemical etching gravure cannot be done with this dot shape.

### Screens with Advanced Dot Shapes

Depending on your license, your Imaging Engine product may include screens with advanced dot shapes.

#### Rugby (short name: D)

This screen has a special dot shape and is used for **screen printing**. Rugby dots are shaped like a rugby ball, or a diamond with round edges, which dramatically reduces the interference of the dots with the mesh structure of the silk screen.



The dots touch around 35% to form chains. At 65%, a negative dot with rugby shape appears. This dot shape is fully symmetrical.

#### Elliptical (short name: E)

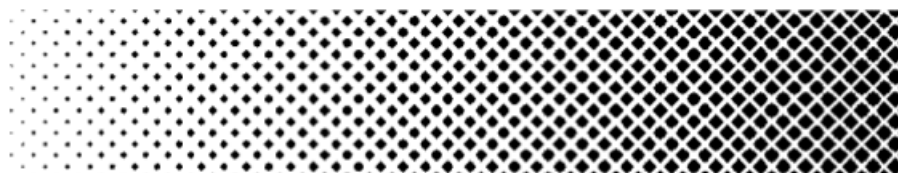
This screen uses a more elliptical version of the *Round Fogra* dots.



For these dots, the first touching point is around 35%. Between 35% and 65%, a chain is formed with the same orientations as for the Round Fogra dots.

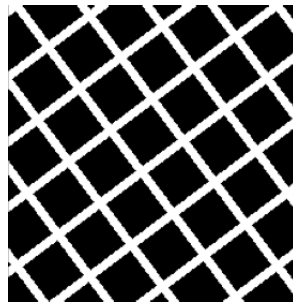
#### Helio (short name: H)

Helio dots continuously grow square, even above 50%, forming "helio walls".


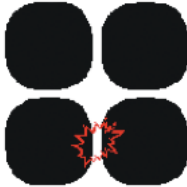


This dot is needed for the **classic gravure etching** processes only. The dot shape is highly optimized for both contone reproduction and linework areas.

**Convex helio** dots are the standard helio dots. The dot is as square as possible.



However in some circumstances the etching process smoothes out the square shape of the dots, which can cause the helio walls to break during printing (especially at the highest dot percentages), resulting in bad print quality.

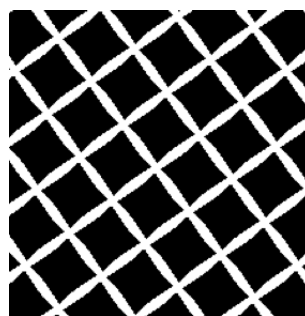
On film	On plate
	

In this case, you should use concave helio dots instead:

**Helio Concave (short name: G)**

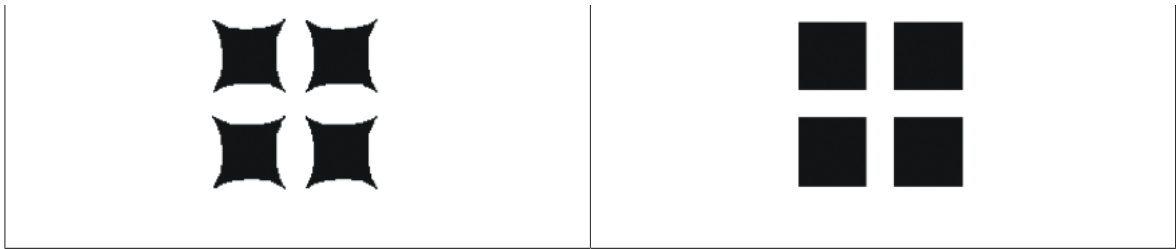
**Concave helio** dots are designed to avoid the helio walls breaking that sometimes happen with standard **helio** dots.

In the concave helio screens, the square-shaped screen dots are replaced by more pillow-shaped dots.



When etching the cylinder, the sharp ends are rounded off and the final result is closer to a square than the result of the standard helio dot.

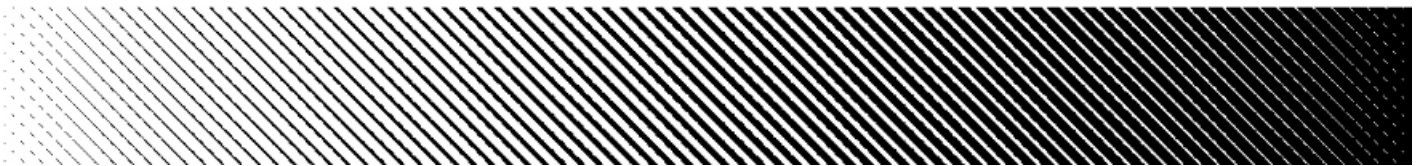
On film	On plate



This dot shape will be useable up to slightly higher screen levels than the standard helio dot.

**Line (short name: L)**

This screen use lines instead of dots.



The advantages of using line screens are:

- there is no tonal jump because the lines never touch,
- the rosette patterns disappear completely, which gives the illusion of a higher ruling.

**Paragon Diamond35 (short name: PARDIA35)**

Paragon screens are designed for **offset** and **flexo** environments, to eliminate rosette drift and suppress red and green patterns.

Paragon Diamond35 is a screen with diamond shaped dots.



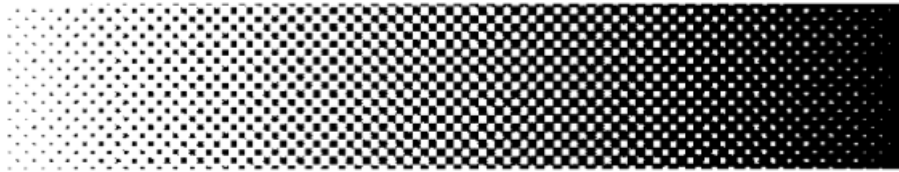
**Paragon Elliptical35 (short name: PARELL35)**

This is a Paragon screen with elliptical dots.



**Square (short name: S)**

This screen uses square dots in the highlights, forms a checkerboard at 50% and has square holes in the shadows.



At 50%, the tonal jump can be very noticeable, especially when the printing process causes the holes to fill (for example in Flexo), which results in a large dot gain. If the tonal jump is too obvious, use Round Fogra or elliptical dots instead.

**Eccentric 0 (short name: X0)**

Eccentric dots are a series of more or less elongated dots, X0 being the most elongated (the furthest from a round shape). A screen with X0 dots is close to forming lines.



Because of the more or less elongated shape of the dots, different eccentric dots have different touching points. The dots form a chain between the two touching points.

Eccentric 0 has a first touching point at 5% and a second touching point at 95%.

**Note:**

Eccentric dots have specific advantages for the **flexo** printing process:

- The flexo process is characterized by a high dot gain. Eccentric dots tend to lower this dot gain, as well as the tonal jumps caused by dot gain.
- The more eccentric the dot is (X0 and X1 dots), the less noticeable rosette patterns it generates. The difference in rosette patterns between eccentric dots and conventional round or circular dots is more striking in flexo than in offset or gravure, due to the lower rulings used in flexo.

**Eccentric 1 (short name: X1)**

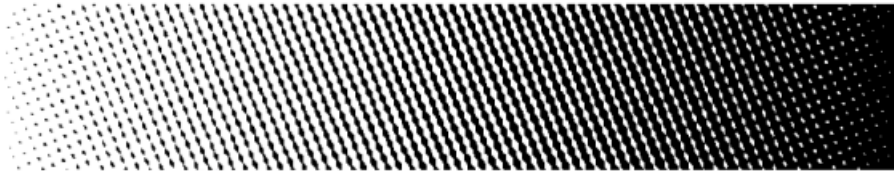
Eccentric 1 dots are slightly less elongated than X0 dots.



Eccentric 1 has a first touching point at 10% and a second touching point at 90%.

**Eccentric 2 (short name: X2)**

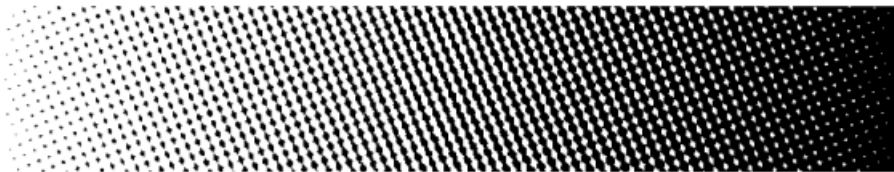
Eccentric 2 dots are less elongated again.



Eccentric 2 has a first touching point at 20% and a second touching point at 80%.

**Eccentric 3 (short name: X3)**

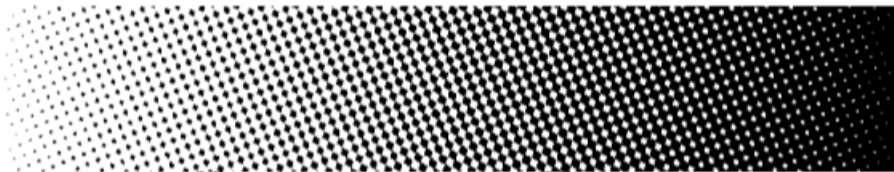
Eccentric 3 dots are only slightly elongated.



Eccentric 3 has a first touching point at 30% and a second touching point at 70%.

**Eccentric 4 (short name: X4)**

Eccentric 4 dots are the least elongated of the eccentric dots. They are close to *Round Fogra* dots.



Eccentric 4 has a first touching point at 40% and a second touching point at 60%. At 50% the dots form a checkerboard.

**Stochastic (FM) Screens**

In "stochastic" (or Frequency Modulated) screens, dots are not placed on a regular grid pattern like in conventional (Amplitude Modulated) screens.

In a conventional screen, the dot size grows with the intensity (you have bigger dots at 50% than at 25%). In a stochastic screen, the dot size stays the same, but you get more dots per area as the intensity increases.

The advantages of stochastic screens are:

- sharper images,
- the full elimination of disturbing rosette patterns,
- no color shift caused by small registration errors (those errors are less visible than the same errors with conventional screens, which can reduce press preparation time),
- the possibility to combine more than 4 separations without *moiré*.

**FM (short name: FM)**

The FM screen is a first order stochastic screen (dots have the same size all over the density range), that uses square dots.

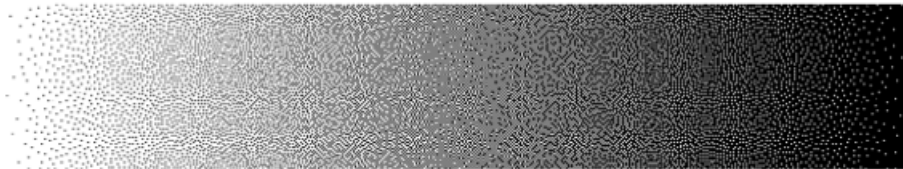


Each FM dot size corresponds to a specific set of rulings, for different output resolutions. You can find more information in the [Imaging Engine Screen Rulings](#) look-up table.

**Monet (short name: M)**

The Monet screen also uses dots of the same size all over the density range, but unlike the FM screen, it can have square and/or rectangular dots. It is optimized for **offset** printing.

In many cases, it can also be used in combination with a [Rugby dot](#) for **silk screen printing**.



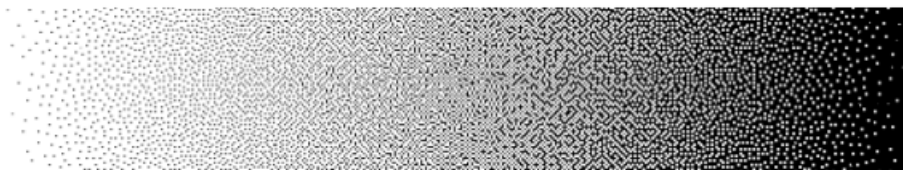
If you experience high dot gain when using a Monet screen, we recommend you switch to an Organic screen.

Each Monet/Monet for Flexo dot size corresponds to a specific set of rulings, for different output resolutions. You can find more information in the [Imaging Engine Screen Rulings](#) look-up table.

**Monet for Flexo (short name: MF)**

This screen is based on the Monet screen.

The Monet for Flexo screen has holes in the shadows that are bigger than the dots in the highlights, so they don't fill up as much with dot gain (not increasing the shadows' darkness too much).



This is especially beneficial for printing processes with high dot gain such as **flexo**.

Each Monet/Monet for Flexo dot size corresponds to a specific set of rulings, for different output resolutions. You can find more information in the [Imaging Engine Screen Rulings](#) look-up table.

**(Older) Monet for Flexo (short name: MFOLD)**

The **Monet for Flexo** screen used in FlexRip and versions of Imaging Engine up to 16.0.2 has been renamed to **Monet for Flexo - with perimeter info for FlexRip (short name: MFOLD)** from Imaging Engine 16.1.

- If using this screen gave you satisfactory results, you can continue using it as before.
- If you experienced problems with the grey levels not being linear enough throughout the tonal range (such as the mid-tones being too light), you can use the new Monet for Flexo (short name: MF) screen instead (available from Imaging Engine 16.1).

**Organic (short name: O)**

Unlike first order stochastic screens like FM, Monet or Monet for Flexo, where the single dots are left on their own, the organic dots are combined in clusters, forming organic-like random structures. This reduces the dot gain around the mid-tones.

However, Organic screens can generate noise in images, giving a grainy appearance. If you experience this problem, we recommend you switch to a Monet screen.

The Organic screen is optimized for **offset** printing.



**Legacy Screens**

If you have some screens that you got with an old version of FlexRip or Nexus RIP, they will still be available in Imaging Engine.

**Note:**

Those are pre-calculated screens that were created for specific printing environments or to solve specific problems. They can only perfectly match certain sets of conditions.

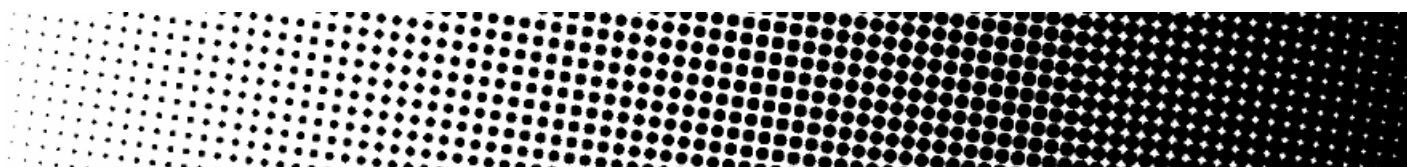
Today, you can get the same effects, fine-tuned for your particular printing conditions, by creating [custom screens](#) in HD Flexo and/or ScreenManager.

See the HD Flexo and/or ScreenManager documentation for more information.

**Conventional (AM) Screens**

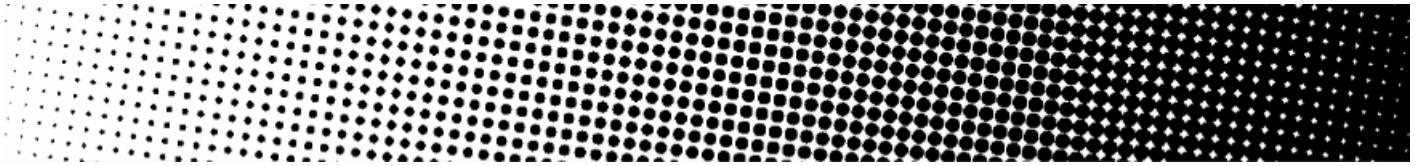
**TwinBeam (short name: CD0)**

The TwinBeam screen was developed for the CDI. It uses round dots that are exposed by two laser beams.



**CDI MultiBeam Optimized (short name: CD1)**

The CDI MultiBeam Optimized screen was also developed for the CDI, as an improvement to the TwinBeam screen. It uses round dots that are exposed by several laser beams.

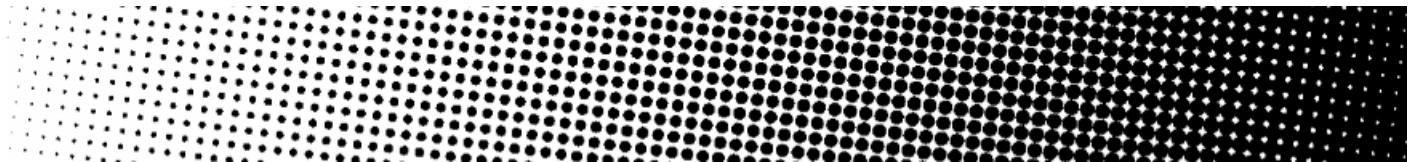


**Endless (short name: CO)**

This screen was used in combination with cylindrical sleeves on the CDI, to make several copies of a job print continuously on the substrate, without broken dots at the edges of each job.

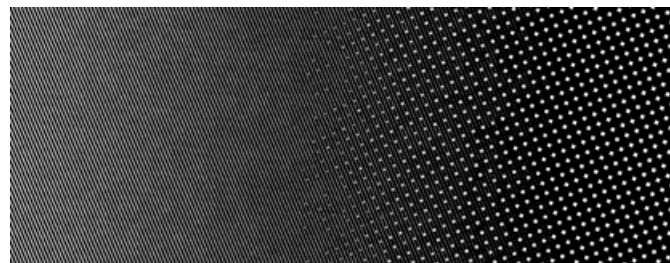
For best results, we recommend you use the [seamless screening](#) functionality to create a custom seamless screen instead of using the Endless dot.

This screen uses a circular dot shape.



**Groovy (short names: GVV1 to GVV5)**

Groovy screens put a line pattern in the dark areas of the screen only. The lighter areas have a [Double Circular](#) dot pattern.



The transition between the normal screen pattern and the line pattern is smooth, leading to a smooth gradation on print between the lower density (non-groovy) and higher density areas (groovy).

They improve solid rendering in **flexo** printing (the lines help even out the ink distribution) and have their best performance on foils. Performance on other substrates (paper, metal) is heavily dependent on the printing circumstances.

You can choose between different groovy screens:

Long name	Short name	Pattern angle	Pattern ruling	Transition start	Maximum pattern percentage	Pattern
Groovy1	GVV1	Close to 45 degrees	3 times the original ruling	95%	45%	Lines



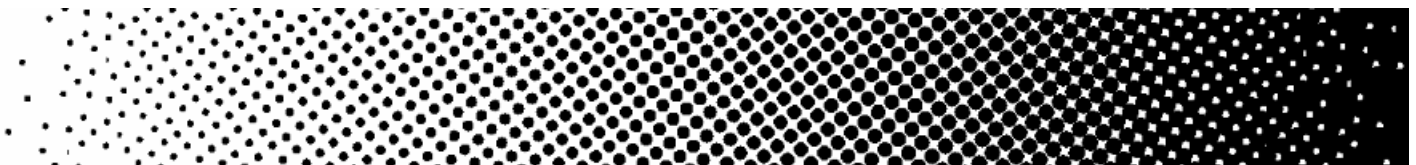
Long name	Short name	Pattern angle	Pattern ruling	Transition start	Maximum pattern percentage	Pattern
Groovy2	GVY2	Close to 45 degrees	3 times the original ruling	90%	45%	Lines
Groovy3	GVY3	Close to 45 degrees	4 times the original ruling	95%	45%	Lines
Groovy4	GVY4	Close to 45 degrees	4 times the original ruling	90%	45%	Lines
Groovy5	GVY5	Close to 45 degrees	3 times the original ruling	93%	45%	Eccentric1

### Transitional (AM/FM) Screens

#### Circular Samba (short name: CS)

Samba screens are transitional screens, that were designed to solve problems in the highlights in **flexo**.

They have a *stochastic* part in highlights and shadows, a conventional part in the mid-tones and the transition between both contains a pattern that is gradually going from stochastic to conventional over a large number of intermediate patterns.



#### SambaFlex (short names: CS4 to CS45)

Like Samba screens (which they are based on), SambaFlex screens are transitional screens, going from stochastic to conventional and back.



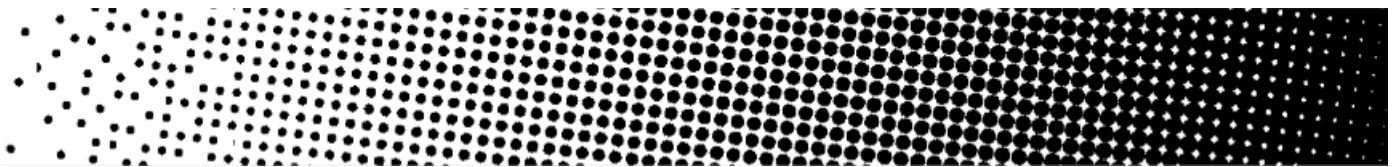
SambaFlex screens support seven different minimum dot sizes, for every imagesetter resolution. These sizes cover a very broad range, from hardly visible dots until dots so big that they can only be used for artistic effects.

- Screens with a small minimum dot size (like **CS4**) have almost unnoticeable stochastic effects.

- Screens with a bigger minimum dot size (like **CS45**) have a coarser stochastic pattern, and less dots in the highlights. The transition point in the highlights shifts up to higher dot percentages.

**SambaFlex Highlight (short names: CS4H to CS45H)**

These screens are based on the SambaFlex screens, and only have a stochastic part in the highlights. In the shadows, they stop at the darkest point, whether it is 100% or not (for these screens it is usually 95%).



**Custom Screens**

In Imaging Engine, you can also use any custom screen you created in the **Print Control Wizard**, **HD Flexo** or **ScreenManager** application. You will recognize those custom screens because:

- Screens created with the **Print Control Wizard** have a short name beginning with **CRS (CRS01, CRS02...)**.

**CRS** (or "Crystal") screens are developed exclusively for use with the *CDI Crystal imager series* and the *XPS Crystal exposure unit series*.

See *Crystal Screens* on page 34 for more information.

You can find more information about creating a screen with the Print Control Wizard in the *Print Control Wizard documentation*.

- Screens created in **HD Flexo** have a short name beginning with **HD (HD01, HD02...)**.

For more information about creating a screen with HD Flexo, please see the HD Flexo documentation (available from within your application).

- Screens created in **ScreenManager** have a short name beginning with **SCR (SCR01, SCR02...)**.

For more information about creating a screen with ScreenManager, please see the ScreenManager documentation (available from within your application).

**Crystal Screens**

Crystal screens are Esko's latest screening technology, developed exclusively for use with the *CDI Crystal imager series* and the *XPS Crystal exposure unit series*, for a high quality flexo printing workflow.

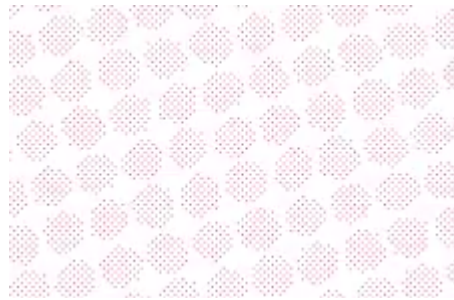
You can create Crystal screens using the *Print Control Wizard*, that will guide you in creating custom screens and curves for your specific printing setup, to ensure better quality control.

For more information about creating a custom Crystal screen, see the *Print Control Wizard documentation*.

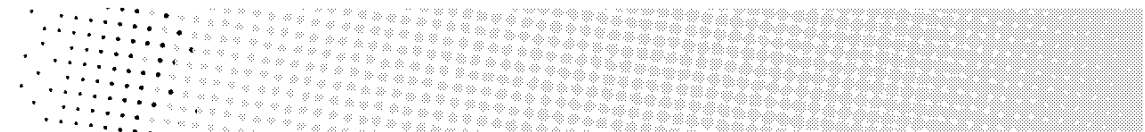
**Screen Characteristics**

Crystal screens use multiple Esko screening technologies:

- Pixel+ technology, where each dot is made of individual pixels, that are "boosted" on the CDI to make printable dots,



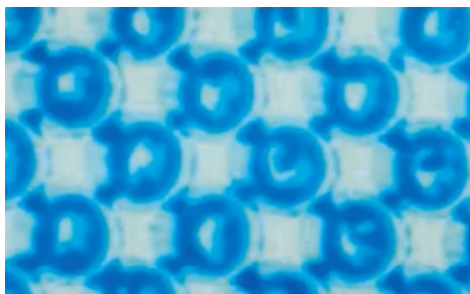
- a transition from solid dots in the highlights to Pixel+ dots in the rest of the tonal range (for the Crystal C variant of the Crystal screens),



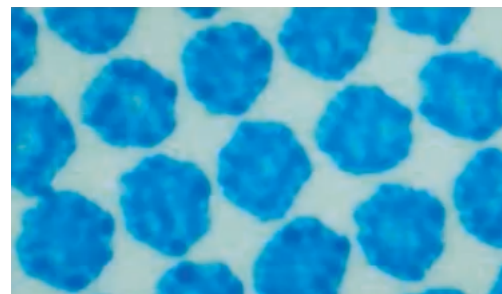
- *FM screening* in the highlights (used in your custom screen when it benefits your specific printing setup),
- *support dots* at single or double ruling (used in your custom screen when it benefits your specific printing setup).

When using Crystal screens, you don't need to use object-based screening (different screens for individual objects in your file), as they give good results in all areas:

- They provide a smooth transition from the solids into the shadows and mid-tones, with reduced dot bridging.



dot bridging with a circular dot



no dot bridging with a crystal screen

- They produce stable highlights that fade out to zero more smoothly than with other screening technologies.

### The Screens Database

All your *screens* are stored in a screens database.

You install this screens database when installing Automation Engine. You can install it on your Automation Engine server or on another server (the server you install your screens, *curves* and *color management* databases on is called the "resources server").

After this, the screens in your screens database are automatically available in the *Imaging Engine tasks*.

### 4.3.4. Seamless Screening

#### What is Seamless Screening?

You can use seamless screening if you want to print several copies of a job continuously on your substrate (typically using flexo sleeves, that you image using a *CDI* or other CTP device).

Seamless screening makes sure the screening is continuous between jobs in the horizontal direction, so that there are no broken dots at the edges of each job (that could cause a visible join or *moiré* effects).



#### How Does it Work?

Imaging Engine starts from the requested screening parameters (resolution, dot shape, screen angle and ruling), and if necessary modifies them slightly to ensure there are no broken dots at the horizontal seam between jobs.

This modification can be a slight scaling and/or rotation, and gives a result which is very close to the requested screening parameters. Depending on your file and parameters, there may be:

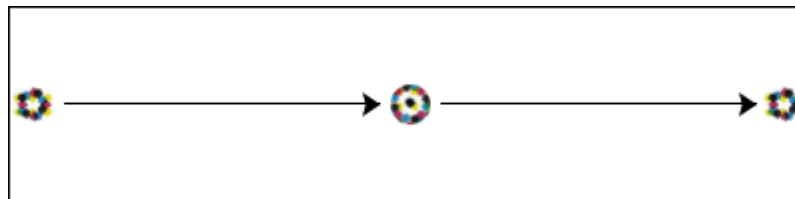
- a ruling difference of maximum 2 lpi,
- an angle difference of maximum 1 degree,
- in some cases, a slight horizontal or vertical shift near the seam,

This shift is typically no bigger than 1 pixel, except when using a high resolution with a low ruling (like 4000 ppi and 80 lpi, or 2000 ppi and 40 lpi), where it can be slightly more.

- a rosette shift over a distance of at least 1 meter.

A rosette shift is when the *rosette pattern* gradually shifts from clear centered to dot centered (or vice-versa), over a certain distance.

Since seamless screening makes sure that the rosette pattern is identical on both sides of the seam, the most variation occurs in the middle of the file.



In most cases (for example when using a 400 mm wide CDI sleeve), this will not be noticeable.

For 2 meter wide files, the rosette pattern will be different in the middle of the file (for example, it will go from clear centered on one edge, to dot centered in the middle, and back to clear centered on the other edge, as in the example above).

**Note:** You can find information about any modification made to your screening parameters to make your screen seamless in the Imaging Engine task's log file.

### What Screens Can You Use it With?

You can use seamless screening with any dot shape/screen except:

- stochastic screens,
- Groovy screens,
- Samba or SambaFlex screens,
- Paragon or other legacy Artwork Systems screens.

#### Tip:

If you need a seamless Samba screen, do the following:

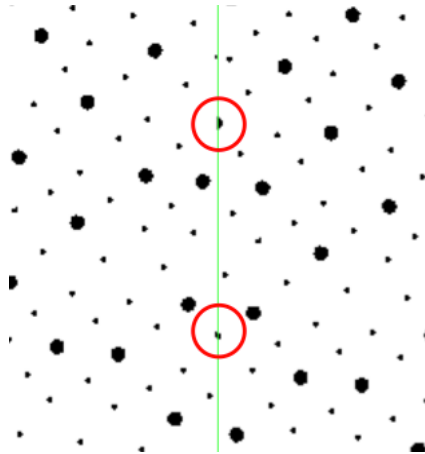
1. In ScreenManager, create a custom screen that has the same properties as the Samba screen:
  - with highlight effects enabled,
  - with the transition method set to "Traditional PerfectHighlight",
  - with the same transition point as the Samba screen (for example, to replace the Samba screen "CS25", set the transition point to 25).
2. Make that custom screen seamless.
3. Use that custom screen in Imaging Engine, with the seamless screening option.

See the ScreenManager documentation for more information.

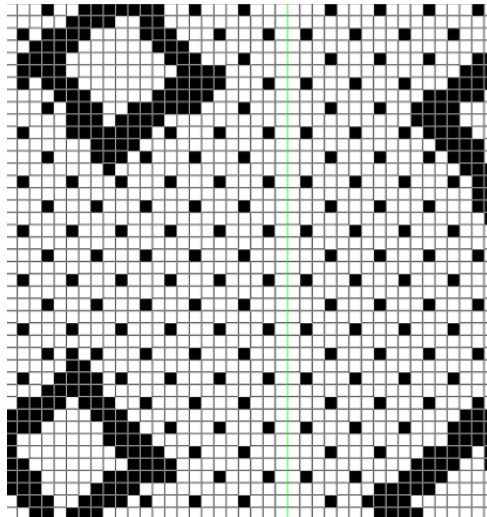
The following screens cannot completely be made seamless:

- AutoBlend screens (that use stochastic screening in the highlights and conventional screening in the rest of the range): the stochastic part of the screen will not be seamless.
- HD Flexo screens with advanced screening effects (for example a highlight effect or surface screening): the dot, screen ruling and angle will be seamless, but not the advanced screening effects. For example:

If your screen has a highlight effect that removes some dots to decrease tone in the highlights, the same dots will not be removed on both sides of the seam.



If your screen has microcells that perforate dots and solids to improve ink lay down, the microcell pattern will not repeat continuously near the seam.

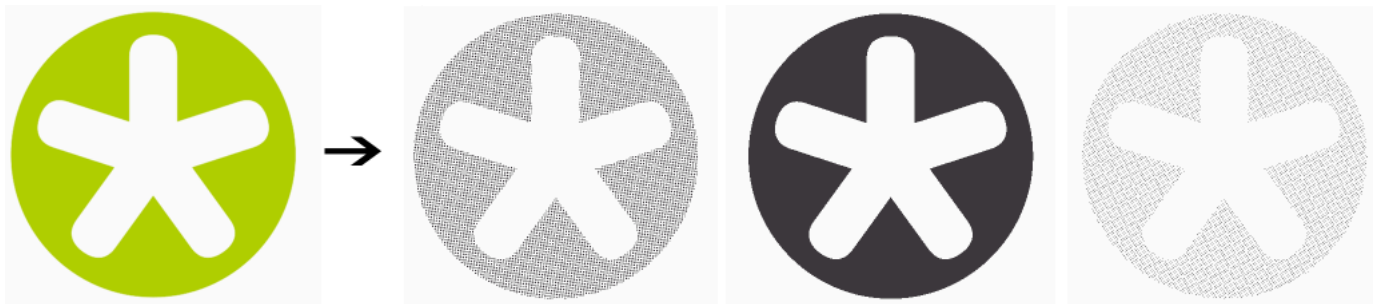


### 4.3.5. Screened or Unscreened Output?

When RIP'ing your files with Imaging Engine, you can produce either screened or unscreened output.

- You typically need **screened output** to send to a platesetter or filmsetter (for offset or flexo for example).

Run the [Image to Screened Separations task](#) on your input file to produce screened output (a screened file per separation).



- You typically need **unscreened output** to send to a device that will take care of the screening, or a device that doesn't need screened input (for gravure for example).

Run the [Image to Unscreened Separations task](#) on your input file to produce unscreened output (an unscreened file per separation).



### 4.3.6. Quality Control for Screened Output

#### Inspecting Screened Files with the Bitmap Viewer


Once you have generated screened files with Imaging Engine, you can inspect them with the [Bitmap Viewer](#).

The Bitmap Viewer is a powerful quality control tool that will help you verify the content and printability of your screened files before you make plates from them.

It is a separate application, that you should have [installed](#) as part of your Imaging Engine installation.

#### Using the Bitmap Viewer

You can open the Bitmap Viewer from:

- your desktop (using its shortcut icon ) ,
- your output file in Automation Engine (as explained below).

The first time you want to open a file in the Bitmap Viewer from the Automation Engine Pilot, do the following:

- Right-click the file to open and select **Open With** then **Other...**
- In the **Select Application** dialog that opens, click **Register...**

3. In the **Register** dialog that opens, click **Browse...** and browse to the executable of your Bitmap Viewer application.

If you installed it in the location proposed by default, the path should look like either:

- C:\Esko\BitmapViewer\_x64\BitmapViewer.exe if you have installed the 64-bit version of the application,
- C:\Program Files (x86)\BitmapViewer\BitmapViewer.exe if you have installed the 32-bit version of the application.

4. Click **OK**.

5. Click **Open** in the **Select Application** dialog.

The next time you want to use the Bitmap Viewer, you can just right-click your file, select **Open With**, and select **BitmapViewer**.

## Inspecting Screens with Advanced Screening Effects

### What is an Advanced Screening Effect?

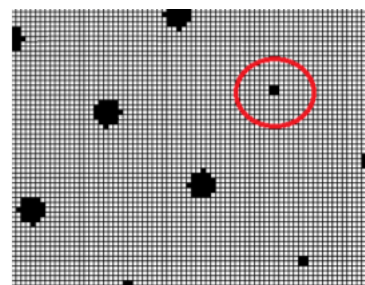
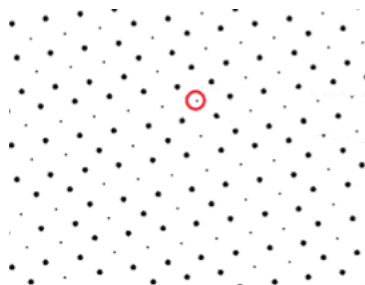
If you are using HD Flexo screens or [custom screens](#) created in ScreenManager, those screens may contain advanced screening effects to help improve your printing quality.

Advanced screening effects modify specific parts of your screen, to improve how the plate interacts with the ink and paper, and achieve a better printed result in those areas.

Typically they are applied in the highlights (**highlight effects**), or the shadows (**surface screening effects**).

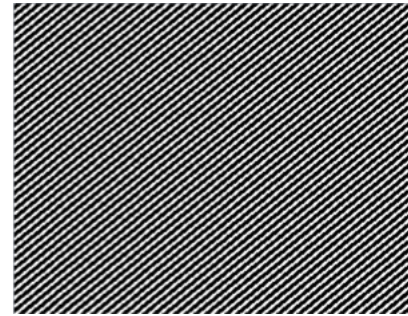
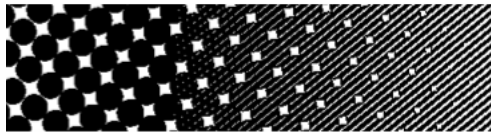
For example:

- **PerfectHighlights** screens have very small "support dots" in the highlights, that are not printable but improve the highlights' stability.


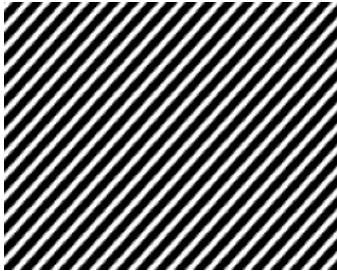
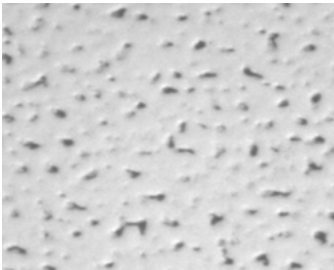
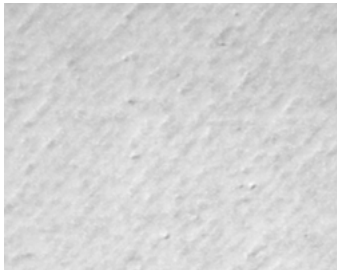


- **Groovy** screens have grooves in the solids (or in the dots and solids), to improve ink lay-down and print more evenly (the grooves will fill up when printing).

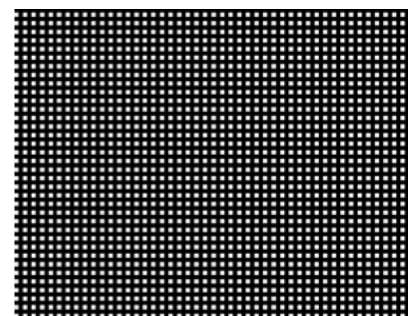
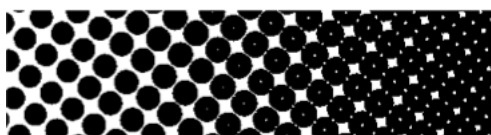




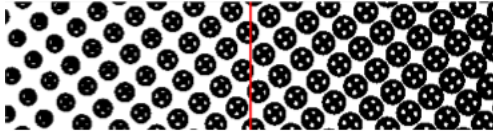
This helps prevent "pin holes" created by too much ink in the solids.

	Plain solid	Solid with surface screening effect
Digital file		
Printed result (with white ink)		

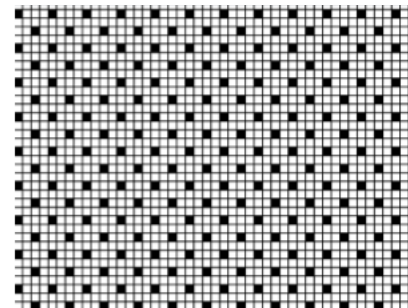
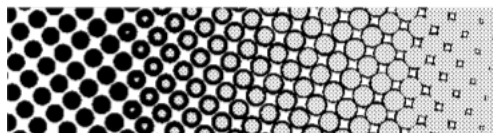
- **Cell centered / Platecell** screens have holes in the dots that grow as the dots grow (the dots are "cell centered"), while the solids are perforated by a uniform pattern (the "platecell" pattern). This also improves ink lay-down.



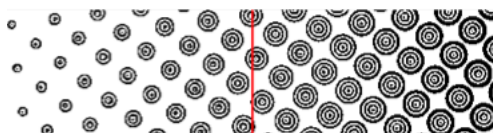
- **Microcell** screens have a specific type of holes ("microcell" holes) in the dots and solids. This also improves ink lay-down.



- **P+ Microcell** screens use a pattern composed of single pixels to create holes in the dots and solids. These screens are used on certain CDI devices, for example for Full HD Flexo.



- **Concentric** screens have ring-shaped holes in the dots, to print with a thinner ink layer and improve the color of the printed result.



For more information about advanced screening effects and how to use them, please see the HD Flexo and/or ScreenManager documentation.

### Performing Quality Control on Screens with Advanced Screening Effects

While screening effects improve print quality, screens with those effects do not look like your printed sheets.

For example, the holes in the solids that you see in your screened file will not be there on your print, and tone readings in LEN or LENX files will not match printed tones.

This makes it difficult to perform quality control on such screens.

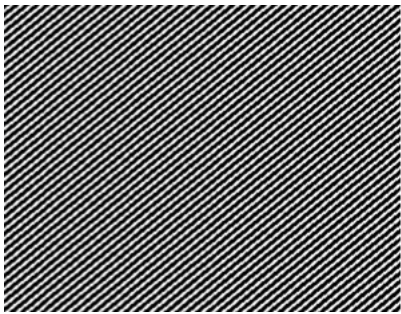
Imaging Engine offers a solution for this problem: when you are making your screened files for production, you can create **print simulation** files at the same time.

These print simulation files look like your production files, but with the advanced screening effects removed, so you can open them in the Bitmap Viewer and check exactly how your output will look like.

For example (you can see the screens with advanced effects on the left, and the print simulations on the right):

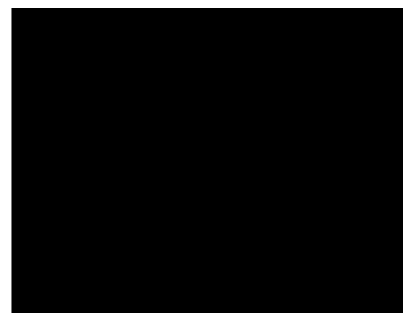
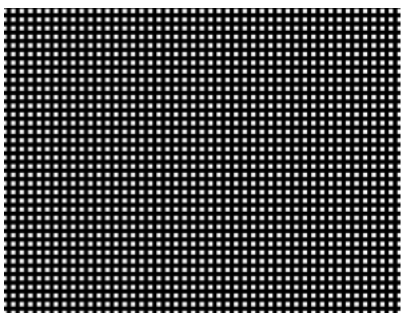


*PerfectHighlights screen at 2.5% (with support dots), and print simulation (with support dots removed)*

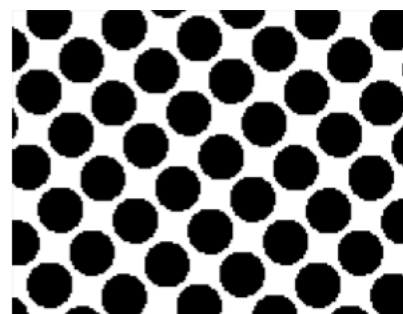


*Groovy screen at 100% (with grooves), and print simulation (with grooves removed)*

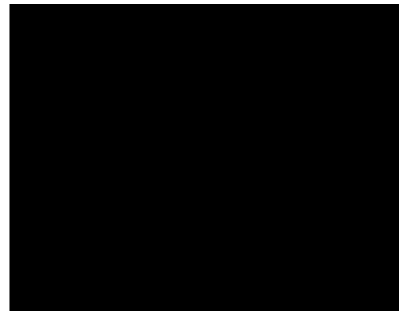
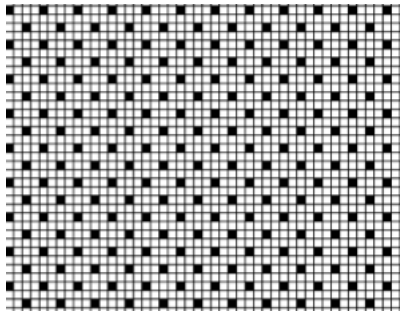
**Note:** This also applies to [predefined groovy screens](#) (GVY1 to GVV5).



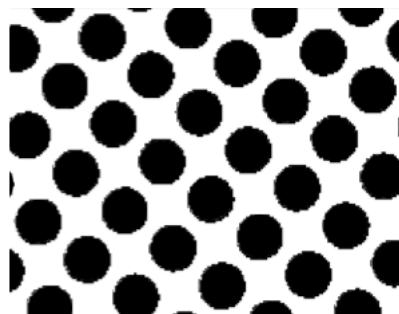
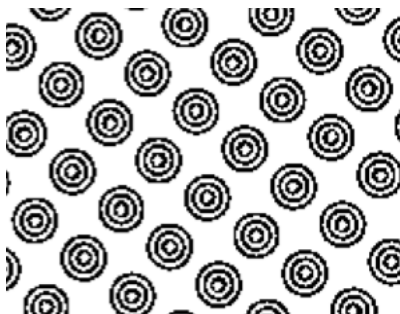
*Platocell screen at 100% (with platocell pattern), and print simulation (with pattern removed)*



Microcell screen at 57% (with microcell holes), and print simulation (with microcell holes removed)



P+ Microcell screen at 100% (with pixel pattern), and print simulation (with pattern removed)



Concentric screen at 27% (with ring-shaped holes), and print simulation (with rings removed)



**Attention:**

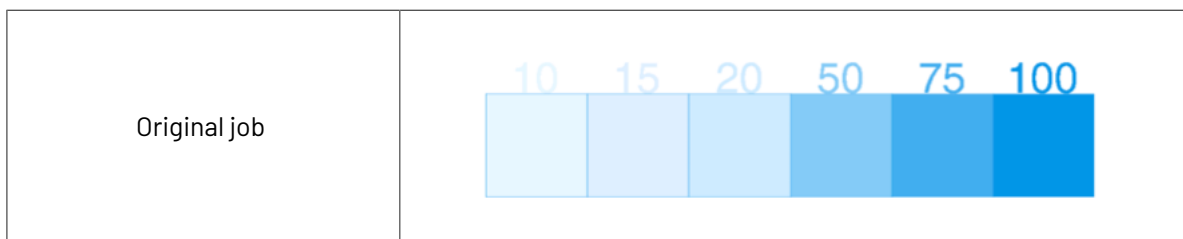
Measuring the print simulation version of a concentric screen in the Bitmap Viewer will give slightly higher percentages than on the final print.

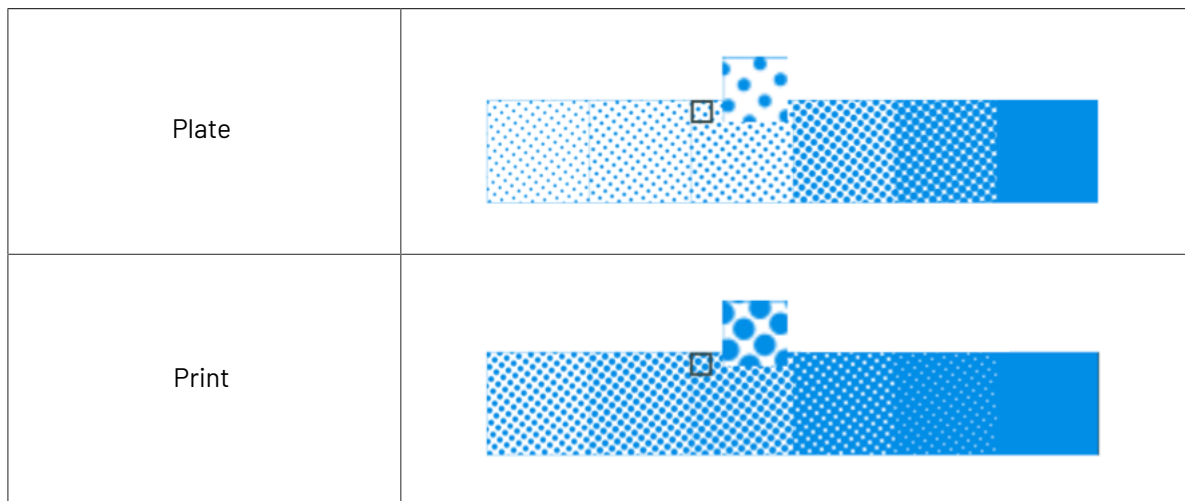
This is because unlike surface screening effects (groovy, platecell, microcell...), the main effect of concentric screening is not to improve ink lay-down but to print with a thinner ink layer.

## 4.4. Dot Gain Compensation

### 4.4.1. What is Dot Gain?

When printing a job, the dots tend to print larger on the press than on the plate, which makes the output darker than the original file.





This is due to different factors:

- the type of ink: the more fluid the ink is, the more it will spread under pressure of the press.
- the type of substrate: paper with a rougher and more porous surface (like uncoated paper) reflects less light, making the printed area look darker.
- the type of press:
  - offset presses typically print at a 67% density for a 50% dot,
  - flexo presses have an even higher dot gain as they put more pressure on the substrate,
  - gravure presses have a dot gain similar to offset presses for small dot sizes (up to about 30%) and a sharply increasing dot gain for higher percentages (70% prints as solid).

### 4.4.2. What is Dot Gain Compensation?

To compensate for dot gain and have the printed output look like the original file, you use **dot gain compensation (DGC)**. This consists in making the dots on the plate smaller, so that with dot gain they print to the correct density.

	Dot on plate	Dot on press
Without DGC		
With DGC		

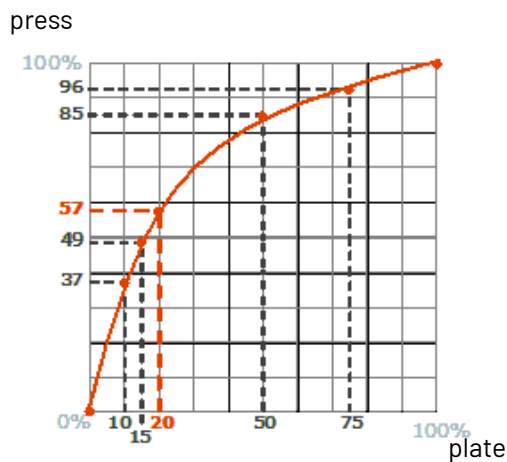
	Dot on plate	Dot on press

### 4.4.3. Dot Gain Compensation Curves

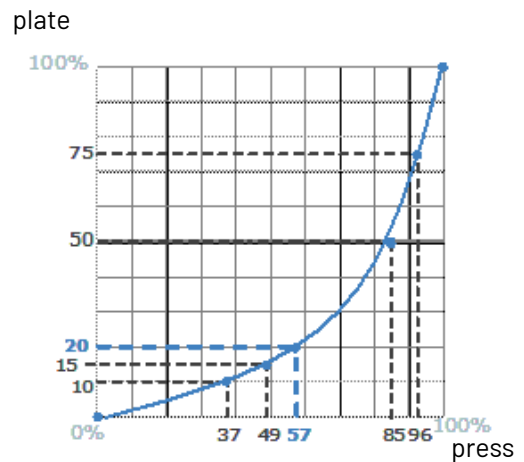
You apply dot gain compensation by using a dot gain compensation curve, which defines which percentage to use on plate for each desired percentage on press.

In the example below, you see how a press prints without any dot gain compensation in the **dot gain curve** at left: a 20% on the plate prints to 57% on press. 57% on the plate would print to almost 90% on press.

At right, you see the **dot gain compensation curve** used to make the press print to the expected value in the job: to print a 57% on press, a 20% will be used on the plate. To print a 20% on press, you would need about 5% on the plate.



Dot gain curve



Dot gain compensation curve

#### Creating a Dot Gain Compensation Curve

You can create dot gain compensation curves in Curve Pilot (for more information, see the Curve Pilot User Guide: <https://www.esko.com/en/support/product?id=Curve%20Pilot>).

Dot gain compensation curve files have the .dgc extension.

### Using a Dot Gain Compensation Curve

You can apply a dot gain compensation curve on all or some separations of your job in the [Image to Screened Separations](#) and [Image to Unscreened Separations](#) tasks in Imaging Engine.

## 4.4.4. DGC Curve Strategies

### Different Dot Gains within a Job

When using a [single dot gain compensation curve](#), the same dot gain compensation is applied to the complete job, without making any compensation difference in the screening parameters, the inks or the type of content (continuous tone images or line work).

However, dot gain is influenced by those factors.

#### Screening parameters

The following parameters influence dot gain:

- The **dot shape**: for example square, round and elliptic dots have slightly different dot gain characteristics.  
Stochastic screens produce more dot gain in the mid-tones than conventional screens.  
See [Types of Screens Supported](#) on page 23 for more information about dot shapes and screens.
- The **screen ruling**: dot gain only happens on the perimeter of the printing dots, which means that higher rulings always result in higher dot gain.  
For example, a double ruling means double dot gain.

#### Inks

Dot gain compensation on a Yellow separation is often less important and less needed than dot gain compensation on a Cyan separation.

The viscosity of the ink also has a big influence.

#### Continuous tone images or line work

Sometimes, images have been pre-compensated for dot gain in an image editing program, so they need less dot gain compensation than linework.

### Dot Gain Compensation Curve Strategies

A **dot gain compensation curve strategy** contains several dot gain compensation curves, and defines when to apply which curve (it can have different curves per separation, dot shape, ruling, for continuous tone images or line work...).

### Creating a Dot Gain Compensation Curve Strategy

You can create dot gain compensation curve strategies in Curve Pilot (see the [Curve Pilot documentation](#) for more information).

Dot gain compensation curve files have the `.icpro` extension.

### Using a Dot Gain Compensation Curve Strategy

You can apply a dot gain compensation curve strategy in the [Image to Screened Separations](#) and [Image to Unscreened Separations](#) tasks in Imaging Engine.

Each job separation or object is automatically compensated with the appropriate dot gain compensation curve.

**Note:** You can also use legacy screen-based DGC files (.scrDGC) as dot gain compensation curve strategies in Imaging Engine.

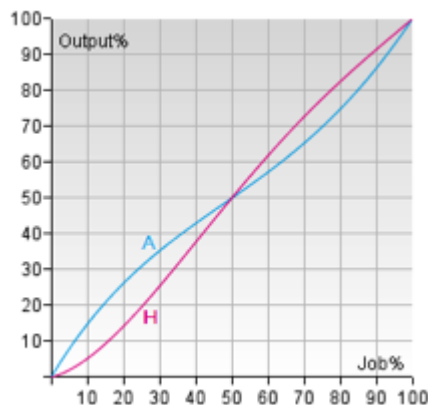
### 4.4.5. PressSync Curves

PressSync curves are predefined compensation curves that can cover the dot gain compensation needs of most presses, while significantly reducing the complexity of dot gain compensation in workflows.

#### Slope and Mid-tone Compensation

Curves are defined by a letter and a number.

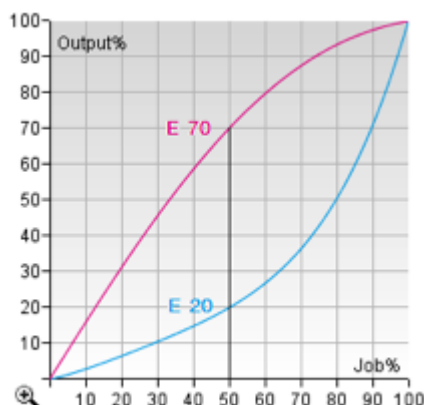
- The letter (A to H) describes how the press behaves in the highlights and shadows (the slope): an A curve makes the press print darker in the highlights and lighter in the shadows (for presses who have the opposite problem), while an H curve, on the contrary, makes the press print lighter in the highlights and darker in the shadows.



An E curve is halfway in between and has a straight slope: it corrects the output the same way throughout the range. Use it for presses whose output is consistent in the highlights, mid-tones and shadows.

- The number indicates how much the 50% dot (mid-tone) prints to: an E20 curve compensates the 50% dot to 20%, while an E70 curve compensates 50% to 70%.





### Creating a PressSync Curve

You cannot create PressSync curves, they are predefined. There are 400 different PressSync curves, to match most dot gain compensation needs.

If you wish, you can see each PressSync curve on a graph in PressSync Pilot (for more information, see the Curve Pilot User Guide: <https://www.esko.com/en/support/product?id=Curve%20Pilot>).

### Using a PressSync Curve

You can apply a PressSync curve as press curve on all or some separations of your job in the *Image to Screened Separations* and *Image to Unscreened Separations* tasks in Imaging Engine (you just need to enter the letter and number of the PressSync curve).

## 4.4.6. PressSync Curve Sets

A PressSync curve set contains several PressSync curves, each assigned to an ink (a process ink or any spot color defined in Esko's CMS database).

### Creating a PressSync Curve Set

You can create PressSync curve sets in PressSync Pilot (see the PressSync Pilot documentation for more information).

PressSync curve sets files have the `.prsync` extension.

### Using a PressSync Curve Set

You can apply a PressSync curve set as press curve in the *Image to Screened Separations* and *Image to Unscreened Separations* tasks in Imaging Engine.

Each job separation is automatically compensated with the appropriate PressSync curve.

## 4.4.7. The Curves Database

All your *dot gain curves*, *dgc curve strategies*, *PressSync curves* and *PressSync curve sets* are stored in a curves database (also called "DGC database").

You install this curves database when installing Automation Engine. You can install it on your Automation Engine server or on another server (the server you install your curves, [screens](#) and [color management](#) databases on is called the "resources server").

After this, the dot gain curves, curve strategies, PressSync curves and curve sets in your curves database are automatically available in the [Imaging Engine tasks](#).

## 4.5. File Formats

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Imaging Engine can output to the following formats:

### For Proofing

- **TIFF**, a bitmap file format widely supported by image-processing, publishing, DTP and other applications.

Imaging Engine can generate [composite](#) TIFF proofs (with the [Image to Unscreened Proof](#) task).

- **PDF**, a multifunctional file format, supported by most graphics-related applications.

Imaging Engine can generate composite PDF proofs (with the [Image to Unscreened Proof](#) task).

- **JPEG**, an image file format widely used for photographs and preview images (with the [Image to Content Proof \(RGB\)](#) or [Image to Unscreened Proof](#) task).

- Imaging Engine can also generate proofs directly into your proofer's format for immediate proofing (with the [Proof for Content Approval](#) task).

### For RIP'ing

- **TIFF**, a bitmap file format widely supported by image-processing, publishing, DTP and other applications.

You can output to [screened](#) or [unscreened](#) TIFF (with the [Image to Screened Separations](#) or [Image to Unscreened Separations](#) tasks).

- **PDF**, a multifunctional file format, supported by most graphics-related applications.

You can output to screened or unscreened PDF (with the [Image to Screened Separations](#) or [Image to Unscreened Separations](#) tasks).

- **LEN**, a bitmap file format developed for Esko's [Cyrel Digital Imager](#), or "CDI".

LEN files have high resolutions of 2100 ppi or more. They are always screened. You can output to LEN files with the [Image to Screened Separations](#) task.

You can then send your LEN files to your flexo plate making software (Automation Engine's Automated Flexo Plate Making module, the Digital Flexo Suite, or Grapholas), which will use them to expose flexo plates on the CDI drum.

- **LENX**, an encrypted version of the LEN file format developed exclusively for Esko's [CDI Crystal imager series](#) and [Crystal screens](#).

You can use the [Image to Screened Separations](#) task to generate them (they are always generated when you use [Crystal screens](#)).

**Note:** The file formats you can generate with your Imaging Engine software depend on your license. Please contact your Esko sales representative for more information.

### 4.5.1. Composite and Separated Files

With Imagine Engine, you can generate either **composite** or **separated** files.

#### Composite Files

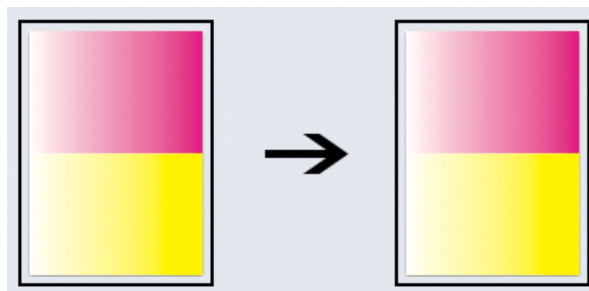
Composite files are files that contain several separations.

Imaging Engine can generate composite **PDF** and composite **TIFF** files (from the [Image to Unscreened Separations](#) and [Image to Unscreened Proof](#) tasks).

**JPEG** output (from the [Image to Content Proof \(RGB\)](#) and [Image to Unscreened Proof](#) tasks) is always composite.

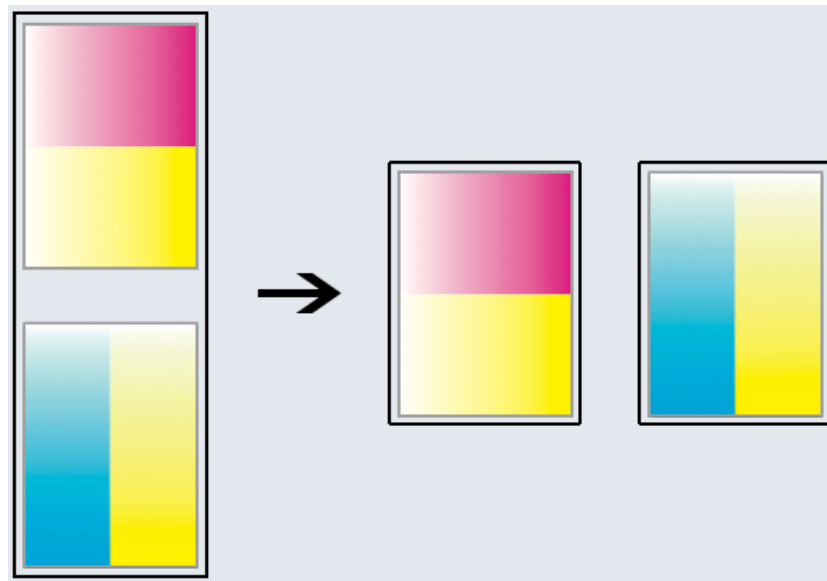
When generating composite output from:

- a single page input file, you get a single page output file containing all of the separations you choose to output (after excluding technical inks for example).



- a multi-page input file, you get one output file per page of the input file, containing all of the separations you choose to output from that input file page.

In the example below, the input file has 2 pages, containing respectively Magenta and Yellow, and Yellow and Cyan. When outputting to composite files, you get 2 one-page files, each containing the separations of the corresponding page in the input file.



### Separated Files

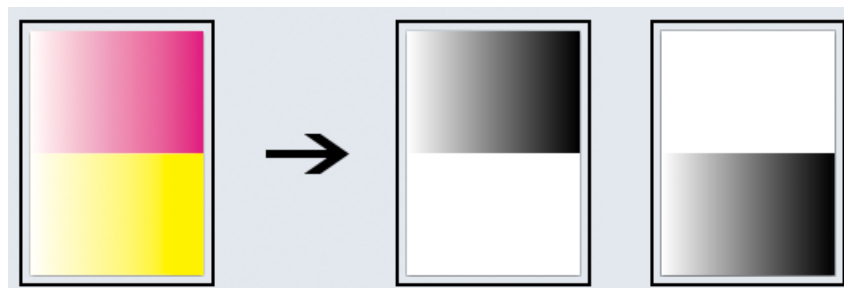
Separated files are files that only contain one separation each. Imaging Engine can generate separated **PDF, TIFF, LEN** and **LENX** files.

You can generate separated output using the [Image to Unscreened Separations](#) and the [Image to Screened Separations](#) tasks.

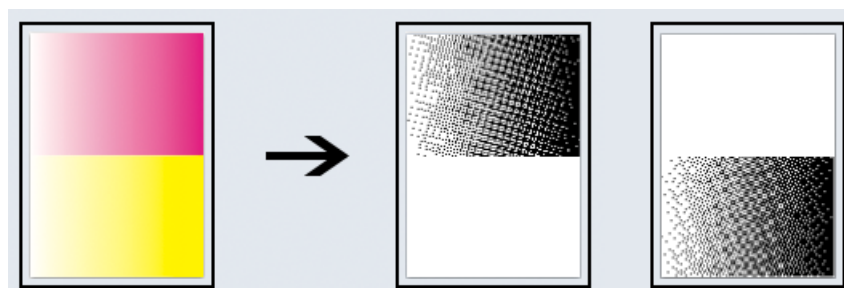
When generating separated output from:

- a single page input file, you get one output file per separation of the input file that you choose to output (after excluding technical inks for example).

In the example below, the input file has one page with a Magenta and a Yellow vignette. After RIP'ing, you get 2 files (one for each separation), each containing a single channel bitmap.



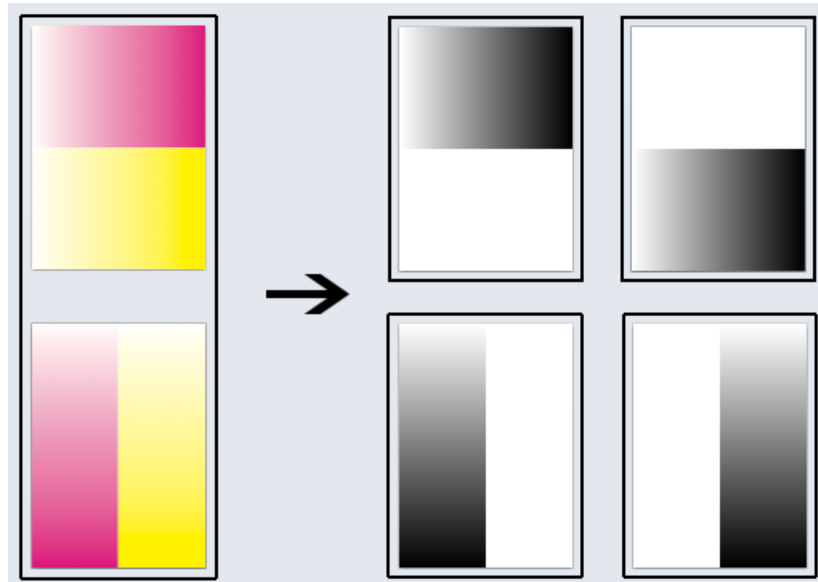
*Unscreened separated output*



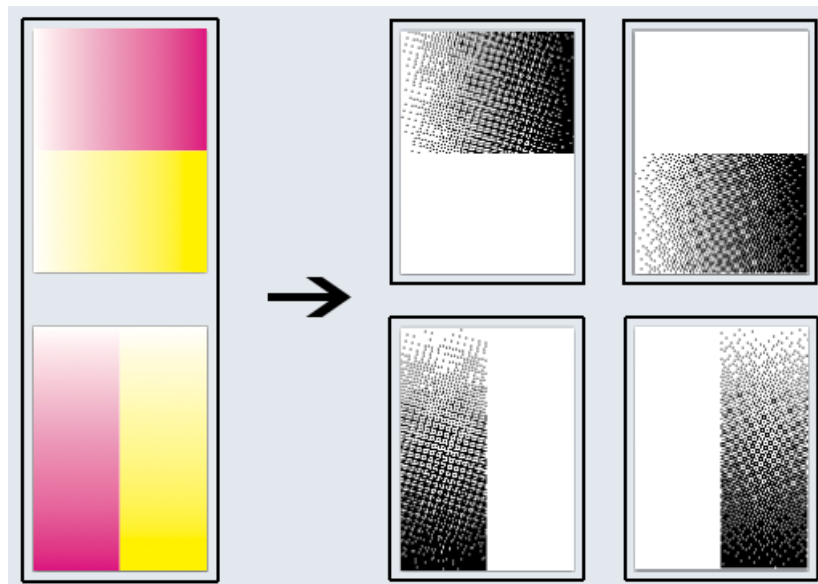
**Screened separated output**

- a multi-page input file, you get one output file per page of the input file and per separation that you choose to output.

In the example below, the input file has 2 pages, each containing a Magenta and a Yellow vignette. After RIP'ing, you get 4 files (one for the 1st separation of the 1st page, one for the 2nd separation of the 1st page, etc.), each containing a single channel bitmap.



*Unscreened separated output*



*Screened separated output*

## 4.6. Calculating Ink Distribution

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If you print with an offset press, there is an extra quality step you can perform once your files have been proofed and RIP'ed and are production ready.

With Imaging Engine, you can generate CIP3 files, which are technical files containing information about the ink distribution in your production ready files.

When you send those CIP3 files to the press, the press software knows the amount of ink needed for each separation of your RIP'ed files, and where in the file it is needed.

It can then automatically calculate how to distribute the ink among the different print heads, without needing manual adjustments from the press operator.

This is faster and more accurate, and helps keep your prints "clean".

You can create CIP3 files using the [Calculate Ink Key Settings \(CIP3\)](#) task.

# 5. Imaging Engine Installation and Configuration

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## 5.1. Licensing

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To use the Imaging Engine functionality in Automation Engine, you need an Imaging Engine license (in the form of a product key file).

If you don't have this license, you will not be able to [configure Imaging Engine in the Automation Engine Pilot](#), or see [the Imaging Engine tasks](#).

Depending on the license you have, you will be able to output to some or all of the supported [output formats](#) (TIFF, PDF, LEN and LENX), and you may be limited to a certain output file size or not (for LEN files).

For more information about the available licenses and which would fit your production best, please talk to your Esko sales representative.

## 5.2. Installation

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### 5.2.1. Installation or Upgrade?

#### Software Version

This document covers the installation of / upgrade to the latest version of **Imaging Engine** (and related applications):

Product version	<b>Imaging Engine 21</b>
Current release	<b>Imaging Engine July 2021 Release</b> also called <b>Imaging Engine 21.07</b>

For more information about the released version and build number of each of the applications, please see the **Released versions** page on the installation DVD.

#### Installation or Upgrade?

If...

- no Esko software has been installed on your computer yet, you need to perform a new installation of Imaging Engine 21.07.

See [Installation Overview](#) on page 56.

- Esko RIP or proofing software is installed on your computer, you need to upgrade to Imaging Engine 21.07 instead.

See [Upgrade Overview](#) on page 65.

## 5.2.2. Installation Overview

To use Imaging Engine, you will need to first license then install the following applications:

application:	before installing, please check:
<p><b>Automation Engine</b></p> <p><b>Note:</b> You should have already installed Automation Engine before starting to install Imaging Engine and the Esko Proof Server. See the Automation Engine installation documentation for details if needed.</p>	the <a href="#">Automation Engine system requirements</a>
<b>Imaging Engine</b>	the <a href="#">Imaging Engine system requirements</a>
the <b>Esko Proof Server</b> (if you are planning to proof using Imaging Engine and the Esko Proof Server)	the <a href="#">Esko Proof Server system requirements</a>

You can either install these applications on the same server, or on two or three different servers. If you install them on different servers, these servers need to be in the same Local Area Network.

### General installation procedure:

1. Make sure you have the relevant DVDs.
  - To install Imaging Engine, you need the **Esko Software - Imaging Engine 21 Installation** DVD.
  - To install the Esko Proof Server, you need the **Esko Software - Pack Proof 21.07 Installation** DVD.

**Note:** If you downloaded the software from [MySoftware.esko.com](http://MySoftware.esko.com), you will need to mount the corresponding .iso files as virtual DVDs, or unpack the .iso files first.

2. Make sure you have the relevant **licenses**.  
You need a product key file for Imaging Engine 21 (which includes all necessary licenses). If you do not have a product key file yet, contact [Esko Customer Support](#).
3. On all servers on which you want to install Esko software, [prepare for the installation](#).
4. On your license server (which can be either your Automation Engine server or a central license server), [activate your licenses](#).
5. On the server on which you want to install Imaging Engine, perform the steps listed in [Installing Imaging Engine](#).
6. If you want to install the Esko Proof Server, perform the steps listed in [Installing the Esko Proof Server](#) on the server on which you want to install it.



## Preparing for the Installation

Before you install Imaging Engine 21.07 on your system, check the following:

- You need to have Administrator privileges.
- You need Internet access.
- Your computer must meet the minimum requirements for the installation, as described in the [System Requirements](#).
- **Data Execution Prevention (DEP)** must not block the installation. See [How to Change the Data Execution Prevention \(DEP\) Settings](#) on page 57.
- The **Password Policy** must not block the installation. See [How to Change the Password Policy](#) on page 57.
- You must make sure your anti-virus software is not blocking the installation or configuration.

## How to Change the Data Execution Prevention (DEP) Settings

Data Execution Prevention (DEP) is a security feature that helps prevent damage from viruses and other security threats by monitoring your programs to make sure they use the computer's memory safely.

Before installing Imaging Engine, make sure that DEP does not block the installation.

1. In **Control Panel**, click **System > Advanced System Settings**.
2. Click the **Advanced** tab.
3. Under **Performance**, click **Settings**.
4. Click the **Data Execution Prevention** tab.
5. Select **Turn on DEP for essential Windows programs and services only**.
6. Click **OK**.
7. Restart the computer.

## How to Change the Password Policy

A password policy is a set of rules designed to enhance computer security by encouraging users to employ strong passwords and use them properly.

Before installing Imaging Engine, make sure that the password policy on your system does not block the installation.

1. In **Control Panel**, click **Administrative Tools**.
2. In the **Administrative Tools** window, double-click **Local Security Policy**.
3. In the **Local Security Policy** window, double-click **Account Policies > Password Policy**.
4. In the right pane, double-click **Password must meet complexity requirements**.
5. Select **Disabled**.
6. Click **OK**.

## Activating the Licenses

Imaging Engine 21 is protected with licenses. These licenses are distributed as a product key file (in .html).

You need to activate the product keys in the product key file using the **Network License Manager** application, on the server that you are using as a **license server** (this can be either your Automation Engine server or a central license server).

You should have installed the Network License Manager as part of your Automation Engine installation. See the Automation Engine installation guide if needed.

You need:

- A product key file for Imaging Engine 21 (which includes all necessary licenses). If you do not have a product key file yet, contact [Esko Customer Support](#).
- Internet access on the server that you are using as a license server.
- An **Esko ID** in order to activate the licenses. You can get one at <http://www.esko.com/licensing/CreateAccount>.

On the server that you are using as a license server:

**1. Open the Network License Manager.**

Depending on your operating system, you can do this by:

- going to **Start > All Programs > Esko > Network License Manager > Network License Manager**,
- clicking **Network License Manager** on your **Apps** screen.

**2. In the Esko Network License Manager, do one of the following:**

- drag your product key file in the area marked **Drag your Product Key File or your Response file here**,
- click the **Activate** button.

**3. Follow the instructions of the Activate License Wizard.**

**4. When asked about the product keys, choose I have received an HTML file containing my Product Keys.**

**5. Click Browse** to select the product key file.

**6. When asked, fill in your Esko ID and Password.**

**7. Click Finish.**

The licensed products you can use are now visible in the Network License Manager.

## Installing Imaging Engine

You need the **Esko Software - Imaging Engine 21 Installation** DVD for the installation. Use the following procedure to install Imaging Engine 21.07:

**1. Open the Esko Software - Imaging Engine 21 Installation window:**

- If you insert the **Esko Software - Imaging Engine 21 Installation** DVD into the DVD drive, or mount the corresponding .iso file, the window appears automatically.
- If you unpacked a downloaded .iso file, or if the window doesn't open automatically, double-click `setup.exe` in the root folder.

**2. Select the installation language.**

**3. Click Proceed to the installation.**

**4. Under Imaging Engine/Pack Proof 21 installation, including related tools (Color Pilot, Curve Pilot, HD Flexo Screens and ScreenManager), click Install.**

**5. On the page that opens:**

- a) If you [activated your licences](#) on a central license server (not the server on which you are installing Imaging Engine), connect your Imaging Engine server to this license server.

- See [How to Connect to the License Server](#) on page 59 for details.
- b) Check and install the prerequisites.  
See [How to Install the Imaging Engine Prerequisites](#) on page 59.
  - c) Proceed with the software installation.  
See [How to Install Imaging Engine](#) on page 60.
  - d) Install the Bitmap Viewer.  
See [How to Install the Bitmap Viewer](#) on page 61.

### How to Connect to the License Server

If you [activated your licences](#) on a central license server, you need to connect to this license server from your Imaging Engine server.

1. On the **Imaging Engine 21 Installer** page, click on **Install the Network License Manager**.
2. Follow the instructions of the installation wizard.
3. Back on the **Imaging Engine 21 Installer** page, click **Activate the licenses** to open the **Network License Manager**.
4. In the **Esko Network License Manager**, go to **Tools > License Client Configuration**.
5. In the **License Client Configuration** dialog:
  - a) Enter the name of the server that you are using as a [license server](#).  
If your license server is also the server you are installing Imaging Engine on, you can enter `localhost` here.
  - b) Click **Apply**.
  - c) Click **Exit**.
6. Close the **Network License Manager** and go back to the **Imaging Engine 21 Installer** page.

### How to Install the Imaging Engine Prerequisites

Before you install Imaging Engine, you need to install the Imaging Engine prerequisites.

1. On the **Imaging Engine 21 Installer** page, click on **Check and install the Imaging Engine/Pack Proof System prerequisites**.  
This checks whether the operating system is suited for installing and running Imaging Engine 21.07, and starts the Imaging Engine 21.07 prerequisites installation.
2. If:
  - you see an error message about the Windows version, your operating system is not suited for running Imaging Engine 21.07.  
Check the [System Requirements](#) again and install Imaging Engine 21.07 on a suitable operating system.
  - you see the message `Ready to install the prerequisite components for the Imaging Engine software. Do you want to start the installation?`, click **Yes**.
3. The installation wizard for the prerequisite components will check the licenses, list the prerequisite components to install on the system, request confirmation for the installation and then install the required components.  
Follow the instructions of the installation wizard.

The installation wizard will install the following components:

- Microsoft Visual Studio Redistributables
- Message Passing Interface service

If you are prompted to reboot your computer, do so and restart this installation procedure.

4. If the installer cannot find a running Automation Engine 21.07 server on the local machine, you will see the **Enter Server name** window, prompting you to enter the name of the server running your Automation Engine.

**Note:**

- You should be able to access this server from your Imaging Engine machine.
- You can still use the local machine as Automation Engine server (if Automation Engine 21.07 is installed on it): start up Automation Engine, and leave the field in the **Enter Server name** window blank.

The installer then checks if the server you entered has a running Automation Engine 21.07 server.

If you get the following error:	then:
<pre>ERROR - Imaging Engine requires Automation Engine 21.07 The provided master server does not have Automation Engine 21.07 running Checked server: [yourservername]</pre>	<p>Automation Engine 21.07 is not running on the server you entered.</p> <ol style="list-style-type: none"> <li>1. Check that you entered the server name correctly.</li> <li>2. Make sure Automation Engine 21.07 is running on it.</li> <li>3. Restart the Imaging Engine prerequisites installation.</li> </ol>
<pre>ERROR - Imaging Engine requires Automation Engine 21.07 The provided master server does not have Automation Engine 21.07 installed Checked server: [yourservername] (version [yourserverversion])</pre>	<p>Automation Engine 21.07 is not installed on the server you entered.</p> <ol style="list-style-type: none"> <li>1. Check that you entered the server name correctly.</li> <li>2. Install Automation Engine 21.07 on it.</li> <li>3. Restart the Imaging Engine prerequisites installation.</li> </ol>

5. Click **Exit** when the installation wizard is finished.

**How to Install Imaging Engine**

1. On the **Imaging Engine 21 Installer** page, click **Install the Imaging Engine/Pack Proof 21 products**.
2. Follow the instructions of the installation wizard.
3. Read the **End user license agreement** carefully and select **Yes, I accept the license agreement**.
4. When asked to select the products to install on this system, select **Imaging Engine** and the desired related products (for example **ScreenManager, Curve Pilot, Color Pilot...**).
  - The products available depend on your license.

- The **System Components** group cannot be deselected and will be installed on all systems.
- The products' **Common Components** that are used by several products (for example **DGC Data** and **Color Management System**) will only be installed once (each product's installer will check if the necessary components are present, and update them if necessary).
- You should already have installed the **screens** and the **printing conditions database** during your Automation Engine installation (as part of the Automation Engine **Common Components**), either on your Automation Engine server or on a central resources server.

The printing conditions database is where the [Print Control Wizard](#) tool saves any printing condition that you make.

See the Automation Engine installation guide if needed.

5. Select a **Destination Folder** for the chosen products or use the default folder.
6. If you are not installing as the default Automation Engine system user, you will be prompted to enter your current credentials (user name and password).  
These will be stored and remembered during subsequent updates / upgrades of the software.
7. At the end of the installation, click **Finish**.

### How to Install the Bitmap Viewer

You can install the Bitmap Viewer either on the server hosting Imaging Engine, or on a separate computer.

1. On the installation page, click **Install the Bitmap Viewer 21 (64-bit) software**.
2. Follow the instructions of the installation wizard.
3. Select the **Destination Directory** or use the default folder.
4. Select the file types you want to associate with the **Bitmap Viewer** or keep the defaults.
5. Select the language to use or leave **Automatic** selected to use the computer's language.
6. Click **Install**.
7. When all components have been installed, close the installation window and eject the DVD.

### Installing the Esko Proof Server

If you are planning to proof using Imaging Engine and the Esko Proof Server, you now need to install the Esko Proof Server.

You need the **Esko Software - Pack Proof 21.07 Installation** DVD for the installation. Use the following procedure to install the Esko Proof Server:

1. Open the **Esko Software - Pack Proof 21.07 Installation** window:
  - If you insert the **Esko Software - Pack Proof 21.07 Installation** DVD into the DVD drive, or mount the corresponding .iso file, the window appears automatically.
  - If you unpacked a downloaded .iso file, or if the window doesn't open automatically, double-click `setup.exe` in the root folder.
2. Select the installation language.
3. Click **Proceed to the installation**.
4. On the **Esko Pack Proof 21 Installer** page:

- a) If you [activated your licences](#) on a central license server (not the server on which you are installing the Esko Proof Server), connect your Esko Proof Server server to this license server. See [How to Connect to the License Server](#) on page 62 for details.
- b) Run the system readiness check. See [How to Perform the System Readiness Check](#) on page 62.
- c) Proceed with the software installation. See [How to Install the Esko Proof Server](#) on page 63.
- d) If you are installing the Esko Proof Server on a separate server (not your Automation Engine server), make sure that Automation Engine can send files to the Esko Proof Server share. See [Giving Automation Engine Access to the Esko Proof Server Share](#) on page 64 for details.

### How to Connect to the License Server

If you [activated your licences](#) on a central license server, you need to connect to this license server from your Esko Proof Server.

1. On the **Esko Pack Proof 21 Installer** page, click on **Install, update or repair the License Server (Network License Manager component)**.
2. Follow the instructions of the installation wizard. If the wizard asks you to restart the computer, do so, then relaunch the installation.
3. Back on the **Esko Pack Proof 21 Installer** page, click **Activate the licenses** to open the **Network License Manager**.
4. In the **Esko Network License Manager**, go to **Tools > License Client Configuration**.
5. In the **License Client Configuration** dialog:
  - a) Enter the name of the server that you are using as a [license server](#).
  - b) Click **Apply**.
  - c) Click **Exit**.
6. Close the **Network License Manager** and go back to the **Esko Pack Proof 21 Installer** page.

### How to Perform the System Readiness Check

Before you install the Esko Proof Server, a System Readiness Check is required. This checks whether the operating system is suited for installing and running the Esko Proof Server.

1. On the **Esko Pack Proof 21 Installer** page, click on **Run the Esko Pack Proof 21 System Readiness Check**.
2. At the end of the **Readiness Check**, read the resulting messages carefully.
3. If the **Readiness Check** resulted in a problem with:

Options	Description
<b>The password policy</b>	<a href="#">Change the password policy</a> .
<b>The Data Execution Prevention (DEP)</b>	<a href="#">Change the DEP Settings</a> .

4. Click **Exit**.

## How to Install the Esko Proof Server

1. On the **Esko Pack Proof 21 Installer** page, under **Install or upgrade the Esko Proof Server component**, click the **Install or upgrade the Esko Proof Server component** link.

Click **Yes** in the pop-up asking whether you want to install the Esko Proof Server component.

2. Follow the instructions of the installation wizard.
  - If the wizard needs to install any redistributables, click **Yes** to install them.
  - Select the **Destination Folder** to use for the installation, or use the default folder.
  - At the end of the wizard, we recommend you select **Yes, I want to restart my computer now** before clicking **Finish**.

You can choose to restart your computer later, but you need to do so before using the application.

### Note:

This also installs the Esko EPL linearization files for the proofing devices tested and supported by Esko.

An EPL linearization file adjusts how your proofer prints to get best results on a certain substrate (it adapts the quantities of inks used so that your proofer can achieve maximum color density without hue shifts).

Esko provides you with a number of EPL files made in controlled conditions for different proofer models and substrate types. We strongly recommend you use the one made for your proofer and substrate combination (before profiling your proofer). This will improve the color accuracy of your proofs. Please see [this knowledge base article](#) to know how to use and evaluate the EPL file(s) made for your proofer series.

3. After restarting your computer, the **Esko Server Control** application pops up.  
Esko Server Control starts the Esko Proof Server automatically.
4. If you want to install **Fiery Command WorkStation** (the Client application of the Esko Proof Server) on the same server:
  - a) Relaunch the installation.
  - b) Select your language and click **Proceed to the installation** to go back to the **Esko Pack Proof 21 Installer** page.
  - c) Under **Install or upgrade the Esko Proof Server component**, click the **Install or upgrade the Fiery Command WorkStation component** link.
  - d) Click **Yes** in the pop-up asking whether you want to install the Fiery Command WorkStation component.
  - e) The **Fiery Command WorkStation Package** wizard installs Fiery Command WorkStation.  
The installation wizard may take a long time (up to one hour on some systems).
  - f) At the end of the wizard, we recommend you select **Yes, I want to restart my computer now** before clicking **Finish**.

You can choose to restart your computer later, but you need to do so before using the application.

Alternatively, you can install it on another machine using this same DVD.

5. If you want to install the **Fiery Verify** tool (the proof verification application of the Esko Proof Server) on the same server:
  - a) Relaunch the installation.
  - b) Select your language and click **Proceed to the installation** to go back to the **Esko Pack Proof 21 Installer** page.
  - c) Under **Install or upgrade the Esko Proof Server component**, click the **Install or upgrade the Fiery Verify component** link.
  - d) Click **Yes** in the pop-up asking whether you want to install the Fiery Verify component.
  - e) The **Fiery Verify** wizard installs Fiery Verify.
  - f) Click **Exit** at the end of the installation.

Alternatively, you can install it on another machine using this same DVD.

### Giving Automation Engine Access to the Esko Proof Server Share

If you installed the Esko Proof Server on a separate server (that has no other Esko software), you need to make sure that Automation Engine can send files to the Esko Proof Server share.

**Note:** If you installed the Esko Proof Server on the server where Automation Engine is installed, this is done automatically.

Do the following:

1. On the Automation Engine server, check under which user Automation Engine is running.
 

Automation Engine runs as a service under either a **local user** or a **Windows domain user**. You can see which user that is:

  - in Automation Engine's **Server Admin**, under **System Account** (see the Automation Engine documentation for more details).
  - in your Automation Engine server's **Task Manager** (in **Processes**, select **Show processes for all users**, and check which user the **bgmd.exe** process runs under).
2. On the server where you installed the Esko Proof Server, locate the `ProofFolder` share in which Automation Engine will send files to be printed by the Esko Proof Server.
 

If you used the default installation location (`C:\Esko`), this is `C:\Esko\ProofFolder`.
3. Give the Automation Engine user **Full Control** on this share.
  - If the Automation Engine user is a **local user**:
    1. Make sure the same user exists on the Esko Proof Server computer (with the same password).
    2. Open the `ProofFolder`'s sharing properties (right-click it, select **Properties** and go to the **Sharing** tab).
    3. Add the user to the share with full rights (click **Share...**, type the user name and click **Add**, select **Read/Write** as **Permission Level** and click **Share** to confirm).
  - If the Automation Engine user is a **Windows domain user**:
    1. Open the `ProofFolder`'s sharing properties (right-click it, select **Properties** and go to the **Sharing** tab).



2. Add the user to the share with full rights (click **Share...**, type the user name and click **Add**, select **Read/Write** as **Permission Level** and click **Share** to confirm).

### 5.2.3. Upgrade Overview

You can upgrade from any working previous version of Imaging Engine or FlexRip.

In case you need help with the upgrade (especially from older FlexRip versions), contact [Esko Customer Support](#).

**Note:**

Make sure no users are using the system or are connected to the server.

When upgrading, it is advised that all users save their work and create a backup.

To upgrade Imaging Engine, you will need to first license then install the latest version of the following applications:

application:	before upgrading, please check:
<p><b>Automation Engine</b></p> <p><b>Note:</b> You should have already upgraded Automation Engine before starting to upgrade Imaging Engine and the Esko Proof Server. See the Automation Engine installation documentation for details if needed.</p>	<p>the <a href="#">Automation Engine system requirements</a></p>
<p><b>Imaging Engine</b></p>	<p>the <a href="#">Imaging Engine system requirements</a></p>
<p>the <b>Esko Proof Server</b> (if you are planning to proof using Imaging Engine and the Esko Proof Server)</p>	<p>the <a href="#">Esko Proof Server system requirements</a></p>

**Note:**

If you have a distributed setup (these applications are installed on two or three different servers), you should keep the same setup for the upgrade.

However, when you install the new version, make sure that the server hosting Automation Engine, the one hosting the Esko Proof Server, and your proofing device(s) are in the same Local Area Network.

**General upgrade procedure:**

1. Make sure you have the relevant DVDs.
  - To upgrade Imaging Engine, you need the **Esko Software - Imaging Engine 21 Installation** DVD.
  - To upgrade the Esko Proof Server, you need the **Esko Software - Pack Proof 21.07 Installation** DVD.

**Note:** If you downloaded the software from [MySoftware.esko.com](http://MySoftware.esko.com), you will need to mount the corresponding .iso files as virtual DVDs, or unpack the .iso files first.

2. Make sure you have the relevant **licenses**.  
You need a product key file for Imaging Engine 21 (which includes all necessary licenses). If you do not have a product key file yet, contact [Esko Customer Support](#).
3. On your license server (which can be either your Automation Engine server or a central license server), [activate your licenses](#).
4. On the server on which you want to upgrade Imaging Engine, perform the steps listed in [Upgrading Imaging Engine](#).
5. If you want to upgrade the Esko Proof Server, perform the steps listed in [Upgrading the Esko Proof Server](#) on the server on which you want to upgrade it.

## Activating the Licenses

Imaging Engine 21 is protected with licenses. These licenses are distributed as a product key file (in .html).

You need to activate the product keys in the product key file using the **Network License Manager** application, on the server that you are using as a **license server** (this can be either your Automation Engine server or a central license server).

You should have installed the Network License Manager as part of your Automation Engine installation. See the Automation Engine installation guide if needed.

You need:

- A product key file for Imaging Engine 21 (which includes all necessary licenses). If you do not have a product key file yet, contact [Esko Customer Support](#).
- Internet access on the server that you are using as a license server.
- An **Esko ID** in order to activate the licenses. You can get one at <http://www.esko.com/licensing/CreateAccount>.

On the server that you are using as a license server:

1. Open the **Network License Manager**.

Depending on your operating system, you can do this by:

- going to **Start > All Programs > Esko > Network License Manager > Network License Manager**,
- clicking **Network License Manager** on your **Apps** screen.

2. In the **Esko Network License Manager**, do one of the following:

- drag your product key file in the area marked **Drag your Product Key File or your Response file here**,
- click the **Activate** button.

3. Follow the instructions of the **Activate License Wizard**.

4. When asked about the product keys, choose **I have received an HTML file containing my Product Keys**.

5. Click **Browse** to select the product key file.

6. When asked, fill in your **Esko ID** and **Password**.

7. Click **Finish**.

The licensed products you can use are now visible in the Network License Manager.

## Upgrading Imaging Engine

You need the **Esko Software - Imaging Engine 21 Installation** DVD for the upgrade. Use the following procedure to upgrade to Imaging Engine 21.07:

1. Open the **Esko Software - Imaging Engine 21 Installation** window:
  - If you insert the **Esko Software - Imaging Engine 21 Installation** DVD into the DVD drive, or mount the corresponding .iso file, the window appears automatically.
  - If you unpacked a downloaded .iso file, or if the window doesn't open automatically, double-click `setup.exe` in the root folder.
2. Select the installation language.
3. Click **Proceed to the installation**.
4. Under **Imaging Engine/Pack Proof 21 installation, including related tools (Color Pilot, Curve Pilot, HD Flexo Screens and ScreenManager)**, click **Install**.
5. On the page that opens:
  - a) If you are using a central license server, connect to it.  
See [How to Connect to the License Server](#) on page 59 for details.
  - b) Check and install the prerequisites.  
See [How to Upgrade the Imaging Engine Prerequisites](#) on page 67.
  - c) Proceed with the software upgrade.  
See [How to Upgrade Imaging Engine](#) on page 68.
  - d) Update the Bitmap Viewer.  
See [How to Upgrade the Bitmap Viewer](#) on page 69.

## How to Connect to the License Server

If you [activated your licences](#) on a central license server, you need to connect to this license server from your Imaging Engine server.

1. On the **Imaging Engine 21 Installer** page, click on **Install the Network License Manager**.
2. Follow the instructions of the installation wizard.
3. Back on the **Imaging Engine 21 Installer** page, click **Activate the licenses** to open the **Network License Manager**.
4. In the **Esko Network License Manager**, go to **Tools > License Client Configuration**.
5. In the **License Client Configuration** dialog:
  - a) Enter the name of the server that you are using as a [license server](#).  
If your license server is also the server you are installing Imaging Engine on, you can enter `localhost` here.
  - b) Click **Apply**.
  - c) Click **Exit**.
6. Close the **Network License Manager** and go back to the **Imaging Engine 21 Installer** page.

## How to Upgrade the Imaging Engine Prerequisites

Before you upgrade Imaging Engine, you need to upgrade the Imaging Engine prerequisites.

1. On the **Imaging Engine 21 Installer** page, click on **Check and install the Imaging Engine/Pack Proof System prerequisites**.

This checks whether the operating system is suited for installing and running Imaging Engine 21.07, and starts the Imaging Engine 21.07 prerequisites installation.

2. If:

- you see an error message about the Windows version, your operating system is not suited for running Imaging Engine 21.07.

In this case you need to perform a [fresh installation](#) on a suitable operating system instead. Check the [System Requirements](#).

- you see a message saying that the prerequisite components will be upgraded, click **OK**.

3. The installation wizard for the prerequisite components will check the licenses, list the prerequisite components to upgrade on the system, request confirmation for the upgrade and then upgrade the required components.

Follow the instructions of the installation wizard.

The installation wizard will upgrade the following components:

- Microsoft Visual Studio Redistributables
- Message Passing Interface service

If you are prompted to reboot your computer, do so and restart this installation procedure.

4. The installer then checks if Automation Engine 21.07 is running on your Automation Engine server.

If you get the following error:	then:
<pre>ERROR - Imaging Engine requires Automation Engine 21.07 The provided master server does not have Automation Engine 21.07 running Checked server: [yourservername]</pre>	<p>Automation Engine 21.07 is not running on the server you entered.</p> <ol style="list-style-type: none"> <li>1. Check that you entered the server name correctly.</li> <li>2. Make sure Automation Engine 21.07 is running on it.</li> <li>3. Restart the Imaging Engine prerequisites installation.</li> </ol>
<pre>ERROR - Imaging Engine requires Automation Engine 21.07 The provided master server does not have Automation Engine 21.07 installed Checked server: [yourservername] (version [yourserverversion])</pre>	<p>Automation Engine 21.07 is not installed on the server you entered.</p> <ol style="list-style-type: none"> <li>1. Check that you entered the server name correctly.</li> <li>2. Install Automation Engine 21.07 on it.</li> <li>3. Restart the Imaging Engine prerequisites installation.</li> </ol>

5. Click **Exit** when the installation wizard is finished.

### How to Upgrade Imaging Engine

1. On the **Imaging Engine 21 Installer** page, click **Install the Imaging Engine/Pack Proof 21 products**.
2. Follow the instructions of the installation wizard.

3. Read the **End user license agreement** carefully and select **Yes, I accept the license agreement**.
4. When asked to select the products to install on this system, select **Imaging Engine** and the desired related products (for example **ScreenManager, Curve Pilot, Color Pilot...**).
  - The products available depend on your license.
  - The **System Components** group cannot be deselected and will be installed on all systems.
  - The products' **Common Components** that are used by several products (for example **DGC Data** and **Color Management System**) will only be installed once (each product's installer will check if the necessary components are present, and update them if necessary).
  - You should already have installed the **screens** and the **printing conditions database** during your Automation Engine installation (as part of the Automation Engine **Common Components**), either on your Automation Engine server or on a central resources server.
 

The printing conditions database is where the [Print Control Wizard](#) tool saves any printing condition that you make.

See the Automation Engine installation guide if needed.
5. At the end of the installation, click **Finish**.

### How to Upgrade the Bitmap Viewer

1. On the installation page, click **Install the Bitmap Viewer 21 (64-bit) software**.
2. Follow the instructions of the installation wizard.
3. Select the **Destination Directory** or use the default folder.
4. Select the file types you want to associate with the **Bitmap Viewer** or keep the defaults.
5. Select the language to use or leave **Automatic** selected to use the computer's language.
6. Click **Install**.
7. When all components have been installed, close the installation window and eject the DVD.

### Upgrading the Esko Proof Server

If you are planning to proof using Imaging Engine and the Esko Proof Server, you now need to upgrade the Esko Proof Server.

You need the **Esko Software - Pack Proof 21.07 Installation** DVD for the upgrade. Use the following procedure to upgrade the Esko Proof Server:

1. Back up the data from your existing Esko Proof Server.
 

Please see the documentation of your existing Esko Proof Server version on the [Pack Proof documentation page](#) for details.
2. Open the **Esko Software - Pack Proof 21.07 Installation** window:
  - If you insert the **Esko Software - Pack Proof 21.07 Installation** DVD into the DVD drive, or mount the corresponding .iso file, the window appears automatically.
  - If you unpacked a downloaded .iso file, or if the window doesn't open automatically, double-click `setup.exe` in the root folder.
3. Select the installation language.
4. Click **Proceed to the installation**.

5. On the **Esko Pack Proof 21 Installer** page:
  - a) If you are using a central license server, connect to it.  
See [How to Connect to the License Server](#) on page 62 for details.
  - b) Run the system readiness check.  
See [How to Perform the System Readiness Check](#) on page 62.
  - c) Proceed with the software upgrade.  
See [How to Upgrade the Esko Proof Server](#) on page 70.
6. Restore the Esko Proof Server data you backed up.  
Please see the Esko Proof Server documentation on the [Pack Proof documentation page](#) for details.

### How to Connect to the License Server

If you [activated your licences](#) on a central license server, you need to connect to this license server from your Esko Proof Server.

1. On the **Esko Pack Proof 21 Installer** page, click on **Install, update or repair the License Server (Network License Manager component)**.
2. Follow the instructions of the installation wizard.  
If the wizard asks you to restart the computer, do so, then relaunch the installation.
3. Back on the **Esko Pack Proof 21 Installer** page, click **Activate the licenses** to open the **Network License Manager**.
4. In the **Esko Network License Manager**, go to **Tools > License Client Configuration**.
5. In the **License Client Configuration** dialog:
  - a) Enter the name of the server that you are using as a [license server](#).
  - b) Click **Apply**.
  - c) Click **Exit**.
6. Close the **Network License Manager** and go back to the **Esko Pack Proof 21 Installer** page.

### How to Perform the System Readiness Check

Before you install the Esko Proof Server, a System Readiness Check is required. This checks whether the operating system is suited for installing and running the Esko Proof Server.

1. On the **Esko Pack Proof 21 Installer** page, click on **Run the Esko Pack Proof 21 System Readiness Check**.
2. At the end of the **Readiness Check**, read the resulting messages carefully.
3. If the **Readiness Check** resulted in a problem with:

Options	Description
<b>The password policy</b>	<a href="#">Change the password policy.</a>
<b>The Data Execution Prevention (DEP)</b>	<a href="#">Change the DEP Settings.</a>

4. Click **Exit**.

### How to Upgrade the Esko Proof Server

1. On the **Esko Pack Proof 21 Installer** page, under **Install or upgrade the Esko Proof Server component**, click the **Install or upgrade the Esko Proof Server component** link.

2. Follow the instructions of the installation wizard.
  - a) If the wizard needs to install any redistributables, click **Yes** to install them.
  - b) Click **Yes** in the pop-up asking to remove your previous Esko Profiles.  
If you are instructed to restart your computer, do so and then relaunch the installation.
  - c) Click **Yes** in the pop-up asking to remove your previous Esko Proof Server version.  
If you are instructed to restart your computer, do so and then relaunch the installation.
  - d) At the end of the wizard, we recommend you select **Yes, I want to restart my computer now** before clicking **Finish**.  
You can choose to restart your computer later, but you need to do so before using the application.

**Note:**

This also installs/updates the Esko EPL linearization files for the proofing devices tested and supported by Esko.

An EPL linearization file adjusts how your proofer prints to get best results on a certain substrate (it adapts the quantities of inks used so that your proofer can achieve maximum color density without hue shifts).

Esko provides you with a number of EPL files made in controlled conditions for different proofer models and substrate types. We strongly recommend you use the one made for your proofer and substrate combination (before profiling your proofer). This will improve the color accuracy of your proofs. Please see [this knowledge base article](#) to know how to use and evaluate the EPL file(s) made for your proofer series.

3. After restarting your computer, the **Esko Server Control** application pops up.  
Esko Server Control starts the Esko Proof Server automatically.
4. If you want to upgrade the Esko Proof Client to **Fiery Command WorkStation** (the new name of the Esko Proof Server's client application) on this same server:
  - a) Relaunch the installation.
  - b) Select your language and click **Proceed to the installation** to go back to the **Esko Pack Proof 21 Installer** page.
  - c) Under **Install or upgrade the Esko Proof Server component**, click the **Install or upgrade the Fiery Command WorkStation component** link.
  - d) Click **Yes** in the pop-up asking whether you want to install the Fiery Command WorkStation component.
  - e) The **Fiery Command WorkStation Package** wizard installs Fiery Command WorkStation.  
The installation wizard may take a long time (up to one hour on some systems).
  - f) At the end of the wizard, we recommend you select **Yes, I want to restart my computer now** before clicking **Finish**.  
You can choose to restart your computer later, but you need to do so before using the application.  
  
Alternatively, you can install it on another machine using this same DVD.
5. If you want to upgrade the Verification tool to **Fiery Verify** (the new name of the Esko Proof Server's proof verification application) on this same server:
  - a) Relaunch the installation.

- b) Select your language and click **Proceed to the installation** to go back to the **Esko Pack Proof 21 Installer** page.
- c) Under **Install or upgrade the Esko Proof Server component**, click the **Install or upgrade the Fiery Verify component** link.
- d) Click **Yes** in the pop-up asking whether you want to install the Fiery Verify component.
- e) The **Fiery Verify** wizard installs Fiery Verify.
- f) Click **Exit** at the end of the installation.

Alternatively, you can upgrade it on another machine using this same DVD.

6. Restore the Esko Proof Server data you backed up.

Please see the Esko Proof Server documentation on the [Pack Proof documentation page](#) for details.

## 5.3. Configuration in the Automation Engine Pilot

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After installing all the software components required for Imaging Engine, you need to launch the Automation Engine Pilot and perform some configuration:

1. Connect your Automation Engine server to your Imaging Device and perform general Imaging Engine configuration.

See [Imaging Engine Configuration](#) on page 72.

2. If you are planning to proof using Imaging Engine and the Esko Proof Server, you also need to connect those two components.

See [Connecting Imaging Engine to the Esko Proof Server](#) on page 75.

### 5.3.1. Imaging Engine Configuration


**Note:**

- You need to perform this configuration before you can use Imaging Engine.
- If you have already configured Imaging Engine, you can only edit the configuration while it is not processing files (if it is processing files while you try to change the configuration, you will see a warning, and will have to wait until the processing is done).




To connect your Automation Engine server to your Imaging Device:


1. In the Automation Engine Pilot, go to **Tools > Configure**.
2. Select **Imaging Engines** in the left pane.
3. Go to **File > New** or press the **Insert** key (on PC).

This creates an **Imaging1** entry under **Imaging Engines** and shows settings in the right pane.

4. In the right pane's **General** tab:
  - a) In **Host Name**, enter the name of the server running your Imaging Engine and press **Enter** or **Tab** (or click the **Connect** button next to **Imaging Engine**).
  - b) Check that you see a green dot  with the message **Imaging Engine is up and running**.



If you see...	it means that...
a grey dot  with the message <b>Imaging Engine is starting up on host</b>	you need to wait a few minutes before you can use Imaging Engine.
a red dot  with the message <b>No license for Imaging Engine on host</b>	your Imaging Engine license is missing. Please check your licenses.
a red dot  with the message <b>No Imaging Engine available on host</b>	the server you have entered doesn't have Imaging Engine or even Automation Engine installed.  Please check if you have entered the server name wrong.

You may see other error messages in some cases, but you will always get some advice as to what you need to do (for example with the  **Missing resource for Imaging Engine on host** message, you will get advised to `Please reinstall the Imaging Engine`).

**Note:** You can **Stop** and **Start** Imaging Engine from here for troubleshooting purposes, but this is generally not necessary, as Imaging Engine starts automatically, and will restart automatically in case of a crash or after being force quitted.

- c) Set the **Number of Workers**. This is the number of parallel processes used to work on multiple pages of a file, or multiple files at the same time.

**Note:**

The maximum number of workers you can set depends on your license and on the number of cores on your server.

Please see the [system requirements page](#) for details.

5. In the **Settings** tab:

- a) Select what kind of [Rosettes](#) you want to use in the [Image to Screened Separations task](#):
  - **Clear Centered** rosettes are generally considered to be more stable. This is the default.
  - **Dot Centered** rosettes can give a more saturated result.

You can see which imaging device and which kind of rosettes have been used for each file in that file's log.

- b) Enable (check) **Minimum Ruling** if you want to enforce a minimum ruling, and optionally edit the minimum ruling value. The default value in an Imaging Engine device is 65 lpi. You can enter a minimum ruling as low as 1 lpi.

**Note:** The minimum ruling value has no effect unless **Minimum Ruling** is enabled (checked).

- c) Enable (check) **Maximum Ruling** if you want to enforce a maximum ruling, and optionally edit the maximum ruling value. The default value in an Imaging Engine device is 300 lpi.

**Note:** The maximum ruling value has no effect unless **Maximum Ruling** is enabled (checked).

**Note:** When both **Minimum Ruling** and **Maximum Ruling** are enabled (checked), the minimum ruling value cannot be higher than the current maximum ruling value. In case **Minimum Ruling** is enabled last, the minimum ruling value is decreased automatically to the current maximum ruling value; in case **Maximum Ruling** is enabled last, the maximum ruling value is increased automatically to the current minimum ruling value.

- d) Check that `Jump to nearest ruling` is selected under the **Exact Ruling not Available** list. This is the default setting, ensuring that the closest available ruling value will be used when the exact requested ruling value is not implemented. In case using the exact requested ruling value is a hard constraint, select `Task fails` under the **Exact Ruling not Available** list.
- e) If you use `Jump to nearest ruling`, you can additionally enable (check) **Maximum Ruling Difference** to edit the maximum ruling difference value that you can tolerate. The default maximum ruling difference in an Imaging Engine device is 10 lpi.

To clarify the usage of these parameters and their inter-workings, a few representative examples are shown below. In all the examples, available rulings are assumed to be 65, 70, 80, 90, 100, 110, 120, 130, 135, and 140 lpi.

**Example 1:** The requested ruling is 75 lpi. **Minimum Ruling** is disabled (unchecked); the actual minimum ruling value does not matter. `Jump to nearest ruling` is selected with a maximum ruling difference of 10 lpi. The nearest available rulings to 75 lpi observing the maximum ruling difference of 10 lpi are 70 and 80 lpi. The lower value of 70 lpi will be used. The task will succeed.

**Example 2:** The requested ruling is 60 lpi. **Minimum Ruling** is enabled (checked); the actual minimum ruling value is 68 lpi. `Jump to nearest ruling` is selected with a maximum ruling difference of 5 lpi. The nearest available ruling to 60 lpi observing the maximum ruling difference of 5 lpi is 65 lpi. This value cannot be used because it is lower than the minimum ruling of 68 lpi. The task will fail.

**Example 3:** The requested ruling is 60 lpi. **Minimum Ruling** is enabled (checked); the actual minimum ruling value is 68 lpi. `Jump to nearest ruling` is selected with a maximum ruling difference of 10 lpi. The nearest available rulings to 60 lpi observing the maximum ruling difference of 10 lpi are 65 and 70 lpi. The value of 65 lpi cannot be used because it is lower than the minimum ruling of 68 lpi. The value of 70 lpi is higher than the minimum ruling and can be used. The task will succeed.

**Example 4:** The requested ruling is 145 lpi. **Maximum Ruling** is disabled (unchecked); the actual maximum ruling value does not matter. `Jump to nearest ruling` is selected with a maximum ruling difference of 10 lpi. The nearest available ruling to 145 lpi observing the maximum ruling difference of 10 lpi is 140 lpi. This value will be used. The task will succeed.

**Example 5:** The requested ruling is 145 lpi. **Maximum Ruling** is enabled (checked); the actual maximum ruling value is 138 lpi. `Jump to nearest ruling` is selected with a maximum ruling difference of 10 lpi. The nearest available rulings to 145 lpi observing the maximum ruling difference of 10 lpi are 140 and 135 lpi. The value of 140 lpi is higher than the maximum ruling and cannot be used. The value of 135 lpi is lower than the maximum ruling and can be used. The task will succeed.

6. In the **Queue** tab, enter a name for your Imaging Engine **Queue**.
7. In the left pane, select the **Imaging1** entry, go to **File > Rename** and give it a meaningful name.  
You can also select it and press **F2** (on PC).

8. Go to **File > Save** or use **Ctrl+S** (on PC) to save your configuration.

### 5.3.2. Connecting Imaging Engine to the Esko Proof Server

This configuration will connect your **Automation Engine** server (and Imaging Engine) to your **Esko Proof Server**, so that Imaging Engine can send files to the Proof Server, for proofing on your device.

For more flexibility, you can connect to several Proof Servers, and have access to all the workflows configured on these Proof Servers. When sending files through Imaging Engine's **Proof for Content Approval** task, you can then select which workflow of which Proof Server you want to use.

**Important:** You need to perform this configuration before you can use the **Proof for Content Approval** task.

1. In the Automation Engine Pilot, go to **Tools > Configure**.
2. Select **Proof Servers** in the left pane.
3. For each Proof Server that you want to connect to:
  - a) Click **Add** at the bottom of the right pane.
  - b) In the **New Proof Server** pop-up, enter the name of the server on which your Proof Server is running, and click **Add**.

**Note:**

If you get an error message like `The shared folder "ProofFolder" on the host is not writable for the user BGSYSTEM`, it means that Automation Engine cannot access the Proof Server share (where it needs to send files to proof).

In this case, follow the steps in [Giving Automation Engine Access to the Esko Proof Server Share](#) on page 64.

- c) In the **Status** column, check that your Proof Server is **Running**. You also can **Remove** the connection to a Proof Server if needed.
4. Go to **File > Save** or use **Ctrl+S** (on PC) to save your configuration.

## 6. The Imaging Engine Tasks

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Imaging Engine consists of:

- three proofing tasks: [Proof for Content Approval](#), [Image to Content Proof \(RGB\)](#) and [Image to Unscreened Proof](#),
- two RIP'ing tasks: [Image to Screened Separations](#) and [Image to Unscreened Separations](#),
- a task to help the press calculate the ink needed to print the RIP'ed files: [Calculate Ink Key Settings \(CIP3\)](#).

For a general introduction to each task's purpose, see [Using Imaging Engine for Proofing and RIP'ing](#).

### Using SmartNames and Public Parameters in the Imaging Engine Tasks

Use the Imaging Engine tasks as you would use other Automation Engine tasks. For most of the settings, you can also use public parameters (so an operator can define them through Shuttle) and/or SmartNames.

You can use SmartNames everywhere you see the SmartName icon , and you can use SmartNames in public parameters even for settings without that icon (for example if the setting is a button).

**Important:** SmartNames values must resolve to a value that is valid for that setting at the moment the task runs. Any invalid SmartName value will make the task end in error.

#### Tip:

- SmartNames are case insensitive (for example it doesn't matter whether your SmartName resolves to `AngleAndRuling` or `angleandruling`).
- To know what value a SmartName must resolve to for a specific setting:
  1. select the setting value you want (for example **Scale : Fit to page size**),
  2. right-click that value (**Fit to page size**) and select **Copy Parameter Value**,
  3. paste the value in a text editor (in this example it is `FitSize`).

For more information about SmartNames and public parameters, see the **SmartNames** and **Using Public Parameters** sections of the Automation Engine manual.

### 6.1. Proof for Content Approval



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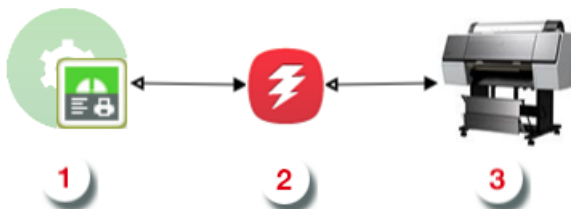
You can use the **Proof for Content Approval** task for generating a **content proof** and sending it automatically to your proofer. You typically make a content proof to check whether the contents of your file (layout, text, barcodes...) are correct.

At that stage, you are typically not checking the color accuracy of your proof yet, so the **Proof for Content Approval** task only performs some default color management, based on the ISO standard, in the background (for example to convert RGB objects to CMYK so they are printable).

When you are satisfied with the content proof and want to make a contract proof with color management, you can use the [Image to Unscreened Proof](#) task.

### Proofing with the Proof for Content Approval Task

The **Proof for Content Approval task**  sends the ready-to-proof files to the **workflow** of your choice on the **Esko Proof Server** , who then proofs it automatically on the proofer connected to that workflow. This proofer can be one of many types of [proofing devices supported](#) by the Esko Proof Server.



**Note:**

To use this task, you need to have created a printer, workflow and media in Fiery Command WorkStation (the client application of the Esko Proof Server). Make sure that the correct media is selected in the **Media Associated** option in the **Print Settings** tab of the workflow.

For information about creating a Proof Server workflow, please see the Esko Proof Server documentation, available from the [Pack Proof documentation page](#).



**Attention:**

You can use several Proof Servers, but in this case, make sure that every workflow has a unique name, even across Proof Servers.

If there are workflows with the same name on several Proof Servers, you will not be able to send files to those workflows through the **Proof for Content Approval** task.

### Task Parameters

In the **Device** field, select the imaging device [that you configured](#).

Then use the tabs at left to show more settings to fill in. See:

- [General](#) on page 78,
- [Proofer](#) on page 80,
- [Transformations](#) on page 81,
- [PDF Objects](#) on page 83,
- [Processing Steps](#) on page 83
- [Inks](#) on page 87,
- [Output](#) on page 94,
- [Summary](#) on page 98.

### Using the Proof Server Workflow Parameters

If you are using a **Proof Server workflow** that already has proofing parameters defined (for example the number of copies to print, or the rotation or scaling to apply to your file), those parameters will be filled in by default in the **Proof for Content Approval** task, so that you don't have to go check them in the Proof Server workflow and copy them into the task.

**Note:** This is not the case if you are using a SmartName or a public parameter to select your Proof Server workflow.

You can of course change those parameters as desired in the **Proof for Content Approval** task.

### 6.1.1. General

1. Define what **Page Box** of the input PDF you want to proof.

You can either select **Media Box**, **Trim Box**, or insert a SmartName `[]` that must resolve to either `media` or `trim`.

After selecting your file's page box you will see its dimensions under the **Page Box** option.

2. If your input file is a multi-page PDF, select which **Pages** you want to proof:

- a) First select **All pages**, **Odd pages only** or **Even pages only** in the **Pages** option.

You can also insert a SmartName resolving to either `All`, `Even` or `Odd`.

- b) Then you can refine your selection by entering page numbers or a **Page Range**.

You can separate page numbers by a comma, or use a dash to indicate a page range (for example `3, 6-9`). You can also use a SmartName resolving to page numbers and/or page ranges using this same format.

**Note:**

- Page numbers are always physical pages. If your document starts with page 5, you should not use 5 but 1 to get the first page.
- If you enter page numbers that are not part of your document, they will be excluded from the output (all the other valid pages will be proofed).
- If you enter the same page(s) more than once (for example `1, 1-2`), it/they will only be output once.
- Pages are proofed in the order of the document (entering `5-1` will be automatically changed to `1-5`).

3. If you want to invert your output so it is compatible with the output device or software system that will process it, click **A**.

You can also click `[]` or **Edit...** to insert a SmartName that must resolve to `1` or `true` (to invert the output), or to `0` or `false` (to leave the output as it is).

**Tip:** If that setting is already defined in your *Proof Server workflow*, it will be filled in by default. You can of course change it as desired.

4. If you want to mirror your output so it is compatible with the output device or software system that will process it, click **M**.

You can also click `[]` or **Edit...** to insert a SmartName that must resolve to `1` or `true` (to mirror the output), or to `0` or `false` (to leave the output as it is).

If that setting is already defined in your Proof Server workflow, it will be filled in by default. You can of course change it as desired.

5. If you want to add a **SmartMark** to your output file(s), select it in the **SmartMark** list, or use a SmartName that will resolve to the SmartMark name.

A **SmartMark** is a mark whose content is variable, so you can make it display information about that specific job. For example, you can include some of the parameters used during RIP'ing in your output file(s) by using a SmartMark.

You need to:

- a) First create the SmartMark you want to use in **PackEdge** (see the **SmartMarks** section in the PackEdge manual for details).

You can create either:

- a SmartMark with proof-specific parameters,

Use this SmartMark parameter in PackEdge:	to display this value from the Imaging Engine parameters:
Device	the <i>imaging device</i> you used
Image	whether you inverted your output
Emulsion	whether you mirrored your output
V Scale	the <i>vertical scaling</i> you applied to your output file(s)
H Scale	the <i>horizontal scaling</i> you applied to your output file(s)
Color Strategy	this will show <code>Custom</code> as the <b>Proof for Content Approval</b> task doesn't perform full color management (it only applies a default source and destination profile)
Source Profile	the default source profile applied to your input file(s) ( <code>ISOcoated_v2_300_eci.icc</code> )
Destination Profile	the default destination profile of your output file(s)( <code>ISOcoated_v2_300_eci.icc</code> )
Resolution	the <i>resolution</i> of your output file(s)

- another type of SmartMark (for example a corner mark).

If your PackEdge application is linked to your Automation Engine server, your SmartMark will automatically be saved in the correct location and will be available in Imaging Engine.

- b) Then select that SmartMark in your **Imaging Engine task**.

The SmartMark will be added to each proof generated from your input file.

### 6.1.2. Proofer

This is where you select the [Esko Proof Server workflow](#) to which the task sends your RIP'ed output.

1. In the **Proof Server Workflow** list, you can see all of the valid workflows found on the Proof Server(s) [you are connected to](#).

**Note:**

To use this task, you need to have created a printer, workflow and media in Fiery Command WorkStation (the client application of the Esko Proof Server). Make sure that the correct media is selected in the **Media Associated** option in the **Print Settings** tab of the workflow.

For information about creating a Proof Server workflow, please see the Esko Proof Server documentation, available from the [Pack Proof documentation page](#).



**Attention:**

If you are connected to several Proof Servers, make sure that every workflow has a unique name, even across Proof Servers.

If there are workflows with the same name on several Proof Servers, you will not be able to select any of those workflows here (the name will be greyed out).

You can:

- select a workflow from the list,
- use SmartNames (that must resolve to the name of a valid Proof Server workflow),
- set the workflow using public parameters.

**Tip:**

When you select a workflow from the list, its proofing parameters (number of copies to print, rotation or scaling to apply to your file...), will be filled in by default in the **Proof for Content Approval** task, so that you don't have to go check them in the Proof Server workflow and copy them into the task.

You can of course change those parameters as desired in the **Proof for Content Approval** task.

2. In **Submit Method**, choose how you want to submit your print jobs to your Proof Server workflow.

You can either have the Esko Proof Server print them directly, or keep them in the "held" queue, so that you can make changes in Fiery Command WorkStation (for example, add them to a manual nesting).

- Choose **Default from Proof Workflow** to use the setting defined in the Proof Server workflow.



**Tip:**


You can find this setting in Fiery Command WorkStation's **Server Manager** view: select your proofer and workflow, then go to **File > Job Detection**.

If **Put all incoming jobs on hold** is selected, print jobs will stay in the "held" queue until you print them manually from Command WorkStation. They will be shown as **Spoiled** in Command WorkStation's **Job Center** list.

If **Put all incoming jobs on hold** is deselected, they will be printed automatically as they arrive.

For more information, see the Esko Proof Server documentation, available from the [Pack Proof documentation page](#).

- Choose **Hold in Proof queue** if you want to disregard the **Put all incoming jobs on hold** setting in Command WorkStation, and always keep jobs (launched with this ticket) on hold in Command WorkStation's **Job Center** list (shown as **Spoiled**).

In Automation Engine's **Tasks** view, the task is in the waiting state  until the job is printed in Command WorkStation.

- Choose **Print** if you want to disregard the **Put all incoming jobs on hold** setting in Command WorkStation, and have the Esko Proof Server always automatically print jobs (launched with this ticket).

### 6.1.3. Transformations



Use the **Transformations** settings to scale or rotate your output relative to your input file.

**Tip:**

If you are using a [Proof Server workflow](#) that already has scaling and/or rotation parameters defined, those parameters will be filled in by default, so that you don't have to go check them in the Proof Server workflow and copy them into the task.


You can of course change those parameters as desired.

1. If you want to **Scale** your input file's contents, select either:

- **Scale by percent** and enter the vertical  and horizontal  scaling percentages to use (they must be between 10% and 1000%).

**Note:**

By default, you enter the vertical scaling percentage and the horizontal one is calculated automatically to keep the proportions.

If you want to enter the horizontal scaling percentage manually, click  to unlink it from the vertical one first.

However, if you do this then link the percentages again, the last percentage you entered will be kept, and the other one will be recalculated automatically to keep the proportions.

- **Fit to page size** to fit your output to the substrate defined in your [Proof Server workflow](#), while keeping the proportions (this will fit it to either the width or the height of the substrate, while making sure everything is on the substrate).
- **Fit to page width** to fit it to the width of the substrate defined in your Proof Server workflow, while keeping the proportions.

If you [added SmartMarks](#) to your output, they will be taken into account when fitting the proof to the substrate's width or size.

**Note:**

If you have chosen to print borderless in your Proof Server workflow, the task will take this into account when fitting your output to the substrate, and make your output slightly larger to cover the whole substrate width or height.

You can only print borderless if your proofing device supports it. Please check the Esko Proof Server documentation (available from the [Pack Proof documentation page](#)) and your proofing device documentation for more information about borderless printing.

If you don't want to scale your file's contents, leave **Do not scale** selected.

You can use SmartNames resolving to `not` (**Do not scale**), `ByPercent` (**Scale by percent**), `FitSize` (**Fit to page size**) or `FitWidth` (**Fit to page width**).

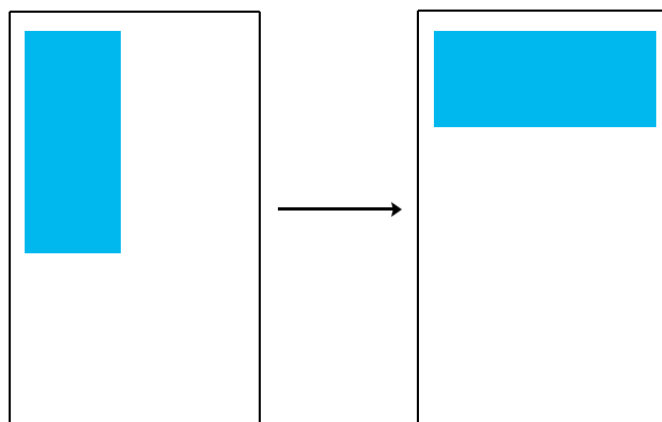
When entering SmartNames for vertical and horizontal scaling percentages, they must resolve to the numerical value (without the % sign).

2. If you want to rotate your file, select the **Rotation** you want to apply here.

You can choose to either:

- use a fixed rotation (this can be **0°**, **90° Counter Clockwise**, **90° Clockwise** or **180°**; any other value will give an error),
- rotate your file if necessary to fit, or fit better, on the substrate (select **Minimal Media Consumption**). This can be useful when using narrow rolls of substrate for example.

If it did fit on the substrate already, this option makes sure that the largest dimension of the file will be placed in the substrate width, to use less substrate material when cutting.



**Note:**

- If you have chosen to print borderless in your Proof Server workflow, the task will take the extra space into account when rotating your file to fit (or fit better) on the substrate.
- You can use a SmartName that resolves to `0`, `90` (for **90° Counter Clockwise**), `180`, `270` (for **90° Clockwise**), or `minimal`.
- When using a fixed rotation, you need to use a numerical value (`ninety` will not work).
- This is a public parameter, that you can fill in when submitting files through Shuttle.

### 6.1.4. PDF Objects

- If you experience issues with a font that doesn't look smooth enough at your selected resolution, your font may have **font hinting errors**.

Font hinting is the rendering of the outline (vectorized) font to pixels. For certain fonts, this rendering sometimes doesn't give a visually pleasing result, especially at low resolutions. In the image below, the top font has font hinting errors, the bottom font doesn't.

Label Pack  
Label Pack

Choose how to handle files containing font hinting errors:

- Leave **Task ends in error when the job contains font hinting errors** selected if you want the task to end in error when encountering font hinting errors. You can also use a SmartName resolving to `true`.
- Deselect **Task ends in error when the job contains font hinting errors** if you want to output your file anyway, whether it has font hinting errors or not (your task will end with a warning). You can also use a SmartName resolving to `false`.

This may lead to reduced quality rendering of the text, but it will not generate incorrect characters in your output file.

### 6.1.5. Processing Steps

Your PDF input files may contain additional objects and metadata that will not be used for printing. These correspond to additional processing steps a job needs to go through after printing: for example die cutting, creasing, etc.

Imaging Engine and Pack Proof display the processing steps associated with the layers in your input file (or files placed in it) in the **Processing Steps** tab.

The list of processing steps that you see depends on various factors like the number of jobs you select, the input file type, etc.

- If you select only one job, only the printable processing steps are listed under the **Processing Steps** tab. Layers which are set as unprintable will not be listed as processing steps.
- If you select multiple jobs or if you don't select any job, all the supported processing steps are listed.
- If your input file contains no layers, the processing steps tab will display an empty table with a "No printable processing steps found" message.
- If you select input files that are not PDF files, the **Processing Steps** tab will not be visible as processing steps are only applicable to PDF files. For example, for Normalized PDF files, the **Processing Steps** tab will always be hidden.
- If your input file contains layers that do not have equivalent processing steps in Imaging Engine/ Pack Proof, those layers will not be listed under this tab.

**Note:** Adobe Illustrator layers can also be used as processing steps though they are not the same as PDF layers.

## Processing Steps - Groups and Types

### Groups

In the ISO 19593 standard, the types of processing steps are grouped as follows:

- **Structural Data:** A collection of contours that describe how the printed product will be finished to produce a 3D end product from a flat substrate. These are as lines defining cutting, creasing, folding etc. The types of this group are listed below.
- **Positions:** Objects that indicate intended, allowed or forbidden positions for certain types of elements. For example, the positions on a flap of a carton where content is allowed. The types of this group are listed below.
- **Braille:** Braille characters that are applied after printing, typically by a die cutter or inkjet device.
- **Legend:** Job related data added outside the boundaries of the actual printed products.
- **Dimensions:** Indications of the physical sizes.
- **White:** White ink to be printed on a transparent or metallic substrate.
- **Varnish:** Indicating the application of varnish after printing.

Imaging Engine and Pack Proof also include the **Esko\_PlateCutting** custom processing step by default.

### Types of "Structural Data" Processing Steps

Group	Type	Description
Structural Data	Cutting	Processing step objects indicating where the printed artwork will be cut from the printed sheet for example with a guillotine cutter or die cutting device.
Structural Data	PartialCutting	Processing step objects indicating where the substrate will be cut partially (not entirely through the material).
Structural Data	ReversePartialCutting	Processing step objects indicating where the substrate will be cut partially (not entirely through the material) on the back side of the substrate.
Structural Data	Creasing	Processing step objects indicating where the substrate will be creased to guide subsequent folding.

Group	Type	Description
Structural Data	ReverseCreasing	Processing step objects indicating where the substrate will be creased on the back side of the substrate.
Structural Data	CuttingCreasing	Processing step objects indicating where the substrate will undergo alternating cutting and creasing.
Structural Data	ReverseCuttingCreasing	Processing step objects indicating where the substrate will undergo alternating cutting and creasing on the back side of the substrate.
Structural Data	PartialCuttingCreasing	Processing step objects indicating where the substrate will undergo alternating partial cutting and creasing.
Structural Data	ReversePartial-CuttingCreasing	Processing step objects indicating where the substrate will undergo alternating partial cutting and creasing on the back side of the substrate.
Structural Data	Drilling	Processing step objects indicating locations where the substrate will be drilled and the intended size of the resulting hole.
Structural Data	Gluing	Processing step objects enclosing an area where glue will be applied.
Structural Data	FoilStamping	Processing step objects enclosing an area where foil will be applied through hot foil stamping.
Structural Data	ColdFoilStamping	Processing step objects enclosing an area where foil will be applied through cold foil stamping (using glue).
Structural Data	Embossing	Processing step objects enclosing an area where embossing will be applied.
Structural Data	Debossing	Processing step objects enclosing an area where debossing will be applied.
Structural Data	Perforating	Processing step objects indicating where the substrate will be perforated.
Structural Data	Bleed	Processing step objects indicating the intended bleed for print.
Structural Data	VarnishFree	Processing step objects enclosing an area where it is not allowed to have varnish.
Structural Data	InkFree	Processing step objects enclosing an area where it is not allowed to have printing ink.
Structural Data	InkVarnishFree	Processing step objects enclosing an area where it is not allowed to have printing ink and where it is not allowed to have varnish.
Structural Data	Folding	Processing step objects indicating where the substrate will be folded without prior creasing.
Structural Data	Punching	Processing step objects indicating the locations at which the substrate will be punched and the size and shape of the resulting holes.

Group	Type	Description
Structural Data	Stapling	Processing step objects indicating the locations at which the substrate will be stapled or stitched, and the size of the staples or stitches to be used.

**Types of "Positions" Processing Steps**

Group	Type	Description
Positions	Hologram	Processing step objects that indicate the intended position of holograms.
Positions	Barcode	Processing step objects that indicate the intended position of barcodes.
Positions	ContentArea	Processing step objects that indicate areas where it is allowed to place text and other graphical elements.
Positions	CodingMarking	Processing step objects specific to packaging that indicate areas where additional information not contained in the PDF will be printed on the packaging at a post-press stage, such as on filling lines where final products are being packed. Some examples of information that might be marked as CodingMarking include but are not limited to best before dates, lot numbers, production dates, and tracking codes.
Positions	Imprinting	Processing step objects that indicate areas where additional information (for example variable data) will be printed on pre-printed shells which contain the bulk of the graphical content, as a secondary print stage prior to finishing.

**Using Processing Steps**

**Deselecting Processing Steps**

Use the processing steps settings to deselect the processing steps that should not appear in the output. All the processing steps will be selected by default.

You can use the checkboxes to deselect or select a processing step or a group. When you deselect a group, all processing steps that are part of the group will be deselected.

Inks that are only related to deselected or non-printable processing steps will not be displayed in the inks tab or separations tab.

**Custom Processing Steps**

Custom processing steps can be added manually in the **Processing Steps** tab. Adding custom processing steps will be useful when you want to reuse the same ticket with the selected/deselected processing steps settings for different files.

You can add or remove custom processing steps using the add and remove buttons at the bottom of the tab.

**Note:** The same custom processing step cannot be added twice.

## 6.1.6. Inks

### Selecting Which Separations to Proof

Use the **Inks** settings to select which separations of the input file(s) you want to proof.

For example, you can use these settings to exclude technical and/or varnish inks from your output.

You can choose to proof either:

- **All** separations.
- A number of separations you select **Manually**.
- A number of separations you select **by using selection criteria**.

Selection criteria are rules that you define to select separations automatically for you when the task is launched on a file.

Selecting separations manually is the easiest option, but you can only do it on a file by file basis (when you launch the task on a single input file).

Using selection criteria is more advanced but also more powerful than selecting separations manually, and you can do it anytime (when launching the task on one or more input files, when using the task in a workflow, when defining ticket settings...).

Therefore, we recommend that you first try selecting separations manually when running the task on individual files, then switch to using selection criteria to automate your workflow further.

#### Tip:

To get used to working with selection criteria, try the following on a few of your files:

1. select the separations you want to output manually,
2. then change **Select Inks** to **by using selection criteria** and see which rules have been created based on your manual selection.

For more information, see [Selecting Inks Manually](#) on page 88 and [Selecting Inks Using Selection Criteria](#) on page 89.

**Tip:** You can also make the ink selection parameter public so that an operator can set it [through Shuttle](#) as needed for each job. See [Selecting Inks through Shuttle](#) on page 92 for more information.

### Proofing Files with Unregistered Inks

Unregistered inks are inks that are not present in your [color management database](#), so there is no information about these inks apart from their RGB values in the input file.

If your input file contains [PantoneLIVE inks](#) and you don't have a PantoneLIVE license, those inks are also considered to be unregistered inks.


When [content proofing](#) with the **Proof for Content Approval** task, unregistered inks (and unlicensed PantoneLIVE inks) are output without making the task error, but their color on the proof may be inaccurate.

However, when you want to make a color managed proof with the [Image to Unscreened Proof](#) on page 116 task, we recommend you replace all unregistered inks in your input file by inks from your color database before proofing.

### Selecting Inks Manually

**Note:** You can only select inks manually when you are launching the task on a (single) file, not when you are defining a generic ticket without an input file.

When choosing to **Select Inks Manually**, you will see a table containing all of your document's inks, showing each ink's:

<b>Ink Name</b>	
<b>Ink Book</b>	If an ink book is not present in your color database, it will show here as <unregistered "">.
<b>Ink Index</b>	<p>The <b>Ink index</b> is the order in which the file's inks will be printed (the ink with ink index 1 is at the bottom of the document and will be printed first).</p> <p>If your file has several of the same ink, they will have the same ink index, and the next ink will have the next one (for example two Cyans will both have ink index 1, then Magenta will have ink index 2).</p> <p>This means that when selecting inks for processing, both Cyans will be selected together and handled the same way.</p> <p><b>Tip:</b></p> <p>To find the ink index of a file:</p> <ol style="list-style-type: none"> <li>1. select the file in the Automation Engine Pilot's <b>Files</b> view,</li> <li>2. click ,</li> <li>3. in the <b>Info</b> dialog that opens, select <b>Inks</b> in the left panel.</li> </ol> <p>The order of the inks at right is the ink index (the topmost ink has an index of 1, the second of 2, etc.).</p> <p>Note that if you reorder the inks by one of the columns (for example by <b>Ink name</b>), they won't be ordered by ink index anymore. You will need to close that dialog and reopen it to see the ink index order again.</p>
<b>Spot Ink Index</b>	<p>The <b>Spot Ink index</b> is the order in which a spot ink will be printed (when counting only spot inks and not process inks).</p> <p>For example, if the first 4 inks of the document are CMYK, the first spot ink will have 5 as <b>Ink Index</b> but 1 as <b>Spot Ink Index</b>.</p> <p>As for the ink index, if your file has several of the same spot ink, they will have the same spot ink index, and will be handled together when you select them.</p>
<b>Ink Type</b>	This can be for example Normal, Technical, Varnish...
<b>Printing Method</b>	<p>If you have set a <b>Printing Method</b> for an ink it will be shown here (this can be for example Offset, Gravure, Flexo... or any custom printing method you configured).</p> <p>See the Automation Engine documentation for more information about printing methods.</p>



Select the ink(s) you want to proof, or select the toggle in the table header to select/deselect all inks.

### Selecting Inks Using Selection Criteria

If you don't want to [select inks manually](#) every time, you can define some rules to automatically select certain inks in your input file(s).

You can do this:

- either when running the task on one or more files, or when creating a task ticket to use later,
- by choosing to **Select Inks by using selection criteria** in the **Document Inks** settings.

#### How Does it Work?

You select the inks to be output by checking a combination of criteria:

1. You define what to check. You can check any of the following ink characteristics in your criteria:

<b>Ink name</b>	
<b>Ink book</b>	
<b>Ink index</b>	<p>The <b>Ink index</b> is the order in which the file's inks will be printed (the ink with ink index 1 is at the bottom of the document and will be printed first).</p> <p>To find the ink index of a file:</p> <ol style="list-style-type: none"> <li>1. select the file in the Automation Engine Pilot's <b>Files</b> view,</li> <li>2. click ⓘ,</li> <li>3. in the <b>Info</b> dialog that opens, select <b>Inks</b> in the left panel.</li> </ol> <p>The order of the inks at right is the ink index (the topmost ink has an index of 1, the second of 2, etc.).</p> <p>Note that if you reorder the inks by one of the columns (for example by <b>Ink name</b>), they won't be ordered by ink index anymore. You will need to close that dialog and reopen it to see the ink index order again.</p>
<b>Spot ink index</b>	<p>The <b>Spot ink index</b> is the order in which a spot ink will be printed (when counting only spot inks and not process inks).</p> <p>For example, if the first 4 inks of the document are CMYK, the first spot ink will have 5 as <b>Ink index</b> but 1 as <b>Spot ink index</b>.</p>
<b>Ink type</b>	This can be for example <code>Normal</code> , <code>Technical</code> , <code>Varnish...</code>
<b>Printing method</b>	<p>If you have set a <b>Printing method</b> for an ink it will be shown here (this can be for example <code>Offset</code>, <code>Gravure</code>, <code>Flexo...</code> or any custom printing method you configured).</p> <p>See the Automation Engine documentation for more information about printing methods.</p>

For example, you can check whether the **Ink book is** `process`, whether the **Ink name is** `yellow...`

You can use as many criteria as you want.

2. You define how to combine your criteria into a rule. For example:

- If you want to output only process yellow, you should check for inks that match **both** of the criteria:

**Ink book is** process  
**Ink name is** yellow

- If you want to output both all process inks and all yellow inks, you should check for inks that match **either** of the criteria:

**Ink book is** process  
**Ink name is** yellow

- If you don't want to output any process inks or any yellow inks, you should check for inks that match **neither** of the criteria:

**Ink book is** process  
**Ink name is** yellow

### How Do I Build Rules?

Build your rules the following way:

1. Choose how to combine the criteria in your rule:

- Select **All of the following are true** if you want to only select the inks that match **all** of the criteria you define.
- Select **Any of the following are true** if you want to select all the inks that match **at least one** of the criteria you define.
- Select **None of the following are true** if you want to only select the inks that match **none** of the criteria you define.


2. Define your first selection criterion.

You can select an ink based on its:

- **Ink name:** you can define if it **contains/begins with/ends with/is** a piece of text (alphanumerical characters), or if it **is empty**.
- **Ink book:** you can define if it **contains/begins with/ends with/is** a piece of text (alphanumerical characters), or if it **is empty**.
- **Ink index:** you can define if it **equals/is less than/is greater than** the number you enter, or is **is between** the two numbers you enter (in this case the ink indexes you enter as boundaries are also selected).
- **Spot ink index:** you can define if it **equals/is less than/is greater than** the number you enter, or is **is between** the two numbers you enter (in this case the spot ink indexes you enter as boundaries are also selected).
- **Ink type:** you can define if it **is** a piece of text (alphanumerical characters).
- **Printing method:** you can define if it **is** a piece of text (alphanumerical characters).

For example, you could use:	to:
<p><b>All of the following are true</b>  <b>Ink book is</b> <code>designer</code></p>	select all inks from the "designer" ink book
<p><b>None of the following are true</b>  <b>Ink name is</b> <code>crease</code></p>	exclude an ink called "crease"
<p><b>None of the following are true</b>  <b>Ink type is</b> <code>Technical</code>  <b>Ink type is</b> <code>Varnish</code></p>	exclude all technical and all varnish inks

**Tip:**

- You can enter several values to check for: just use a semicolon (;) between them.  
 For example, to check for both inks called `Cyan` and inks called `Magenta`, choose **Ink name is** and enter `Cyan;Magenta`.
- When launching the task on a file, you can also click  to select one or more of the **Ink names/Ink books/Ink types/Printing methods** used in your input file(s).  
 A criterion will automatically be created based on your selection.

3. Click + to add more criteria and define them.

To remove a criterion, click - next to it.

**Tip:** If you are launching the task on a single input file, you will see a table listing the **Selected document inks**, and another table with the **Document inks that are not selected** under the rules you defined.



**Attention:** If no ink is selected, you cannot launch the task.

### Switching How You Select Inks

You can switch between the two methods of selecting inks (*manually* and *using selection criteria*), and this will keep the same inks selected.

#### Switching from Selecting Inks Manually to Selecting Inks Using Selection Criteria

When switching from selecting inks manually to selecting inks using selection criteria, the task will translate your manual ink selection into rules, so that the same inks are selected (you can see them in the **Selected document inks** table).

The rules you get are based on the characteristics of the inks you selected.

For example, if you selected all the process colors but no spot color in your file, for an offset job, you will get the following rule:

**All of the following are true**

**Ink name is** `Cyan;Magenta;Yellow;Black`

**Ink book is** process  
**Ink type is** Normal  
**Printing method is** Offset

**Note:**

If you...

- first selected inks using selection criteria,
- then switched to manual selection without changing the selection,
- then switched back to selection criteria,

... then your rules will be kept.

If you did change the selection in manual mode, the task will automatically generate new rules.

**Switching from Selecting Inks Using Selection Criteria to Selecting Inks Manually**

When switching from selecting inks using selection criteria to selecting inks manually, all the inks selected by the rules you defined (the inks in the **Selected document inks** table) become selected manually.

**Note:** You can only switch to selecting inks manually when you are launching the task on a (single) file.

**Selecting Inks through Shuttle**

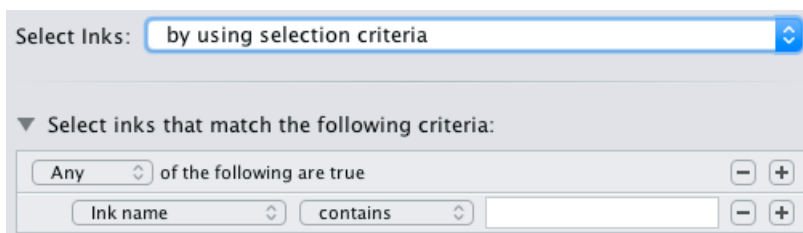
If you want to be able to decide which inks to proof when submitting your input file *through Shuttle*, do the following:

**In Your Imaging Engine Ticket**

1. To make the ink selection a public parameter, you can either:
  - Right-click **Select Inks** and choose **Make Parameter Public**.
  - If you (are currently launching the ticket on a file and) have chosen to *select inks manually*, right-click the preview table under **Select Inks** and choose **Make Parameter Public**.

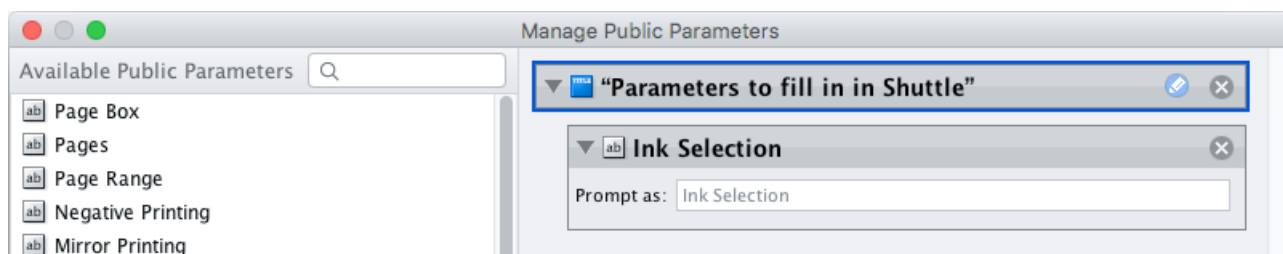
<input type="checkbox"/>	Ink Name	Ink Book	Ink Index	Spot Ink Ind...	Ink Type	Printing Met...
<input type="checkbox"/>	Cyan	process	1	-	Normal	Unknown
<input type="checkbox"/>	Magenta	process	2	-	Normal	Unknown
<input type="checkbox"/>	Yellow	process	3	-	Normal	Unknown
<input type="checkbox"/>	Black	process	4	-	Normal	Unknown
<input type="checkbox"/>	crease	Visualizer St...	5	1	Technical	Unknown
<input type="checkbox"/>	Cut	<unregistre...	6	2	Technical	Unknown

- If you have chosen to *use selection criteria*, right-click the rules builder under **Select Inks** and choose **Make Parameter Public**.



**Note:** You will not be able to create rules using Shuttle, you will only be able to select inks manually.

- Go to **Advanced > Manage Public Parameters...**, find the **Ink Selection** parameter at the bottom of the list, and drag it to the right hand side.

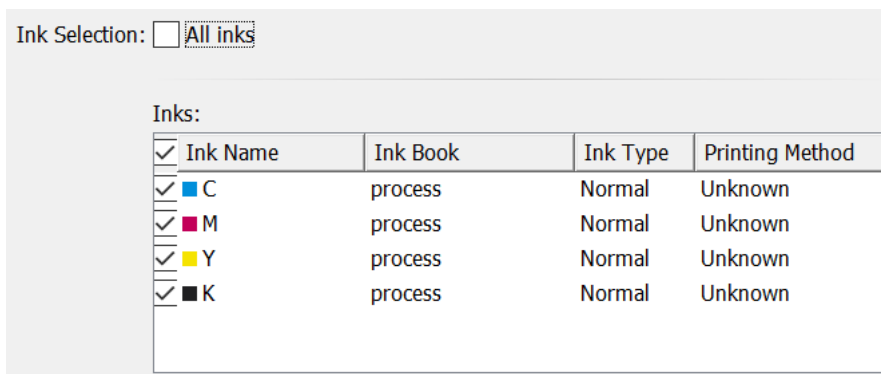


2. By default, the public parameter that appears in Shuttle will be called **Ink Selection**. You can change its name by:
  - right-clicking one of the elements mentioned above, selecting **Modify Public Parameter** and entering a new name,
  - if you are using the **Manage Public Parameters** window, entering the new name in **Prompt as**.
3. Make sure your ticket is also **Public**.

### In Shuttle

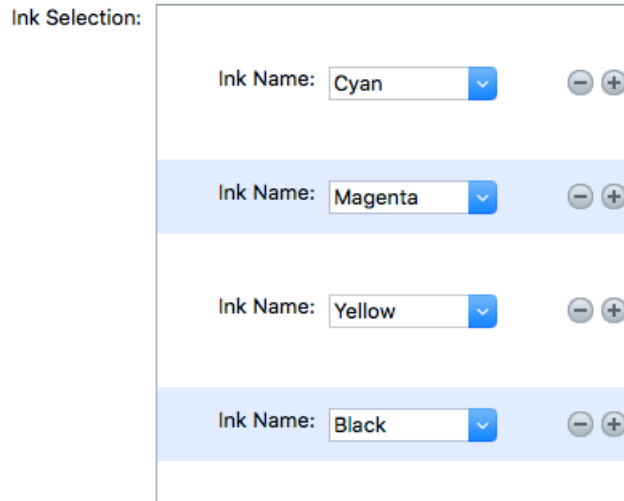
The ink selection parameter may look a bit different depending on which Shuttle you are using (the Shuttle standalone application or a Shuttle plug-in in an Editor application).


- In the Shuttle standalone, the ink selection parameter will look like this:



The table shows a preview of all inks in your input file, with their characteristics.

- To proof all inks from your input file, either leave all inks selected in the preview table, or select **All inks** at the top (this will hide the preview table).
- To only proof certain inks, make sure **All inks** is not selected, and deselect the input inks that you don't want to proof.
- In ArtPro+ for example, the ink selection parameter will look like this:



By default, all the inks from your input file will be proofed, but you can remove any ink you don't want to proof using the  button.

### 6.1.7. Output

Use the **Output** settings to define how many copies of your proof you want, and how to handle images that have a different resolution than the output resolution.

**Note:**

Imaging Engine uses the output resolution defined in your [Proof Server workflow](#), where you need to decide whether quality or speed is more important to you.

- If you have chosen **High Quality** in your Proof Server workflow, Imaging Engine will output your file(s) at the maximum resolution supported by your proofing device (you can check this resolution in Fiery Command WorkStation, the Esko Proof Server's client application).

You would typically use this for your final output, where quality is much more important than speed.

- If you have chosen **Standard** in your Proof Server workflow, Imaging Engine will output your file(s) at 50% of the maximum resolution supported by your proofing device.
- If you have chosen **Fast**, Imaging Engine will output your file(s) at 25% of the maximum resolution supported by your proofing device.

You would typically use this for drafts, where you don't need high quality yet but want a fast result.

For more information, please see the Esko Proof Server documentation, available from the [Pack Proof documentation page](#).

1. If your input file contains outlines, line art or contoured text, and you notice that they look too thick on print, we recommend you select the **Fine Line Rendering** option.

This will render objects with fine lines, for example Asian characters or barcodes, with a "thin fill".

You can set this option with a SmartName resolving to `true` to use **Fine Line Rendering** or `false` to use the standard rendering (also known as "fat fill").

**Note:** You cannot select both **Fine Line Rendering** and **Compensate for Outline Thickness** for the same job.

2. Select **Compensate for Outline Thickness** if:

- You want to use older tickets and workflows created using this option.
- You want to compare the output with output created using the **Fine Line Rendering** option.

**Note:**

The **Compensate for Outline Thickness** option is based on an older technology to make fine objects look less thick on print. The **Fine Line Rendering** option (available from Imagine Engine 20.1 onwards) solves the same problem with better results.

**Compensate for Outline Thickness** will be removed in future versions of Imaging Engine. If you are creating a new ticket or workflow, we recommend you use **Fine Line Rendering** instead.

3. If you experience problems with jagged edges, for example in small text, you can set an **Anti-aliasing** factor to smooth those edges.

In the example below, you can see the difference between output without anti-aliasing (on the left), and with anti-aliasing applied (on the right).



You can adjust the amount of anti-aliasing applied by choosing a factor of either 2, 3 or 4 (note that using a higher anti-aliasing factor may slow down processing).

You can also set this with a SmartName resolving to `None` (if you don't need anti-aliasing), or to the anti-aliasing factor you want (for example 2).



**Attention:** Because anti-aliasing changes the output sampling to smooth the jagged edges, you cannot resample your images (with the **Image Resampling** option) if you use anti-aliasing.

4. If your input file contains images, the images' pixels may not map exactly to output pixels if:

- the images' resolution is different from the output resolution you chose,
- scaling and rotation effects change the size and placement of the images' pixels.

In such cases, you need to resample these images to be able to output them at the same resolution as the rest of the file.

In the **Image Resampling** option, choose the resampling method you want to use (you will have to make a trade-off between processing time and image quality).

- Choose **Auto Resampling** to upsample the images to an automatically calculated resolution (generally half or a third of the output resolution) before smoothing them.

When using this, images are a lot less pixellated and fuzzy.



This method is quite slow but gives images of a good quality, so it is recommended in most cases.

You can also use a SmartName resolving to `ResampleAuto`.

- Choose **Full Resampling** to upsample the images to the full output resolution.

This is the slowest method but gives the highest quality images (not pixellated and only slightly fuzzy).





Use this if **Auto Resampling** doesn't give you the results you want.



**Attention:**

Resampling to full resolution can require significant amounts of memory when the output resolution is high (especially from 4000 dpi).

If you want to do this, we recommend that you have at least 8GB of RAM available for each worker (see the installation documentation).

You can also use a SmartName resolving to `ResampleFull`.

- Choose **None** if you don't want to resample your input file's images.

**Note:**

If you upgraded from a previous version of Imaging Engine, in some cases you may have saved a ticket with a less optimal resampling method (**From File** or **PDF Interpolation**) in your older version. These methods are deprecated from Imaging Engine 18.1.1.

When processing a file with such a ticket, Imaging Engine will use the **Auto Resampling** method instead. You will get a warning about this.

5. Enter the number of **Copies** you want to print (at least 1).

You can use SmartNames and/or public parameters.

**Tip:**

If the number of copies to print is already defined in your *Proof Server workflow*, that number will be filled in by default.

You can of course change it as desired.

6. Select **Keep job files for relaunch purposes** if you want to be able to proof jobs a second time without having to RIP them again.

In this case, the files created for proofing will not be automatically cleaned up. When you don't need to keep them anymore, you will have to delete them manually from the `\\[Esko Proof Server]\ProofFolder` share.

You can set this option with a SmartName resolving to `true` to keep the files, or `false` to discard them.

**Note:**

To re-proof files that you have kept using this option, do the following:

1. Double-click the **Send to Proof Server** sub-task that was run on the job you want to reuse.
2. This reopens the ticket with a limited number of settings. Change your desired setting as necessary (for example the number of **Copies**).
3. Click **Launch**.

If you didn't select the **Keep job files for relaunch purposes**, you will see `The job cannot be reprinted as the files from the job were not kept when reopening the ticket.`

### 6.1.8. Summary

This shows a summary of all the settings you defined in the ticket.

- To show the settings from a tab, click **+** (on PC) or **▶** (on Mac) beside the tab name in the right pane. Click **Expand All** to show the settings from all tabs.
- To hide the settings from a tab, click **-** (on PC) or **▼** (on Mac) beside the tab name in the right pane. Click **Collapse All** to hide the settings from all tabs.

## 6.2. Image to Content Proof (RGB)

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Use the **Image to Content Proof (RGB)** task if you need a **high-resolution preview file**.

You can use this for **digital content proofing**, to check whether the contents of your file (layout, text, barcodes...) are correct. This is particularly useful in cases where a *physical content proof* would not be practical (for example if the customer is far away).

At that stage, you are typically not checking the color accuracy of your proof yet, so the **Image to Content Proof (RGB)** task only performs some default color management in the background (for preview purposes).

When you are satisfied with the content proof and want to make a contract proof with color management, you can use the [Image to Unscreened Proof](#) task.

### Task Output

The **Image to Content Proof (RGB)** task generates a high-resolution RGB preview file, in the [JPEG format](#).

### Task Parameters

In the **Device** field, select the imaging device [that you configured](#).

Then use the tabs at left to show more settings to fill in. See:

- [General](#) on page 99,
- [Transformations](#) on page 100,
- [PDF Objects](#) on page 101,
- [Processing Steps](#) on page 102
- [Inks](#) on page 105,
- [Output](#) on page 112,
- [Summary](#) on page 115.

## 6.2.1. General

1. Define what **Page Box** of the input PDF you want to proof.

You can either select **Media Box**, **Trim Box**, or insert a SmartName  that must resolve to either `media` or `trim`.

After selecting your file's page box you will see its dimensions under the **Page Box** option.

2. If your input file is a multi-page PDF, select which **Pages** you want to proof:

- a) First select **All pages**, **Odd pages only** or **Even pages only** in the **Pages** option.


You can also insert a SmartName resolving to either `All`, `Even` or `Odd`.


- b) Then you can refine your selection by entering page numbers or a **Page Range**.


You can separate page numbers by a comma, or use a dash to indicate a page range (for example `3, 6-9`). You can also use a SmartName resolving to page numbers and/or page ranges using this same format.


#### Note:

- Page numbers are always physical pages. If your document starts with page 5, you should not use 5 but 1 to get the first page.
- If you enter page numbers that are not part of your document, they will be excluded from the output (all the other valid pages will be proofed).
- If you enter the same page(s) more than once (for example `1, 1-2`), it/they will only be output once.
- Pages are proofed in the order of the document (entering `5-1` will be automatically changed to `1-5`).

3. If you want to invert your output so it is compatible with the output device or software system that will process it, click .

You can also click  or **Edit...** to insert a SmartName that must resolve to `1` or `true` (to invert the output), or to `0` or `false` (to leave the output as it is).



4. If you want to mirror your output so it is compatible with the output device or software system that will process it, click .

You can also click  or **Edit...** to insert a SmartName that must resolve to `1` or `true` (to mirror the output), or to `0` or `false` (to leave the output as it is).

## 6.2.2. Transformations


Use the **Transformations** settings to scale or rotate your output relative to your input file.

1. Choose whether to **Scale** your input file's contents. Select either:

- **Scale by percent** and enter the vertical  and horizontal  scaling percentages to use (they must be between 10% and 1000%).

**Note:**

By default, you enter the vertical scaling percentage and the horizontal one is calculated automatically to keep the proportions.

If you want to enter the horizontal scaling percentage manually, click  to unlink it from the vertical one first.

However, if you do this then link the percentages again, the last percentage you entered will be kept, and the other one will be recalculated automatically to keep the proportions.

- **Do not scale** if you don't want to scale your file's contents.

You can use SmartNames resolving to `not` (**Do not scale**) or `ByPercent` (**Scale by percent**).

When entering SmartNames for vertical and horizontal scaling percentages, they must resolve to the numerical value (without the % sign).

2. If you want to rotate your file's contents, select the **Rotation** you want to apply here.

This can be:

- **0°**
- **90° Counter Clockwise**
- **180°**
- **90° Clockwise**

Any other value will give an error.

**Note:**

- You can use a SmartName that resolves to 0, 90 (for **90° Counter Clockwise**), 180 or 270 (for **90° Clockwise**).
- You need to use a numerical value (`ninety` will not work).
- This is a public parameter, that you can fill in when submitting files through Shuttle.

### 6.2.3. PDF Objects

- If you experience issues with a font that doesn't look smooth enough at your selected resolution, your font may have **font hinting errors**.

Font hinting is the rendering of the outline (vectorized) font to pixels. For certain fonts, this rendering sometimes doesn't give a visually pleasing result, especially at low resolutions. In the image below, the top font has font hinting errors, the bottom font doesn't.



Label Pack  
Label Pack

Choose how to handle files containing font hinting errors:

- Leave **Task ends in error when the job contains font hinting errors** selected if you want the task to end in error when encountering font hinting errors. You can also use a SmartName resolving to `true`.
- Deselect **Task ends in error when the job contains font hinting errors** if you want to output your file anyway, whether it has font hinting errors or not (your task will end with a warning). You can also use a SmartName resolving to `false`.

This may lead to reduced quality rendering of the text, but it will not generate incorrect characters in your output file.

- If your PDF+ input file has linked artwork and the external reference files have been modified, the changes do not get updated automatically in the PDF+ file. This will result in outdated data in the input as well as output files.

Choose how to handle files containing **outdated linked artwork**:

- Select **Task ends in error when linked artwork is not up to date** if you want the task to end in error if the input file contains outdated external references. You can also use a SmartName resolving to `true`.

- Deselect **Task ends in error when linked artwork is not up to date** if you want to output the file anyway, whether the references are outdated or not (your task will end with a warning). You can also use a SmartName resolving to `false`. This is the default option.

## 6.2.4. Processing Steps

Your PDF input files may contain additional objects and metadata that will not be used for printing. These correspond to additional processing steps a job needs to go through after printing: for example die cutting, creasing, etc.

Imaging Engine and Pack Proof display the processing steps associated with the layers in your input file (or files placed in it) in the **Processing Steps** tab.

The list of processing steps that you see depends on various factors like the number of jobs you select, the input file type, etc.

- If you select only one job, only the printable processing steps are listed under the **Processing Steps** tab. Layers which are set as unprintable will not be listed as processing steps.
- If you select multiple jobs or if you don't select any job, all the supported processing steps are listed.
- If your input file contains no layers, the processing steps tab will display an empty table with a "No printable processing steps found" message.
- If you select input files that are not PDF files, the **Processing Steps** tab will not be visible as processing steps are only applicable to PDF files. For example, for Normalized PDF files, the **Processing Steps** tab will always be hidden.
- If your input file contains layers that do not have equivalent processing steps in Imaging Engine/ Pack Proof, those layers will not be listed under this tab.

**Note:** Adobe Illustrator layers can also be used as processing steps though they are not the same as PDF layers.

## Processing Steps - Groups and Types

### Groups

In the ISO 19593 standard, the types of processing steps are grouped as follows:

- **Structural Data:** A collection of contours that describe how the printed product will be finished to produce a 3D end product from a flat substrate. These are as lines defining cutting, creasing, folding etc. The types of this group are listed below.
- **Positions:** Objects that indicate intended, allowed or forbidden positions for certain types of elements. For example, the positions on a flap of a carton where content is allowed. The types of this group are listed below.
- **Braille:** Braille characters that are applied after printing, typically by a die cutter or inkjet device.
- **Legend:** Job related data added outside the boundaries of the actual printed products.
- **Dimensions:** Indications of the physical sizes.
- **White:** White ink to be printed on a transparent or metallic substrate.
- **Varnish:** Indicating the application of varnish after printing.

Imaging Engine and Pack Proof also include the **Esko\_PlateCutting** custom processing step by default.

### Types of "Structural Data" Processing Steps

Group	Type	Description
Structural Data	Cutting	Processing step objects indicating where the printed artwork will be cut from the printed sheet for example with a guillotine cutter or die cutting device.
Structural Data	PartialCutting	Processing step objects indicating where the substrate will be cut partially (not entirely through the material).
Structural Data	ReversePartialCutting	Processing step objects indicating where the substrate will be cut partially (not entirely through the material) on the back side of the substrate.
Structural Data	Creasing	Processing step objects indicating where the substrate will be creased to guide subsequent folding.
Structural Data	ReverseCreasing	Processing step objects indicating where the substrate will be creased on the back side of the substrate.
Structural Data	CuttingCreasing	Processing step objects indicating where the substrate will undergo alternating cutting and creasing.
Structural Data	ReverseCuttingCreasing	Processing step objects indicating where the substrate will undergo alternating cutting and creasing on the back side of the substrate.
Structural Data	PartialCuttingCreasing	Processing step objects indicating where the substrate will undergo alternating partial cutting and creasing.
Structural Data	ReversePartial-CuttingCreasing	Processing step objects indicating where the substrate will undergo alternating partial cutting and creasing on the back side of the substrate.
Structural Data	Drilling	Processing step objects indicating locations where the substrate will be drilled and the intended size of the resulting hole.
Structural Data	Gluing	Processing step objects enclosing an area where glue will be applied.
Structural Data	FoilStamping	Processing step objects enclosing an area where foil will be applied through hot foil stamping.
Structural Data	ColdFoilStamping	Processing step objects enclosing an area where foil will be applied through cold foil stamping (using glue).
Structural Data	Embossing	Processing step objects enclosing an area where embossing will be applied.
Structural Data	Debossing	Processing step objects enclosing an area where debossing will be applied.
Structural Data	Perforating	Processing step objects indicating where the substrate will be perforated.
Structural Data	Bleed	Processing step objects indicating the intended bleed for print.
Structural Data	VarnishFree	Processing step objects enclosing an area where it is not allowed to have varnish.

Group	Type	Description
Structural Data	InkFree	Processing step objects enclosing an area where it is not allowed to have printing ink.
Structural Data	InkVarnishFree	Processing step objects enclosing an area where it is not allowed to have printing ink and where it is not allowed to have varnish.
Structural Data	Folding	Processing step objects indicating where the substrate will be folded without prior creasing.
Structural Data	Punching	Processing step objects indicating the locations at which the substrate will be punched and the size and shape of the resulting holes.
Structural Data	Stapling	Processing step objects indicating the locations at which the substrate will be stapled or stitched, and the size of the staples or stitches to be used.

**Types of "Positions" Processing Steps**

Group	Type	Description
Positions	Hologram	Processing step objects that indicate the intended position of holograms.
Positions	Barcode	Processing step objects that indicate the intended position of barcodes.
Positions	ContentArea	Processing step objects that indicate areas where it is allowed to place text and other graphical elements.
Positions	CodingMarking	Processing step objects specific to packaging that indicate areas where additional information not contained in the PDF will be printed on the packaging at a post-press stage, such as on filling lines where final products are being packed. Some examples of information that might be marked as CodingMarking include but are not limited to best before dates, lot numbers, production dates, and tracking codes.
Positions	Imprinting	Processing step objects that indicate areas where additional information (for example variable data) will be printed on pre-printed shells which contain the bulk of the graphical content, as a secondary print stage prior to finishing.

**Using Processing Steps**

**Deselecting Processing Steps**

Use the processing steps settings to deselect the processing steps that should not appear in the output. All the processing steps will be selected by default.

You can use the checkboxes to deselect or select a processing step or a group. When you deselect a group, all processing steps that are part of the group will be deselected.

Inks that are only related to deselected or non-printable processing steps will not be displayed in the inks tab or separations tab.



### Custom Processing Steps

Custom processing steps can be added manually in the **Processing Steps** tab. Adding custom processing steps will be useful when you want to reuse the same ticket with the selected/deselected processing steps settings for different files.

You can add or remove custom processing steps using the add and remove buttons at the bottom of the tab.

**Note:** The same custom processing step cannot be added twice.

## 6.2.5. Inks

### Selecting Which Separations to Proof

Use the **Inks** settings to select which separations of the input file(s) you want to proof.

For example, you can use these settings to exclude technical and/or varnish inks from your output.

You can choose to proof either:

- **All** separations.
- A number of separations you select **Manually**.
- A number of separations you select **by using selection criteria**.

Selection criteria are rules that you define to select separations automatically for you when the task is launched on a file.

Selecting separations manually is the easiest option, but you can only do it on a file by file basis (when you launch the task on a single input file).

Using selection criteria is more advanced but also more powerful than selecting separations manually, and you can do it anytime (when launching the task on one or more input files, when using the task in a workflow, when defining ticket settings...).

Therefore, we recommend that you first try selecting separations manually when running the task on individual files, then switch to using selection criteria to automate your workflow further.

#### Tip:

To get used to working with selection criteria, try the following on a few of your files:

1. select the separations you want to output manually,
2. then change **Select Inks** to **by using selection criteria** and see which rules have been created based on your manual selection.


For more information, see [Selecting Inks Manually](#) and [Selecting Inks Using Selection Criteria](#).

**Tip:** You can also make the ink selection parameter public so that an operator can set it [through Shuttle](#) as needed for each job. See [Selecting Inks through Shuttle](#) on page 110 for more information.

### Selecting Inks Manually

**Note:** You can only select inks manually when you are launching the task on a (single) file, not when you are defining a generic ticket without an input file.

When choosing to **Select Inks Manually**, you will see a table containing all of your document's inks, showing each ink's:

<b>Ink Name</b>	
<b>Ink Book</b>	If an ink book is not present in your color database, it will show here as <unregistered ">.
<b>Ink Index</b>	<p>The <b>Ink index</b> is the order in which the file's inks will be printed (the ink with ink index 1 is at the bottom of the document and will be printed first).</p> <p>If your file has several of the same ink, they will have the same ink index, and the next ink will have the next one (for example two Cyans will both have ink index 1, then Magenta will have ink index 2).</p> <p>This means that when selecting inks for processing, both Cyans will be selected together and handled the same way.</p> <p><b>Tip:</b></p> <p>To find the ink index of a file:</p> <ol style="list-style-type: none"> <li>1. select the file in the Automation Engine Pilot's <b>Files</b> view,</li> <li>2. click ,</li> <li>3. in the <b>Info</b> dialog that opens, select <b>Inks</b> in the left panel.</li> </ol> <p>The order of the inks at right is the ink index (the topmost ink has an index of 1, the second of 2, etc.).</p> <p>Note that if you reorder the inks by one of the columns (for example by <b>Ink name</b>), they won't be ordered by ink index anymore. You will need to close that dialog and reopen it to see the ink index order again.</p>
<b>Spot Ink Index</b>	<p>The <b>Spot Ink index</b> is the order in which a spot ink will be printed (when counting only spot inks and not process inks).</p> <p>For example, if the first 4 inks of the document are CMYK, the first spot ink will have 5 as <b>Ink Index</b> but 1 as <b>Spot Ink Index</b>.</p> <p>As for the ink index, if your file has several of the same spot ink, they will have the same spot ink index, and will be handled together when you select them.</p>
<b>Ink Type</b>	This can be for example Normal, Technical, Varnish...
<b>Printing Method</b>	<p>If you have set a <b>Printing Method</b> for an ink it will be shown here (this can be for example Offset, Gravure, Flexo... or any custom printing method you configured).</p> <p>See the Automation Engine documentation for more information about printing methods.</p>

Select the ink(s) you want to proof, or select the toggle in the table header to select/deselect all inks.

### Selecting Inks Using Selection Criteria

If you don't want to *select inks manually* every time, you can define some rules to automatically select certain inks in your input file(s).


You can do this:

- either when running the task on one or more files, or when creating a task ticket to use later,
- by choosing to **Select Inks by using selection criteria** in the **Document Inks** settings.

**How Does it Work?**

You select the inks to be output by checking a combination of criteria:

1. You define what to check. You can check any of the following ink characteristics in your criteria:

<b>Ink name</b>	
<b>Ink book</b>	
<b>Ink index</b>	<p>The <b>Ink index</b> is the order in which the file's inks will be printed (the ink with ink index 1 is at the bottom of the document and will be printed first).</p> <p>To find the ink index of a file:</p> <ol style="list-style-type: none"> <li>1. select the file in the Automation Engine Pilot's <b>Files</b> view,</li> <li>2. click ,</li> <li>3. in the <b>Info</b> dialog that opens, select <b>Inks</b> in the left panel.</li> </ol> <p>The order of the inks at right is the ink index (the topmost ink has an index of 1, the second of 2, etc.).</p> <p>Note that if you reorder the inks by one of the columns (for example by <b>Ink name</b>), they won't be ordered by ink index anymore. You will need to close that dialog and reopen it to see the ink index order again.</p>
<b>Spot ink index</b>	<p>The <b>Spot ink index</b> is the order in which a spot ink will be printed (when counting only spot inks and not process inks).</p> <p>For example, if the first 4 inks of the document are CMYK, the first spot ink will have 5 as <b>Ink index</b> but 1 as <b>Spot ink index</b>.</p>
<b>Ink type</b>	This can be for example <i>Normal, Technical, Varnish...</i>
<b>Printing method</b>	<p>If you have set a <b>Printing method</b> for an ink it will be shown here (this can be for example <i>Offset, Gravure, Flexo...</i> or any custom printing method you configured).</p> <p>See the Automation Engine documentation for more information about printing methods.</p>

For example, you can check whether the **Ink book is** *process*, whether the **Ink name is** *yellow*...

You can use as many criteria as you want.

2. You define how to combine your criteria into a rule. For example:

- If you want to output only process yellow, you should check for inks that match **both** of the criteria:

**Ink book is** *process*

**Ink name is** *yellow*

- If you want to output both all process inks and all yellow inks, you should check for inks that match **either** of the criteria:

**Ink book is** process  
**Ink name is** yellow

- If you don't want to output any process inks or any yellow inks, you should check for inks that match **neither** of the criteria:

**Ink book is** process  
**Ink name is** yellow

### How Do I Build Rules?

Build your rules the following way:

1. Choose how to combine the criteria in your rule:
  - Select **All of the following are true** if you want to only select the inks that match **all** of the criteria you define.
  - Select **Any of the following are true** if you want to select all the inks that match **at least one** of the criteria you define.
  - Select **None of the following are true** if you want to only select the inks that match **none** of the criteria you define.

2. Define your first selection criterion.


You can select an ink based on its:

- **Ink name:** you can define if it **contains/begins with/ends with/is** a piece of text (alphanumerical characters), or if it **is empty**.
- **Ink book:** you can define if it **contains/begins with/ends with/is** a piece of text (alphanumerical characters), or if it **is empty**.
- **Ink index:** you can define if it **equals/is less than/is greater than** the number you enter, or **is between** the two numbers you enter (in this case the ink indexes you enter as boundaries are also selected).
- **Spot ink index:** you can define if it **equals/is less than/is greater than** the number you enter, or **is between** the two numbers you enter (in this case the spot ink indexes you enter as boundaries are also selected).
- **Ink type:** you can define if it **is** a piece of text (alphanumerical characters).
- **Printing method:** you can define if it **is** a piece of text (alphanumerical characters).

For example, you could use:	to:
<b>All of the following are true</b> <b>Ink book is</b> designer	select all inks from the "designer" ink book
<b>None of the following are true</b> <b>Ink name is</b> crease	exclude an ink called "crease"
<b>None of the following are true</b>	exclude all technical and all varnish inks

For example, you could use:	to:
<b>Ink type is</b> Technical	
<b>Ink type is</b> Varnish	

**Tip:**

- You can enter several values to check for: just use a semicolon (;) between them.  
For example, to check for both inks called Cyan and inks called Magenta, choose **Ink name is** and enter Cyan;Magenta.
- When launching the task on a file, you can also click  to select one or more of the **Ink names/Ink books/Ink types/Printing methods** used in your input file(s).  
A criterion will automatically be created based on your selection.

3. Click + to add more criteria and define them.

To remove a criterion, click - next to it.

**Tip:** If you are launching the task on a single input file, you will see a table listing the **Selected document inks**, and another table with the **Document inks that are not selected** under the rules you defined.



**Attention:** If no ink is selected, you cannot launch the task.

### Switching How You Select Inks

You can switch between the two methods of selecting inks (*manually* and *using selection criteria*), and this will keep the same inks selected.

#### Switching from Selecting Inks Manually to Selecting Inks Using Selection Criteria

When switching from selecting inks manually to selecting inks using selection criteria, the task will translate your manual ink selection into rules, so that the same inks are selected (you can see them in the **Selected document inks** table).

The rules you get are based on the characteristics of the inks you selected.

For example, if you selected all the process colors but no spot color in your file, for an offset job, you will get the following rule:

**All of the following are true**

- Ink name is** Cyan;Magenta;Yellow;Black
- Ink book is** process
- Ink type is** Normal
- Printing method is** Offset

**Note:**

If you...

- first selected inks using selection criteria,
- then switched to manual selection without changing the selection,
- then switched back to selection criteria,

... then your rules will be kept.

If you did change the selection in manual mode, the task will automatically generate new rules.

**Switching from Selecting Inks Using Selection Criteria to Selecting Inks Manually**

When switching from selecting inks using selection criteria to selecting inks manually, all the inks selected by the rules you defined (the inks in the **Selected document inks** table) become selected manually.

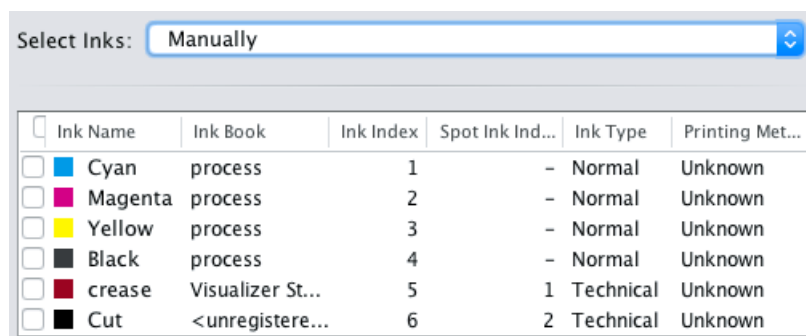
**Note:** You can only switch to selecting inks manually when you are launching the task on a (single) file.

**Selecting Inks through Shuttle**

If you want to be able to decide which inks to proof when submitting your input file *through Shuttle*, do the following:

**In Your Imaging Engine Ticket**

1. To make the ink selection a public parameter, you can either:
  - Right-click **Select Inks** and choose **Make Parameter Public**.
  - If you (are currently launching the ticket on a file and) have chosen to *select inks manually*, right-click the preview table under **Select Inks** and choose **Make Parameter Public**.

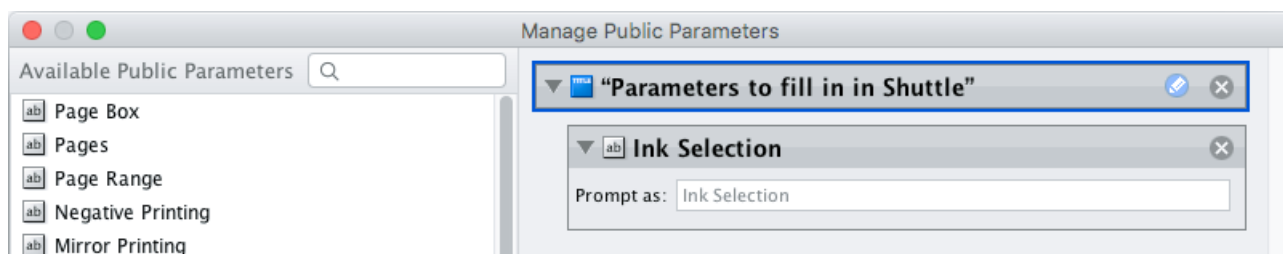


- If you have chosen to *use selection criteria*, right-click the rules builder under **Select Inks** and choose **Make Parameter Public**.



**Note:** You will not be able to create rules using Shuttle, you will only be able to select inks manually.

- Go to **Advanced > Manage Public Parameters...**, find the **Ink Selection** parameter at the bottom of the list, and drag it to the right hand side.

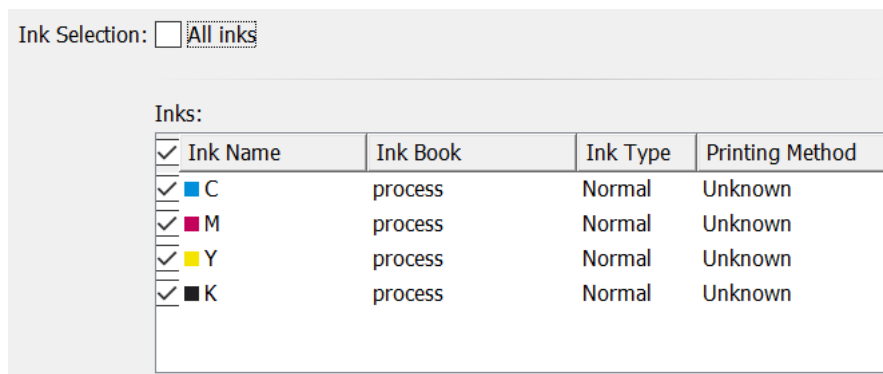


2. By default, the public parameter that appears in Shuttle will be called **Ink Selection**. You can change its name by:
  - right-clicking one of the elements mentioned above, selecting **Modify Public Parameter** and entering a new name,
  - if you are using the **Manage Public Parameters** window, entering the new name in **Prompt as**.
3. Make sure your ticket is also **Public**.

### In Shuttle

The ink selection parameter may look a bit different depending on which Shuttle you are using (the Shuttle standalone application or a Shuttle plug-in in an Editor application).

- In the Shuttle standalone, the ink selection parameter will look like this:




The table shows a preview of all inks in your input file, with their characteristics.

- To proof all inks from your input file, either leave all inks selected in the preview table, or select **All inks** at the top (this will hide the preview table).
- To only proof certain inks, make sure **All inks** is not selected, and deselect the input inks that you don't want to proof.
- In ArtPro+ for example, the ink selection parameter will look like this:

**Ink Selection:**

Ink Name:	Cyan	▼	−	+
Ink Name:	Magenta	▼	−	+
Ink Name:	Yellow	▼	−	+
Ink Name:	Black	▼	−	+

By default, all the inks from your input file will be proofed, but you can remove any ink you don't want to proof using the  button.

### 6.2.6. Output

Use the **Output** settings to define what type of output you want and where to output it. You can set these through public parameters or using SmartNames.

1. Enter your output **File Name** and output **Folder**.



**Note:**


- You can use Imaging-specific SmartNames for the **File Name**.  
By default, it is set to:
  - [File] for single page input files (which gives output file names like Myfile.jpg),
  - [File]\_p[Page] for multi-page input files (which gives output file names like Myfile\_p1.jpg).
- The **File Name** and **Folder** can contain special characters (except \ / : \* ? < > " |).
- The whole path to the output file (including the container, **Folder** and **File Name**) can be up to 255 characters.
- You can set a local or remote URL for the output **Folder**, but it must be an absolute path.
- If your output folder doesn't exist yet, the task will create it if the location you request is valid (you should place this folder on an Automation Engine container accessible by your Automation Engine user).  
If the output folder creation fails, please check the task log for the full list of conditions and adapt your output folder path accordingly.

2. Define what to do if a file of the same name already exists in your output folder:

- a) Click **Set Overwrite Policy...**
- b) Choose what to do **If files exist already**. You can either:
  - **Extend the file name** if you want to keep the existing output file and give the new output file a different name. In this case, your new output file name consists of:
    - the **Output file name** (the **File Name** you set earlier) - which is what the file would be called if no file with the same name existed,
    - a custom suffix that you can define using plain text and/or SmartNames (by default, this is `_c`, for "copy"),
    - an automatic suffix made of the three last digits of the task **ID**,

**Tip:**

To see the task ID of your tasks:

1. Go to the Pilot's **Tasks** pane (in the **Files** or **Tasks** view).
2. Go to **View > Select Columns in 'Tasks'...**
3. In the **Columns** dialog, select **Task ID** in the **Available columns** list and click  to move it to the **Show these columns:** list.
4. Click **OK**.
5. You now have a **Task ID** column in the **Tasks** pane, listing the task ID of all the tasks.

- the file extension.

For example, your input file is called `file.pdf` and you have left the tasks' output **File Name** to its default value (the SmartName **[File]**).

The first JPEG you generate will be called `file.jpg`.

If you generate output from this input file again, with the task 3668, and you have set the overwrite policy to **Extend the file name** with the default **Output File Name + \_c + ID** name, the new output file will be called `file_c668.jpg`

- **Overwrite** the existing file(s).
- **End the task in error.**

**Note:** If you use a SmartName to set this, it must resolve to `extend` or `0` (for **Extend the file name**), `overwrite` or `1` (for **Overwrite**), or `error` or `2` (for **End the task in error**).

c) Click **Set**.

**3.** The output **File Type** is always a **JPEG File**.

See [File Formats](#) on page 50 for more information.

**4.** Choose the **Compression** to use for your output file(s).

You should choose a compression method based on the compression speed and the compressed file size. Typically, faster compression methods compress the file less, so the output file is bigger.

They are sorted from very high compression, which reduces the file size a lot but loses a lot of detail (**JPEG Limited Quality**), to very low compression, which doesn't lose much detail but doesn't reduce the file size much (**JPEG Extreme Quality**).



**Attention:**

When using a SmartName to set the output file's **Compression**, it must resolve to one of the following (case insensitive): **JPEGLimited**, **JPEGLow**, **JPEGStandardLow**, **JPEGStandard**, **JPEGStandardHigh**, **JPEGHHigh**, or **JPEGExtreme**.

Setting any other value will make the task error.

**5.** Set the **Resolution** of your output files.

**Note:**

- The **Resolution** unit is taken from the general Automation Engine Preferences.
- You can enter values from 1 to 25400 ppi (or equivalent in your unit). SmartNames must also resolve to a value in that range.
- Values in another unit than the one from the general Preferences will be recalculated, and values like `300ppi + 500ppm` will be calculated correctly.

**6.** If your input file contains outlines, line art or contoured text, and you notice that they look too thick on print, we recommend you select the **Fine Line Rendering** option.

This will render objects with fine lines, for example Asian characters or barcodes, with a "thin fill".

You can set this option with a SmartName resolving to `true` to use **Fine Line Rendering** or `false` to use the standard rendering (also known as "fat fill").

**Note:** You cannot select both **Fine Line Rendering** and **Compensate for Outline Thickness** for the same job.

7. Select **Compensate for Outline Thickness** if:

- You want to use older tickets and workflows created using this option.
- You want to compare the output with output created using the **Fine Line Rendering** option.

**Note:**

The **Compensate for Outline Thickness** option is based on an older technology to make fine objects look less thick on print. The **Fine Line Rendering** option (available from Imagine Engine 20.1 onwards) solves the same problem with better results.

**Compensate for Outline Thickness** will be removed in future versions of Imaging Engine. If you are creating a new ticket or workflow, we recommend you use **Fine Line Rendering** instead.

8. If you experience problems with jagged edges, for example in small text, you can set an **Anti-aliasing** factor to smooth those edges.

In the example below, you can see the difference between output without anti-aliasing (on the left), and with anti-aliasing applied (on the right).



text text

You can adjust the amount of anti-aliasing applied by choosing a factor of either 2, 3 or 4 (note that using a higher anti-aliasing factor may slow down processing).

You can also set this with a SmartName resolving to `None` (if you don't need anti-aliasing), or to the anti-aliasing factor you want (for example 2).

## 6.2.7. Summary

This shows a summary of all the settings you defined in the ticket.

- To show the settings from a tab, click + (on PC) or ► (on Mac) beside the tab name in the right pane. Click **Expand All** to show the settings from all tabs.
- To hide the settings from a tab, click - (on PC) or ▼ (on Mac) beside the tab name in the right pane. Click **Collapse All** to hide the settings from all tabs.

## 6.3. Image to Unscreened Proof

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You can use the **Image to Unscreened Proof** task for **contract proofing**. You typically make a **contract proof** once you are satisfied with the *physical* or *digital* content proof.

At the contract proof stage, you *color manage* your job to ensure that your proof is as color accurate as possible, then send it to your customer for final approval before printing.

**Tip:**

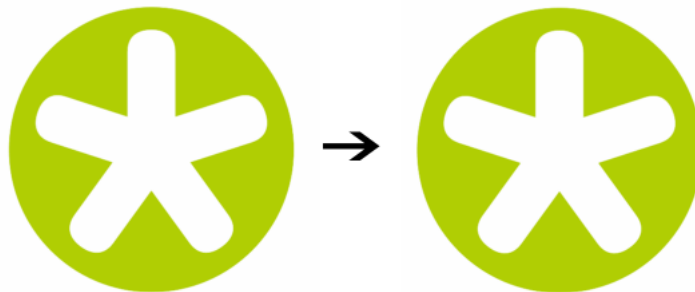
If you also want to unquestionably **verify** the color accuracy of your proof against your customer's criteria when **contract proofing**, we recommend you use **Pack Proof** together with Imaging Engine.

See the [Pack Proof documentation](#) for more information.

### Task Output

The **Image to Unscreened Proof** task generates unscreened but color managed output, in a file that you can send to a proofer. You can choose to output separated TIFF files, or composite *TIFF, PDF or JPEG files* (one file with all the separations).

In the example below, processing a file containing the lime green Esko star generates one multi-channel unscreened file containing the Cyan, Yellow, Magenta and Black channels, where the Magenta channel is empty.



### Task Parameters

In the **Device** field, select the imaging device *that you configured*.

Then use the tabs at left to show more settings to fill in. See:

- [General](#) on page 117,
- [Proofer](#) on page 118,
- [Transformations](#) on page 119,
- [PDF Objects](#) on page 120,
- [Processing Steps](#) on page 122
- [Inks](#) on page 125,

- [Color Management](#) on page 132,
- [Output](#) on page 136,
- [Summary](#) on page 145.

### 6.3.1. General

1. Define what **Page Box** of the input PDF you want to proof.

You can either select **Media Box**, **Trim Box**, or insert a SmartName `[]` that must resolve to either `media` or `trim`.

After selecting your file's page box you will see its dimensions under the **Page Box** option.

2. If your input file is a multi-page PDF, select which **Pages** you want to proof:

- a) First select **All pages**, **Odd pages only** or **Even pages only** in the **Pages** option.

You can also insert a SmartName resolving to either `All`, `Even` or `Odd`.

- b) Then you can refine your selection by entering page numbers or a **Page Range**.

You can separate page numbers by a comma, or use a dash to indicate a page range (for example `3, 6-9`). You can also use a SmartName resolving to page numbers and/or page ranges using this same format.

**Note:**

- Page numbers are always physical pages. If your document starts with page 5, you should not use 5 but 1 to get the first page.
- If you enter page numbers that are not part of your document, they will be excluded from the output (all the other valid pages will be proofed).
- If you enter the same page(s) more than once (for example `1, 1-2`), it/they will only be output once.
- Pages are proofed in the order of the document (entering `5-1` will be automatically changed to `1-5`).

3. If you want to invert your output so it is compatible with the output device or software system that will process it, click **A**.

You can also click `[]` or **Edit...** to insert a SmartName that must resolve to `1` or `true` (to invert the output), or to `0` or `false` (to leave the output as it is).

4. If you want to mirror your output so it is compatible with the output device or software system that will process it, click **M**.

You can also click `[]` or **Edit...** to insert a SmartName that must resolve to `1` or `true` (to mirror the output), or to `0` or `false` (to leave the output as it is).

5. If you want to add a **SmartMark** to your output file(s), select it in the **SmartMark** list, or use a SmartName that will resolve to the SmartMark name.

A **SmartMark** is a mark whose content is variable, so you can make it display information about that specific job. For example, you can include some of the parameters used during RIP'ing in your output file(s) by using a SmartMark.

You need to:

- a) First create the SmartMark you want to use in **PackEdge** (see the **SmartMarks** section in the PackEdge manual for details).

You can create either:

- a SmartMark with proof-specific parameters,

Use this SmartMark parameter in PackEdge:	to display this value from the Imaging Engine parameters:
Device	the <i>imaging device</i> you used
Image	whether you <i>inverted</i> your output
Emulsion	whether you <i>mirrored</i> your output
V Scale	the <i>vertical scaling</i> you applied to your output file(s)
H Scale	the <i>horizontal scaling</i> you applied to your output file(s)
Color Strategy	the <i>color strategy</i> you applied to your output file(s)
Source Profile	the source profile contained in the color strategy you applied to your output file(s)
Destination Profile	the destination profile contained in the color strategy you applied to your output file(s)
Resolution	the <i>resolution</i> of your output file(s)

- another type of SmartMark (for example a corner mark).

If your PackEdge application is linked to your Automation Engine server, your SmartMark will automatically be saved in the correct location and will be available in Imaging Engine.

- b) Then select that SmartMark in your **Imaging Engine task**.

The SmartMark will be added to each output file generated from your input file.

### 6.3.2. Proofer

If you already know the **Substrate Size** you will proof your output files on, select it here.

**Tip:** The size you select here can be used to scale the input file's contents to the substrate automatically (to do this, select **Fit to page size** or **Fit to page width** in the [Transformations tab](#)).

- You can either:

- Select your **Substrate Size** from a list of predefined sizes.
- Enter the substrate's **Width** and **Height** yourself to define a **Custom** substrate.

**Note:**

- By default, the **Substrate Size** is set to **Custom**, with the **Width** and **Height** values of an A3 page.
- The **Width** and **Height** unit is taken from the general Automation Engine Preferences.

You can set those values using public parameters and/or SmartNames. If you use SmartNames, make sure that:



- the SmartName for **Substrate Size** resolves to one of the substrate sizes offered in the list (when using a SmartName here, the **Width** and **Height** options will show **0**, but the task will use the correct dimensions when it runs).
- the SmartNames for **Width** and **Height** resolve to a numerical value, without any unit (the default task unit, mm, will then be used, regardless of the unit set in the general Automation Engine Preferences). When using a SmartName in one or both of these options, the **Substrate Size** will show **Custom**.

If one or more of the SmartNames resolves to an invalid value, the task will fail.

### 6.3.3. Transformations


Use the **Transformations** settings to scale or rotate your output relative to your input file.

1. If you want to **Scale** your input file's contents, select either:

- **Scale by percent** and enter the vertical  and horizontal  scaling percentages to use (they must be between 10% and 1000%).

**Note:**

By default, you enter the vertical scaling percentage and the horizontal one is calculated automatically to keep the proportions.

If you want to enter the horizontal scaling percentage manually, click  to unlink it from the vertical one first.

However, if you do this then link the percentages again, the last percentage you entered will be kept, and the other one will be recalculated automatically to keep the proportions.

- **Fit to page size** to fit your output to the substrate you defined in the [Proofer settings](#), while keeping the proportions (this will fit it to either the width or the height of the substrate, while making sure everything is on the substrate).
- **Fit to page width** to fit it to the width of the substrate you defined in the [Proofer settings](#), while keeping the proportions.

If you [added SmartMarks](#) to your output, they will be taken into account when fitting the proof file to the substrate's width or size.

If you don't want to scale your file's contents, leave **Do not scale** selected.

You can use SmartNames resolving to `not` (**Do not scale**), `ByPercent` (**Scale by percent**), `FitSize` (**Fit to page size**) or `FitWidth` (**Fit to page width**).

When entering SmartNames for vertical and horizontal scaling percentages, they must resolve to the numerical value (without the % sign).

2. If you want to rotate your file's contents, select the **Rotation** you want to apply here.

This can be:

- **0°**
- **90° Counter Clockwise**
- **180°**
- **90° Clockwise**

Any other value will give an error.

**Note:**

- You can use a SmartName that resolves to 0, 90 (for **90° Counter Clockwise**), 180 or 270 (for **90° Clockwise**).
- You need to use a numerical value (`ninety` will not work).
- This is a public parameter, that you can fill in when submitting files through Shuttle.

### 6.3.4. PDF Objects

Use the **PDF Objects** settings to define:

- how to color manage RGB objects in your input file,
- what dot gain compensation to apply to your input file's images.

All parameters in this tab are public parameters, that you can fill in when submitting files through Shuttle.

1. In **Default RGB Profile**, specify the profile to use if no profile is specified for a certain RGB object in the input file. The default is `srgb.icc`.

You can use a SmartName that resolves to the full profile name.

2. Select **Use PDF transfer curves** if you want to use:
  - the *Dot Gain Compensation curves* attached to the images in your input PDF. These curves compensate for the unwanted characteristics of the device that created the images (scanner, digital camera...).
  - the **Color Correction curves** added by ArtPro+ version 20 and higher. These curves allow you to correct individual separations for color deviations on proof from the reference proof. The correction will be applied on both the proof and the production files.



**Note:**

You can only use the correction curves if the Color Correction curves option is enabled in the global Imaging Engine configuration.

Please contact Esko Support for assistance.

You can use a SmartName that resolves to `true` (to use the input file's curves) or `false` (to not use them).

3. If you experience issues with a font that doesn't look smooth enough at your selected resolution, your font may have **font hinting errors**.

Font hinting is the rendering of the outline (vectorized) font to pixels. For certain fonts, this rendering sometimes doesn't give a visually pleasing result, especially at low resolutions. In the image below, the top font has font hinting errors, the bottom font doesn't.



Label Pack  
Label Pack

Choose how to handle files containing font hinting errors:

- Leave **Task ends in error when the job contains font hinting errors** selected if you want the task to end in error when encountering font hinting errors. You can also use a SmartName resolving to `true`.
- Deselect **Task ends in error when the job contains font hinting errors** if you want to output your file anyway, whether it has font hinting errors or not (your task will end with a warning). You can also use a SmartName resolving to `false`.

This may lead to reduced quality rendering of the text, but it will not generate incorrect characters in your output file.

4. If your PDF+ input file has linked artwork and the external reference files have been modified, the changes do not get updated automatically in the PDF+ file. This will result in outdated data in the input as well as output files.

Choose how to handle files containing **outdated linked artwork**:

- Select **Task ends in error when linked artwork is not up to date** if you want the task to end in error if the input file contains outdated external references. You can also use a SmartName resolving to `true`.

- Deselect **Task ends in error when linked artwork is not up to date** if you want to output the file anyway, whether the references are outdated or not (your task will end with a warning). You can also use a SmartName resolving to `false`. This is the default option.

### 6.3.5. Processing Steps

Your PDF input files may contain additional objects and metadata that will not be used for printing. These correspond to additional processing steps a job needs to go through after printing: for example die cutting, creasing, etc.

Imaging Engine and Pack Proof display the processing steps associated with the layers in your input file (or files placed in it) in the **Processing Steps** tab.

The list of processing steps that you see depends on various factors like the number of jobs you select, the input file type, etc.

- If you select only one job, only the printable processing steps are listed under the **Processing Steps** tab. Layers which are set as unprintable will not be listed as processing steps.
- If you select multiple jobs or if you don't select any job, all the supported processing steps are listed.
- If your input file contains no layers, the processing steps tab will display an empty table with a "No printable processing steps found" message.
- If you select input files that are not PDF files, the **Processing Steps** tab will not be visible as processing steps are only applicable to PDF files. For example, for Normalized PDF files, the **Processing Steps** tab will always be hidden.
- If your input file contains layers that do not have equivalent processing steps in Imaging Engine/ Pack Proof, those layers will not be listed under this tab.

**Note:** Adobe Illustrator layers can also be used as processing steps though they are not the same as PDF layers.

### Processing Steps - Groups and Types

#### Groups

In the ISO 19593 standard, the types of processing steps are grouped as follows:

- **Structural Data:** A collection of contours that describe how the printed product will be finished to produce a 3D end product from a flat substrate. These are as lines defining cutting, creasing, folding etc. The types of this group are listed below.
- **Positions:** Objects that indicate intended, allowed or forbidden positions for certain types of elements. For example, the positions on a flap of a carton where content is allowed. The types of this group are listed below.
- **Braille:** Braille characters that are applied after printing, typically by a die cutter or inkjet device.
- **Legend:** Job related data added outside the boundaries of the actual printed products.
- **Dimensions:** Indications of the physical sizes.
- **White:** White ink to be printed on a transparent or metallic substrate.
- **Varnish:** Indicating the application of varnish after printing.

Imaging Engine and Pack Proof also include the **Esko\_PlateCutting** custom processing step by default.

### Types of "Structural Data" Processing Steps

Group	Type	Description
Structural Data	Cutting	Processing step objects indicating where the printed artwork will be cut from the printed sheet for example with a guillotine cutter or die cutting device.
Structural Data	PartialCutting	Processing step objects indicating where the substrate will be cut partially (not entirely through the material).
Structural Data	ReversePartialCutting	Processing step objects indicating where the substrate will be cut partially (not entirely through the material) on the back side of the substrate.
Structural Data	Creasing	Processing step objects indicating where the substrate will be creased to guide subsequent folding.
Structural Data	ReverseCreasing	Processing step objects indicating where the substrate will be creased on the back side of the substrate.
Structural Data	CuttingCreasing	Processing step objects indicating where the substrate will undergo alternating cutting and creasing.
Structural Data	ReverseCuttingCreasing	Processing step objects indicating where the substrate will undergo alternating cutting and creasing on the back side of the substrate.
Structural Data	PartialCuttingCreasing	Processing step objects indicating where the substrate will undergo alternating partial cutting and creasing.
Structural Data	ReversePartial-CuttingCreasing	Processing step objects indicating where the substrate will undergo alternating partial cutting and creasing on the back side of the substrate.
Structural Data	Drilling	Processing step objects indicating locations where the substrate will be drilled and the intended size of the resulting hole.
Structural Data	Gluing	Processing step objects enclosing an area where glue will be applied.
Structural Data	FoilStamping	Processing step objects enclosing an area where foil will be applied through hot foil stamping.
Structural Data	ColdFoilStamping	Processing step objects enclosing an area where foil will be applied through cold foil stamping (using glue).
Structural Data	Embossing	Processing step objects enclosing an area where embossing will be applied.
Structural Data	Debossing	Processing step objects enclosing an area where debossing will be applied.
Structural Data	Perforating	Processing step objects indicating where the substrate will be perforated.
Structural Data	Bleed	Processing step objects indicating the intended bleed for print.
Structural Data	VarnishFree	Processing step objects enclosing an area where it is not allowed to have varnish.

Group	Type	Description
Structural Data	InkFree	Processing step objects enclosing an area where it is not allowed to have printing ink.
Structural Data	InkVarnishFree	Processing step objects enclosing an area where it is not allowed to have printing ink and where it is not allowed to have varnish.
Structural Data	Folding	Processing step objects indicating where the substrate will be folded without prior creasing.
Structural Data	Punching	Processing step objects indicating the locations at which the substrate will be punched and the size and shape of the resulting holes.
Structural Data	Stapling	Processing step objects indicating the locations at which the substrate will be stapled or stitched, and the size of the staples or stitches to be used.

**Types of "Positions" Processing Steps**

Group	Type	Description
Positions	Hologram	Processing step objects that indicate the intended position of holograms.
Positions	Barcode	Processing step objects that indicate the intended position of barcodes.
Positions	ContentArea	Processing step objects that indicate areas where it is allowed to place text and other graphical elements.
Positions	CodingMarking	Processing step objects specific to packaging that indicate areas where additional information not contained in the PDF will be printed on the packaging at a post-press stage, such as on filling lines where final products are being packed. Some examples of information that might be marked as CodingMarking include but are not limited to best before dates, lot numbers, production dates, and tracking codes.
Positions	Imprinting	Processing step objects that indicate areas where additional information (for example variable data) will be printed on pre-printed shells which contain the bulk of the graphical content, as a secondary print stage prior to finishing.

**Using Processing Steps**

**Deselecting Processing Steps**

Use the processing steps settings to deselect the processing steps that should not appear in the output. All the processing steps will be selected by default.

You can use the checkboxes to deselect or select a processing step or a group. When you deselect a group, all processing steps that are part of the group will be deselected.

Inks that are only related to deselected or non-printable processing steps will not be displayed in the inks tab or separations tab.

### Custom Processing Steps

Custom processing steps can be added manually in the **Processing Steps** tab. Adding custom processing steps will be useful when you want to reuse the same ticket with the selected/deselected processing steps settings for different files.

You can add or remove custom processing steps using the add and remove buttons at the bottom of the tab.

**Note:** The same custom processing step cannot be added twice.

## 6.3.6. Inks

### Selecting Which Separations to Proof

Use the **Inks** settings to select which separations of the input file(s) you want to proof.

For example, you can use these settings to exclude technical and/or varnish inks from your output.

You can choose to proof either:

- **All** separations.
- A number of separations you select **Manually**.
- A number of separations you select **by using selection criteria**.

Selection criteria are rules that you define to select separations automatically for you when the task is launched on a file.

Selecting separations manually is the easiest option, but you can only do it on a file by file basis (when you launch the task on a single input file).

Using selection criteria is more advanced but also more powerful than selecting separations manually, and you can do it anytime (when launching the task on one or more input files, when using the task in a workflow, when defining ticket settings...).

Therefore, we recommend that you first try selecting separations manually when running the task on individual files, then switch to using selection criteria to automate your workflow further.

#### Tip:

To get used to working with selection criteria, try the following on a few of your files:

1. select the separations you want to output manually,
2. then change **Select Inks** to **by using selection criteria** and see which rules have been created based on your manual selection.

For more information, see [Selecting Inks Manually](#) on page 126 and [Selecting Inks Using Selection Criteria](#) on page 127.

**Tip:** You can also make the ink selection parameter public so that an operator can set it [through Shuttle](#) as needed for each job. See [Selecting Inks through Shuttle](#) on page 130 for more information.

### Handling Unregistered Inks

Unregistered inks are inks that are not present in your [color management database](#). Since there is no information about these inks apart from their RGB values in the input file, they cannot be color managed or proofed accurately.

Therefore, we recommend you exclude them from the output, especially for contract proofing.

Choose what to do in case some unregistered inks are still in the list of inks to be proofed:

- If you want the task to end with a warning, leave **Task ends in error when the job contains unregistered inks** deselected.

All the inks you chose to include in the output will be proofed, but the unregistered inks will not be color accurate.

- If you want the task to end in error, select **Task ends in error when the job contains unregistered inks**.


In both cases, you will also see a message in the log.

**Note:** If your input file contains [PantoneLIVE inks](#) and you don't have a PantoneLIVE license, those inks will be treated as unregistered inks.

### Selecting Inks Manually

**Note:** You can only select inks manually when you are launching the task on a (single) file, not when you are defining a generic ticket without an input file.

When choosing to **Select Inks Manually**, you will see a table containing all of your document's inks, showing each ink's:

<b>Ink Name</b>	
<b>Ink Book</b>	If an ink book is not present in your color database, it will show here as <code>&lt;unregistered "&gt;</code> .
<b>Ink Index</b>	<p>The <b>Ink index</b> is the order in which the file's inks will be printed (the ink with ink index 1 is at the bottom of the document and will be printed first).</p> <p>If your file has several of the same ink, they will have the same ink index, and the next ink will have the next one (for example two Cyans will both have ink index 1, then Magenta will have ink index 2).</p> <p>This means that when selecting inks for processing, both Cyans will be selected together and handled the same way.</p> <p><b>Tip:</b></p> <p>To find the ink index of a file:</p> <ol style="list-style-type: none"> <li>1. select the file in the Automation Engine Pilot's <b>Files</b> view,</li> <li>2. click ,</li> <li>3. in the <b>Info</b> dialog that opens, select <b>Inks</b> in the left panel.</li> </ol> <p>The order of the inks at right is the ink index (the topmost ink has an index of 1, the second of 2, etc.).</p> <p>Note that if you reorder the inks by one of the columns (for example by <b>Ink name</b>), they won't be ordered by ink index anymore. You will need to close that dialog and reopen it to see the ink index order again.</p>
<b>Spot Ink Index</b>	The <b>Spot Ink index</b> is the order in which a spot ink will be printed (when counting only spot inks and not process inks).

	<p>For example, if the first 4 inks of the document are CMYK, the first spot ink will have 5 as <b>Ink Index</b> but 1 as <b>Spot Ink Index</b>.</p> <p>As for the ink index, if your file has several of the same spot ink, they will have the same spot ink index, and will be handled together when you select them.</p>
<b>Ink Type</b>	This can be for example <i>Normal, Technical, Varnish...</i>
<b>Printing Method</b>	<p>If you have set a <b>Printing Method</b> for an ink it will be shown here (this can be for example <i>Offset, Gravure, Flexo...</i> or any custom printing method you configured).</p> <p>See the Automation Engine documentation for more information about printing methods.</p>

Select the ink(s) you want to proof, or select the toggle in the table header to select/deselect all inks.

### Selecting Inks Using Selection Criteria

If you don't want to [select inks manually](#) every time, you can define some rules to automatically select certain inks in your input file(s).


You can do this:

- either when running the task on one or more files, or when creating a task ticket to use later,
- by choosing to **Select Inks by using selection criteria** in the **Document Inks** settings.

#### How Does it Work?

You select the inks to be output by checking a combination of criteria:

1. You define what to check. You can check any of the following ink characteristics in your criteria:

<b>Ink name</b>	
<b>Ink book</b>	
<b>Ink index</b>	<p>The <b>Ink index</b> is the order in which the file's inks will be printed (the ink with ink index 1 is at the bottom of the document and will be printed first).</p> <p>To find the ink index of a file:</p> <ol style="list-style-type: none"> <li>1. select the file in the Automation Engine Pilot's <b>Files</b> view,</li> <li>2. click ,</li> <li>3. in the <b>Info</b> dialog that opens, select <b>Inks</b> in the left panel.</li> </ol> <p>The order of the inks at right is the ink index (the topmost ink has an index of 1, the second of 2, etc.).</p> <p>Note that if you reorder the inks by one of the columns (for example by <b>Ink name</b>), they won't be ordered by ink index anymore. You will need to close that dialog and reopen it to see the ink index order again.</p>
<b>Spot ink index</b>	<p>The <b>Spot ink index</b> is the order in which a spot ink will be printed (when counting only spot inks and not process inks).</p> <p>For example, if the first 4 inks of the document are CMYK, the first spot ink will have 5 as <b>Ink index</b> but 1 as <b>Spot ink index</b>.</p>

<b>Ink type</b>	This can be for example <code>Normal</code> , <code>Technical</code> , <code>Varnish</code> ...
<b>Printing method</b>	If you have set a <b>Printing method</b> for an ink it will be shown here (this can be for example <code>Offset</code> , <code>Gravure</code> , <code>Flexo</code> ... or any custom printing method you configured).  See the Automation Engine documentation for more information about printing methods.

For example, you can check whether the **Ink book is** `process`, whether the **Ink name is** `yellow`...

You can use as many criteria as you want.

2. You define how to combine your criteria into a rule. For example:

- If you want to output only process yellow, you should check for inks that match **both** of the criteria:

**Ink book is** `process`  
**Ink name is** `yellow`

- If you want to output both all process inks and all yellow inks, you should check for inks that match **either** of the criteria:

**Ink book is** `process`  
**Ink name is** `yellow`

- If you don't want to output any process inks or any yellow inks, you should check for inks that match **neither** of the criteria:

**Ink book is** `process`  
**Ink name is** `yellow`

### How Do I Build Rules?

Build your rules the following way:

1. Choose how to combine the criteria in your rule:

- Select **All of the following are true** if you want to only select the inks that match **all** of the criteria you define.
- Select **Any of the following are true** if you want to select all the inks that match **at least one** of the criteria you define.
- Select **None of the following are true** if you want to only select the inks that match **none** of the criteria you define.

2. Define your first selection criterion.

You can select an ink based on its:


- **Ink name:** you can define if it **contains/begins with/ends with/is** a piece of text (alphanumerical characters), or if it **is empty**.
- **Ink book:** you can define if it **contains/begins with/ends with/is** a piece of text (alphanumerical characters), or if it **is empty**.



- **Ink index:** you can define if it **equals/is less than/is greater than** the number you enter, or is **is between** the two numbers you enter (in this case the ink indexes you enter as boundaries are also selected).
- **Spot ink index:** you can define if it **equals/is less than/is greater than** the number you enter, or is **is between** the two numbers you enter (in this case the spot ink indexes you enter as boundaries are also selected).
- **Ink type:** you can define if it **is** a piece of text (alphanumerical characters).
- **Printing method:** you can define if it **is** a piece of text (alphanumerical characters).

For example, you could use:	to:
<b>All of the following are true</b> <b>Ink book is</b> <code>designer</code>	select all inks from the "designer" ink book
<b>None of the following are true</b> <b>Ink name is</b> <code>crease</code>	exclude an ink called "crease"
<b>None of the following are true</b> <b>Ink type is</b> <code>Technical</code> <b>Ink type is</b> <code>Varnish</code>	exclude all technical and all varnish inks

**Tip:**

- You can enter several values to check for: just use a semicolon (;) between them.  
For example, to check for both inks called `Cyan` and inks called `Magenta`, choose **Ink name is** and enter `Cyan;Magenta`.
- When launching the task on a file, you can also click  to select one or more of the **Ink names/Ink books/Ink types/Printing methods** used in your input file(s).  
A criterion will automatically be created based on your selection.

**3.** Click + to add more criteria and define them.

To remove a criterion, click - next to it.

**Tip:** If you are launching the task on a single input file, you will see a table listing the **Selected document inks**, and another table with the **Document inks that are not selected** under the rules you defined.



**Attention:** If no ink is selected, you cannot launch the task.

### Switching How You Select Inks

You can switch between the two methods of selecting inks (*manually* and *using selection criteria*), and this will keep the same inks selected.

### Switching from Selecting Inks Manually to Selecting Inks Using Selection Criteria

When switching from selecting inks manually to selecting inks using selection criteria, the task will translate your manual ink selection into rules, so that the same inks are selected (you can see them in the **Selected document inks** table).

The rules you get are based on the characteristics of the inks you selected.

For example, if you selected all the process colors but no spot color in your file, for an offset job, you will get the following rule:

**All of the following are true**

**Ink name is** Cyan;Magenta;Yellow;Black

**Ink book is** process

**Ink type is** Normal

**Printing method is** Offset

**Note:**

If you...

- first selected inks using selection criteria,
- then switched to manual selection without changing the selection,
- then switched back to selection criteria,

... then your rules will be kept.

If you did change the selection in manual mode, the task will automatically generate new rules.

### Switching from Selecting Inks Using Selection Criteria to Selecting Inks Manually

When switching from selecting inks using selection criteria to selecting inks manually, all the inks selected by the rules you defined (the inks in the **Selected document inks** table) become selected manually.

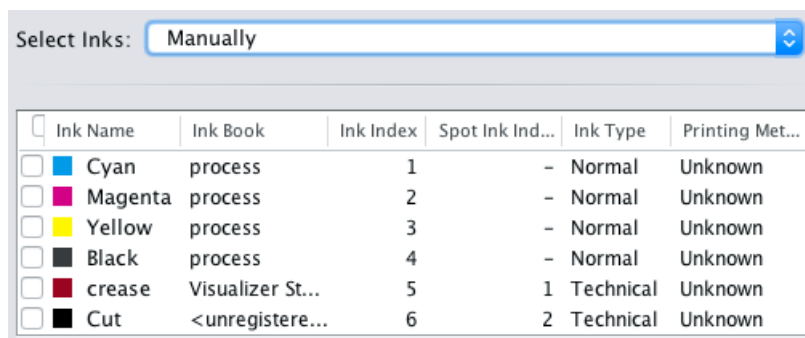
**Note:** You can only switch to selecting inks manually when you are launching the task on a (single) file.

### Selecting Inks through Shuttle

If you want to be able to decide which inks to proof when submitting your input file *through Shuttle*, do the following:

**In Your Imaging Engine Ticket**

1. To make the ink selection a public parameter, you can either:
  - Right-click **Select Inks** and choose **Make Parameter Public**.
  - If you (are currently launching the ticket on a file and) have chosen to *select inks manually*, right-click the preview table under **Select Inks** and choose **Make Parameter Public**.

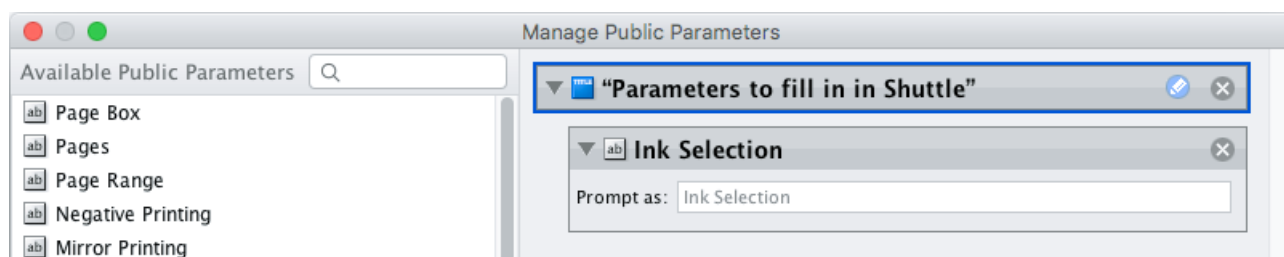


- If you have chosen to *use selection criteria*, right-click the rules builder under **Select Inks** and choose **Make Parameter Public**.



**Note:** You will not be able to create rules using Shuttle, you will only be able to select inks manually.

- Go to **Advanced > Manage Public Parameters...**, find the **Ink Selection** parameter at the bottom of the list, and drag it to the right hand side.

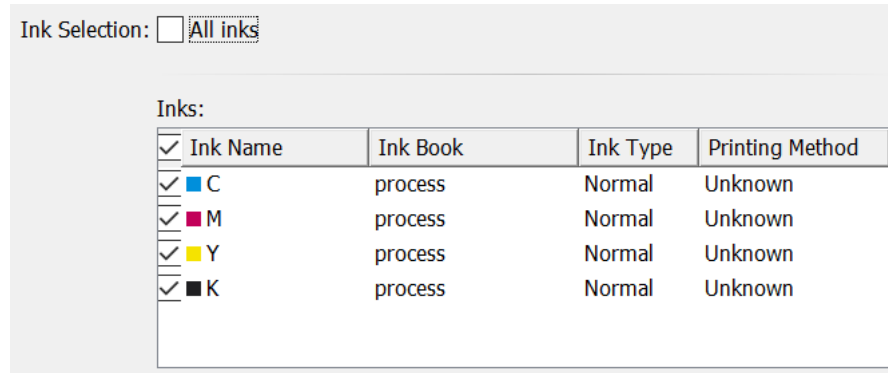


2. By default, the public parameter that appears in Shuttle will be called **Ink Selection**. You can change its name by:
  - right-clicking one of the elements mentioned above, selecting **Modify Public Parameter** and entering a new name,
  - if you are using the **Manage Public Parameters** window, entering the new name in **Prompt as**.
3. Make sure your ticket is also **Public**.

### In Shuttle

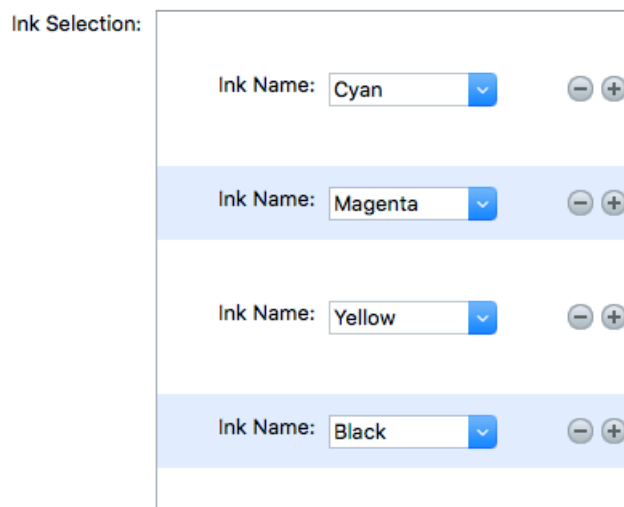
The ink selection parameter may look a bit different depending on which Shuttle you are using (the Shuttle standalone application or a Shuttle plug-in in an Editor application).


- In the Shuttle standalone, the ink selection parameter will look like this:



The table shows a preview of all inks in your input file, with their characteristics.

- To proof all inks from your input file, either leave all inks selected in the preview table, or select **All inks** at the top (this will hide the preview table).
- To only proof certain inks, make sure **All inks** is not selected, and deselect the input inks that you don't want to proof.
- In ArtPro+ for example, the ink selection parameter will look like this:



By default, all the inks from your input file will be proofed, but you can remove any ink you don't want to proof using the  button.

### 6.3.7. Color Management

This is where you apply *color management* to your output file(s). To do this, you use a *color strategy* containing your color management settings.

You can apply two types of color management, depending on the type of proof you want to make:

#### Standard Proof

If you are making a standard proof, you are creating a proofing file that you will later send to a proofer, to try and reproduce your press' output. In this case, we recommend that you:

1. Get the profile of the proofer you want to use, and use it as **destination profile** in your color strategy.
2. Use your press profile as **source profile** in your color strategy.

See [Color Management for Standard Proof](#) on page 133.

### Emulation Proof

If you are working with both a regular press and a digital press, and you want to be able to move jobs between presses, you need to make sure they have comparable output.

This can be useful if you want to use your digital press instead of your main press to reprint a few copies of a job, or to print short run jobs (with the same results as on the regular press) in general.

In this case, you should make an **emulation proof**, that takes both presses into account when proofing. It will:

- first simulate how your regular press prints on your digital press,
- then simulate that simulation on your proofer.

This will help you find out which colors can or cannot be reproduced on your digital press, as a digital press can have a narrower gamut than both a regular press and a proofer.

See [Color Management for Emulation Proof](#) on page 134.

### Color Management for Standard Proof

If you are making a standard proof, you are creating a proofing file that you will later send to a proofer, to try and reproduce your press' output. In this case, we recommend that you:

1. Get the profile of the proofer you want to use, and use it as **destination profile** in your color strategy.
2. Use your press profile as **source profile** in your color strategy.

See [Color Strategies](#) on page 13 for more information about color strategies.

You can either select an existing color strategy (that you have created in Color Pilot), or create a new (basic) color strategy on-demand.

Note that when creating a basic color strategy on-demand, you will only be able to use it for the current task (you will not be able to store it, edit it later or reuse it).

- If you have created a color strategy in Color Pilot, select it in the **Color Strategy** list.

To be available in this list, your color strategy must be stored in the color database defined for your Automation Engine server (if your Esko software is set up correctly, Color Pilot saved it in the right place automatically).

You can also select your desired color strategy through a public parameter, or using a SmartName. The SmartName for the color strategy must resolve to one of the available color strategies.

**Note:** When you output to *JPEG* or to *composite TIFF* with *JPEG compression*, you can only select color strategies that have a CMYK destination profile.

The default color strategy is **linear**.

- If you want to create a basic color strategy on demand:
  - a) Select **Create Custom Strategy...** in the **Color Strategy** list.

- b) Select a **Source Profile** and a **Destination Profile**.

**Note:**

If your input file is a Normalized PDF that contains a document profile, and you want to use that as the source, select **Use document profile if available** (or use a SmartName resolving to `true`).

If the input file does not contain a document profile, the **Source Profile** you selected will be used instead.

PDF+ files don't contain document profiles (they use output intents instead).

**Note:** When you output to *JPEG* or to *composite TIFF* with JPEG *compression*, you can only select a CMYK destination profile.

- c) Select a **Rendering Intent**.

See [Rendering Intents](#) on page 13 for details on how each rendering intent handles the conversion of *out-of-gamut* spot colors and of the background color, and which to use in which case.

**Note:**

- If you are working with Esko source and destination profiles, you can use the **Absolute Colorimetric** or **Relative Colorimetric** rendering intent.
- If you are working with ICC source and destination profiles, you can use any rendering intent.

- d) Click **OK**.

- If the **output intent** from the input file is different from the input profile of your proofing color strategy, it might result in the generation of wrong proofer output.

Choose what to do when the output intent profile from file is different from the input profile of the proofing color strategy:

- If you want the task to end in error, select **Task ends in error when the output intent is different from the source profile**. You can also use a SmartName resolving to `true`.
- If you want to output the file anyway, leave **Task ends in error when the output intent is different from the source profile** deselected (your task will end with a warning). You can also use a SmartName resolving to `false`. This is the default option.

In both cases, you will also see a message in the log.

**Note:** This option is only applicable to native PDF files and does not affect normalized PDF files.

Once you have selected or created your desired color strategy, the task shows the **Source** and **Destination** profiles used in the strategy.

### Color Management for Emulation Proof

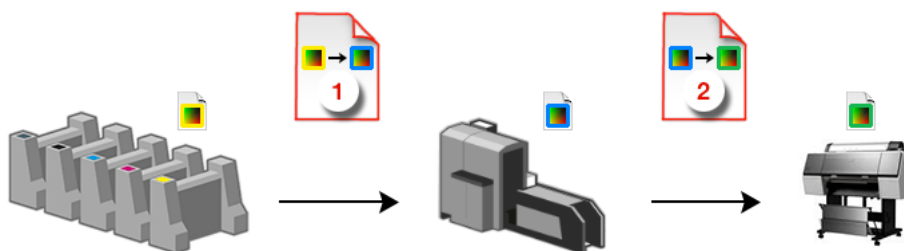
If you are working with both a regular press and a digital press, and you want to be able to move jobs between presses, you need to make sure they have comparable output.

This can be useful if you want to use your digital press instead of your main press to reprint a few copies of a job, or to print short run jobs (with the same results as on the regular press) in general.

In this case, you should make an **emulation proof**, that takes both presses into account when proofing. It will:


- first simulate how your regular press prints on your digital press,
- then simulate that simulation on your proofer.

This will help you find out which colors can or cannot be reproduced on your digital press, as a digital press can have a narrower gamut than both a regular press and a proofer.





1. Select **Emulation Proof** to display color management settings for an emulation proof.

2.

Under **Analog Press**, select your first color strategy .


This color strategy should have:

- your regular press profile  as **Source Profile** (or the profile for a printing standard you want to match, for example `ISOcoated_V2_eci.icc`),
- your digital press profile  as **destination profile (Emulation Profile)**.

To be available in this list, your color strategy must be stored in the color database defined for your Automation Engine server (if your Esko software is set up correctly, Color Pilot saved it in the right place automatically).


You can also select your desired color strategy through a public parameter, or using a SmartName. The SmartName for the color strategy must resolve to one of the available color strategies.

**Note:**

You will only be able to choose a color strategy with a destination profile  that is the same as the source profile of the second color strategy (see below).


To choose a color strategy with a different destination profile, you need to first select a second color strategy that has that profile as source profile.

3.

Under **Digital Press**, select your second color strategy .

This color strategy should have:

- your digital press profile  as **Source Profile**,

- the profile of the proofer you want to use (or a profile with the right ink set if you don't know which proofer you will use yet)  as **Destination Profile**.

**Note:** When *outputting to JPEG or TIFF*, you can only select color strategies that have a CMYK destination profile.

To be available in this list, your color strategy must be stored in the color database defined for your Automation Engine server (if your Esko software is set up correctly, Color Pilot saved it in the right place automatically).

You can also select your desired color strategy through a public parameter, or using a SmartName. The SmartName for the color strategy must resolve to one of the available color strategies.

4. If the **output intent** from the input file is different from the input profile of your proofing color strategy, it might result in the generation of wrong proofer output.

Choose what to do when the output intent profile from file is different from the input profile of the proofing color strategy:

- If you want the task to end in error, select **Task ends in error when the output intent is different from the source profile**. You can also use a SmartName resolving to `true`.
- If you want to output the file anyway, leave **Task ends in error when the output intent is different from the source profile** deselected (your task will end with a warning). You can also use a SmartName resolving to `false`. This is the default option.

In both cases, you will also see a message in the log.

**Note:** This option is only applicable to native PDF files and does not affect normalized PDF files.

### 6.3.8. Output

Use the **Output** settings to define what type of output you want and where to output it.

You can set these through public parameters or using SmartNames.

1. Enter your output **File Name** and output **Folder**.



**Note:**

- You can use Imaging-specific SmartNames for the **File Name**.

By default, it is set to:

- [File] for single page input files (which gives output file names like `Myfile.tif`),
- [File]\_p[Page] for multi-page input files (which gives output file names like `Myfile_p1.tif`).

This is a good default for composite output.

For separated output, we recommend you use:

- [File]\_[ShortInk] for single page input files (which gives output file names like `Myfile_C.tif`),
  - [File]\_p[Page]\_[ShortInk] for multi-page input files (which gives output file names like `Myfile_p1_C.tif`).
- The **File Name** and **Folder** can contain special characters (except `\ / : * ? < > " |`).
  - The whole path to the output file (including the container, **Folder** and **File Name**) can be up to 255 characters.
  - You can set a local or remote URL for the output **Folder**, but it must be an absolute path.
  - If your output folder doesn't exist yet, the task will create it if the location you request is valid (you should place this folder on an Automation Engine container accessible by your Automation Engine user).

If the output folder creation fails, please check the task log for the full list of conditions and adapt your output folder path accordingly.

2. Define what to do if a file of the same name already exists in your output folder:


a) Click **Set Overwrite Policy...**

b) Choose what to do **If files exist already**. You can either:

- **Extend the file name** if you want to keep the existing output file and give the new output file a different name. In this case, your new output file name consists of:
  - the **Output file name** (the **File Name** you set earlier) - which is what the file would be called if no file with the same name existed,
  - a custom suffix that you can define using plain text and/or SmartNames (by default, this is `_c`, for "copy"),
  - an automatic suffix made of the three last digits of the task **ID**,

**Tip:**

To see the task ID of your tasks:

1. Go to the Pilot's **Tasks** pane (in the **Files** or **Tasks** view).
2. Go to **View > Select Columns in 'Tasks'...**
3. In the **Columns** dialog, select **Task ID** in the **Available columns** list and click  to move it to the **Show these columns:** list.
4. Click **OK**.
5. You now have a **Task ID** column in the **Tasks** pane, listing the task ID of all the tasks.

- the file extension.

For example, your input file is called `file.pdf` and you have left the tasks' output **File Name** to its default value (the SmartName **[File]**).

The first TIFF you generate will be called `file.tif`.

If you generate output from this input file again, with the task 3668, and you have set the overwrite policy to **Extend the file name** with the default **Output File Name + \_c + ID** name, the new output file will be called `file_c668.tif`

**Tip:**

- If you are working with the Bitmap Viewer, we recommend you keep the default overwrite policy (**Output File Name + \_c + ID**), which is compatible with the Bitmap Viewer.
- If you are not, you can define the custom suffix as you wish. For example, you could use date and time SmartNames.

- **Overwrite** the existing file(s).
- **End the task in error**.

**Note:** If you use a SmartName to set this, it must resolve to `extend` or `0` (for **Extend the file name**), `overwrite` or `1` (for **Overwrite**), or `error` or `2` (for **End the task in error**).

c) Click **Set**.

3. Select the output **File Type** you want. This can be a **TIFF File**, a **PDF File** or a **JPEG File**.

See [File Formats](#) on page 50 for more information.

4. Select how you want to output your files in **File Assembly**.

- For **TIFF** files, you can choose to output either [composite](#) or [separated](#) files.
  - To output **Composite** files, select **1 File Per Page** in **File Assembly** (or use a SmartName that resolves to `FilePerPage`).

The **Output Type** is then automatically set to **Composite**.

- To output **Separated** files, select **1 File Per Separation** in **File Assembly** (or use a SmartName that resolves to `FilePerSeparation`).


The **Output Type** is then automatically set to **Separate**.

- For **PDF** and **JPEG** files, the task always generates **Composite** files.

The **File Assembly** is automatically set to **1 File Per Page**, and the **Output Type** set to **Composite**.

**Note:**

- Every output file that Imaging Engine generates contains XMP metadata (information about file creation, separations, calibration curves, etc.).

You can view this XMP metadata by selecting your output file in the Automation Engine Pilot's **Files** view and clicking .

For more information about XMP metadata, see the **XMP Metadata white paper** under **Related Documentation** on the [documentation page of your Imaging Engine version](#).

- TIFF files produced by Imaging Engine are fully compatible with Esko's Bitmap Viewer and DotSpy.
- Separated files are shown in the correct separation in the Bitmap Viewer (as it can read the separation information in the XMP data) and in grayscale in other viewers.

When proofing them, they are also in the correct separation (for example the proofer proofs the Magenta file using the Magenta cartridge).

**Tip:**

With separated output, you can easily see how *color management* affects your output separations relative to the input separations.

- If you are using a **linear Color Strategy** (that doesn't color manage process colors), the process separated output files will contain the same objects as the corresponding separations in the input file.

In the CMYK example below, each solid object in an input separation is the same in the output separation (for example the Cyan bar is still only 100% Cyan).



- If you selected something other than **linear** in the *Color Strategy* (you are color managing all separations of your file), the process output separations will be different from the corresponding input separations.

In the CMYK example below, each solid object in an input separation is now made up of several output separations (for example the Cyan bar is now 60% Cyan, 36% Magenta and 22% Black, and appears in these three separated output files).



**5. Choose the **Compression** to use for your output file(s).**

- For **TIFF** output, you can choose between lossless and lossy compression. Lossless compression preserves all the detail in the file, while lossy compression removes some detail.

We recommend you use lossless compression for the final output, and lossy compression only for previews and thumbnails.

For both compression types (lossless and lossy), you should then choose a compression method, based on the compression speed and the compressed file size. Typically, faster compression methods compress the file less, so the output file is bigger (note that TIFF files can be a maximum of 4GB).

<p>If you want lossless compression...</p>	<p>choose either:</p> <ul style="list-style-type: none"> <li>• <b>PackBits</b>, a fast lossless compression method for graphic files.</li> </ul> <p><b>Tip:</b> Use this if you want fast output and file size is not too much of an issue.</p> <ul style="list-style-type: none"> <li>• <b>LZW</b>, a lossless compression method for graphic files and other files.</li> </ul> <p><b>Tip:</b> This compression method works best for files with large images.</p>
<p>If you want lossy compression...</p>	<p>choose one of the <b>JPEG</b> compression methods (those are more suitable for images like photographs and natural artwork than sharp edged or flat color images like line art or lettering, as JPEG compression tends to introduce noise into solid color areas).</p> <p>They are sorted from very high compression, which reduces the file size a lot but loses a lot of detail (<b>JPEG Limited Quality</b>), to very low compression, which doesn't lose much detail but doesn't reduce the file size much (<b>JPEG Extreme Quality</b>).</p>

- For **PDF** output, all available compression methods are lossless.

You should choose a compression method based on the compression speed and the compressed file size. Typically, faster compression methods compress the file less, so the output file is bigger (note that PDF files can be a maximum of 12GB).

Choose either:

- **PackBits** (see above).
- **Flate**, a lossless compression method similar to zipping, based on the LZW compression.

**Tip:** This compression method works best for images with large single color areas or repeating patterns.

- **JPEG 2000**, a compression method based on **JPEG** and suitable for large images (the version of **JPEG 2000** used by Imaging Engine is lossless).
- For **JPEG** output, all available compression methods are lossy.

You should choose a compression method based on the compression speed and the compressed file size. Typically, faster compression methods compress the file less, so the output file is bigger.

They are sorted from very high compression, which reduces the file size a lot but loses a lot of detail (**JPEG Limited Quality**), to very low compression, which doesn't lose much detail but doesn't reduce the file size much (**JPEG Extreme Quality**).



**Attention:**

- When using a SmartName to set the output file's **Compression**, it must resolve to one of the following (case insensitive):
  - **PackBits, LZW, JPEGLimited, JPEGLow, JPEGStandardLow, JPEGStandard, JPEGStandardHigh, JPEGHigh, or JPEGExtreme** for **TIFF** output,
  - **PackBits, Flate** or **JPEG2000** for **PDF** output,
  - **JPEGLimited, JPEGLow, JPEGStandardLow, JPEGStandard, JPEGStandardHigh, JPEGHigh, or JPEGExtreme** for **JPEG** output.

Setting any other value, or an unsupported compression for the file type you chose, will make the task error (with the message Unsupported combination of output type and compression in the log).

- If you have already set the **Compression** but decide to change the output **File Type**, by default the task will either:
  - keep the same **Compression** (if it is supported for the new output **File Type**),
  - or (if it isn't), set it to the first **Compression** available for this **File Type**.

You can still change it as desired.

**6. Select **Make all output files ready for viewing** if:**

- you are generating separated (TIFF) files,
- you are doing quality control using the **Automation Engine Viewer**,
- you want to be able to open your output files in the **Automation Engine Viewer** without needing to use a **Prepare for Viewer** task.

If you don't use this option, you can still use a **Prepare for Viewer** task later to be able to view your output files in the **Automation Engine Viewer**. However, this will take more time than already preparing the files for viewing in your Imaging Engine task.

As with the **Prepare for Viewer** task, you will see **View (Prepared)** next to the prepared files in the Pilot, and you will be able to zoom in to the files up to their full resolution.

**Note:** If you use this option together with composite output files (via SmartNames or Public Parameters), the task will error out.

**7. Set the **Resolution** of your output files.**

**Note:**

- The **Resolution** unit is taken from the general Automation Engine Preferences.
- You can enter values from 1 to 25400 ppi (or equivalent in your unit). SmartNames must also resolve to a value in that range.
- Values in another unit than the one from the general Preferences will be recalculated, and values like 300ppi + 500ppm will be calculated correctly.

8. If your input file contains outlines, line art or contoured text, and you notice that they look too thick on print, we recommend you select the **Fine Line Rendering** option.

This will render objects with fine lines, for example Asian characters or barcodes, with a "thin fill".

You can set this option with a SmartName resolving to `true` to use **Fine Line Rendering** or `false` to use the standard rendering (also known as "fat fill").

**Note:** You cannot select both **Fine Line Rendering** and **Compensate for Outline Thickness** for the same job.

9. Select **Compensate for Outline Thickness** if:

- You want to use older tickets and workflows created using this option.
- You want to compare the output with output created using the **Fine Line Rendering** option.

**Note:**

The **Compensate for Outline Thickness** option is based on an older technology to make fine objects look less thick on print. The **Fine Line Rendering** option (available from Imagine Engine 20.1 onwards) solves the same problem with better results.

**Compensate for Outline Thickness** will be removed in future versions of Imaging Engine. If you are creating a new ticket or workflow, we recommend you use **Fine Line Rendering** instead.

10. If you experience problems with jagged edges, for example in small text, you can set an **Anti-aliasing** factor to smooth those edges.

In the example below, you can see the difference between output without anti-aliasing (on the left), and with anti-aliasing applied (on the right).



You can adjust the amount of anti-aliasing applied by choosing a factor of either 2, 3 or 4 (note that using a higher anti-aliasing factor may slow down processing).

You can also set this with a SmartName resolving to `None` (if you don't need anti-aliasing), or to the anti-aliasing factor you want (for example 2).



**Attention:** Because anti-aliasing changes the output sampling to smooth the jagged edges, you cannot resample your images (with the **Image Resampling** option) if you use anti-aliasing.

11. If your input file contains images, the images' pixels may not map exactly to output pixels if:

- the images' resolution is different from the output resolution you chose,
- scaling and rotation effects change the size and placement of the images' pixels.

In such cases, you need to resample these images to be able to output them at the same resolution as the rest of the file.

In the **Image Resampling** option, choose the resampling method you want to use (you will have to make a trade-off between processing time and image quality).

- Choose **Auto Resampling** to upsample the images to an automatically calculated resolution (generally half or a third of the output resolution) before smoothing them.

When using this, images are a lot less pixellated and fuzzy.



This method is quite slow but gives images of a good quality, so it is recommended in most cases.

You can also use a SmartName resolving to `ResampleAuto`.

- Choose **Full Resampling** to upsample the images to the full output resolution.

This is the slowest method but gives the highest quality images (not pixellated and only slightly fuzzy).





Use this if **Auto Resampling** doesn't give you the results you want.



**Attention:**

Resampling to full resolution can require significant amounts of memory when the output resolution is high (especially from 4000 dpi).

If you want to do this, we recommend that you have at least 8GB of RAM available for each worker (see the installation documentation).

You can also use a SmartName resolving to `ResampleFull`.

- Choose **None** if you don't want to resample your input file's images.

**Note:**

If you upgraded from a previous version of Imaging Engine, in some cases you may have saved a ticket with a less optimal resampling method (**From File** or **PDF Interpolation**) in your older version. These methods are deprecated from Imaging Engine 18.1.1.

When processing a file with such a ticket, Imaging Engine will use the **Auto Resampling** method instead. You will get a warning about this.

### 6.3.9. Summary

This shows a summary of all the settings you defined in the ticket.

- To show the settings from a tab, click + (on PC) or ► (on Mac) beside the tab name in the right pane.

Click **Expand All** to show the settings from all tabs.

- To hide the settings from a tab, click - (on PC) or ▼ (on Mac) beside the tab name in the right pane.

Click **Collapse All** to hide the settings from all tabs.

## 6.4. Image to Screened Separations

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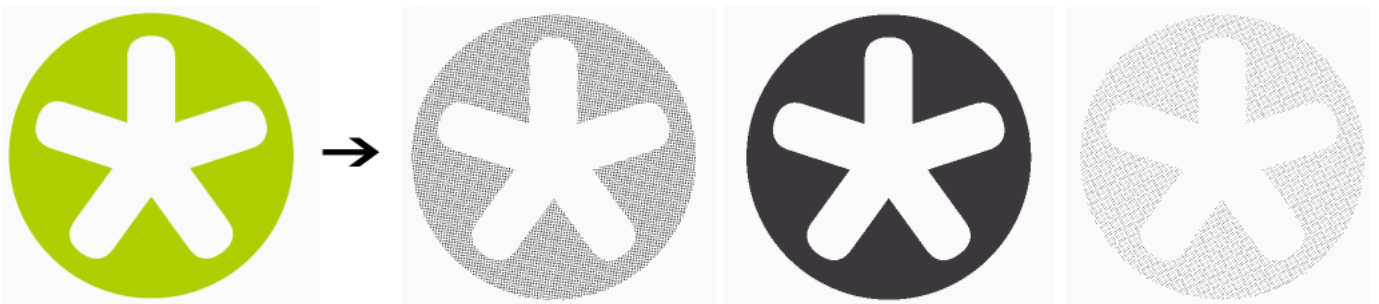
Use this task if you need *screened* output to send to a platesetter or filmsetter (for offset or flexo for example).

### Task Output

The **Image to Screened Separations** task generates one file per separation, in either *PDF, TIFF, LEN or LENX format*.

For example, you can send screened LEN separations to the CDI.

In the example below, processing a file containing the lime green Esko star generates screened files for the Cyan, Yellow and Black separations.



### Task Parameters

1. In the **Device** field, select the imaging device *that you configured*.
2. If you have made a **Printing Condition** in the Print Control Wizard, you can use it in Imaging Engine. See *Working with Printing Conditions from the Print Control Wizard* on page 147.

If you don't have (a license for) the Print Control Wizard, the **Printing Condition** option is not visible.

3. Use the tabs at left to show more settings to fill in. See:

- *General* on page 149,
- *Transformations* on page 151,
- *PDF Objects* on page 152,
- *Processing Steps* on page 154
- *Inks* on page 157,
- *Output* on page 165,

- [Separations](#) on page 175,
- [Post-RIP](#) on page 208,
- [Summary](#) on page 210.

### 6.4.1. Working with Printing Conditions from the Print Control Wizard

If you have made a printing condition in the Print Control Wizard, you can use it in Imaging Engine.

#### What is the Print Control Wizard?

The Print Control Wizard is an application designed to help you optimize your print quality.

Based on your exact production workflow, your current print quality and the standard you want to print towards, the Print Control Wizard calculates the best possible screens and curves that you can use to achieve great results on press.

This helps you avoid common problems, for example a lack of smoothness in the transition from highlights to paper, or from shadows to solids, and makes getting good printing quality time after time easier.

See [Print Control Wizard](#) for more information.

#### What is a Printing Condition?

The Print Control Wizard generates a **printing condition** based on your production workflow settings and the measurement results of a print sample made with those settings.

This printing condition:


- describes your exact production workflow (plate-making workflow and printing setup) and the way it prints,
- includes the standard you want to print towards (an ISO standard, linear printing...),
- results in the best possible **curve(s) and screen(s)** to achieve the quality of that standard with your production workflow.

If you do not have a license for the Print Control Wizard but you think it might be a good fit for your workflow, please contact your Esko representative.

#### Using a Printing Condition

After [making your printing condition in the Print Control Wizard](#), you use it when RIP'ing your jobs with Imaging Engine to get great results on press.

**Important:**

- You can only use a printing condition if the **icPrintingCondition** license is available.
- You can only use a printing condition that you have **completed** (you can see a green check  in the Print Control Wizard).

If you are still working on your printing condition in the Print Control Wizard, you will not be able to select it in Imaging Engine yet.

- After making a printing condition for your production workflow, you should always use it in Imaging Engine when printing with that production workflow.

If you make changes to your workflow (for example you print on a different substrate, or you switch to a different ink vendor), we recommend you make a new printing condition in the Print Control Wizard.

There are different ways to select a **Printing Condition**:

- By selecting the **Printing Condition** from the drop-down list.
- By using a **SmartName** that resolves to an available Printing Condition. The task will fail if the SmartName does not resolve to a printing condition.
- By using a **public parameter**. The public parameter input follows the same rules as a SmartName.

The default selection is **None**.

### Selecting a Printing Condition

When you select a printing condition, the following settings will be automatically filled in the **Image to Screened Separations** ticket.

- The output *file type* will be set to **LENX**.
- The output *resolution* will be set to **4000ppi**.
- No *plate curve* will be selected and *press curves from the input file* cannot be used (as the printing condition already has a curve).
- Default **Screen** and **Curve** parameters are provided by the printing condition.
  - If the selected printing condition is an old printing condition (generated using the Print Control Wizard application) the press curve will be a `.prsync` file and you will be able to select a different press curve.
  - If the selected printing condition does not include default values for screens or curves, you will be able to select the dot, ruling, angle set and press curve manually (but the selected parameters will only be applied to the screens, without default values from the printing condition)
  - You can choose to use all the screen and curve values, or only angles or rulings (or both) from the file rather than from the printing condition.
  - You will still be able to set custom values for each separation manually by changing it in the preview table.
- In the ink preview table, you will see the screen based on values from the input file, the printing condition and custom settings.
- *Print simulations files* will be generated by default, but you can choose not to generate them.
- *Dot cleanup* will be selected and the printing condition will set the *Ruling* and *Minimum Dot Size*. Pixels will be used as the **Minimum Dot Size Unit**.

If you choose a different printing condition, the settings will change according to the new printing condition.

**Note:** The custom values set by using the preview table will remain the same even if you change the printing condition.

The settings automatically filled by the printing condition cannot be changed except for **Dot cleanup** and **Print Simulation** settings. If you change the **Ruling** or **Minimum Dot Size** to a different value, a warning will be shown.

If you select a printing condition and then deselect it and change to `none`, all settings will remain except for the default screen and curve parameters, and dot cleanup settings.

### Using a SmartName

Using a **SmartName** will affect the same settings as a printing condition, but you will be able to overrule the defaults provided for the following settings:

- Default Ruling and Minimum Dot Size for Dot Cleanup.
- Default PressCurve, Angle Set, Dot and Ruling.

## 6.4.2. General

1. Define what **Page Box** of the input PDF you want to RIP.

You can either select **Media Box**, **Trim Box**, or insert a SmartName `[ ]` that must resolve to either `media` or `trim`.

After selecting your file's page box you will see its dimensions under the **Page Box** option.

2. If your input file is a multi-page PDF, select which **Pages** you want to RIP:

- a) First select **All pages**, **Odd pages only** or **Even pages only** in the **Pages** option.

You can also insert a SmartName resolving to either `All`, `Even` or `Odd`.

- b) Then you can refine your selection by entering page numbers or a **Page Range**.

You can separate page numbers by a comma, or use a dash to indicate a page range (for example `3, 6-9`). You can also use a SmartName resolving to page numbers and/or page ranges using this same format.

**Note:**

- Page numbers are always physical pages. If your document starts with page 5, you should not use 5 but 1 to get the first page.
- If you enter page numbers that are not part of your document, they will be excluded from the output (all the other valid pages will be RIP'ed).
- If you enter the same page(s) more than once (for example `1, 1-2`), it/they will only be output once.
- Pages are RIP'ed in the order of the document (entering `5-1` will be automatically changed to `1-5`).

3. If you want to invert your output so it is compatible with the output device or software system that will process it, click **A**.

You can also click **I** or **Edit...** to insert a SmartName that must resolve to 1 or `true` (to invert the output), or to 0 or `false` (to leave the output as it is).

4. If you want to mirror your output so it is compatible with the output device or software system that will process it, click **M**.

You can also click **I** or **Edit...** to insert a SmartName that must resolve to 1 or `true` (to mirror the output), or to 0 or `false` (to leave the output as it is).

5. If you want to add a **SmartMark** to your output file(s), select it in the **SmartMark** list, or use a SmartName that will resolve to the SmartMark name.

A **SmartMark** is a mark whose content is variable, so you can make it display information about that specific job. For example, you can include some of the parameters used during RIP'ing in your output file(s) by using a SmartMark.

You need to:

- a) First create the SmartMark you want to use in **PackEdge** (see the **SmartMarks** section in the PackEdge manual for details).

You can create either:

- a SmartMark with RIP-specific parameters,

Use this SmartMark parameter in PackEdge:	to display this value from the Imaging Engine parameters:
Device	the <i>imaging device</i> you used
Image	whether you inverted your output
Emulsion	whether you mirrored your output
V Distortion	the <i>vertical distortion</i> you applied to your output file(s)
H Distortion	the <i>horizontal distortion</i> you applied to your output file(s)
Resolution	the <i>resolution</i> of your output file(s)
Dot shape	the <i>screen or dot shape</i> you used on your separation(s)
Screen Angle Direction	the <i>screen angle direction</i> you chose to output your file(s)
Plate Curve	the <i>plate curve</i> you applied to your separation(s)

Use this SmartMark parameter in PackEdge:	to display this value from the Imaging Engine parameters:
Correction Curve	the <i>correction curve</i> you applied to your separation(s)
Screen based DGC	the curve strategy you applied as a <i>press curve</i> to your separation(s)(if you used a curve strategy)
DGC	the single curve you applied as a press curve to your separation(s)(if you used a single curve)

- another type of SmartMark (for example a corner mark).

If your PackEdge application is linked to your Automation Engine server, your SmartMark will automatically be saved in the correct location and will be available in Imaging Engine.

- b) Then select that SmartMark in your **Imaging Engine task**.

The SmartMark will be added to each output file generated from your input file.

### 6.4.3. Transformations

Use the **Transformations** settings to rotate or distort your output relative to your input file.

1. If you want to rotate your file's contents, select the **Rotation** you want to apply here.

This can be:

- **0°**
- **90° Counter Clockwise**
- **180°**
- **90° Clockwise**



Any other value will give an error.

**Note:**

- You can use a SmartName that resolves to 0, 90 (for **90° Counter Clockwise**), 180 or 270 (for **90° Clockwise**).
- You need to use a numerical value (*ninety* will not work).
- This is a public parameter, that you can fill in when submitting files through Shuttle.

2. If you want to apply **Distortion** to your file's contents, select the type of distortion to apply:

- a) **Flexo distortion**

If you want to apply **Flexo distortion**, enter the vertical  and horizontal  distortion percentages to use.

You can enter numerical values, or insert SmartNames that resolve to numerical values (without the % sign).

**Note:**

- The values should be within the 85%-115% range. If you enter a percentage outside of this range it will be automatically adjusted to the nearest value in the range (for example 80 will be adjusted to 85%).

However, if you use a SmartName that resolves to a percentage outside the range, the task will end in error.

- You can enter a simple formula and it will be calculated automatically (for example you can enter `100+2` and this will be changed to `102%`). This only works with numerical values and not with SmartNames.

b) **Values from file**

If you selected **Values from file** and the input file contains distortion values, you will see these in the fields below (greyed out)

**Note:** The values should be within the 85%-115% range. If the input file's distortion values are outside of this range, the task will end in error.

c) **No distortion**

This is the default option and no distortion will be selected.

You can also use a SmartName that resolves to `Flexo`, `File` or `Not`.

### 6.4.4. PDF Objects

Use the **PDF Objects** settings to define:

- how to color manage RGB objects in your input file,
- what dot gain compensation to apply to your input file's images.

All parameters in this tab are public parameters, that you can fill in when submitting files through Shuttle.

1. In **Default RGB Profile**, specify the profile to use if no profile is specified for a certain RGB object in the input file. The default is `srgb.icc`.

You can use a SmartName that resolves to the full profile name.

2. Select what output profile you want to use when converting RGB objects to CMYK:

- If you want to use the output profile from the input file (if there is one available), leave **Use output intent from file** selected (it is selected by default).
- If you don't want to use the output profile from the input file, deselect **Use output intent from file** and specify the output profile to use in **Output Color Profile**.

This output profile will also be used if there is none available in the input file.



The default is `ISOcoated_v2_300_eci.icc`.

For the **Use output intent from file** option, you can use a SmartName that resolves to `true` (to use the file's profile) or `false` (to not use it).

For **Output Color Profile**, you can use a SmartName that resolves to the full profile name.

3. Select **Use PDF transfer curves** if you want to use:

- the [Dot Gain Compensation curves](#) attached to the images in your input PDF. These curves compensate for the unwanted characteristics of the device that created the images (scanner, digital camera...).
- the **Color Correction curves** added by ArtPro+ version 20 and higher. These curves allow you to correct individual separations for color deviations on proof from the reference proof. The correction will be applied on both the proof and the production files.

**Note:**

You can only use the correction curves if the Color Correction curves option is enabled in the global Imaging Engine configuration.

Please contact Esko Support for assistance.

Aside from these curves applied on individual images or separations, you can still apply:

- a [plate curve](#) (to compensate for the dot growth or reduction -for example in Digital Flexo-happening when making the plate)
- and/or a [press curve](#) (to compensate for the dot gain on press)

... to the full file(s) before output.

You can use a SmartName that resolves to `true` (to use the input file's curves) or `false` (to not use them).

4. If you experience issues with a font that doesn't look smooth enough at your selected resolution, your font may have **font hinting errors**.

Font hinting is the rendering of the outline (vectorized) font to pixels. For certain fonts, this rendering sometimes doesn't give a visually pleasing result, especially at low resolutions. In the image below, the top font has font hinting errors, the bottom font doesn't.



Label Pack  
Label Pack

Choose how to handle files containing font hinting errors:

- Leave **Task ends in error when the job contains font hinting errors** selected if you want the task to end in error when encountering font hinting errors. You can also use a SmartName resolving to `true`.
- Deselect **Task ends in error when the job contains font hinting errors** if you want to output your file anyway, whether it has font hinting errors or not (your task will end with a warning). You can also use a SmartName resolving to `false`.

This may lead to reduced quality rendering of the text, but it will not generate incorrect characters in your output file.

5. If your PDF+ input file has linked artwork and the external reference files have been modified, the changes do not get updated automatically in the PDF+ file. This will result in outdated data in the input as well as output files.

Choose how to handle files containing **outdated linked artwork**:

- Select **Task ends in error when linked artwork is not up to date** if you want the task to end in error if the input file contains outdated external references. You can also use a SmartName resolving to `true`.
- Deselect **Task ends in error when linked artwork is not up to date** if you want to output the file anyway, whether the references are outdated or not (your task will end with a warning). You can also use a SmartName resolving to `false`. This is the default option.

### 6.4.5. Processing Steps

Your PDF input files may contain additional objects and metadata that will not be used for printing. These correspond to additional processing steps a job needs to go through after printing: for example die cutting, creasing, etc.

Imaging Engine and Pack Proof display the processing steps associated with the layers in your input file (or files placed in it) in the **Processing Steps** tab.

The list of processing steps that you see depends on various factors like the number of jobs you select, the input file type, etc.

- If you select only one job, only the printable processing steps are listed under the **Processing Steps** tab. Layers which are set as unprintable will not be listed as processing steps.
- If you select multiple jobs or if you don't select any job, all the supported processing steps are listed.
- If your input file contains no layers, the processing steps tab will display an empty table with a "No printable processing steps found" message.
- If you select input files that are not PDF files, the **Processing Steps** tab will not be visible as processing steps are only applicable to PDF files. For example, for Normalized PDF files, the **Processing Steps** tab will always be hidden.
- If your input file contains layers that do not have equivalent processing steps in Imaging Engine/ Pack Proof, those layers will not be listed under this tab.

**Note:** Adobe Illustrator layers can also be used as processing steps though they are not the same as PDF layers.

### Processing Steps - Groups and Types

### Groups

In the ISO 19593 standard, the types of processing steps are grouped as follows:

- **Structural Data:** A collection of contours that describe how the printed product will be finished to produce a 3D end product from a flat substrate. These are as lines defining cutting, creasing, folding etc. The types of this group are listed below.
- **Positions:** Objects that indicate intended, allowed or forbidden positions for certain types of elements. For example, the positions on a flap of a carton where content is allowed. The types of this group are listed below.
- **Braille:** Braille characters that are applied after printing, typically by a die cutter or inkjet device.
- **Legend:** Job related data added outside the boundaries of the actual printed products.
- **Dimensions:** Indications of the physical sizes.
- **White:** White ink to be printed on a transparent or metallic substrate.
- **Varnish:** Indicating the application of varnish after printing.

Imaging Engine and Pack Proof also include the **Esko\_PlateCutting** custom processing step by default.

### Types of "Structural Data" Processing Steps

Group	Type	Description
Structural Data	Cutting	Processing step objects indicating where the printed artwork will be cut from the printed sheet for example with a guillotine cutter or die cutting device.
Structural Data	PartialCutting	Processing step objects indicating where the substrate will be cut partially (not entirely through the material).
Structural Data	ReversePartialCutting	Processing step objects indicating where the substrate will be cut partially (not entirely through the material) on the back side of the substrate.
Structural Data	Creasing	Processing step objects indicating where the substrate will be creased to guide subsequent folding.
Structural Data	ReverseCreasing	Processing step objects indicating where the substrate will be creased on the back side of the substrate.
Structural Data	CuttingCreasing	Processing step objects indicating where the substrate will undergo alternating cutting and creasing.
Structural Data	ReverseCuttingCreasing	Processing step objects indicating where the substrate will undergo alternating cutting and creasing on the back side of the substrate.
Structural Data	PartialCuttingCreasing	Processing step objects indicating where the substrate will undergo alternating partial cutting and creasing.
Structural Data	ReversePartial-CuttingCreasing	Processing step objects indicating where the substrate will undergo alternating partial cutting and creasing on the back side of the substrate.
Structural Data	Drilling	Processing step objects indicating locations where the substrate will be drilled and the intended size of the resulting hole.
Structural Data	Gluing	Processing step objects enclosing an area where glue will be applied.

Group	Type	Description
Structural Data	FoilStamping	Processing step objects enclosing an area where foil will be applied through hot foil stamping.
Structural Data	ColdFoilStamping	Processing step objects enclosing an area where foil will be applied through cold foil stamping (using glue).
Structural Data	Embossing	Processing step objects enclosing an area where embossing will be applied.
Structural Data	Debossing	Processing step objects enclosing an area where debossing will be applied.
Structural Data	Perforating	Processing step objects indicating where the substrate will be perforated.
Structural Data	Bleed	Processing step objects indicating the intended bleed for print.
Structural Data	VarnishFree	Processing step objects enclosing an area where it is not allowed to have varnish.
Structural Data	InkFree	Processing step objects enclosing an area where it is not allowed to have printing ink.
Structural Data	InkVarnishFree	Processing step objects enclosing an area where it is not allowed to have printing ink and where it is not allowed to have varnish.
Structural Data	Folding	Processing step objects indicating where the substrate will be folded without prior creasing.
Structural Data	Punching	Processing step objects indicating the locations at which the substrate will be punched and the size and shape of the resulting holes.
Structural Data	Stapling	Processing step objects indicating the locations at which the substrate will be stapled or stitched, and the size of the staples or stitches to be used.

### Types of "Positions" Processing Steps

Group	Type	Description
Positions	Hologram	Processing step objects that indicate the intended position of holograms.
Positions	Barcode	Processing step objects that indicate the intended position of barcodes.
Positions	ContentArea	Processing step objects that indicate areas where it is allowed to place text and other graphical elements.
Positions	CodingMarking	Processing step objects specific to packaging that indicate areas where additional information not contained in the PDF will be printed on the packaging at a post-press stage, such as on filling lines where final products are being packed. Some examples of information that might be marked as CodingMarking include but are not limited to best before dates, lot numbers, production dates, and tracking codes.

Group	Type	Description
Positions	Imprinting	Processing step objects that indicate areas where additional information (for example variable data) will be printed on pre-printed shells which contain the bulk of the graphical content, as a secondary print stage prior to finishing.

## Using Processing Steps

### Deselecting Processing Steps

Use the processing steps settings to deselect the processing steps that should not appear in the output. All the processing steps will be selected by default.

You can use the checkboxes to deselect or select a processing step or a group. When you deselect a group, all processing steps that are part of the group will be deselected.

Inks that are only related to deselected or non-printable processing steps will not be displayed in the inks tab or separations tab.

### Custom Processing Steps

Custom processing steps can be added manually in the **Processing Steps** tab. Adding custom processing steps will be useful when you want to reuse the same ticket with the selected/deselected processing steps settings for different files.

You can add or remove custom processing steps using the add and remove buttons at the bottom of the tab.

**Note:** The same custom processing step cannot be added twice.

## 6.4.6. Inks

Use the **Inks** settings to select which separations of the input file(s) you want to RIP.

For example, you can use these settings to exclude technical and/or varnish inks from your output.

You can choose to RIP either:

- **All** separations.
- A number of separations you select **Manually**.
- A number of separations you select **by using selection criteria**.

Selection criteria are rules that you define to select separations automatically for you when the task is launched on a file.

Selecting separations manually is the easiest option, but you can only do it on a file by file basis (when you launch the task on a single input file).

Using selection criteria is more advanced but also more powerful than selecting separations manually, and you can do it anytime (when launching the task on one or more input files, when using the task in a workflow, when defining ticket settings...).

Therefore, we recommend that you first try selecting separations manually when running the task on individual files, then switch to using selection criteria to automate your workflow further.

**Tip:**  
 To get used to working with selection criteria, try the following on a few of your files:

1. select the separations you want to output manually,
2. then change **Select Inks** to **by using selection criteria** and see which rules have been created based on your manual selection.


For more information, see [Selecting Inks Manually](#) on page 158 and [Selecting Inks Using Selection Criteria](#) on page 159.

**Tip:** You can also make the ink selection parameter public so that an operator can set it [through Shuttle](#) as needed for each job. See [Selecting Inks through Shuttle](#) on page 162 for more information.

### Selecting Inks Manually

**Note:** You can only select inks manually when you are launching the task on a (single) file, not when you are defining a generic ticket without an input file.

When choosing to **Select Inks Manually**, you will see a table containing all of your document's inks, showing each ink's:

<b>Ink Name</b>	
<b>Ink Book</b>	If an ink book is not present in your color database, it will show here as <unregistered "">.
<b>Ink Index</b>	<p>The <b>ink index</b> is the order in which the file's inks will be printed (the ink with ink index 1 is at the bottom of the document and will be printed first).</p> <p>If your file has several of the same ink, they will have the same ink index, and the next ink will have the next one (for example two Cyans will both have ink index 1, then Magenta will have ink index 2).</p> <p>This means that when selecting inks for processing, both Cyans will be selected together and handled the same way.</p> <p><b>Tip:</b>                  To find the ink index of a file:</p> <ol style="list-style-type: none"> <li>1. select the file in the Automation Engine Pilot's <b>Files</b> view,</li> <li>2. click ,</li> <li>3. in the <b>Info</b> dialog that opens, select <b>Inks</b> in the left panel.</li> </ol> <p>The order of the inks at right is the ink index (the topmost ink has an index of 1, the second of 2, etc.).</p> <p>Note that if you reorder the inks by one of the columns (for example by <b>ink name</b>), they won't be ordered by ink index anymore. You will need to close that dialog and reopen it to see the ink index order again.</p>
<b>Spot Ink Index</b>	The <b>Spot Ink index</b> is the order in which a spot ink will be printed (when counting only spot inks and not process inks).

	<p>For example, if the first 4 inks of the document are CMYK, the first spot ink will have 5 as <b>Ink Index</b> but 1 as <b>Spot Ink Index</b>.</p> <p>As for the ink index, if your file has several of the same spot ink, they will have the same spot ink index, and will be handled together when you select them.</p>
<b>Ink Type</b>	This can be for example <i>Normal, Technical, Varnish...</i>
<b>Printing Method</b>	<p>If you have set a <b>Printing Method</b> for an ink it will be shown here (this can be for example <i>Offset, Gravure, Flexo...</i> or any custom printing method you configured).</p> <p>See the Automation Engine documentation for more information about printing methods.</p>

Select the ink(s) you want to RIP, or select the toggle in the table header to select/deselect all inks.

### Selecting Inks Using Selection Criteria

If you don't want to [select inks manually](#) every time, you can define some rules to automatically select certain inks in your input file(s).


You can do this:

- either when running the task on one or more files, or when creating a task ticket to use later,
- by choosing to **Select Inks by using selection criteria** in the **Document Inks** settings.

#### How Does it Work?

You select the inks to be output by checking a combination of criteria:

1. You define what to check. You can check any of the following ink characteristics in your criteria:

<b>Ink name</b>	
<b>Ink book</b>	
<b>Ink index</b>	<p>The <b>Ink index</b> is the order in which the file's inks will be printed (the ink with ink index 1 is at the bottom of the document and will be printed first).</p> <p>To find the ink index of a file:</p> <ol style="list-style-type: none"> <li>1. select the file in the Automation Engine Pilot's <b>Files</b> view,</li> <li>2. click ,</li> <li>3. in the <b>Info</b> dialog that opens, select <b>Inks</b> in the left panel.</li> </ol> <p>The order of the inks at right is the ink index (the topmost ink has an index of 1, the second of 2, etc.).</p> <p>Note that if you reorder the inks by one of the columns (for example by <b>Ink name</b>), they won't be ordered by ink index anymore. You will need to close that dialog and reopen it to see the ink index order again.</p>
<b>Spot ink index</b>	<p>The <b>Spot ink index</b> is the order in which a spot ink will be printed (when counting only spot inks and not process inks).</p> <p>For example, if the first 4 inks of the document are CMYK, the first spot ink will have 5 as <b>Ink index</b> but 1 as <b>Spot ink index</b>.</p>

<b>Ink type</b>	This can be for example <code>Normal</code> , <code>Technical</code> , <code>Varnish</code> ...
<b>Printing method</b>	If you have set a <b>Printing method</b> for an ink it will be shown here (this can be for example <code>Offset</code> , <code>Gravure</code> , <code>Flexo</code> ... or any custom printing method you configured).  See the Automation Engine documentation for more information about printing methods.

For example, you can check whether the **Ink book is** `process`, whether the **Ink name is** `yellow`...

You can use as many criteria as you want.

**2.** You define how to combine your criteria into a rule. For example:

- If you want to output only process yellow, you should check for inks that match **both** of the criteria:

**Ink book is** `process`  
**Ink name is** `yellow`

- If you want to output both all process inks and all yellow inks, you should check for inks that match **either** of the criteria:

**Ink book is** `process`  
**Ink name is** `yellow`

- If you don't want to output any process inks or any yellow inks, you should check for inks that match **neither** of the criteria:

**Ink book is** `process`  
**Ink name is** `yellow`

**How Do I Build Rules?**

Build your rules the following way:

**1.** Choose how to combine the criteria in your rule:

- Select **All of the following are true** if you want to only select the inks that match **all** of the criteria you define.
- Select **Any of the following are true** if you want to select all the inks that match **at least one** of the criteria you define.
- Select **None of the following are true** if you want to only select the inks that match **none** of the criteria you define.

**2.** Define your first selection criterion.

You can select an ink based on its:


- **Ink name:** you can define if it **contains/begins with/ends with/is** a piece of text (alphanumerical characters), or if it **is empty**.
- **Ink book:** you can define if it **contains/begins with/ends with/is** a piece of text (alphanumerical characters), or if it **is empty**.



- **Ink index:** you can define if it **equals/is less than/is greater than** the number you enter, or is **is between** the two numbers you enter (in this case the ink indexes you enter as boundaries are also selected).
- **Spot ink index:** you can define if it **equals/is less than/is greater than** the number you enter, or is **is between** the two numbers you enter (in this case the spot ink indexes you enter as boundaries are also selected).
- **Ink type:** you can define if it **is** a piece of text (alphanumerical characters).
- **Printing method:** you can define if it **is** a piece of text (alphanumerical characters).

For example, you could use:	to:
<b>All of the following are true</b> <b>Ink book is</b> <code>designer</code>	select all inks from the "designer" ink book
<b>None of the following are true</b> <b>Ink name is</b> <code>crease</code>	exclude an ink called "crease"
<b>None of the following are true</b> <b>Ink type is</b> <code>Technical</code> <b>Ink type is</b> <code>Varnish</code>	exclude all technical and all varnish inks

**Tip:**

- You can enter several values to check for: just use a semicolon (;) between them.  
For example, to check for both inks called `Cyan` and inks called `Magenta`, choose **Ink name is** and enter `Cyan;Magenta`.
- When launching the task on a file, you can also click  to select one or more of the **Ink names/Ink books/Ink types/Printing methods** used in your input file(s).  
A criterion will automatically be created based on your selection.

**3.** Click + to add more criteria and define them.

To remove a criterion, click - next to it.

**Tip:** If you are launching the task on a single input file, you will see a table listing the **Selected document inks**, and another table with the **Document inks that are not selected** under the rules you defined.



**Attention:** If no ink is selected, you cannot launch the task.

### Switching How You Select Inks

You can switch between the two methods of selecting inks (*manually* and *using selection criteria*), and this will keep the same inks selected.

### Switching from Selecting Inks Manually to Selecting Inks Using Selection Criteria

When switching from selecting inks manually to selecting inks using selection criteria, the task will translate your manual ink selection into rules, so that the same inks are selected (you can see them in the **Selected document inks** table).

The rules you get are based on the characteristics of the inks you selected.

For example, if you selected all the process colors but no spot color in your file, for an offset job, you will get the following rule:

**All of the following are true**

**Ink name is** Cyan;Magenta;Yellow;Black

**Ink book is** process

**Ink type is** Normal

**Printing method is** Offset

**Note:**

If you...

- first selected inks using selection criteria,
- then switched to manual selection without changing the selection,
- then switched back to selection criteria,

... then your rules will be kept.

If you did change the selection in manual mode, the task will automatically generate new rules.

### Switching from Selecting Inks Using Selection Criteria to Selecting Inks Manually

When switching from selecting inks using selection criteria to selecting inks manually, all the inks selected by the rules you defined (the inks in the **Selected document inks** table) become selected manually.

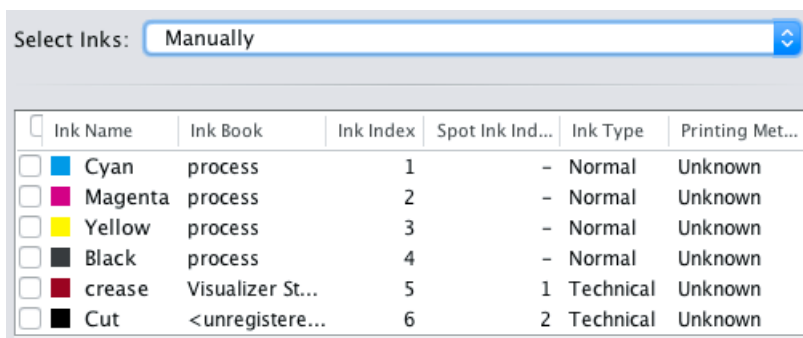
**Note:** You can only switch to selecting inks manually when you are launching the task on a (single) file.

### Selecting Inks through Shuttle

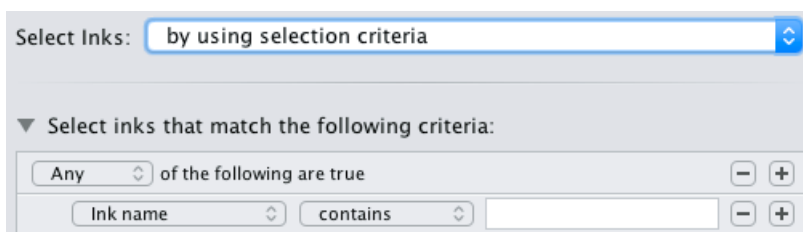
If you want to be able to decide which inks to RIP when submitting your input file [through Shuttle](#), do the following:

**In Your Imaging Engine Ticket**

1. To make the ink selection a public parameter, you can either:
  - Right-click **Select Inks** and choose **Make Parameter Public**.
  - If you (are currently launching the ticket on a file and) have chosen to [select inks manually](#), right-click the preview table under **Select Inks** and choose **Make Parameter Public**.

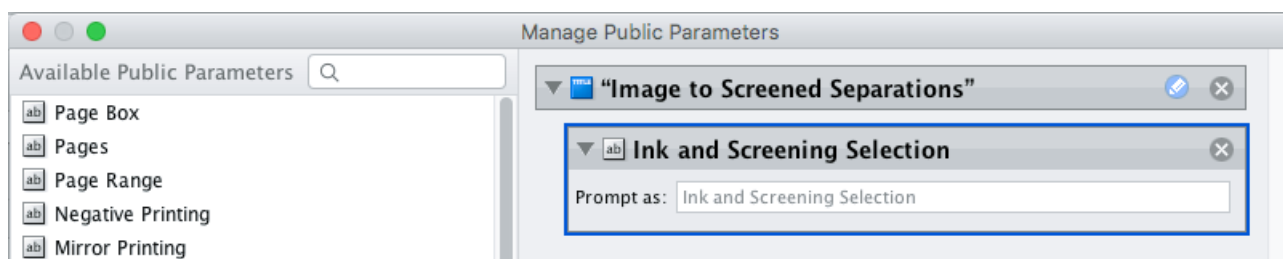


- If you have chosen to *use selection criteria*, right-click the rules builder under **Select Inks** and choose **Make Parameter Public**.



**Note:** You will not be able to create rules using Shuttle, you will only be able to select inks manually.

- Go to **Advanced > Manage Public Parameters...**, find the **Ink and Screening Selection** parameter at the bottom of the list, and drag it to the right hand side.

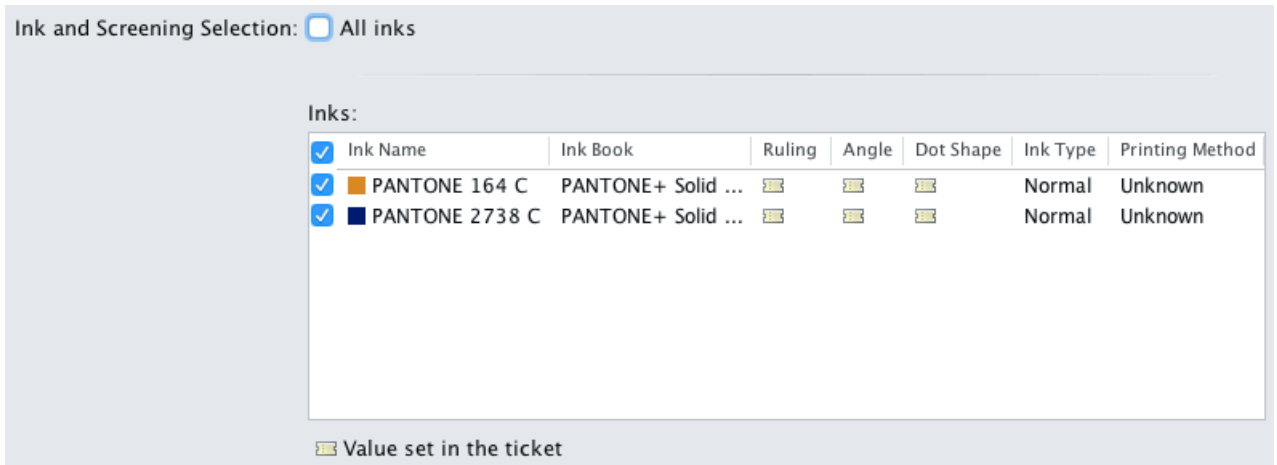


2. By default, the public parameter that appears in Shuttle will be called **Ink and Screening Selection**. You can change its name by:
  - right-clicking one of the elements mentioned above, selecting **Modify Public Parameter** and entering a new name,
  - if you are using the **Manage Public Parameters** window, entering the new name in **Prompt as**.
3. Make sure your ticket is also **Public**.

### In Shuttle

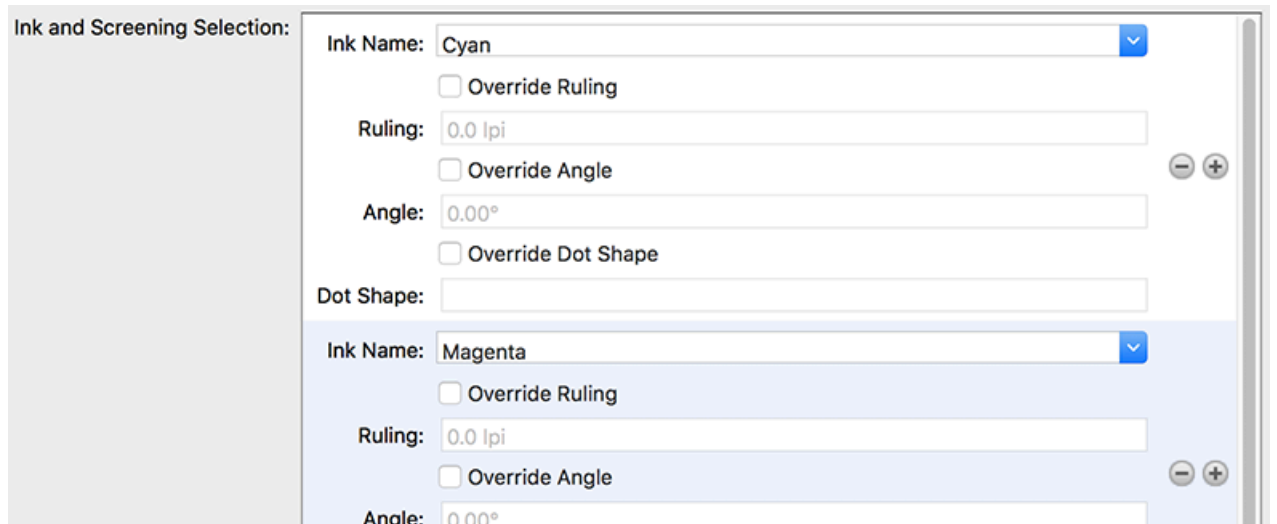
The ink selection parameter may look a bit different depending on which Shuttle you are using (the Shuttle standalone application or a Shuttle plug-in in an Editor application).

- In the Shuttle standalone, the ink selection parameter will look like this:



The table shows a preview of all inks in your input file, with their characteristics.

- To RIP all inks from your input file, either leave all inks selected in the preview table, or select **All inks** at the top (this will hide the preview table).
- To only RIP certain inks, make sure **All inks** is not selected, and deselect the input inks that you don't want to RIP.
- In ArtPro for example, the ink selection parameter will look like this:



By default, all the inks from your input file will be RIP'ed, but you can remove any ink you don't want to RIP using the button.

**Note:** This public parameter also enables you to choose the screening parameters to use for the inks you want to RIP. See [Selecting Screening Parameters through Shuttle](#) on page 192 for more information.

## 6.4.7. Output

Use the **Output** settings to define what type of output you want and where to output it.

You can set these through public parameters or using SmartNames.

1. Enter your output **File Name** and output **Folder**.

**Note:**

- You can use Imaging-specific SmartNames for the **File Name**.  
By default, it is set to:
  - [File]\_[ShortInk] for single page input files (which gives output file names like Myfile\_C.tif),
  - [File]\_p[Page]\_[ShortInk] for multi-page input files (which gives output file names like Myfile\_p1\_C.tif).
- The **File Name** and **Folder** can contain special characters (except \ / : \* ? < > " |).
- The whole path to the output file (including the container, **Folder** and **File Name**) can be up to 255 characters.
- You can set a local or remote URL for the output **Folder**, but it must be an absolute path.
- If your output folder doesn't exist yet, the task will create it if the location you request is valid (you should place this folder on an Automation Engine container accessible by your Automation Engine user).  
If the output folder creation fails, please check the task log for the full list of conditions and adapt your output folder path accordingly.

2. Define what to do if a file of the same name already exists in your output folder:


a) Click **Set Overwrite Policy...**

b) Choose what to do **If files exist already**. You can either:

- **Extend the file name** if you want to keep the existing output file and give the new output file a different name. In this case, your new output file name consists of:
  - the **Output file name** (the **File Name** you set earlier) - which is what the file would be called if no file with the same name existed,
  - a custom suffix that you can define using plain text and/or SmartNames (by default, this is \_c, for "copy"),
  - an automatic suffix made of the three last digits of the task **ID**,

**Tip:**

To see the task ID of your tasks:

1. Go to the Pilot's **Tasks** pane (in the **Files** or **Tasks** view).
2. Go to **View > Select Columns in 'Tasks'...**
3. In the **Columns** dialog, select **Task ID** in the **Available columns** list and click  to move it to the **Show these columns:** list.
4. Click **OK**.
5. You now have a **Task ID** column in the **Tasks** pane, listing the task ID of all the tasks.

- the file extension.

For example, you are working with a CMYK input file called `file.pdf` and you have left the tasks' output **File Name** to its default value (the SmartName **[File]**).

The first TIFF files you generate will be called:

- `file_C.tif`
- `file_M.tif`
- `file_Y.tif`
- `file_K.tif`

If you generate output from this input file again, with the task 3669, and you have set the overwrite policy to **Extend the file name** with the default **Output File Name + \_c + ID** name, the new output files will be called:

- `file_C_c669.tif`
- `file_M_c669.tif`
- `file_Y_c669.tif`
- `file_K_c669.tif`

**Tip:**

- If you are working with the Bitmap Viewer, we recommend you keep the default overwrite policy (**Output File Name + \_c + ID**), which is compatible with the Bitmap Viewer.
- If you are not, you can define the custom suffix as you wish. For example, you could use date and time SmartNames.

- **Overwrite** the existing file(s).
- **End the task in error**.

**Note:** If you use a SmartName to set this, it must resolve to `extend` or `0` (for **Extend the file name**), `overwrite` or `1` (for **Overwrite**), or `error` or `2` (for **End the task in error**).

- c) Click **Set**.
3. Select the output **File Type** you want to generate.

**Note:**

The file formats you can generate with your Imaging Engine software depend on your license. Please contact your Esko sales representative for more information.

See [File Formats](#) on page 50 for more information about the different file formats.

You can choose to generate:

- a **TIFF File**,
- a **PDF File**,
- a **LENX File**,

**Note:**

- If you are using a [printing condition](#), the output files are always **LENX**.
- You need to output to **LENX** if you are using [Crystal screens](#) (either if you select a CRS screen in the ticket -in the [default screening settings](#) or with an [exception-](#), or if the screening settings in your input file contain one or more Crystal screens).
- In versions of Imaging Engine before 20.1, you could only generate **LENX** files together with Crystal screens and a [resolution](#) of 4000 ppi. In newer versions, you can also use the LENX format with other dots/screens and resolutions.
- To make plates from your **LENX** files, you need a CDI Crystal with version 18.1 or newer of the Grapholas/Digital Flexo Suite software.

- a **LEN File**.



**Attention:**

If you use [Crystal screens](#) and you set the output file type to **LEN**, you will get a warning that you need to switch to **LENX** and the task will not launch (when launching the task manually), or it will switch to **LENX** automatically and end in a warning (in a workflow or when using a SmartName resolving to **LEN**).

However, you can use LEN:

- if your input file does not contain Crystal screens,
- if you make [exceptions](#) to use other screens than the Crystal screens from your input file,
- if you choose not to [use the dot shape from your input file](#).

**Note:**

If you are opening or launching old tickets set to use **LEN/LENX** as **File Type**, the file type will automatically become:


- **LENX** if crystal screens are present,
- **LEN** if crystal screens are not selected.

4. The task generates *separated* output for all file types. This means you get one output file per page of the input file, and per output separation.

The **File Assembly** is automatically set to **1 File Per Separation**, and the **Output Type** set to **Separate** (for all file types).

**Note:**

- Every output file that Imaging Engine generates contains XMP metadata (information about file creation, separations, calibration curves, etc.).

You can view this XMP metadata by selecting your output file in the Automation Engine Pilot's **Files** view and clicking .

For more information about XMP metadata, see the **XMP Metadata white paper** under **Related Documentation** on the [documentation page of your Imaging Engine version](#).

- TIFF files produced by Imaging Engine are fully compatible with Esko's Bitmap Viewer and DotSpy.
- LEN files produced by Imaging Engine are fully compatible with Esko's CDI (Cyrel Digital Imager), just as LEN files produced by FlexRip.
- LENX files produced by Imaging Engine are compatible with version 18.1 of the Grapholas/Digital Flexo Suite software accompanying your CDI.

5. Choose the **Compression** to use for your output files.

**Note:**

For screened output, all available compression methods are lossless (so you don't lose any of the high-resolution detail).

You should choose a compression method based on the compression speed and the compressed file size. Typically, faster compression methods compress the file less, so the output file is bigger.

Note that TIFF files can be a maximum of 4GB, PDF files 12GB, and LEN files are unlimited. Files using stochastic screening are generally larger.

- For **TIFF** output, choose either:
  - **PackBits**, a fast lossless compression method for graphic files.

**Tip:** Use this if you want fast output and file size is not too much of an issue (if you have a fast network for example).



- **LZW**, a lossless compression method for graphic files and other files.

**Tip:** This compression method works best for files with large images.

- **CCITT Group 4**, a lossless compression method only used for files containing black and white.

**Tip:**

- This compression method works best for files with a lot of text.
- Use this if having a small output file is more important than processing speed (for example, if you want to store your screened files on a server to rerun jobs later, or if you are working with really large input files that may give screened TIFFs of over 4GB).

- For **PDF** output, choose either:

- **PackBits** (see above).
- **Flate**, a lossless compression method similar to zipping, based on the LZW compression.

**Tip:** This compression method works best for images with large single color areas or repeating patterns.

- **CCITT Group 4** (see above).

- For **LENX** output, choose:

- **Flate** (see above).

**Note:** If you have no compression (**None**) selected for LENX output, **Flate** compression will be automatically applied.

- For **LEN** output, choose either:

- **Flate** (see above).
- no compression (**None**).

**Tip:** The **Compression** method offered by default for the output **File Type** you select (**LZW** for **TIFF**, **PackBits** for **PDF** and **Flate** for **LEN** or **LENX**) is generally the best for this file type.



**Attention:**

- When using a SmartName to set the output file's **Compression**, it must resolve to one of the following (case insensitive):
  - **PackBits, LZW** or **CCITT-G4** for **TIFF** output,
  - **PackBits, Flate** or **CCITT-G4** for **PDF** output,
  - **Flate** for **LENX** output.
  - **Flate** or **None** for **LEN** output.

Setting any other value, or an unsupported compression for the file type you chose, will make the task error (with the message **Unsupported combination of output type and compression** in the log).
- If you have already set the **Compression** but decide to change the output **File Type**, by default the task will either:
  - keep the same **Compression** (if it is supported for the new output **File Type**),
  - or (if it isn't), set it to the first **Compression** available for this **File Type**.

You can still change it as desired.

6. If you are using a screen with [advanced screening effects](#), select **Save print simulations** to also generate print simulation files (that you can use for easier quality control).

Print simulation files look like the screened files you are making for production, but with the advanced screening effects removed, so you can open them in the **Bitmap Viewer** and check exactly how your output will look like.

See [Performing Quality Control on Screens with Advanced Screening Effects](#) on page 42 for more information.

**Note:** If you are using a [printing condition](#), Imaging Engine will generate print simulation files by default (as the [Crystal screens](#) in your printing condition may contain advanced screening effects such as Pixel+ and/or support dots).

Imaging Engine creates one print simulation file for each screened separation, and saves the print simulation files in the same place as your screened separations. Print simulation files have a `.view` extension.

For example, if you are generating the following screened separations:

- file\_C.tif
- file\_M.tif
- file\_Y.tif
- file\_Y.tif

and you choose to also generate print simulation files, you will have the following files alongside your screened separations:

- file\_C.view
- file\_M.view
- file\_Y.view
- file\_Y.view

You can then open these .view files in the [Bitmap Viewer](#) for quality control.

**Tip:**

The first time you want to open a print simulation file in the Bitmap Viewer, do the following:

1. Right-click the print simulation file and select **Open With** then **Other...**
2. In the **Select Application** dialog that opens, click **Register...**
3. In the **Register** dialog that opens, click **Browse...** and browse to the executable of your Bitmap Viewer application.

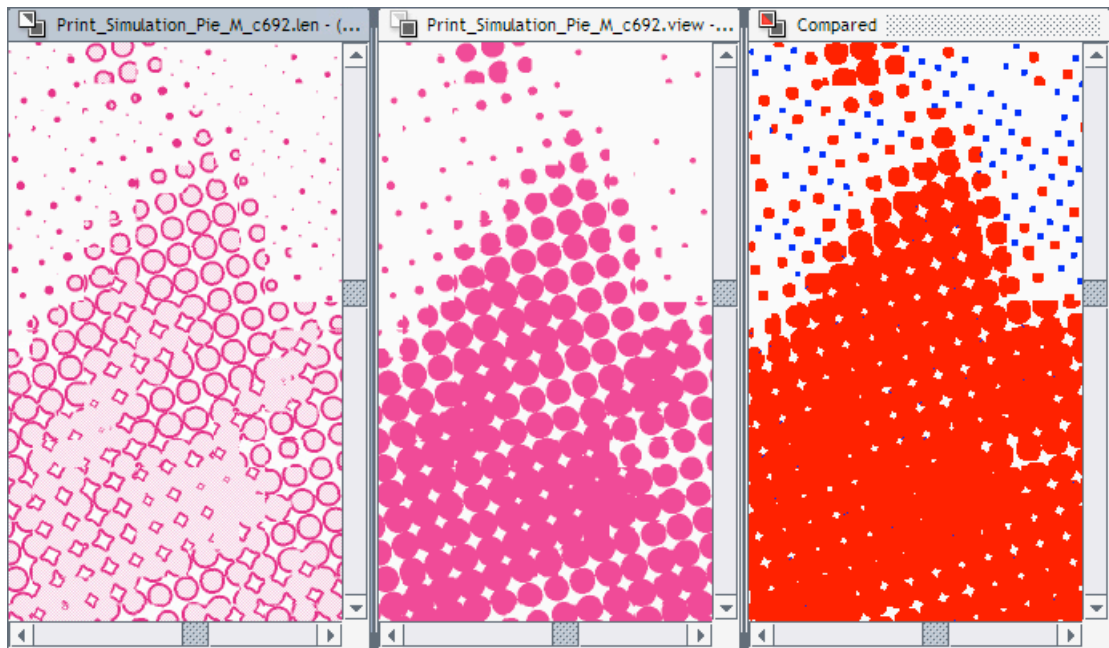
If you installed it in the location proposed by default, the path should look like either:

- C:\Esko\BitmapViewer\_x64\BitmapViewer.exe if you have installed the 64-bit version of the application,
- C:\Program Files (x86)\BitmapViewer\BitmapViewer.exe if you have installed the 32-bit version of the application.

4. Click **OK**.
5. Click **Open** in the **Select Application** dialog.

The next time you want to use the Bitmap Viewer, you can just right-click your file, select **Open With**, and select **BitmapViewer**.

You can also compare the print simulation file and the corresponding screened separation in the Bitmap Viewer (see the Bitmap Viewer documentation for information about comparing files).



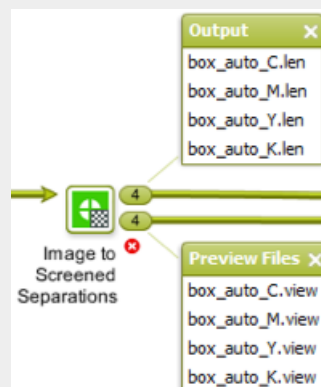
**Tip:**

You can also compare your print simulation files to your input file(s) in the Automation Engine Viewer.

To be able to open print simulation files in the Automation Engine Viewer, you need to either:

- use the **Make all output files ready for viewing** option in your Imaging Engine task,
- use Automation Engine's **Prepare for Viewer** task after your Imaging Engine task in your workflow.

**Note:** If you use the **Image to Screened Separations** task in a workflow and choose to generate print simulations files, they will go through an extra output pin called **Preview Files**.



7. Select **Make all output files ready for viewing** if you are doing quality control using the **Automation Engine Viewer** and:

<p>You are generating <b>TIFF</b> or <b>LEN</b> files.</p>	<p>Use this option to be able to open your output files in the <b>Automation Engine Viewer</b> without needing to use a <b>Prepare for Viewer</b> task.</p> <p>If you don't use this option, you can still use a <b>Prepare for Viewer</b> task later to be able to view your output files in the <b>Automation Engine Viewer</b>. However, this will take more time than already preparing the files for viewing in your Imaging Engine task.</p>
<p>You are generating <b>LENX</b> files.</p>	<p>You need to use this option to be able to view LENX files in the <b>Automation Engine Viewer</b>, as LENX files are not supported by the <b>Prepare for Viewer</b> task.</p>

This prepares both your RIP'ed files and your *print simulation* files (if you are using them) for viewing with the **Automation Engine Viewer**.

As with the **Prepare for Viewer** task, you will see **View (Prepared)** next to the prepared files in the Pilot, and you will be able to zoom in to the files up to their full resolution.

**Note:**

- If you are generating PDF files, you can view them in the **Automation Engine Viewer** without preparation.  
However if you are generating print simulation files for those PDFs (see above), you still need to prepare your files for viewing (as the **Automation Engine Viewer** doesn't open print simulation files natively).
- You can also view TIFF, LEN and LENX files in the **Bitmap Viewer** without preparation.

**8. Set the Resolution of your output files.**

- The **Resolution** unit is taken from the general Automation Engine Preferences.
- You can enter values from 1 to 25400 ppi (or equivalent in your unit). SmartNames must also resolve to a value in that range.
- Values in another unit than the one from the general Preferences will be recalculated, and values like 300ppi + 500ppm will be calculated correctly.

Depending on the **Resolution** you set here, you will have different screen **Rulings** available in the [Separations tab](#).

**Note:**

- If you are using a [printing condition](#), the output file type is set to LENX and the resolution to 4000 ppi automatically.
- If you have an input file with screening settings specifying [Crystal screens](#) or [HD Flexo screens](#), and you try to process it with a saved ticket in which the input file's dot shape *is used* (and not overridden by any [exception](#)), you will get an error.

9. If your input file contains outlines, line art or contoured text, and you notice that they look too thick on print, we recommend you select the **Fine Line Rendering** option.

This will render objects with fine lines, for example Asian characters or barcodes, with a "thin fill".

You can set this option with a SmartName resolving to `true` to use **Fine Line Rendering** or `false` to use the standard rendering (also known as "fat fill").

**Note:** You cannot select both **Fine Line Rendering** and **Compensate for Outline Thickness** for the same job.

10. If your input file contains images, the images' pixels may not map exactly to output pixels if:

- the images' resolution is different from the output resolution you chose,
- scaling and rotation effects change the size and placement of the images' pixels.

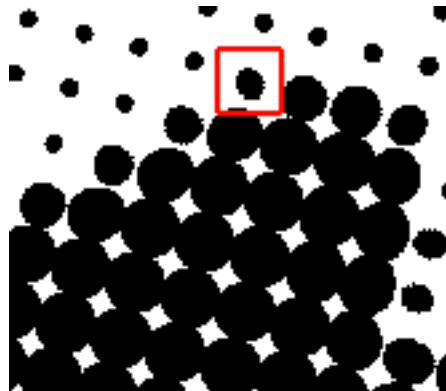
In such cases, you need to resample these images to be able to output them at the same resolution as the rest of the file.

In the **Image Resampling** option, choose the resampling method you want to use (you will have to make a trade-off between processing time and image quality).

- Choose **Auto Resampling** to upsample the images to an automatically calculated resolution (generally half or a third of the output resolution) before smoothing them.

When using this, images are a lot less pixellated and fuzzy.

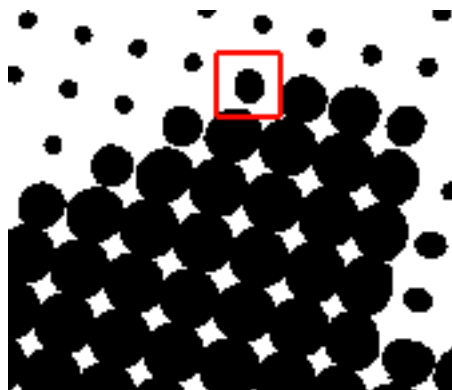
This method is quite slow but gives images of a good quality and reduces the risk of broken dots a lot, so it is recommended in most cases.



You can also use a SmartName resolving to `ResampleAuto`.

- Choose **Full Resampling** to upsample the images to the full output resolution.

This is the slowest method but gives the highest quality images (not pixellated and only very slightly fuzzy), with no risk of broken dots.



Use this if **Auto Resampling** doesn't give you the results you want.

**Attention:**

Resampling to full resolution can require significant amounts of memory when the output resolution is high (especially from 4000 dpi).

If you want to do this, we recommend that you have at least 8GB of RAM available for each worker (see the installation documentation).

You can also use a SmartName resolving to `ResampleFull`.

- Choose **None** if you don't want to resample your input file's images.

**Note:**

If you upgraded from a previous version of Imaging Engine, in some cases you may have saved a ticket with a less optimal resampling method (**From File** or **PDF Interpolation**) in your older version. These methods are deprecated from Imaging Engine 18.1.1.

When processing a file with such a ticket, Imaging Engine will use the **Auto Resampling** method instead. You will get a warning about this.

## 6.4.8. Separations

Use the **Separations** settings to define the [screening](#) and [dot gain compensation](#) to apply to the separations that will be output (the separations you selected in the [Inks tab](#)).

You can:

- use the settings saved in the input file,
  - apply general settings to all output separations, by either specifying an explicit Dot, Ruling and/or Default Press Curve or by selecting a Printing Condition,
  - apply specific settings to certain separations.
1. Use **Seamless screening** if you are printing several copies of a job continuously on the substrate, and want to minimize [moiré](#) at the seam between jobs.

See [Seamless Screening](#) on page 36 and [Using Seamless Screening](#) on page 181 for more information.

2. If your input file contains screening settings, you can have the task use (some of) those if desired.

In **Use From File**, select which setting(s) to use:

- select **None** if you want to ignore any screening settings present in the input file and only use settings you define here,
- select **All** if you want to use all the screening settings (dot shape, ruling and angle) present in the input file (this is selected by default),
- select **Angle only** if you want to use the screen angles defined in the file, but use the dot shape and ruling defined here,
- select **Ruling only** if you want to use the ruling defined in the file, but use the dot shape defined here (the task then uses offset angles for your separations),
- select **Angle and ruling** if you want to use the angles and ruling defined in the file, but use the dot shape defined here.

You can use SmartNames resolving to `none`, `all`, `angle`, `ruling` or `angleandruling`.

**Note:**

If your input file...

- has specific screening settings for certain objects,
- was exported as Normalized PDF from either ArtPro (14.1 or later) or ArtPro+ (14.1.1 or later),

... then Imaging Engine will screen these objects with their specific settings when using the input file's settings.

For objects in the file that don't have any screening settings assigned, Imaging Engine will use the **Default Screening Settings** you define here.

For information about assigning screening settings to specific objects in ArtPro or ArtPro+, see the [ArtPro](#) or [ArtPro+](#) documentation.

3. Click **Advanced Screening Settings...** to set options to modify your chosen screen.

See [Using Advanced Screening Settings](#) on page 183.

4. Define **Default Screening Settings** for the settings you are not taking from your input file (or as a back-up if some settings you wanted to take from the file are missing).

The settings you define here are applied to all separations (but you will still be able to define specific settings per separation later).

**Note:** If you are using a Printing Condition, the default Dot and Ruling for every separation are taken from the Printing Condition. In that case, Dot and Ruling will show "**set by Printing Condition**" and will not be editable.

- a) In **Dot**, select the screen/dot shape to use.

You can choose from a list of screens installed on your Automation Engine server (on the screens server).

Screens have a short name and a long name. For example **R** -> **Round Fogra** (**R** being the short name and **Round Fogra** the long name).



- Screens with a short name beginning with **CRS** are custom screens created in the **Print Control Wizard**. Please see the [Print Control Wizard documentation](#) for more information.

**Note:** You can only use a CRS screen when outputting your job to [LENX files](#).

- Screens with a short name beginning with **HD** are custom screens created in **HD Flexo**. Please see the HD Flexo documentation for more information.

**Note:** You can only use an HD Flexo screen when outputting your job to [LEN files](#).

- Screens with a short name beginning with **SCR** are custom screens created in **ScreenManager**. Please see the ScreenManager documentation for more information.
- Screens with a short name beginning with another prefix are predefined screens:
  - [screens with standard dot shapes](#),
  - [screens with advanced dot shapes](#),
  - [stochastic \(FM\) screens](#),
  - [legacy screens](#) you have from an old version of FlexRip or Nexus RIP (any legacy screen for which you have a license will have been copied to your Automation Engine server during installation).

**Tip:**

- When selecting a screen, they are listed alphabetically by short name.
- When using a SmartName to set the screen, it should resolve to either the screen's short name or its long name (not both).

- b) Select the **Angle Set** for the task. You can choose either **Offset** (the default), **Flexo -7.5**, and **Flexo +7.5**. You can also use a SmartName resolving to one of these values.

**Note:**

Some angle sets are not available for certain dots. When this is the case, you will see `(not available for the selected dot)` next to the angle set, and it will be grayed out.

For example, when using a CO (Endless), CD0 (TwinBeam), or CD1 (CDI MultiBeam Optimized) dot, you cannot use the **Offset Angle Set**.

- c) Select the **Ruling** to use.

**Note:**

Displayed values under the **Ruling** selection list depend on the **Dot** you selected, on the **Angle Set** for the task, and on the **Resolution** you entered in the [Output settings](#).

If you have used SmartNames for the **Dot** and/or **Resolution**, you will not see **Ruling** values to choose from, and you will need to enter a ruling manually (which must be a valid ruling for the dot shape and output resolution your SmartNames resolve to).

If you have specified the **Angle Set** through a SmartName, you will see all rulings available for all angle sets, each followed by the application type in parentheses, i.e. 43 lpi (Flexo only), 57 lpi (Offset only), etc.

When using a SmartName for the **Ruling**, make sure it resolves to the ruling value in lpi but without the unit (for example it should resolve to 150 for 150 lpi).

This ruling is applied to all separations, but you can [change the yellow ruling](#) to minimize yellow moiré.

**Note:**

You can make the screening parameters (dot shape, ruling, and angles) public so that they are editable in other applications, such as Automation Engine Shuttle and PackEdge.

To make these parameters public, right-click anywhere inside the exception rules table of the **Separations > Exceptions** tab, and select **Make Parameter Public** from the context menu.

If the task already contains a single input file, you can alternatively right click anywhere inside the inks preview table of the **Separations** tab, or even anywhere inside the inks preview table of the **Inks** tab.

Inks and screening parameters are grouped together for preview, and making either one public implies that the other one will be made public as well.

5. If desired, you can apply a **Plate Curve** to all output separations.

A plate curve is used to compensate for the dot growth or dot reduction (for example in Digital Flexo) happening when making the plate. You can choose either:

- **None** if you don't want to apply any plate curve.
- **Single Curve** if you want to apply one curve for all separations.

In this case, select the `.dgc` curve to apply at right. You can choose from a list of curves available in the curves database.

- **Curve Strategy** if you want to apply a curve strategy (a file created in Curve Pilot that contains several curves to apply in different cases: it can have different curves per separation, dot shape, ruling, for continuous tone images or line work...).

In this case, select the `.icpro` curve strategy or legacy `.scrdgc` screen-based DGC file to apply at right.

You can choose from a list of curve strategies available in the curves database.

For more information, see:

- [Dot Gain Compensation Curves](#) on page 46,

- [DGC Curve Strategies](#) on page 47,
- [The Curves Database](#) on page 49.

**Note:** If you are using a [printing condition](#), no **Plate Curve** is used (as the printing condition contains dot gain compensation curves).

**Note:**

- You can use SmartNames resolving to the exact name of the **Single Curve** or **Curve Strategy** (including the extension).
- This will set the **Plate Curve** type to `Unknown` in the ticket, but will resolve to the correct curve type if the SmartNames are correct.

6. If your input file contains objects that have a press curve assigned, you can choose to use those curves if desired: select **Use press curves from file**.

**Tip:**

Select this if you have assigned dot gain compensation curves from Imaging Engine's curves database to your input file's objects using ArtPro 14.1 or later.

See the [ArtPro documentation](#) for more information.

For objects in the file that don't have a press curve assigned, Imaging Engine will use the **Default Press Curve** you define here.

**Note:** If you are using a [printing condition](#), it is not possible to use the press curves from the input file (as the printing condition contains dot gain compensation curves).

7. Define the **Default Press Curve** you want to use on the output separations (or on the objects that do not have a press curve assigned if you selected **Use press curves from file**).

**Note:** If you are selecting a Printing Condition, the Default Press Curve is set to the PressSync curve from the Printing Condition. It can still be changed afterwards.

This curve is used to compensate for the dot gain on press. You can choose either:

- **None** if you don't want to apply any press curve,
- **Single Curve** if you want to apply one curve for all separations (you can still define exceptions for some of the separations later).

In this case, select the `.dgc` curve to apply at right. You can choose from a list of curves available in the curves database.

- **Curve Strategy** if you want to apply a curve strategy (a file created in Curve Pilot that contains several curves to apply in different cases: it can have different curves per separation, dot shape, ruling, for continuous tone images or line work...).

In this case, select the curve strategy to apply at right (you can select a `.icpro` curve strategy, a `.prsync` PressSync curve set or a legacy `.scredgc` screen-based DGC file).

You can choose from a list of curve strategies available in the curves database.

- **PressSync** if you want to apply a PressSync curve (a predefined curve applicable to your printing environment).

In this case, select the letter and number of the PressSync curve.

For more information, see:

- [Dot Gain Compensation Curves](#) on page 46,
- [DGC Curve Strategies](#) on page 47,
- [PressSync Curves](#) on page 48,
- [PressSync Curve Sets](#) on page 49,
- [The Curves Database](#) on page 49.

**Note:**

- You can use SmartNames resolving to the exact name of the **Single Curve, Curve Strategy** (including the extension) or **PressSync** curve.
- This will set the **Default Press Curve** type to `Unknown` in the ticket, but will resolve to the correct curve type if the SmartNames are correct.

8. When launching the task on a single file, you can see the file's separations and the settings that will be applied to them in a table.

You can also use this table to define custom screening and dot gain compensation settings for specific separations: click in the **Dot, Ruling, Angle** or **Press Curve** column, and enter/select the value you want to use for that ink.

Your custom values are shown in italics.

**Note:** If you enter a **Ruling** or **Angle** value that is not valid for the separation's **Dot** shape, Imaging Engine will change it to the closest valid ruling or angle when RIP'ing.

If you want to go back to the previous setting, right-click the value you just set and select **Clear Custom Value**.

**Tip:** You can use this table to make your ink selection and screening parameters public, so that an operator can set them *through Shuttle* when submitting a job. See [Selecting Screening Parameters through Shuttle](#) on page 192 for details.

9. If you notice a dot gain compensation problem in your job, and you want to compensate for it without changing your main curves, you can apply some corrections (to all separations).

See [Corrections](#) on page 194.

10. If you are setting up a task ticket to use in a workflow for example, you can create a rule to always apply a specific setting to a specific separation.

You can do this if for example you have a curve you want to use for Yellow in all your jobs, or to use specific screens for specific spot colors...

See [Exceptions](#) on page 205 to know how to create rules.

**Tip:**

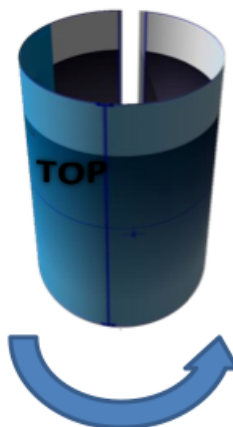
Applying a specific setting to a specific separation manually (in the [preview table](#)) also automatically creates a rule. So if you are not used to working with rules yet, you can:

1. Take a file containing the separations you usually work with, and open the task on it.
2. In the **Separations** table, set your desired screening and/or dot gain compensation settings on your separations manually.
3. The task automatically creates the corresponding rules in the **Exceptions** tab (if you change your settings again, these rules will be updated).
4. Save your ticket. You can now use it on other files that need the same settings for those separations.

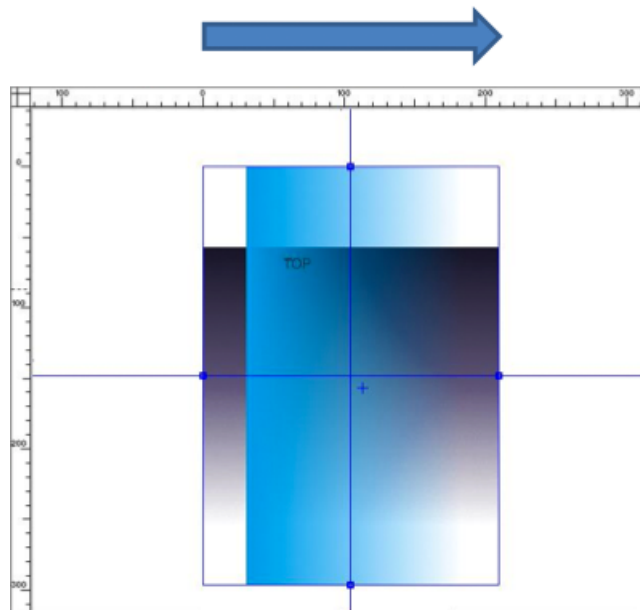
### Using Seamless Screening

If you want to use [seamless screening](#), we recommend you do the following:

1. When preparing your input file, make sure that its horizontal dimension matches the sleeve size around the drum.



You can check this in PackEdge for example.



2. When RIP'ing your file with the **Image to Screened Separations** task, select the following [Separations](#) settings:
  - a) Select **Seamless screening**.
  - b) Select a **Dot** shape/screen that is compatible with seamless screening.

**Note:**

You can use seamless screening with any dot shape/screen except:

- stochastic screens,
- Groovy screens,
- Samba or SambaFlex screens,
- Paragon or other legacy Artwork Systems screens,
- HD Flexo screens with advanced screening effects (the dot, screen ruling and angle can be made be seamless, but not the advanced screening effects).

Dot shapes/screens that are not compatible with seamless screening are shown in grey with the mention (not available for seamless screening).




**Attention:** If you [chose to use](#) all the screening settings specified in your input file (including the dot), and that dot is not compatible with seamless screening, the task will end in error.

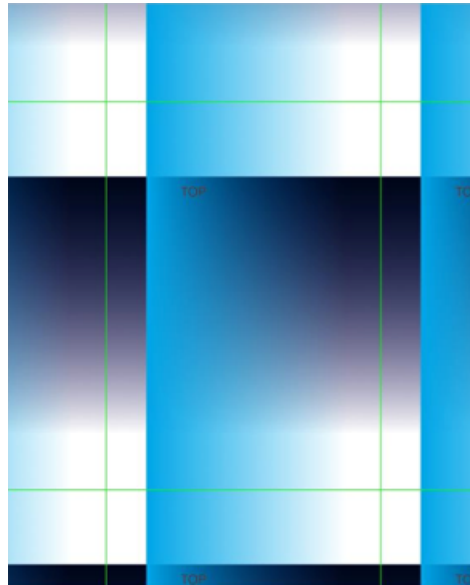
RIP'ing a file with seamless screening is slightly slower since the screens need to be generated dynamically.

However the processing time depends mostly on other factors (the number and type of screens that need to be processed for each separation, the resolution, the presence of advanced effects in the screens...).

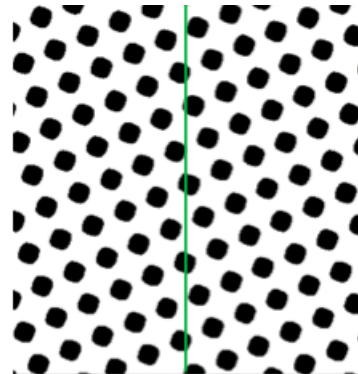
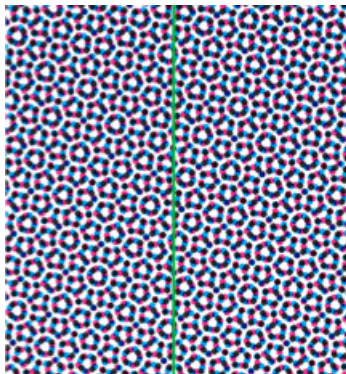
3. After RIP'ing your file, you can inspect it in the **Bitmap Viewer**.


- a) Click  in the Bitmap Viewer to show the file repeated continuously (in the horizontal and vertical direction).

The seam lines are indicated in green.



- b) Zoom in on the horizontal seam lines to check that the screening is seamless.



4. If desired, you can also check the exact ruling and angle that were used to make the screen seamless:
- a) Click  in the Bitmap Viewer to open the **Info** window.
  - b) For each separation, you can see the **Ruling, Angle** and **Dot shape** used under **Screens and DGC**.

### Using Advanced Screening Settings

In the **Advanced Screening Settings** dialog, you can set options to modify *your chosen screen*.

1. When working with AM Screening, you can minimize *yellow moiré* by changing the ruling of the yellow separation.

To do this:

- a) In **Change Y Ruling**, select **Yes (conventional)**.

When using a SmartName to set this, it must resolve to `conventional` (or to `no` if you don't want to use yellow moiré reduction).

- b) Choose **by** how much to change the ruling: **-15 %**, **-7 %**, **+7 %** or **+15 %**.

When using a SmartName to set this, it must resolve to `-15`, `-7`, `+7` or `+15`.

**Note:**

- If your file doesn't contain a yellow separation, yellow moiré reduction won't be applied. The task will run as normal but you will get a warning in the log.
- You cannot set yellow moiré reduction options when using a Paragon dot, as Paragon dots already have built-in yellow moiré reduction.

**Tip:**

- If you encounter *four color moiré* when printing with a yellow spot color, or with a light color other than yellow, you can adjust that color's ruling using an *exception*.
- If you want to minimize yellow moiré by changing the yellow screen to a Monet screen (instead of changing the yellow ruling), you can also do this with an exception.

- 2. In **Screen Angle Direction**, choose how Imaging Engine should read the screening angles (whether you are using *angles from your file*, *default angles* or *specific angles per separation*).

- Choose **Clockwise (FlexRip Compatible)** to read all angles as clockwise.

For example, if you are using the angles from your file, and your file specifies a 75° angle for Cyan, this will be read as 75° clockwise.

If you were previously using FlexRip, we recommend you use this option to get consistent output. This is the default option.

- Choose **Counter Clockwise (Nexus Compatible)** to read all angles as counter clockwise.

In this case, the same 75° Cyan angle from your file will be read as 75° counter clockwise.

If you were previously using Nexus, we recommend you use this option to get consistent output.

- You can use SmartNames resolving to `CW` for clockwise or `CCW` for counter clockwise.

**Note:**

If you use a different angle direction than your screen was designed for, Imaging Engine will create a custom screen on-the-fly, based on your original screen and the screen angle direction you chose.

See *The Effect of Changing a Screen's Angle Direction* on page 189 for details.



**Attention:**

Certain screens can only be used with a clockwise **Screen Angle Direction** (see [Clockwise Only Screens](#) on page 189).

- If you have selected a counter clockwise direction, you will not be able to select one of those screens.
- If you select one of those screens, then select a counter clockwise angle direction, you will get a warning that this screen doesn't support counter clockwise angles and that the dot will be changed to [Round Fogra](#).

If desired, you can keep your selected screen but change the angle direction back to clockwise by clicking **Cancel** in the **Advanced Screening Settings** dialog.

**Attention:**

When using older **Image to Screened Separations** tickets (saved in a version of Imaging Engine earlier than 14.1.1), the screen angle direction in your output may not be the same as before in certain cases.

See [Screen Angles in Older Tickets](#) on page 190 for more information.

**3. Choose a Screening Model** if:

- you are using the screening settings *from your input file*,
- your input file contains overlapping objects that have different screens assigned.

The **Screening Model** you choose determines which screen to use for which separation of the overlapping objects.

- Choose **Esko** for screening results similar to what you would have obtained using FlexRip.

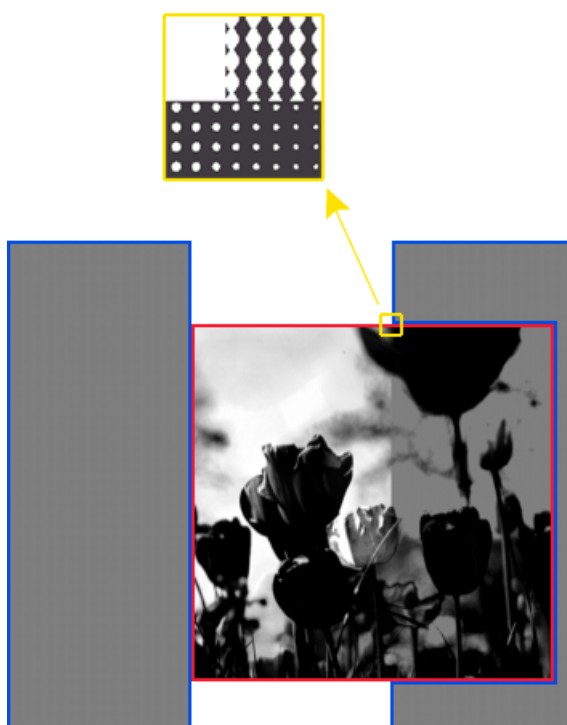
If your input file contains images or shadings showing through flat tint objects because of transparencies, the screening of the image or shading will be used for the parts showing through.

For example, the file below contains an image object, with two (yellow) flat tint objects above it. The yellow object on the left is opaque, but the one on the right has a transparency applied, so that the image shows through it.



The input file contains the following screening information: Round Fogra dot for the image, and Rugby dot for the yellow objects.

When RIP'ing this file using the **Esko Screening Model**, you get the following screened file for the Yellow separation:



- The area highlighted in red consists of the parts of the image that either don't have another object on top, or have a transparent object on top.

These parts are screened using the screening information of the image object (the Round Fogra dot).

- The areas highlighted in blue consists of the (parts of the) flat tints objects that are either opaque, or that are not on top of the image.

These parts are screened using the screening information of the flat tint objects (the Rugby dot).

**Note:**

- This is the default option when launching a new ticket on your input file(s).
- When re-running old FlexRip jobs using this option, you will get a screening identical to what you used to get with FlexRip in most cases.

In certain particular cases, there are slight differences due to some improvements in the screening model.

See [Imaging Engine - Differences between Esko \(FlexRip compatible\) screening in Imaging Engine and FlexRip](#) in the Knowledge Base for more details.

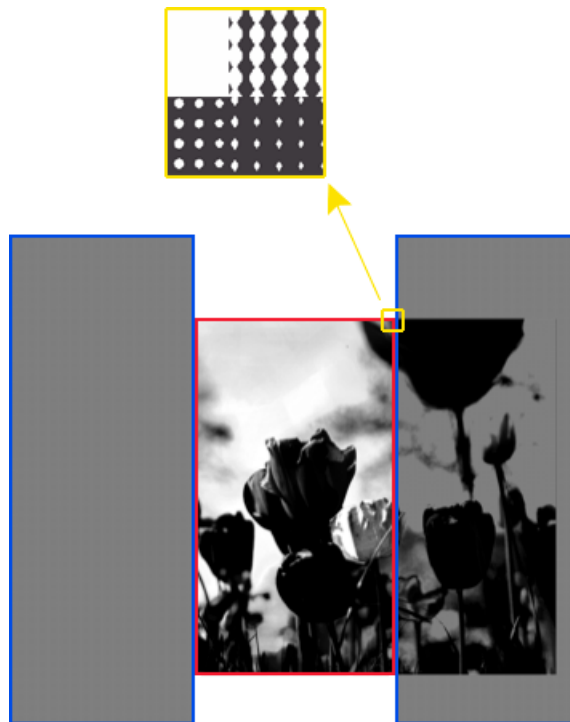
- Choose **Adobe** for screening results similar to what you would have obtained using Nexus.

If your input file contains overlapping objects that have different screens assigned, the screening of the top object will be used (even in case of images or shadings showing through flat tint objects because of transparencies).

With the same example as above (an image object, with two yellow flat tint objects above it, one opaque and one with a transparency) ...



... you get the following screened file for the Yellow separation when RIP'ing with the **Adobe Screening Model**:



- The area highlighted in red consists of the parts of the image that don't have another object on top.  
These parts are screened using the screening information of the image object (the Round Fogra dot).
- The areas highlighted in blue consists of the flat tints objects that are either on top of the image, or not on top of anything.  
These parts are screened using the screening information of the flat tint objects (the Rugby dot).

**Note:**

- Older versions of Imaging Engine (before 16.0.2) used this screening model by default.  
When using an **Image to Screened Separations** ticket you saved in such an Imaging Engine version, the screening model will be automatically set to **Adobe** to give you consistent results.
- When re-running old Nexus jobs using this option, you will get a screening identical to what you used to get with Nexus in most cases.  
In certain particular cases, there are slight differences due to some improvements in the screening model.  
See [Imaging Engine - Differences between Adobe®\(Nexus compatible\) screening in Imaging Engine and Nexus](#) in the Knowledge Base for more details.

- You can also use a SmartName resolving to `Esko` or `Adobe`.

4. Click **Set** to confirm your choices.

## Changing a Screen's Angle Direction

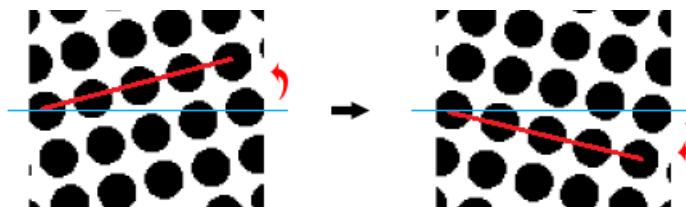
### The Effect of Changing a Screen's Angle Direction

If you use a *different angle direction* than your screen was designed for, Imaging Engine will create a custom screen on-the-fly, based on your original screen and the screen angle direction you chose.

The way it creates it depends on your type of screen:

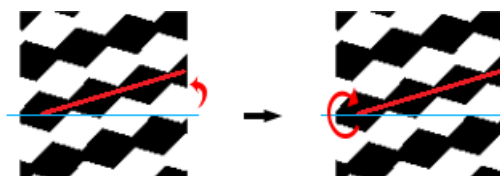
- If your original screen only works with angles between 0 and 90° (it is a *modulo 90* screen), the screen will be mirrored along the horizontal axis to produce the other angle direction.

In the example below, a 15° counter clockwise screen angle is mirrored horizontally (along the blue axis) to give a 15° clockwise angle.



- If your original screen works with angles between 0 and 180° (it is a *modulo 180* screen), the screen angle is simply translated into the other angle direction.

In the example below, a 15° counter clockwise screen angle becomes a 165° clockwise angle.



**Note:** You can check the characteristics of a screen in ScreenManager: in the screen details, a modulo 90 screen only lists angles from 0° to 90°, while a modulo 180 screen lists angles from 0° to 180°.

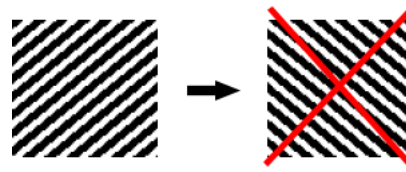
### Clockwise Only Screens

You cannot change the **Screen Angle Direction** for screens that have the following characteristics:

- they only work with screens angles between 0 and 90° (*modulo 90* screens),
- they contain *surface screening effects*.

When using a screen with a surface screening effect, the pattern frequency and orientation of the effect should be adapted to your inking system (for example, your anilox roll).

For modulo 90 screens, changing the screen angle direction would change the surface screening pattern's orientation, which would affect how the screen prints.



This applies to the following screens, that were designed for, and can only be used with, a **clockwise angle direction**:

Screen types	Which are clockwise only?
<a href="#">Groovy screens</a> (short names: GUY1 to GUY5)	All groovy screens
<a href="#">HD Flexo screens</a> (short names starting with HD)	HD Flexo screens that use surface screening effects  <b>Note:</b> You can check this in HD Flexo: any screen that mentions <b>Enhanced Shadows and Solids</b> has surface screening effects.
<a href="#">Full HD Flexo screens</a> (short names starting with HD)	All Full HD Flexo screens
<a href="#">Custom screens created in ScreenManager</a> (short names starting with SCR)	Any custom screen that is modulo 90 and uses surface screening effects  <b>Note:</b> You can check the characteristics of a screen in ScreenManager.

### Screen Angles in Older Tickets

When using older **Image to Screened Separations** tickets (saved in a version of Imaging Engine earlier than 14.1.1), the screen angle direction in your output may not be the same as before in certain cases.

This is because the screen angles are **reinterpreted** according to the [screen angle direction](#) setting (available from Imaging Engine 14.1.1).

#### When Will the Angles Stay the Same?

The screen angles in your output will stay **the same** as before if you **relaunch your old tickets without opening them**.

This is the case when:

- You launch an old ticket on a file using the **Launch with** option in the Pilot (right-click the file in the **Files** view, select **Launch with**, then select your old ticket).
- You run a file through an old workflow containing your old ticket (from the **Pilot**, from **Shuttle**, or from another application connecting to Automation Engine).
- You relaunch an old file with its original ticket settings (right-click the entry corresponding to your old file and ticket in the Pilot's **Tasks** list and select **Relaunch**).

### When May the Angles Change?

If you **open an old ticket** and then launch it on a file, the direction of the screen angles in your output **may be different** from your previous output with that old ticket.

This can be the case when:

- You launch an old ticket on a file using the **New Task** option in the Pilot (right-click the file in the **Files** view, select **New Task**, then select your old ticket; it opens automatically).
- You open the old ticket in the **Tickets** view (next time you launch it on a file, the screen angles in your output may be different).

When opening an old ticket, you will get a message warning you that the *screen angle direction* will be set to **clockwise** by default. This means that Imaging Engine will read all angle values in the files and/or the ticket as being clockwise values.

In most cases, this will give the same output as before, but we recommend you review the following if you are concerned about whether your output will be consistent with previous versions of Imaging Engine:

### Working with Screen Angles from the Input File

If you use the screen angles *defined in your input file*, we recommend you do the following to keep your output consistent with previous versions of Imaging Engine:

- Use a **clockwise** *screen angle direction* if you work with **Normalized PDF** files.
- Use a **counter clockwise** screen angle direction if you work with **standard PDF** files.

Otherwise, you may get different output than previously, as illustrated by the example below:

Input file	Output in older Imaging Engine versions	Output in Imaging Engine 14.1.1 onwards
<b>Normalized PDF file</b> with Cyan at 45°	<b>45° clockwise</b> , which could be displayed in the ticket as either: <ul style="list-style-type: none"> <li>• 45° clockwise</li> <li>• 135° counter clockwise</li> </ul> ... depending on what you chose in the Preferences of your old Imaging Engine version.	For both <b>Normalized PDF</b> and <b>standard PDF</b> files: <ul style="list-style-type: none"> <li>• <b>45° clockwise</b> if you set a clockwise <i>screen angle direction</i>.</li> <li>• <b>45° counter clockwise</b> if you set a counter clockwise screen angle direction.</li> </ul>
<b>Standard PDF file</b> with Cyan at 45°	<b>45° counter clockwise</b> , which could be displayed in the ticket as either: <ul style="list-style-type: none"> <li>• 45° counter clockwise</li> <li>• 135° clockwise</li> </ul> ... depending on what you chose in the Preferences of your old Imaging Engine version.	

### Working with Default Screen Angles

The *default screen angles* are the angles used for the separations whose screening settings are not:

- taken from the input file,
- defined using an exception.

When reopening an older ticket that used default screen angles for some separations, your output will be:

- the same as before when working with *modulo 180* screens,
- different when working with *modulo 90* screens.

For more details, please see [Angle interpretation: behaviour for existing IE tickets](#) in the [Knowledge Base](#).

**Working with Screen Angles from Exceptions**

If you have set your screen angles using *exceptions*, we recommend you choose a **clockwise screen angle direction** to keep your output consistent with previous versions of Imaging Engine.

**Note:**

If you had chosen to display your angles as counter clockwise in the Preferences of your old Imaging Engine version, the angles will look different in your ticket (as the ticket will now display the clockwise equivalent of your angles).

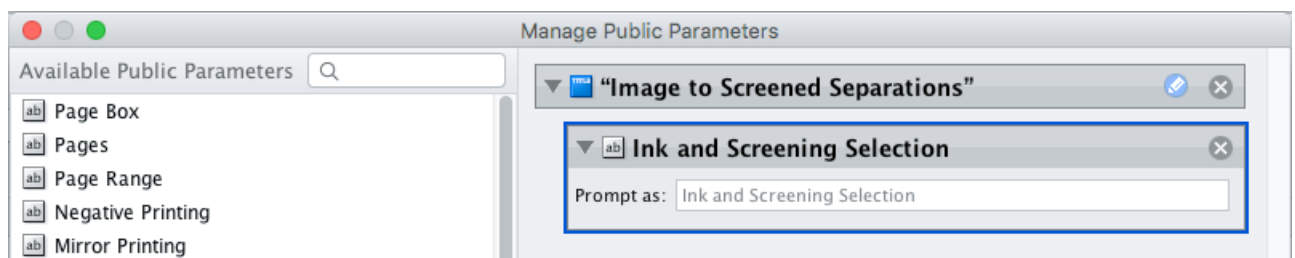
However, the output will be the same.

**Selecting Screening Parameters through Shuttle**

To be able to set screening parameters for each ink when submitting an input file *through Shuttle*, do the following:

**In Your Imaging Engine Ticket**

1. Make your ink selection and screening parameters public in one of the following ways:
  - If you have opened your **Image to Screened Separations** ticket without an input file, you can either:
    - Go to **Advanced > Manage Public Parameters...**, find the **Ink and Screening Selection** parameter at the bottom of the list, and drag it to the right hand side.



- Go to the **Exceptions** tab, right click the rules table at the top, and choose **Make Parameter Public**.

**Note:** You will not be able to create rules using Shuttle, you will only be able to select inks and screening parameters manually.

- Use the **Inks** tab (see [Selecting Inks through Shuttle](#) on page 162 for details).

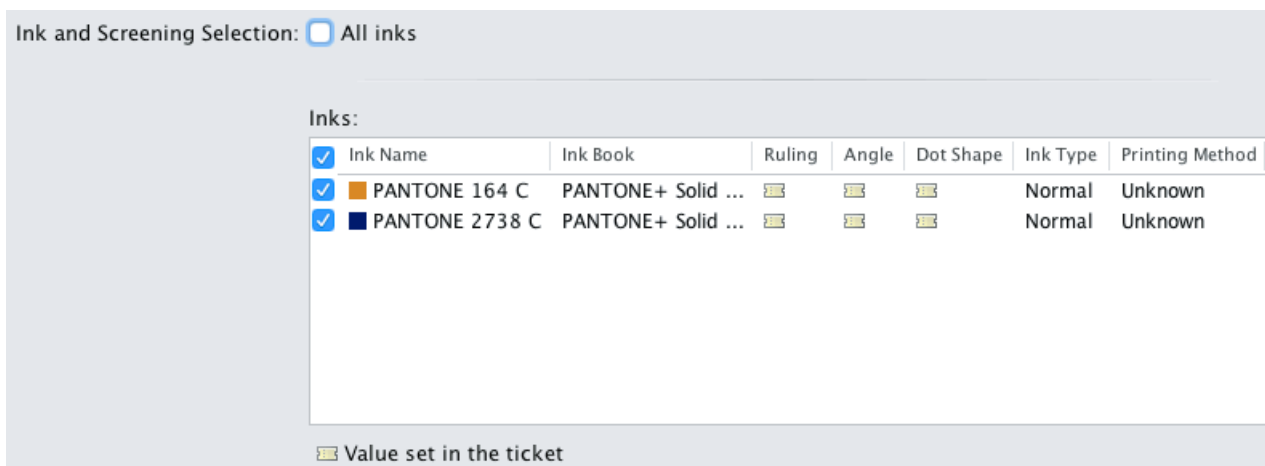


- If you have opened your **Image to Screened Separations** ticket on an input file (even a dummy file), you use any of the above options, or:
  - Go to either the **Separations** tab or the **Exceptions** tab, right click the preview table at the bottom, and choose **Make Parameter Public**.
- 2. By default, the public parameter that appears in Shuttle will be called **Ink and Screening Selection**. You can change its name by:
  - right-clicking one of the elements mentioned above, selecting **Modify Public Parameter** and entering a new name,
  - if you are using the **Manage Public Parameters** window, entering the new name in **Prompt as**.
- 3. Make sure your ticket is also **Public**.

### In Shuttle

The ink selection and screening parameters may look a bit different depending on which Shuttle you are using (the Shuttle standalone application or a Shuttle plug-in in an Editor application).

- In the Shuttle standalone, they will look like this:



The table shows a preview of all inks in the input file, with their characteristics, and the screening parameters that will be used for each ink.

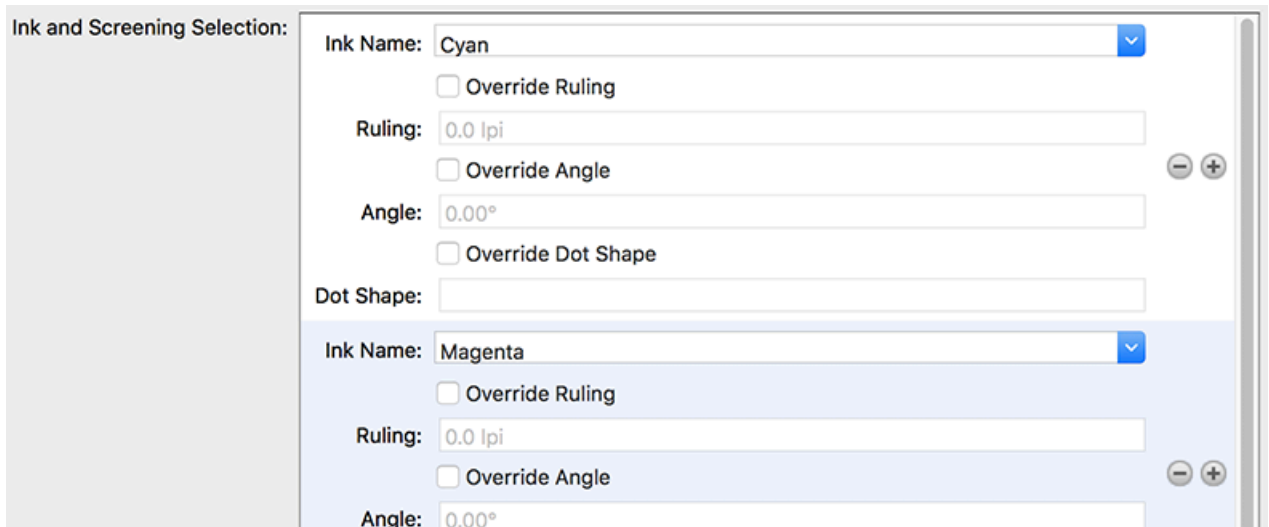
You can decide which inks to RIP, and with which parameters:


- To RIP all inks from your input file, either leave all inks selected in the preview table, or select **All inks** at the top (this will hide the preview table).
- To only RIP certain inks, make sure **All inks** is not selected, and deselect the input inks that you don't want to RIP.

By default, the screening parameters saved in the ticket are used, but you can change this by clicking the ticket icon and entering the value you want to use.

You can enter values for the **Ruling**, **Angle** and **Dot Shape** as you would in the [Separations tab](#).

- In ArtPro for example, the ink selection and screening parameters will look like this:



By default, all the inks from your input file will be RIP'ed, but you can remove any ink you don't want to RIP using the  button.

By default, the screening parameters saved in the ticket are used, but you can change this by selecting **Override (Parameter Name)** and entering the value you want to use.

### Corrections

If you notice a specific dot gain related problem in your job, you can use the **Corrections** settings to compensate for that problem without changing your [general dot gain compensation settings](#) (that you may also use for other jobs).

You can:

- apply a correction curve,
- correct dot gain problems in the highlights,
- correct dot gain problems in the shadows.

**Note:**

The corrections you define here are applied to all output separations. If you need to apply a different correction to a specific separation, we recommend you create a **curve strategy** in Curve Pilot for this purpose.

When doing this, the tools in Curve Pilot help you keep your gray balance in check when changing the dot gain compensation for specific separations.

Please see the [Curve Pilot documentation](#) for more information.

1. If needed, select a **Correction Curve** to apply to all the separations that will be output.

You can use this for example to handle press fluctuations, or to modify the transition point when using [transitional screens](#).

- **None** if you don't want to apply any plate curve.
- **Single Curve** if you want to apply one curve for all separations.

In this case, select the `.dgc` curve to apply at right. You can choose from a list of curves available in the curves database.

- **Curve Strategy** if you want to apply a curve strategy (a file created in Curve Pilot that contains several curves to apply in different cases: it can have different curves per separation, dot shape, ruling, for continuous tone images or line work...).

In this case, select the `.icpro` curve strategy or legacy `.srdgc` screen-based DGC file to apply at right.

You can choose from a list of curve strategies available in the curves database.

**Note:** In case you select the option **Curve Strategy**, the option **Range Correction** (see below) will not be available or applied. Also if a SmartName resolves to a `.icpro` or `.srdgc` file any Range Correction defined will not be applied.

For more information, see:

- [Dot Gain Compensation Curves](#) on page 46,
- [DGC Curve Strategies](#) on page 47,
- [The Curves Database](#) on page 49.

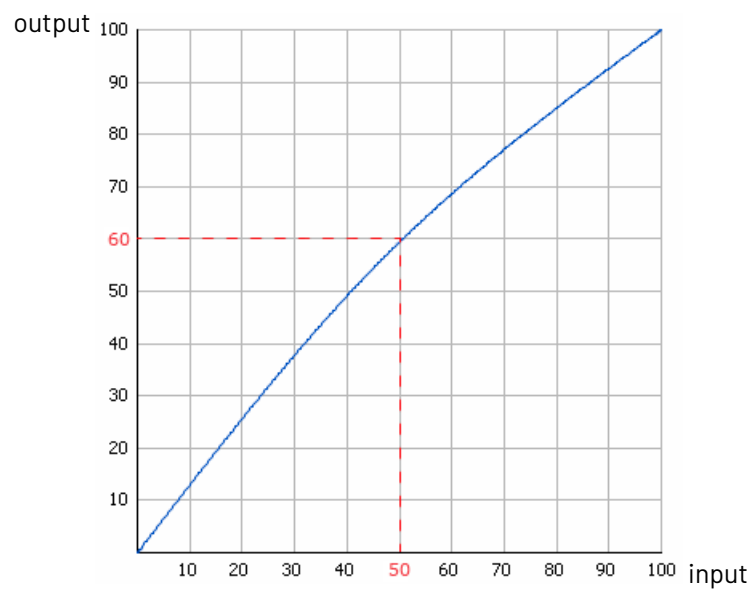
**Note:** You can use SmartNames resolving to the exact name of the Single Curve or Curve Strategy (including the extension). In the ticket, this will set the Correction Curve type to Unknown, but it will resolve to the correct curve type if the SmartNames are correct.

## 2. Choose when to **Apply the Correction Curve**:

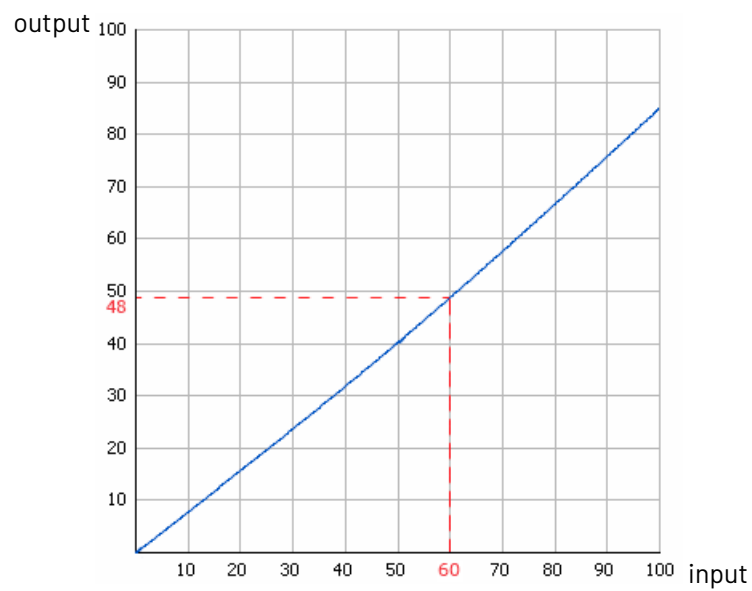
- **Before Press Curve**
- **Between Press & Plate Curve**
- **After Plate Curve**
- you can also use a SmartName resolving to `BeforePress`, `BetweenPressAndPlate` or `AfterPlate`.

The order in which you apply your dot gain compensation curves makes a difference to your final result. In the example below, you can see what happens to the 50% value depending on the order of the curves:

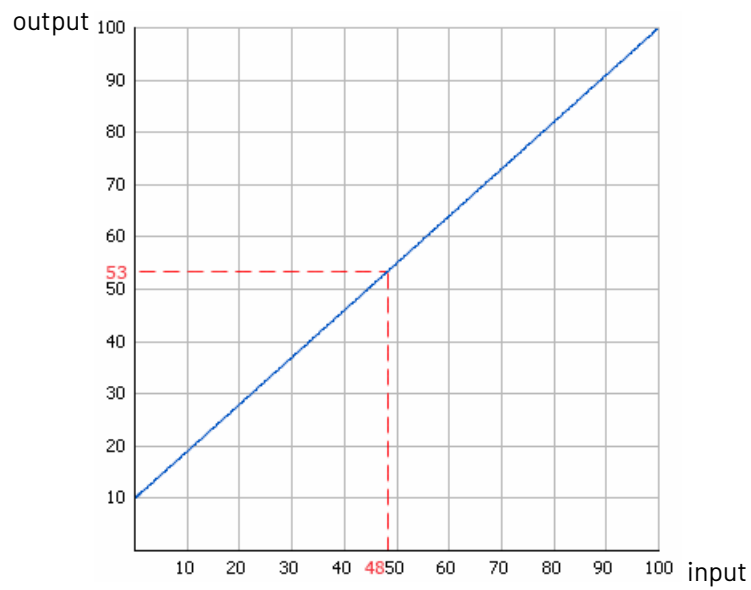
- When applying the correction curve first (**Before Press Curve**):
  1. The **Correction Curve** changes the initial 50% value to 60%.



2. For that 60% value, the **Press Curve** gives 48%.

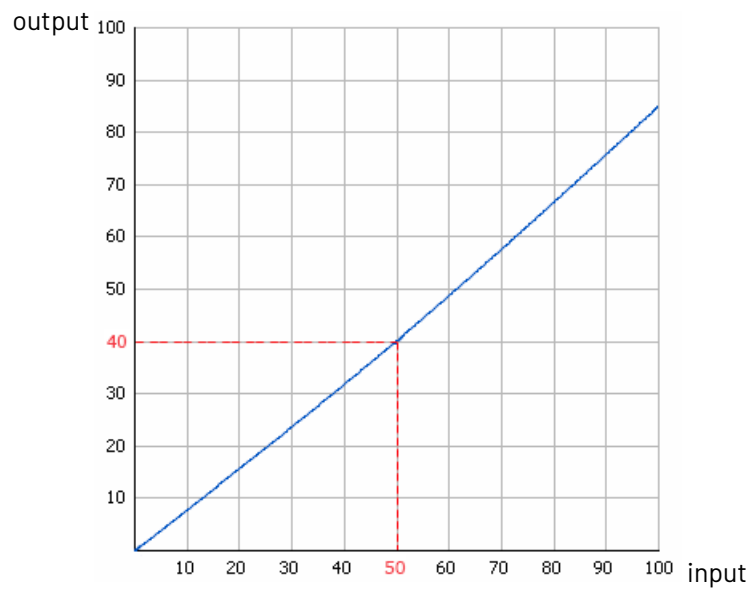


3. For that 48% value, the **Plate Curve** gives a final value of **53%**.

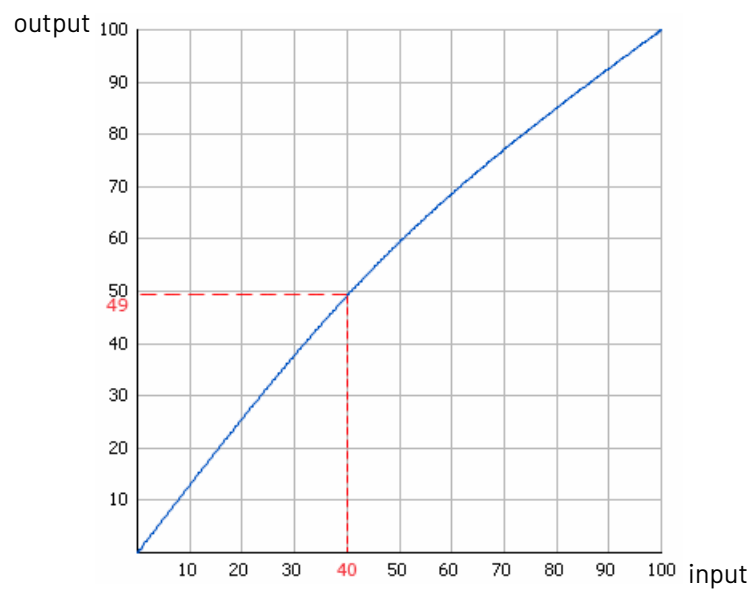


- When applying the correction curve **Between Press & Plate Curve**:

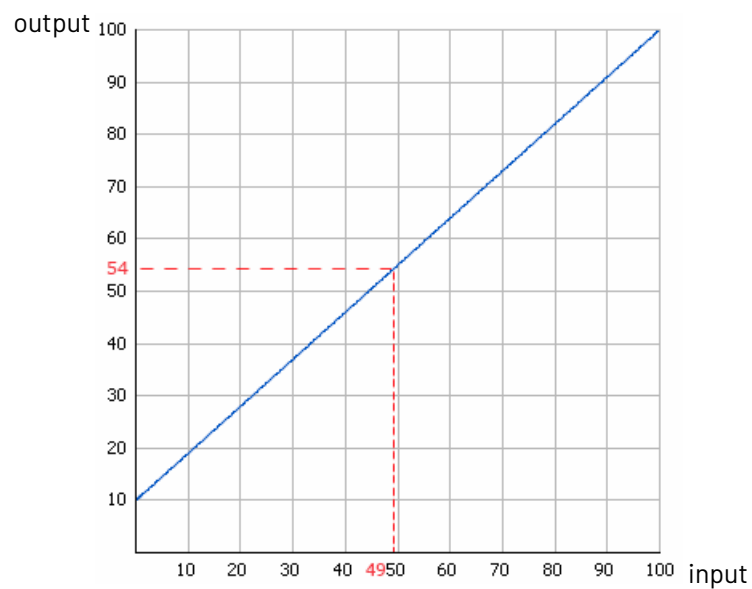
1. The **Press Curve** changes the initial 50% value to 40%.



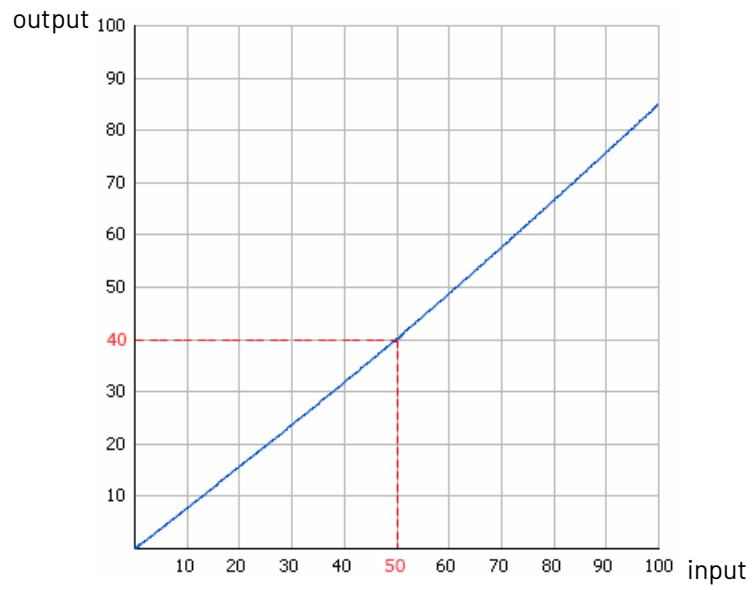
2. For that 40% value, the **Correction Curve** gives 49%.



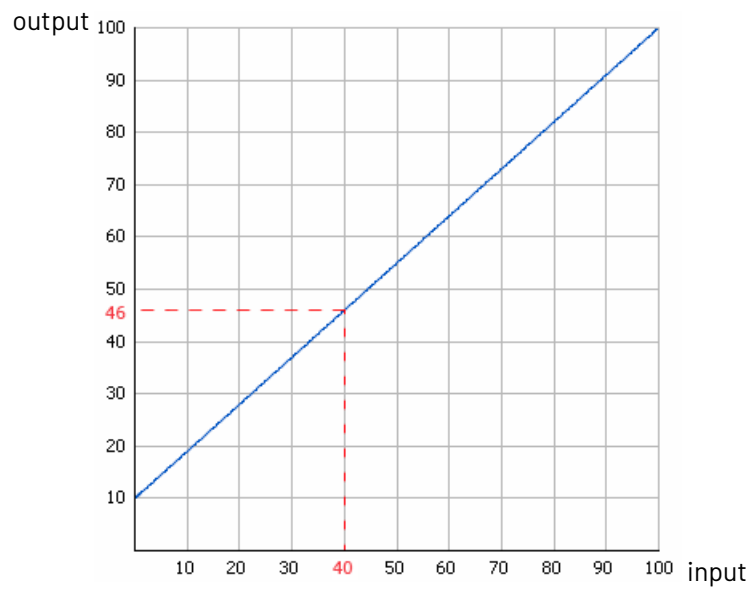
3. For that 49% value, the **Plate Curve** gives a final value of **54%**.



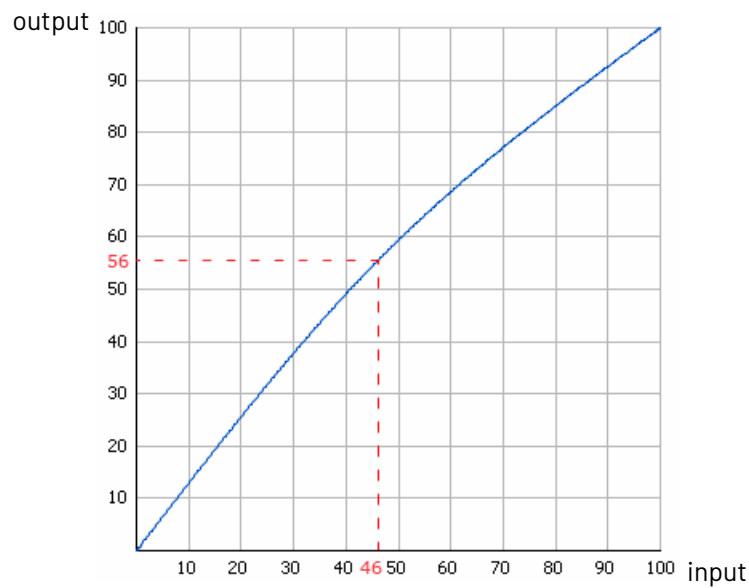
- When applying the correction curve last (**After Plate Curve**):
  1. The **Press Curve** changes the initial 50% value to 40%.



2. For that 40% value, the **Plate Curve** gives 46%.



3. For that 46% value, the **Correction Curve** gives a final value of **56%**.



3. After your curves have been applied, you can also use the **Range Correction** to correct dot gain problems in the highlights and/or shadows.
  - Select **Minimum Correction** if you only want to correct the highlights.
  - Select **Maximum Correction** if you only want to correct the shadows.
  - Select **Minimum & Maximum Correction** if you want to correct both highlights and shadows.
  - You can also use a SmartName resolving to `Minimum`, `Maximum` or `MinimumAndMaximum`.

**Note:**

- If you have already applied a highlights and/or shadows correction in your *plate curve* or *default press curve* you don't need to make that correction again here.
- Correcting your highlights and/or shadows does not affect your mid-tones. If you want to correct your mid-tones, you can use a correction curve.

4. If you have problems with the highlights (for example they print unevenly, giving you missing or partial dots), you can do the following to correct them:
  - a) Enter the **Minimum Dot** that you know your plate can safely print. In the screened files, Imaging Engine will not generate dots any smaller than what you enter here.



**Note:**

- The **Minimum Dot** must be within the 0%-30% range. If you enter a percentage outside of this range it will be automatically adjusted to the nearest value in the range (for example 32 will be adjusted to 30%).
- When using a SmartName, it must resolve to a number between 0 and 30 (without the % sign). If you use a SmartName that resolves to a percentage outside the range, the task will end in error.
- You can enter a simple formula and it will be calculated automatically (for example you can enter 10+2 and this will be changed to 12%). This only works with numerical values and not with SmartNames.

- b) In **How to Handle Minimum Job Tones**, enter the range of input file tones that typically gives you problems on output (for example, you may find that tones between 0% and 1% in your input file typically give you missing or partial dots on output).

**Note:**

- The **Minimum Job Tones** range always starts at 0% and can go up to 10%. If you enter a percentage outside of this range it will be automatically adjusted to the nearest value in the range.
- When using a SmartName, it must resolve to a number between 0 and 10 (without the % sign). If you use a SmartName that resolves to a percentage outside the range, the task will end in error.
- You can enter a simple formula and it will be calculated automatically. This only works with numerical values and not with SmartNames.

- c) Decide how to treat this range of problematic tones to prevent output problems. You can either:

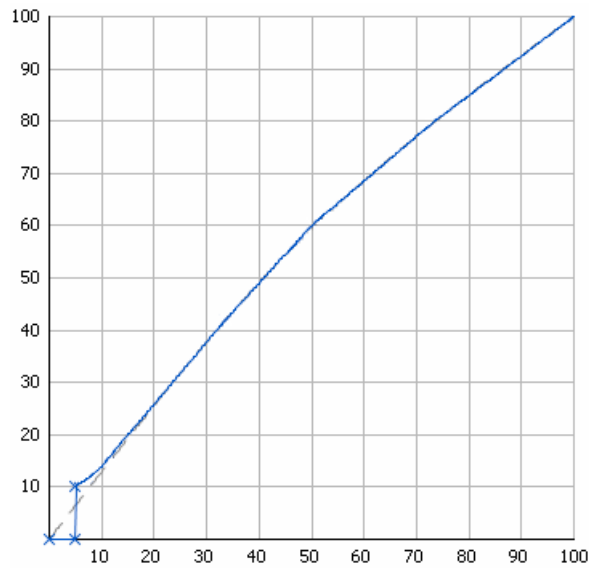
- Not print those small percentages (select **Drop To 0%**).

In this case, anything in that range will be rendered at 0% (so removed from the output), and the first percentage above that will become the **Minimum Dot**.

In the example below, the **Minimum Job Tones** are 0% to 5% and the **Minimum Dot** is 10%.

If you select **Drop To 0%**, the 0% to 5% range in your input file becomes 0% in the output, and the first percentage after that (5.01%) becomes 10% (the **Minimum Dot**).

Higher percentages follow the dot gain compensation you applied (the combination of the plate curve, press curve and correction curve you have set). Note that the transition between your highlights correction and the combined curve is smoothed to give you better printing results.

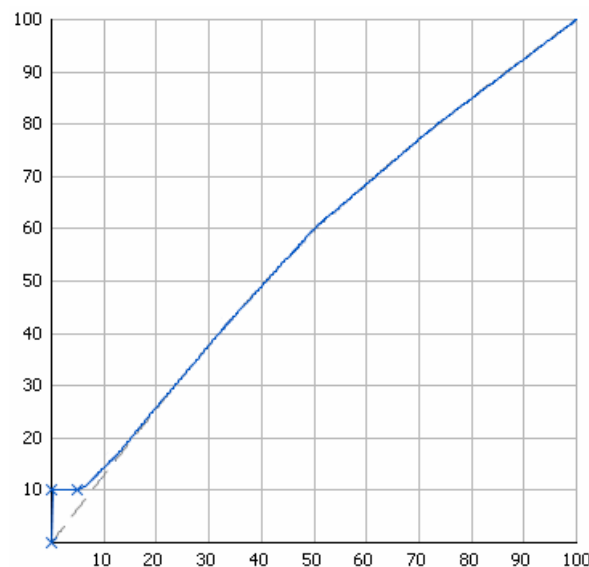


- Increase those small percentages so they meet the threshold to become your **Minimum Dot** on output (select **Hold To Minimum Dot**).

In this case, anything in that range (except 0%) will be rendered at the percentage you entered as **Minimum Dot**.

With the same example, if you select **Hold To Minimum Dot**, 0% will stay 0%, and the 0.01% to 5% range in your input file will become 10% in the output (the **Minimum Dot**).

Higher percentages follow the dot gain compensation you applied (the combination of the plate curve, press curve and correction curve you have set). Note that the transition between your highlights correction and the combined curve is smoothed to give you better printing results.



5. If you have problems with the shadows (for example you lose detail in the darkest areas, or you get *pin holes* in the solids from laying down too much ink), you can do the following to correct them:
- Enter the **Maximum Dot** that you know you can safely print for a good result in the shadows. In the screened file, Imaging Engine will not generate dots any bigger than what you enter here.

**Note:**

- The **Maximum Dot** must be within the 70%-100% range. If you enter a percentage outside of this range it will be automatically adjusted to the nearest value in the range (for example 68 will be adjusted to 70%).
- When using a SmartName, it must resolve to a number between 70 and 100 (without the % sign). If you use a SmartName that resolves to a percentage outside the range, the task will end in error.
- You can enter a simple formula and it will be calculated automatically (for example you can enter 70+5 and this will be changed to 75%). This only works with numerical values and not with SmartNames.

- In **How to Handle Maximum Job Tones**, enter the range of input file tones that typically gives you problems on output (for example, you may find that tones between 97% and 100% don't show enough details on output).

**Note:**

- The **Maximum Job Tones** range can start from 90% and always go up to 100%. If you enter a percentage outside of this range it will be automatically adjusted to the nearest value in the range.
- When using a SmartName, it must resolve to a number between 90 and 100 (without the % sign). If you use a SmartName that resolves to a percentage outside the range, the task will end in error.
- You can enter a simple formula and it will be calculated automatically. This only works with numerical values and not with SmartNames.

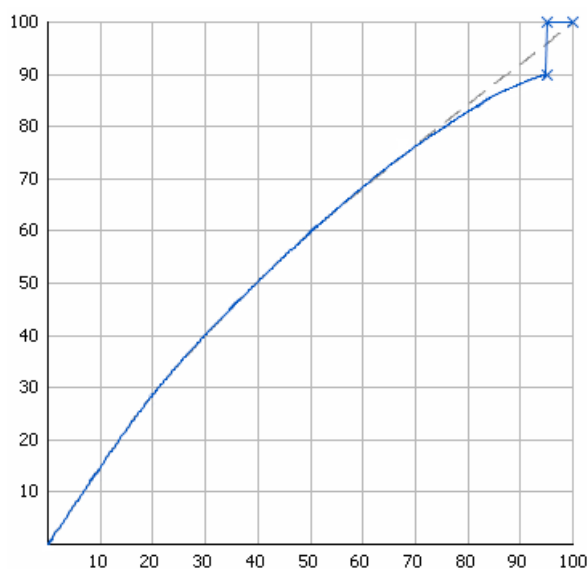
- Decide how to treat this range of problematic tones to prevent output problems. You can either:
  - Make those large percentages solid (select **Raise To 100%**).

In this case, anything in that range will be rendered at 100%, and the first percentage below that range will become the **Maximum Dot**.

In the example below, the **Maximum Job Tones** are 95% to 100% and the **Maximum Dot** is 90%.

If you select **Raise To 100%**, the 95% to 100% range in your input file becomes 100% in the output, and the first percentage below that (94.99%) becomes 90% (the **Maximum Dot**).

Lower percentages follow the dot gain compensation you applied (the combination of the plate curve, press curve and correction curve you have set). Note that the transition between the combined curve and your shadows correction is smoothed to give you better printing results.



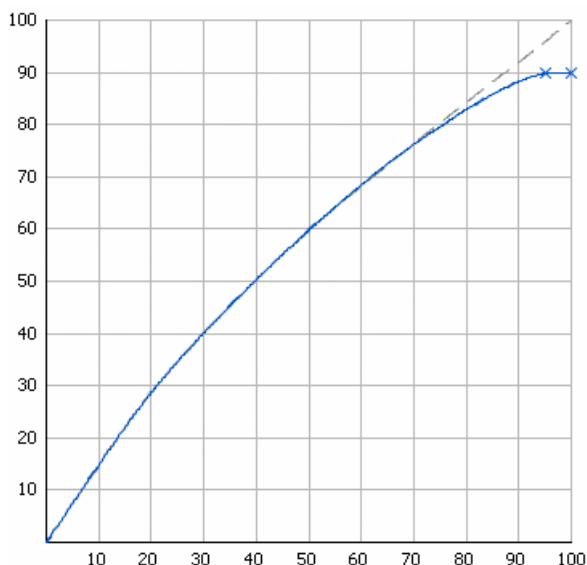
You can use this if you don't want your darkest shadows to be screened (for files containing linework for example).

- Decrease those large percentages so they become your **Maximum Dot** on output (select **Hold To Maximum Dot**).

In this case, anything in that range (including 100%) will be rendered at the percentage you entered as **Maximum Dot**.

With the same example, if you select **Hold To Maximum Dot**, the 95% to 100% range in your input file will become 90% in the output (the **Maximum Dot**).

Lower percentages follow the dot gain compensation you applied (the combination of the plate curve, press curve and correction curve you have set). Note that the transition between the combined curve and your shadows correction is smoothed to give you better printing results.



You can use this if you want your darkest shadows to be screened (for files containing images for example).

6. You can see the number of corrections you applied next to the **Corrections** tab at left.

For example, if you apply a **Correction Curve**, a **Minimum Correction** (on the highlights), and a **Maximum Correction** (on the shadows), you will see **Corrections (3)**.

### Exceptions

Use the **Exceptions** tab if you want to always apply specific screening and dot gain compensation settings to certain separations (for example spot colors).

These specific settings overrule your more general screening and dot gain compensation settings (for example, you can apply a *default press curve* to your input file, but choose to use a different press curve for a specific separation).

You can do this anytime (when launching the task on one or more input files, when defining ticket settings, when setting up a workflow...).

You do this by setting up **rules**. This works as follows:

- You create a rule for each separation or set of separations that need specific screening and/or dot gain compensation settings.
- Within each rule:
  1. You select the separation(s) you want to apply specific settings to. You do this by setting criteria that a separation has to match to be selected.

For example if you want to select all process inks, you can set that the ink book must be `process` for the inks to be selected.

You can use the following ink characteristics in your criteria:

<b>Ink name</b>	
<b>Ink book</b>	

<p><b>Ink index</b></p>	<p>The <b>Ink index</b> is the order in which the file's inks will be printed (the ink with ink index 1 is at the bottom of the document and will be printed first).</p> <p>To find the ink index of a file:</p> <ol style="list-style-type: none"> <li>1. select the file in the Automation Engine Pilot's <b>Files</b> view,</li> <li>2. click <b>i</b>,</li> <li>3. in the <b>Info</b> dialog that opens, select <b>Inks</b> in the left panel.</li> </ol> <p>The order of the inks at right is the ink index (the topmost ink has an index of 1, the second of 2, etc.).</p> <p>Note that if you reorder the inks by one of the columns (for example by <b>Ink name</b>), they won't be ordered by ink index anymore. You will need to close that dialog and reopen it to see the ink index order again.</p>
<p><b>Spot ink index</b></p>	<p>The <b>Spot ink index</b> is the order in which a spot ink will be printed (when counting only spot inks and not process inks).</p> <p>For example, if the first 4 inks of the document are CMYK, the first spot ink will have 5 as <b>Ink index</b> but 1 as <b>Spot ink index</b>.</p>
<p><b>Ink type</b></p>	<p>This can be for example <i>Normal, Technical, Varnish...</i></p>
<p><b>Printing method</b></p>	<p>If you have set a <b>Printing method</b> for an ink it will be shown here (this can be for example <i>Offset, Gravure, Flexo...</i> or any custom printing method you configured).</p> <p>See the Automation Engine documentation for more information about printing methods.</p>

2. You define the screening and/or dot gain compensation settings to apply to the selected separation(s).

- If you have several rules, you can reorder them in order of priority (the top one is applied first).

To define a rule manually, you need to do the following in the **Exceptions** tab:


1. Click **+** at the bottom of the table.
2. In the **Rules Properties** dialog, enter a **Rule Name**.
3. Under **If separation matches**, define one or more criteria to select your desired separation(s).

You can use the following elements:

- **Ink name:** you can define if it **contains/begins with/ends with/is** a piece of text (alphanumerical characters), or if it **is empty**.
- **Ink book:** you can define if it **contains/begins with/ends with/is** a piece of text (alphanumerical characters), or if it **is empty**.
- **Ink index:** you can define if it **equals/is less than/is greater than** the number you enter, or **is between** the two numbers you enter (in this case the ink indexes you enter as boundaries are also selected).

- **Spot ink index:** you can define if it **equals/is less than/is greater than** the number you enter, or is **is between** the two numbers you enter (in this case the spot ink indexes you enter as boundaries are also selected).
- **Ink type:** you can define if it **is** a piece of text (alphanumerical characters).
- **Printing method:** you can define if it **is** a piece of text (alphanumerical characters).

**Tip:**

- You can enter several values to check for: just use a semicolon (;) between them.  
For example, to check for both inks called *Cyan* and inks called *Magenta*, choose **Ink name is** and enter *Cyan;Magenta*.
- Click **+** to add more criteria. You can also add sub-criteria by holding **Alt** while clicking **+**.  
For example, if you want to make a rule for *Process Yellow*, you can use:  
**All of the following are true:**  
**Ink name is** *Yellow*  
**Ink book is** *Process*
- When launching the task on a file, you can also click  to select one or more of the **Ink names/Ink books/Ink types/Printing methods** used in your input file(s).  
A criterion will automatically be created based on your selection.

4. Define the settings (**Dot, Ruling, Angle** and/or **Press Curve**) you want to use for the selected separation(s).

**Note:** If you enter a **Ruling** or **Angle** value that is not valid for the separation's **Dot** shape, Imaging Engine will change it to the closest valid ruling or angle when RIP'ing.

5. Click **Add**.

You can see your rule and the settings you defined for the selected separation(s) in the **Exceptions** tab table.

**Tip:** You can double-click your rule if you still want to edit it.

**Note:**

If you have defined specific settings for certain separations *manually* (when launching the task on a single file), you can see that these settings have been automatically added as rules in the **Exceptions** tab (and shown in italics).

A rule is added for each setting that you define (for example if you select a specific **Dot** and **Press Curve** for *Yellow*, you will get one rule for the dot and one for the press curve).

6. Repeat steps 1 to 5 to define more rules if desired.

If you want to remove a rule, select it and click **Remove**.

You can see the number of rules defined next to the **Exceptions** tab at left.

7. If desired, you can reorder your rules (they are applied from top to bottom). To do this, select a rule and click **Move Up** or **Move Down** (or drag it up or down).
8. When launching the task on a single file, you can see the file's separations and the settings that will be applied to them in a table (make sure to leave the **Preview** option selected).

This is the same table as at the bottom of the [Separations](#) tab. It includes:

- the settings you have *taken from the input file*,
- the settings you have *defined for all separations*,
- the settings you have defined *for specific separations*,
- the settings defined by your exception rules.

As in the **Separations** tab, you can use this table to define specific screening and dot gain compensation settings for certain separations.

Click in the **Dot**, **Ruling**, **Angle** or **Press Curve** column, and enter/select the value you want to use for that ink.

Your custom values are shown in italics.

**Note:** If you enter a **Ruling** or **Angle** value that is not valid for the separation's **Dot** shape, Imaging Engine will change it to the closest valid ruling or angle when RIP'ing.

If you want to go back to the previous setting, right-click the value you just set and select **Clear Custom Value**.

**Note:**

When launching your Imaging Engine ticket on a file from Automation Engine Shuttle, you cannot see the exceptions defined in the ticket (Shuttle always displays the parameter values found in the input file).

However, if you modify some public parameter values in Shuttle then launch the ticket, when you go to back to the Automation Engine Pilot and open the ticket, you will see all your modified parameters saved as exceptions.

### 6.4.9. Post-RIP

When a job is RIP'ed with screening, it can happen that very small or broken dots (sometimes called "scum dots") appear in highlight areas.

These dots can be smaller than the minimum dot size that can be held on a flexo plate, which can cause "dragging" and other unwanted effects when the job is printed.

You can use **Post-RIP** settings to clean up areas of the output files where:

- Halftone dots are smaller than a certain minimum dot size.
- [Advanced screening effects](#) like support dots and surface screening patterns are broken or different from the intended pattern.

This is typically the result of a resolution mismatch between the input file and the screen ruling applied.



**Note:** The **Post-RIP** tab is only available if you have a dot cleanup license.

The cleanup algorithm adapts itself to the screen(s) used by the task:

- For screens with surface screening effects (micro-cells, patterns or line perforations in dots and solids to improve ink lay-down), dot cleanup will preserve the surface screening.
- For screens with support dots (non-printing pixels that support isolated printing dots), dot cleanup will replace pixel residues by a supporting dot.
- For screens with *Pixel+* pixels used to form halftone dots, dot cleanup will preserve the isolated pixels and the minimum dot size will be interpreted as the minimum number of isolated Pixel+ pixels.

1. To perform post-RIP dot cleanup, select **Clean up dots in highlights**.

This makes the parameters below available.

**Note:** If you are using a *printing condition*, Imaging Engine will always perform dot cleanup in the highlights.

2. Enter the **Ruling** used in the area of your job where you want to perform the dot cleanup.

**Note:**

- **Ruling** refers to the plate resolution (digital ruling), and may be different from the screen ruling set in the **Separations** tab.
- If your job contains several screen rulings, enter the ruling used in the areas where dot cleanup is particularly required, or the most widely-used ruling in the job.
- If you are using a *printing condition*, the **Ruling** is automatically set to the ruling used in your printing condition.

The **Ruling** cannot be lower than 1 lpi. A SmartName for ruling must resolve to a number higher or equal to 1 (lpi). The default value for a new task is 150 lpi.

3. In **Minimum Dot Size**, enter the smallest screen dot size that your job can have.

The **Minimum Dot Size** cannot be lower than 2 pixels. The default value for a new task is 1%. A SmartName for the minimum dot size must resolve to a number (in your chosen unit) that corresponds to a minimum of 2 pixels, otherwise the task will fail.

A SmartName defining the dot size unit must resolve to %, pixels, or  $\mu\text{m}$ .

The **Minimum Dot Size** is also a plate specification provided by the plate manufacturer for the plate resolution.

**Note:**

- If you are using a *printing condition*, the **Minimum Dot Size** is the minimum dot size used in the screen from your printing condition.
- For **HD Flexo** or **Full HD Flexo** screens which use highlights or a minimum dot size, the **Minimum Dot Size** must be the minimum dot size for that screen.  
For example, for an HD Flexo screen whose name contains "C16", the **Minimum Dot Size** should be set to 16 pixels.

**Note:**

- If the task also contains a *minimum dot correction* set in the **Separations > Corrections** tab, both actions will be performed independently; the post-RIP dot cleanup will be performed last.
- The post-RIP dot cleanup may in some cases cause a loss of detail in the highlights.  
When using hybrid screens (with transition point features), you should check that the cleanup action does not interfere with your screen design below the transition point in the highlights.

For more information, see [this knowledge base article](#).

### 6.4.10. Summary

This shows a summary of all the settings you defined in the ticket.

- To show the settings from a tab, click + (on PC) or ► (on Mac) beside the tab name in the right pane.  
Click **Expand All** to show the settings from all tabs.
- To hide the settings from a tab, click - (on PC) or ▼ (on Mac) beside the tab name in the right pane.  
Click **Collapse All** to hide the settings from all tabs.

## 6.5. Image to Unscreened Separations

Use this task if you need unscreened output to send to a device that will take care of the screening, or a device that doesn't need screened input (for gravure for example).

### Task Output

The **Image to Unscreened Separations** task generates one file per separation, in either *PDF or TIFF format*.

In the example below, processing a file containing the lime green Esko star generates unscreened files for the Cyan, Yellow and Black separations.



### Task Parameters

In the **Device** field, select the imaging device *that you configured*.

Then use the tabs at left to show more settings to fill in. See:

- [General](#) on page 211,
- [Transformations](#) on page 213,
- [PDF Objects](#) on page 214,
- [Processing Steps](#) on page 216
- [Inks](#) on page 219,
- [Output](#) on page 226,
- [Separations](#) on page 235,
- [Summary](#) on page 250.

## 6.5.1. General

1. Define what **Page Box** of the input PDF you want to RIP.

You can either select **Media Box**, **Trim Box**, or insert a SmartName `[]` that must resolve to either `media` or `trim`.

After selecting your file's page box you will see its dimensions under the **Page Box** option.

2. If your input file is a multi-page PDF, select which **Pages** you want to RIP:

- a) First select **All pages**, **Odd pages only** or **Even pages only** in the **Pages** option.

You can also insert a SmartName resolving to either `All`, `Even` or `Odd`.

- b) Then you can refine your selection by entering page numbers or a **Page Range**.

You can separate page numbers by a comma, or use a dash to indicate a page range (for example `3, 6-9`). You can also use a SmartName resolving to page numbers and/or page ranges using this same format.

**Note:**

- Page numbers are always physical pages. If your document starts with page 5, you should not use 5 but 1 to get the first page.
- If you enter page numbers that are not part of your document, they will be excluded from the output (all the other valid pages will be RIP'ed).
- If you enter the same page(s) more than once (for example `1, 1-2`), it/they will only be output once.
- Pages are RIP'ed in the order of the document (entering `5-1` will be automatically changed to `1-5`).

3. If you want to invert your output so it is compatible with the output device or software system that will process it, click **A**.

You can also click `[]` or **Edit...** to insert a SmartName that must resolve to `1` or `true` (to invert the output), or to `0` or `false` (to leave the output as it is).

4. If you want to mirror your output so it is compatible with the output device or software system that will process it, click **M**.

You can also click `[]` or **Edit...** to insert a SmartName that must resolve to `1` or `true` (to mirror the output), or to `0` or `false` (to leave the output as it is).

5. If you want to add a **SmartMark** to your output file(s), select it in the **SmartMark** list, or use a SmartName that will resolve to the SmartMark name.

A **SmartMark** is a mark whose content is variable, so you can make it display information about that specific job. For example, you can include some of the parameters used during RIP'ing in your output file(s) by using a SmartMark.

You need to:

- a) First create the SmartMark you want to use in **PackEdge** (see the **SmartMarks** section in the PackEdge manual for details).

You can create either:

- a SmartMark with RIP-specific parameters,

Use this SmartMark parameter in PackEdge:	to display this value from the Imaging Engine parameters:
Device	the <i>imaging device</i> you used
Image	whether you <i>inverted</i> your output
Emulsion	whether you <i>mirrored</i> your output
V Distortion	the <i>vertical distortion</i> you applied to your output file(s)
H Distortion	the <i>horizontal distortion</i> you applied to your output file(s)
Resolution	the <i>resolution</i> of your output file(s)
Plate Curve	the <i>plate curve</i> you applied to your separation(s)
Correction Curve	the <i>correction curve</i> you applied to your separation(s)
Screen based DGC	the curve strategy you applied as a <i>press curve</i> to your separation(s)(if you used a curve strategy)
DGC	the single curve you applied as a press curve to your separation(s)(if you used a single curve)

- another type of SmartMark (for example a corner mark).

If your PackEdge application is linked to your Automation Engine server, your SmartMark will automatically be saved in the correct location and will be available in Imaging Engine.

- b) Then select that SmartMark in your **Imaging Engine task**.

The SmartMark will be added to each output file generated from your input file.

## 6.5.2. Transformations

Use the **Transformations** settings to rotate or distort your output relative to your input file.

1. If you want to rotate your file's contents, select the **Rotation** you want to apply here.

This can be:

- **0°**
- **90° Counter Clockwise**
- **180°**
- **90° Clockwise**



Any other value will give an error.

**Note:**

- You can use a SmartName that resolves to 0, 90 (for **90° Counter Clockwise**), 180 or 270 (for **90° Clockwise**).
- You need to use a numerical value (`ninety` will not work).
- This is a public parameter, that you can fill in when submitting files through Shuttle.

2. If you want to apply **Distortion** to your file's contents, select the type of distortion to apply:

a) **Flexo distortion**

If you want to apply **Flexo distortion**, enter the vertical  and horizontal  distortion percentages to use.

You can enter numerical values, or insert SmartNames that resolve to numerical values (without the % sign).

**Note:**

- The values should be within the 85%-115% range. If you enter a percentage outside of this range it will be automatically adjusted to the nearest value in the range (for example 80 will be adjusted to 85%).  
However, if you use a SmartName that resolves to a percentage outside the range, the task will end in error.
- You can enter a simple formula and it will be calculated automatically (for example you can enter `100+2` and this will be changed to `102%`). This only works with numerical values and not with SmartNames.

b) **Values from file**

If you selected **Values from file** and the input file contains distortion values, you will see these in the fields below (greyed out)

**Note:** The values should be within the 85%-115% range. If the input file's distortion values are outside of this range, the task will end in error.

c) **No distortion**

This is the default option and no distortion will be selected.

You can also use a SmartName that resolves to `Flexo`, `File` or `Not`.

### 6.5.3. PDF Objects

Use the **PDF Objects** settings to define:

- how to color manage RGB objects in your input file,
- what dot gain compensation to apply to your input file's images.

All parameters in this tab are public parameters, that you can fill in when submitting files through Shuttle.

1. In **Default RGB Profile**, specify the profile to use if no profile is specified for a certain RGB object in the input file. The default is `srgb.icc`.

You can use a SmartName that resolves to the full profile name.

2. Select what output profile you want to use when converting RGB objects to CMYK:

- If you want to use the output profile from the input file (if there is one available), leave **Use output intent from file** selected (it is selected by default).
- If you don't want to use the output profile from the input file, deselect **Use output intent from file** and specify the output profile to use in **Output Color Profile**.

This output profile will also be used if there is none available in the input file.

The default is `ISOcoated_v2_300_eci.icc`.

For the **Use output intent from file** option, you can use a SmartName that resolves to `true` (to use the file's profile) or `false` (to not use it).

For **Output Color Profile**, you can use a SmartName that resolves to the full profile name.

3. Select **Use PDF transfer curves** if you want to use:

- the *Dot Gain Compensation curves* attached to the images in your input PDF. These curves compensate for the unwanted characteristics of the device that created the images (scanner, digital camera...).
- the **Color Correction curves** added by ArtPro+ version 20 and higher. These curves allow you to correct individual separations for color deviations on proof from the reference proof. The correction will be applied on both the proof and the production files.

**Note:**

You can only use the correction curves if the Color Correction curves option is enabled in the global Imaging Engine configuration.

Please contact Esko Support for assistance.

You can use a SmartName that resolves to `true` (to use the input file's curves) or `false` (to not use them).

4. If you experience issues with a font that doesn't look smooth enough at your selected resolution, your font may have **font hinting errors**.

Font hinting is the rendering of the outline (vectorized) font to pixels. For certain fonts, this rendering sometimes doesn't give a visually pleasing result, especially at low resolutions. In the image below, the top font has font hinting errors, the bottom font doesn't.



Label Pack  
Label Pack

Choose how to handle files containing font hinting errors:

- Leave **Task ends in error when the job contains font hinting errors** selected if you want the task to end in error when encountering font hinting errors. You can also use a SmartName resolving to `true`.
- Deselect **Task ends in error when the job contains font hinting errors** if you want to output your file anyway, whether it has font hinting errors or not (your task will end with a warning). You can also use a SmartName resolving to `false`.

This may lead to reduced quality rendering of the text, but it will not generate incorrect characters in your output file.

5. If your PDF+ input file has linked artwork and the external reference files have been modified, the changes do not get updated automatically in the PDF+ file. This will result in outdated data in the input as well as output files.

Choose how to handle files containing **outdated linked artwork**:

- Select **Task ends in error when linked artwork is not up to date** if you want the task to end in error if the input file contains outdated external references. You can also use a SmartName resolving to `true`.

- Deselect **Task ends in error when linked artwork is not up to date** if you want to output the file anyway, whether the references are outdated or not (your task will end with a warning). You can also use a SmartName resolving to `false`. This is the default option.

## 6.5.4. Processing Steps

Your PDF input files may contain additional objects and metadata that will not be used for printing. These correspond to additional processing steps a job needs to go through after printing: for example die cutting, creasing, etc.

Imaging Engine and Pack Proof display the processing steps associated with the layers in your input file (or files placed in it) in the **Processing Steps** tab.

The list of processing steps that you see depends on various factors like the number of jobs you select, the input file type, etc.

- If you select only one job, only the printable processing steps are listed under the **Processing Steps** tab. Layers which are set as unprintable will not be listed as processing steps.
- If you select multiple jobs or if you don't select any job, all the supported processing steps are listed.
- If your input file contains no layers, the processing steps tab will display an empty table with a "No printable processing steps found" message.
- If you select input files that are not PDF files, the **Processing Steps** tab will not be visible as processing steps are only applicable to PDF files. For example, for Normalized PDF files, the **Processing Steps** tab will always be hidden.
- If your input file contains layers that do not have equivalent processing steps in Imaging Engine/ Pack Proof, those layers will not be listed under this tab.

**Note:** Adobe Illustrator layers can also be used as processing steps though they are not the same as PDF layers.

## Processing Steps - Groups and Types

### Groups

In the ISO 19593 standard, the types of processing steps are grouped as follows:

- **Structural Data:** A collection of contours that describe how the printed product will be finished to produce a 3D end product from a flat substrate. These are as lines defining cutting, creasing, folding etc. The types of this group are listed below.
- **Positions:** Objects that indicate intended, allowed or forbidden positions for certain types of elements. For example, the positions on a flap of a carton where content is allowed. The types of this group are listed below.
- **Braille:** Braille characters that are applied after printing, typically by a die cutter or inkjet device.
- **Legend:** Job related data added outside the boundaries of the actual printed products.
- **Dimensions:** Indications of the physical sizes.
- **White:** White ink to be printed on a transparent or metallic substrate.
- **Varnish:** Indicating the application of varnish after printing.

Imaging Engine and Pack Proof also include the **Esko\_PlateCutting** custom processing step by default.



### Types of "Structural Data" Processing Steps

Group	Type	Description
Structural Data	Cutting	Processing step objects indicating where the printed artwork will be cut from the printed sheet for example with a guillotine cutter or die cutting device.
Structural Data	PartialCutting	Processing step objects indicating where the substrate will be cut partially (not entirely through the material).
Structural Data	ReversePartialCutting	Processing step objects indicating where the substrate will be cut partially (not entirely through the material) on the back side of the substrate.
Structural Data	Creasing	Processing step objects indicating where the substrate will be creased to guide subsequent folding.
Structural Data	ReverseCreasing	Processing step objects indicating where the substrate will be creased on the back side of the substrate.
Structural Data	CuttingCreasing	Processing step objects indicating where the substrate will undergo alternating cutting and creasing.
Structural Data	ReverseCuttingCreasing	Processing step objects indicating where the substrate will undergo alternating cutting and creasing on the back side of the substrate.
Structural Data	PartialCuttingCreasing	Processing step objects indicating where the substrate will undergo alternating partial cutting and creasing.
Structural Data	ReversePartial-CuttingCreasing	Processing step objects indicating where the substrate will undergo alternating partial cutting and creasing on the back side of the substrate.
Structural Data	Drilling	Processing step objects indicating locations where the substrate will be drilled and the intended size of the resulting hole.
Structural Data	Gluing	Processing step objects enclosing an area where glue will be applied.
Structural Data	FoilStamping	Processing step objects enclosing an area where foil will be applied through hot foil stamping.
Structural Data	ColdFoilStamping	Processing step objects enclosing an area where foil will be applied through cold foil stamping (using glue).
Structural Data	Embossing	Processing step objects enclosing an area where embossing will be applied.
Structural Data	Debossing	Processing step objects enclosing an area where debossing will be applied.
Structural Data	Perforating	Processing step objects indicating where the substrate will be perforated.
Structural Data	Bleed	Processing step objects indicating the intended bleed for print.
Structural Data	VarnishFree	Processing step objects enclosing an area where it is not allowed to have varnish.

Group	Type	Description
Structural Data	InkFree	Processing step objects enclosing an area where it is not allowed to have printing ink.
Structural Data	InkVarnishFree	Processing step objects enclosing an area where it is not allowed to have printing ink and where it is not allowed to have varnish.
Structural Data	Folding	Processing step objects indicating where the substrate will be folded without prior creasing.
Structural Data	Punching	Processing step objects indicating the locations at which the substrate will be punched and the size and shape of the resulting holes.
Structural Data	Stapling	Processing step objects indicating the locations at which the substrate will be stapled or stitched, and the size of the staples or stitches to be used.

**Types of "Positions" Processing Steps**

Group	Type	Description
Positions	Hologram	Processing step objects that indicate the intended position of holograms.
Positions	Barcode	Processing step objects that indicate the intended position of barcodes.
Positions	ContentArea	Processing step objects that indicate areas where it is allowed to place text and other graphical elements.
Positions	CodingMarking	Processing step objects specific to packaging that indicate areas where additional information not contained in the PDF will be printed on the packaging at a post-press stage, such as on filling lines where final products are being packed. Some examples of information that might be marked as CodingMarking include but are not limited to best before dates, lot numbers, production dates, and tracking codes.
Positions	Imprinting	Processing step objects that indicate areas where additional information (for example variable data) will be printed on pre-printed shells which contain the bulk of the graphical content, as a secondary print stage prior to finishing.

**Using Processing Steps**

**Deselecting Processing Steps**

Use the processing steps settings to deselect the processing steps that should not appear in the output. All the processing steps will be selected by default.

You can use the checkboxes to deselect or select a processing step or a group. When you deselect a group, all processing steps that are part of the group will be deselected.

Inks that are only related to deselected or non-printable processing steps will not be displayed in the inks tab or separations tab.

### Custom Processing Steps

Custom processing steps can be added manually in the **Processing Steps** tab. Adding custom processing steps will be useful when you want to reuse the same ticket with the selected/deselected processing steps settings for different files.

You can add or remove custom processing steps using the add and remove buttons at the bottom of the tab.

**Note:** The same custom processing step cannot be added twice.

## 6.5.5. Inks

Use the **Inks** settings to select which separations of the input file(s) you want to RIP.

For example, you can use these settings to exclude technical and/or varnish inks from your output.

You can choose to RIP either:

- **All** separations.
- A number of separations you select **Manually**.
- A number of separations you select **by using selection criteria**.

Selection criteria are rules that you define to select separations automatically for you when the task is launched on a file.

Selecting separations manually is the easiest option, but you can only do it on a file by file basis (when you launch the task on a single input file).

Using selection criteria is more advanced but also more powerful than selecting separations manually, and you can do it anytime (when launching the task on one or more input files, when using the task in a workflow, when defining ticket settings...).

Therefore, we recommend that you first try selecting separations manually when running the task on individual files, then switch to using selection criteria to automate your workflow further.

#### Tip:

To get used to working with selection criteria, try the following on a few of your files:

1. select the separations you want to output manually,
2. then change **Select Inks** to **by using selection criteria** and see which rules have been created based on your manual selection.


For more information, see [Selecting Inks Manually](#) on page 219 and [Selecting Inks Using Selection Criteria](#) on page 220.

**Tip:** You can also make the ink selection parameter public so that an operator can set it [through Shuttle](#) as needed for each job. See [Selecting Inks through Shuttle](#) on page 224 for more information.

### Selecting Inks Manually

**Note:** You can only select inks manually when you are launching the task on a (single) file, not when you are defining a generic ticket without an input file.

When choosing to **Select Inks Manually**, you will see a table containing all of your document's inks, showing each ink's:

<b>Ink Name</b>	
<b>Ink Book</b>	If an ink book is not present in your color database, it will show here as <unregistered "">.
<b>Ink Index</b>	<p>The <b>Ink index</b> is the order in which the file's inks will be printed (the ink with ink index 1 is at the bottom of the document and will be printed first).</p> <p>If your file has several of the same ink, they will have the same ink index, and the next ink will have the next one (for example two Cyans will both have ink index 1, then Magenta will have ink index 2).</p> <p>This means that when selecting inks for processing, both Cyans will be selected together and handled the same way.</p> <p><b>Tip:</b></p> <p>To find the ink index of a file:</p> <ol style="list-style-type: none"> <li>1. select the file in the Automation Engine Pilot's <b>Files</b> view,</li> <li>2. click ,</li> <li>3. in the <b>Info</b> dialog that opens, select <b>Inks</b> in the left panel.</li> </ol> <p>The order of the inks at right is the ink index (the topmost ink has an index of 1, the second of 2, etc.).</p> <p>Note that if you reorder the inks by one of the columns (for example by <b>Ink name</b>), they won't be ordered by ink index anymore. You will need to close that dialog and reopen it to see the ink index order again.</p>
<b>Spot Ink Index</b>	<p>The <b>Spot Ink index</b> is the order in which a spot ink will be printed (when counting only spot inks and not process inks).</p> <p>For example, if the first 4 inks of the document are CMYK, the first spot ink will have 5 as <b>Ink Index</b> but 1 as <b>Spot Ink Index</b>.</p> <p>As for the ink index, if your file has several of the same spot ink, they will have the same spot ink index, and will be handled together when you select them.</p>
<b>Ink Type</b>	This can be for example <i>Normal, Technical, Varnish...</i>
<b>Printing Method</b>	<p>If you have set a <b>Printing Method</b> for an ink it will be shown here (this can be for example <i>Offset, Gravure, Flexo...</i> or any custom printing method you configured).</p> <p>See the Automation Engine documentation for more information about printing methods.</p>

Select the ink(s) you want to RIP, or select the toggle in the table header to select/deselect all inks.

### Selecting Inks Using Selection Criteria

If you don't want to [select inks manually](#) every time, you can define some rules to automatically select certain inks in your input file(s).


You can do this:

- either when running the task on one or more files, or when creating a task ticket to use later,
- by choosing to **Select Inks by using selection criteria** in the **Document Inks** settings.

**How Does it Work?**

You select the inks to be output by checking a combination of criteria:

1. You define what to check. You can check any of the following ink characteristics in your criteria:

<b>Ink name</b>	
<b>Ink book</b>	
<b>Ink index</b>	<p>The <b>Ink index</b> is the order in which the file's inks will be printed (the ink with ink index 1 is at the bottom of the document and will be printed first).</p> <p>To find the ink index of a file:</p> <ol style="list-style-type: none"> <li>1. select the file in the Automation Engine Pilot's <b>Files</b> view,</li> <li>2. click ,</li> <li>3. in the <b>Info</b> dialog that opens, select <b>Inks</b> in the left panel.</li> </ol> <p>The order of the inks at right is the ink index (the topmost ink has an index of 1, the second of 2, etc.).</p> <p>Note that if you reorder the inks by one of the columns (for example by <b>Ink name</b>), they won't be ordered by ink index anymore. You will need to close that dialog and reopen it to see the ink index order again.</p>
<b>Spot ink index</b>	<p>The <b>Spot ink index</b> is the order in which a spot ink will be printed (when counting only spot inks and not process inks).</p> <p>For example, if the first 4 inks of the document are CMYK, the first spot ink will have 5 as <b>Ink index</b> but 1 as <b>Spot ink index</b>.</p>
<b>Ink type</b>	This can be for example Normal, Technical, Varnish...
<b>Printing method</b>	<p>If you have set a <b>Printing method</b> for an ink it will be shown here (this can be for example Offset, Gravure, Flexo... or any custom printing method you configured).</p> <p>See the Automation Engine documentation for more information about printing methods.</p>

For example, you can check whether the **Ink book is** process, whether the **Ink name is** yellow...

You can use as many criteria as you want.

2. You define how to combine your criteria into a rule. For example:
  - If you want to output only process yellow, you should check for inks that match **both** of the criteria:
    - Ink book is** process
    - Ink name is** yellow
  - If you want to output both all process inks and all yellow inks, you should check for inks that match **either** of the criteria:
    - Ink book is** process

**Ink name is** yellow

- If you don't want to output any process inks or any yellow inks, you should check for inks that match **neither** of the criteria:

**Ink book is** process

**Ink name is** yellow

### How Do I Build Rules?

Build your rules the following way:

**1.** Choose how to combine the criteria in your rule:

- Select **All of the following are true** if you want to only select the inks that match **all** of the criteria you define.
- Select **Any of the following are true** if you want to select all the inks that match **at least one** of the criteria you define.
- Select **None of the following are true** if you want to only select the inks that match **none** of the criteria you define.

**2.** Define your first selection criterion.


You can select an ink based on its:

- **Ink name:** you can define if it **contains/begins with/ends with/is** a piece of text (alphanumerical characters), or if it **is empty**.
- **Ink book:** you can define if it **contains/begins with/ends with/is** a piece of text (alphanumerical characters), or if it **is empty**.
- **Ink index:** you can define if it **equals/is less than/is greater than** the number you enter, or **is between** the two numbers you enter (in this case the ink indexes you enter as boundaries are also selected).
- **Spot ink index:** you can define if it **equals/is less than/is greater than** the number you enter, or **is between** the two numbers you enter (in this case the spot ink indexes you enter as boundaries are also selected).
- **Ink type:** you can define if it **is** a piece of text (alphanumerical characters).
- **Printing method:** you can define if it **is** a piece of text (alphanumerical characters).

For example, you could use:	to:
<b>All of the following are true</b> <b>Ink book is</b> designer	select all inks from the "designer" ink book
<b>None of the following are true</b> <b>Ink name is</b> crease	exclude an ink called "crease"
<b>None of the following are true</b> <b>Ink type is</b> Technical	exclude all technical and all varnish inks

For example, you could use:	to:
<b>Ink type is</b> Varnish	

**Tip:**

- You can enter several values to check for: just use a semicolon (;) between them.  
For example, to check for both inks called Cyan and inks called Magenta, choose **Ink name is** and enter Cyan;Magenta.
- When launching the task on a file, you can also click  to select one or more of the **Ink names/Ink books/Ink types/Printing methods** used in your input file(s).  
A criterion will automatically be created based on your selection.

3. Click + to add more criteria and define them.

To remove a criterion, click - next to it.

**Tip:** If you are launching the task on a single input file, you will see a table listing the **Selected document inks**, and another table with the **Document inks that are not selected** under the rules you defined.



**Attention:** If no ink is selected, you cannot launch the task.

### Switching How You Select Inks

You can switch between the two methods of selecting inks (*manually* and *using selection criteria*), and this will keep the same inks selected.

#### Switching from Selecting Inks Manually to Selecting Inks Using Selection Criteria

When switching from selecting inks manually to selecting inks using selection criteria, the task will translate your manual ink selection into rules, so that the same inks are selected (you can see them in the **Selected document inks** table).

The rules you get are based on the characteristics of the inks you selected.

For example, if you selected all the process colors but no spot color in your file, for an offset job, you will get the following rule:

**All of the following are true**

- Ink name is** Cyan;Magenta;Yellow;Black
- Ink book is** process
- Ink type is** Normal
- Printing method is** Offset

**Note:**

If you...

- first selected inks using selection criteria,
- then switched to manual selection without changing the selection,
- then switched back to selection criteria,

... then your rules will be kept.

If you did change the selection in manual mode, the task will automatically generate new rules.

**Switching from Selecting Inks Using Selection Criteria to Selecting Inks Manually**

When switching from selecting inks using selection criteria to selecting inks manually, all the inks selected by the rules you defined (the inks in the **Selected document inks** table) become selected manually.

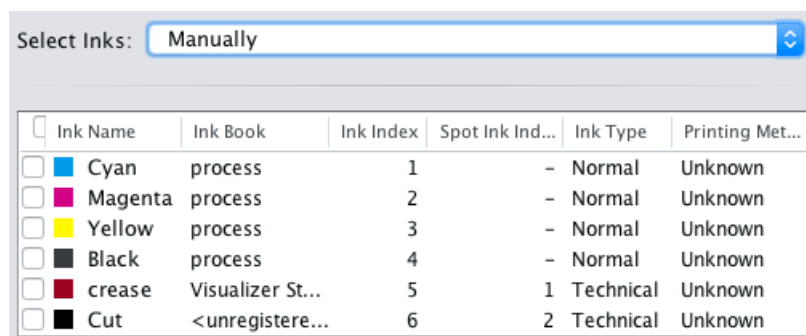
**Note:** You can only switch to selecting inks manually when you are launching the task on a (single) file.

**Selecting Inks through Shuttle**

If you want to be able to decide which inks to RIP when submitting your input file *through Shuttle*, do the following:

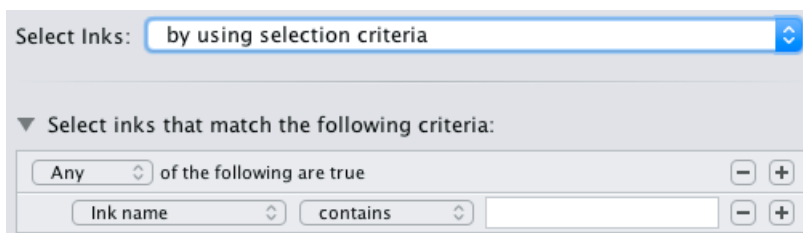
**In Your Imaging Engine Ticket**

1. To make the ink selection a public parameter, you can either:
  - Right-click **Select Inks** and choose **Make Parameter Public**.
  - If you (are currently launching the ticket on a file and) have chosen to *select inks manually*, right-click the preview table under **Select Inks** and choose **Make Parameter Public**.



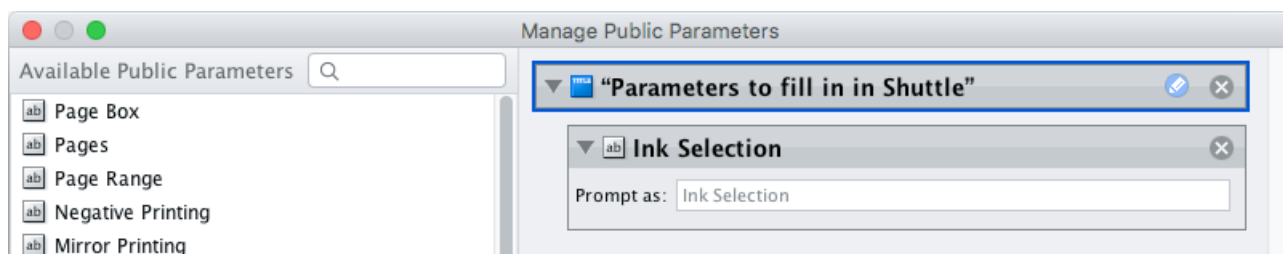
- If you have chosen to *use selection criteria*, right-click the rules builder under **Select Inks** and choose **Make Parameter Public**.





**Note:** You will not be able to create rules using Shuttle, you will only be able to select inks manually.

- Go to **Advanced > Manage Public Parameters...**, find the **Ink Selection** parameter at the bottom of the list, and drag it to the right hand side.

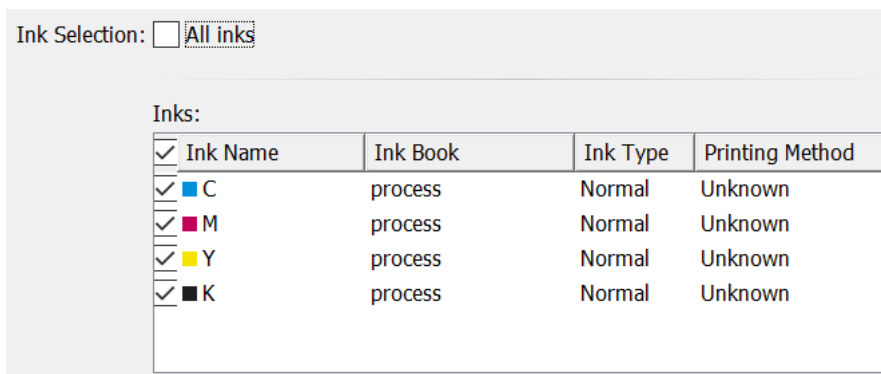


2. By default, the public parameter that appears in Shuttle will be called **Ink Selection**. You can change its name by:
  - right-clicking one of the elements mentioned above, selecting **Modify Public Parameter** and entering a new name,
  - if you are using the **Manage Public Parameters** window, entering the new name in **Prompt as**.
3. Make sure your ticket is also **Public**.

### In Shuttle

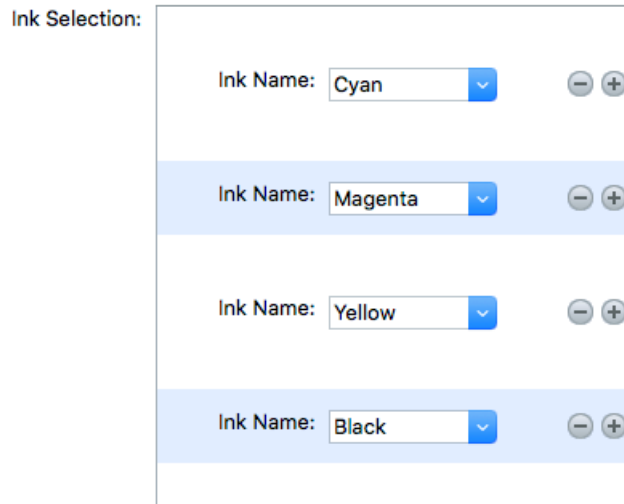
The ink selection parameter may look a bit different depending on which Shuttle you are using (the Shuttle standalone application or a Shuttle plug-in in an Editor application).


- In the Shuttle standalone, the ink selection parameter will look like this:



The table shows a preview of all inks in your input file, with their characteristics.

- To RIP all inks from your input file, either leave all inks selected in the preview table, or select **All inks** at the top (this will hide the preview table).
- To only RIP certain inks, make sure **All inks** is not selected, and deselect the input inks that you don't want to RIP.
- In ArtPro+ for example, the ink selection parameter will look like this:



By default, all the inks from your input file will be RIP'ed, but you can remove any ink you don't want to RIP using the  button.

### 6.5.6. Output

Use the **Output** settings to define what type of output you want and where to output it. You can set these through public parameters or using SmartNames.

1. Enter your output **File Name** and output **Folder**.

**Note:**


- You can use Imaging-specific SmartNames for the **File Name**.  
By default, it is set to:
  - [File]\_[ShortInk] for single page input files (which gives output file names like Myfile\_C.tif),
  - [File]\_p[Page]\_[ShortInk] for multi-page input files (which gives output file names like Myfile\_p1\_C.tif).
- The **File Name** and **Folder** can contain special characters (except \ / : \* ? < > " |).
- The whole path to the output file (including the container, **Folder** and **File Name**) can be up to 255 characters.
- You can set a local or remote URL for the output **Folder**, but it must be an absolute path.
- If your output folder doesn't exist yet, the task will create it if the location you request is valid (you should place this folder on an Automation Engine container accessible by your Automation Engine user).  
If the output folder creation fails, please check the task log for the full list of conditions and adapt your output folder path accordingly.

**2.** Define what to do if a file of the same name already exists in your output folder:a) Click **Set Overwrite Policy...**b) Choose what to do **If files exist already**. You can either:

- **Extend the file name** if you want to keep the existing output file and give the new output file a different name. In this case, your new output file name consists of:
  - the **Output file name** (the **File Name** you set earlier) - which is what the file would be called if no file with the same name existed,
  - a custom suffix that you can define using plain text and/or SmartNames (by default, this is \_c, for "copy"),
  - an automatic suffix made of the three last digits of the task **ID**,

**Tip:**

To see the task ID of your tasks:

1. Go to the Pilot's **Tasks** pane (in the **Files** or **Tasks** view).
2. Go to **View > Select Columns in 'Tasks'...**
3. In the **Columns** dialog, select **Task ID** in the **Available columns** list and click  to move it to the **Show these columns:** list.
4. Click **OK**.
5. You now have a **Task ID** column in the **Tasks** pane, listing the task ID of all the tasks.

- the file extension.

For example, you are working with a CMYK input file called `file.pdf` and you have left the tasks' output **File Name** to its default value (the SmartName **[File]**).

The first TIFF files you generate will be called:

- `file_C.tif`
- `file_M.tif`
- `file_Y.tif`
- `file_K.tif`

If you generate output from this input file again, with the task 3669, and you have set the overwrite policy to **Extend the file name** with the default **Output File Name + \_c + ID** name, the new output files will be called:

- `file_C_c669.tif`
- `file_M_c669.tif`
- `file_Y_c669.tif`
- `file_K_c669.tif`

**Tip:**

- If you are working with the Bitmap Viewer, we recommend you keep the default overwrite policy (**Output File Name + \_c + ID**), which is compatible with the Bitmap Viewer.
- If you are not, you can define the custom suffix as you wish. For example, you could use date and time SmartNames.

- **Overwrite** the existing file(s).
- **End the task in error.**

**Note:** If you use a SmartName to set this, it must resolve to `extend` or `0` (for **Extend the file name**), `overwrite` or `1` (for **Overwrite**), or `error` or `2` (for **End the task in error**).

c) Click **Set**.

**3.** Select the output **File Type** you want. This can be a **TIFF File** or a **PDF File**.

See [File Formats](#) on page 50 for more information.

**4.** For both TIFF and PDF, you can choose to output either *composite* or *separated* files.

- To output **Composite** files, select **1 File Per Page** in **File Assembly** (or use a SmartName that resolves to `FilePerPage`).


The **Output Type** is then automatically set to **Composite**.

- To output **Separated** files, select **1 File Per Separation** in **File Assembly** (or use a SmartName that resolves to `FilePerSeparation`).

The **Output Type** is then automatically set to **Separate**.

**Note:**

- Every output file that Imaging Engine generates contains XMP metadata (information about file creation, separations, calibration curves, etc.).

You can view this XMP metadata by selecting your output file in the Automation Engine Pilot's **Files** view and clicking .

For more information about XMP metadata, see the **XMP Metadata white paper** under **Related Documentation** on the [documentation page of your Imaging Engine version](#).

- TIFF files produced by Imaging Engine are fully compatible with Esko's Bitmap Viewer and DotSpy.
- Separated files are shown in the correct separation in the Bitmap Viewer (as it can read the separation information in the XMP data) and in grayscale in other viewers.

When proofing them, they are also in the correct separation (for example the proofer proofs the Magenta file using the Magenta cartridge).

**5. Choose the **Compression** to use for your output files.**

- For **TIFF** output, you can choose between lossless and lossy compression. Lossless compression preserves all the detail in the file, while lossy compression removes some detail.

We recommend you use lossless compression for the final output (for files you will send to a third party RIP for example), and lossy compression only for previews and thumbnails.

For both compression types (lossless and lossy), you should then choose a compression method, based on the compression speed and the compressed file size. Typically, faster compression methods compress the file less, so the output file is bigger (note that TIFF files can be a maximum of 4GB).

<p>If you want lossless compression...</p>	<p>choose either:</p> <ul style="list-style-type: none"> <li><b>PackBits</b>, a fast lossless compression method for graphic files. <b>Tip:</b> Use this if you want fast output and file size is not too much of an issue.</li> <li><b>LZW</b>, a lossless compression method for graphic files and other files. <b>Tip:</b> This compression method works best for files with large images.</li> </ul>
<p>If you want lossy compression...</p>	<p>choose one of the <b>JPEG</b> compression methods (those are more suitable for images like photographs and natural</p>

	<p>artwork than sharp edged or flat color images like line art or lettering, as JPEG compression tends to introduce noise into solid color areas).</p> <p>They are sorted from very high compression, which reduces the file size a lot but loses a lot of detail (<b>JPEG Limited Quality</b>), to very low compression, which doesn't lose much detail but doesn't reduce the file size much (<b>JPEG Extreme Quality</b>).</p>
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- For **PDF** output, all available compression methods are lossless.

You should choose a compression method based on the compression speed and the compressed file size. Typically, faster compression methods compress the file less, so the output file is bigger (note that PDF files can be a maximum of 12GB).

Choose either:

- **PackBits** (see above).
- **Flate**, a lossless compression method similar to zipping, based on the LZW compression.

**Tip:** This compression method works best for images with large single color areas or repeating patterns.

- **JPEG 2000**, a compression method based on **JPEG** and suitable for large images (the version of **JPEG 2000** used by Imaging Engine is lossless).



**Attention:**

- When using a SmartName to set the output file's **Compression**, it must resolve to one of the following (case insensitive):
  - **PackBits, LZW, JPEGLimited, JPEGLow, JPEGStandardLow, JPEGStandard, JPEGStandardHigh, JPEGHigh, or JPEGExtreme** for **TIFF** output,
  - **PackBits, Flate** or **JPEG2000** for **PDF** output.

Setting any other value, or an unsupported compression for the file type you chose, will make the task error (with the message **Unsupported combination of output type and compression** in the log).

- If you have already set the **Compression** but decide to change the output **File Type**, by default the task will either:
  - keep the same **Compression** (if it is supported for the new output **File Type**),
  - or (if it isn't), set it to the first **Compression** available for this **File Type**.

You can still change it as desired.

**6. Select **Make all output files ready for viewing** if:**

- you are generating separated TIFF files,
- you are doing quality control using the **Automation Engine Viewer**,

- you want to be able to open your output files in the **Automation Engine Viewer** without needing to use a **Prepare for Viewer** task.

If you don't use this option, you can still use a **Prepare for Viewer** task later to be able to view your output files in the **Automation Engine Viewer**. However, this will take more time than already preparing the files for viewing in your Imaging Engine task.

As with the **Prepare for Viewer** task, you will see **View (Prepared)** next to the prepared files in the Pilot, and you will be able to zoom in to the files up to their full resolution.

**Note:**

- If you are generating separated PDF files, you can view them in the **Automation Engine Viewer** without preparation.
- You can also view separated TIFF files in the **Bitmap Viewer** without preparation.
- If you use the **Make all output files ready for viewing** option together with composite output files (via SmartNames or Public Parameters), the task will error out.

7. Set the **Resolution** of your output files.

**Note:**

- The **Resolution** unit is taken from the general Automation Engine Preferences.
- You can enter values from 1 to 25400 ppi (or equivalent in your unit). SmartNames must also resolve to a value in that range.
- Values in another unit than the one from the general Preferences will be recalculated, and values like `300ppi + 500ppm` will be calculated correctly.

8. If your input file contains outlines, line art or contourized text, and you notice that they look too thick on print, we recommend you select the **Fine Line Rendering** option.

This will render objects with fine lines, for example Asian characters or barcodes, with a "thin fill".

You can set this option with a SmartName resolving to `true` to use **Fine Line Rendering** or `false` to use the standard rendering (also known as "fat fill").

**Note:** You cannot select both **Fine Line Rendering** and **Compensate for Outline Thickness** for the same job.

9. Select **Compensate for Outline Thickness** if:

- You want to use older tickets and workflows created using this option.
- You want to compare the output with output created using the **Fine Line Rendering** option.

**Note:**

The **Compensate for Outline Thickness** option is based on an older technology to make fine objects look less thick on print. The **Fine Line Rendering** option (available from Imagine Engine 20.1 onwards) solves the same problem with better results.

**Compensate for Outline Thickness** will be removed in future versions of Imaging Engine. If you are creating a new ticket or workflow, we recommend you use **Fine Line Rendering** instead.

10. If you experience problems with jagged edges, for example in small text, you can set an **Anti-aliasing** factor to smooth those edges.

In the example below, you can see the difference between output without anti-aliasing (on the left), and with anti-aliasing applied (on the right).



text text

You can adjust the amount of anti-aliasing applied by choosing a factor of either 2, 3 or 4 (note that using a higher anti-aliasing factor may slow down processing).

You can also set this with a SmartName resolving to `None` (if you don't need anti-aliasing), or to the anti-aliasing factor you want (for example 2).



**Attention:** Because anti-aliasing changes the output sampling to smooth the jagged edges, you cannot resample your images (with the **Image Resampling** option) if you use anti-aliasing.

11. If your input file contains images, the images' pixels may not map exactly to output pixels if:

- the images' resolution is different from the output resolution you chose,
- scaling and rotation effects change the size and placement of the images' pixels.

In such cases, you need to resample these images to be able to output them at the same resolution as the rest of the file.

In the **Image Resampling** option, choose the resampling method you want to use (you will have to make a trade-off between processing time and image quality).

- Choose **Auto Resampling** to upsample the images to an automatically calculated resolution (generally half or a third of the output resolution) before smoothing them.

When using this, images are a lot less pixellated and fuzzy.





This method is quite slow but gives images of a good quality, so it is recommended in most cases.

You can also use a SmartName resolving to `ResampleAuto`.

- Choose **Full Resampling** to upsample the images to the full output resolution.

This is the slowest method but gives the highest quality images (not pixellated and only slightly fuzzy).



Use this if **Auto Resampling** doesn't give you the results you want.



**Attention:**

Resampling to full resolution can require significant amounts of memory when the output resolution is high (especially from 4000 dpi).

If you want to do this, we recommend that you have at least 8GB of RAM available for each worker (see the installation documentation).

You can also use a SmartName resolving to `ResampleFull`.

- Choose **None** if you don't want to resample your input file's images.

**Note:**

If you upgraded from a previous version of Imaging Engine, in some cases you may have saved a ticket with a less optimal resampling method (**From File** or **PDF Interpolation**) in your older version. These methods are deprecated from Imaging Engine 18.1.1.

When processing a file with such a ticket, Imaging Engine will use the **Auto Resampling** method instead. You will get a warning about this.

12. If you are working with Gravure, Imaging Engine can help you optimize the processing time of your engraving machine by indicating the empty spaces in your output separations, so that your engraving machine can skip them.

**Note:** This is only possible when working with separated output files (when you have set **File Assembly** to **1 File Per Separation**).

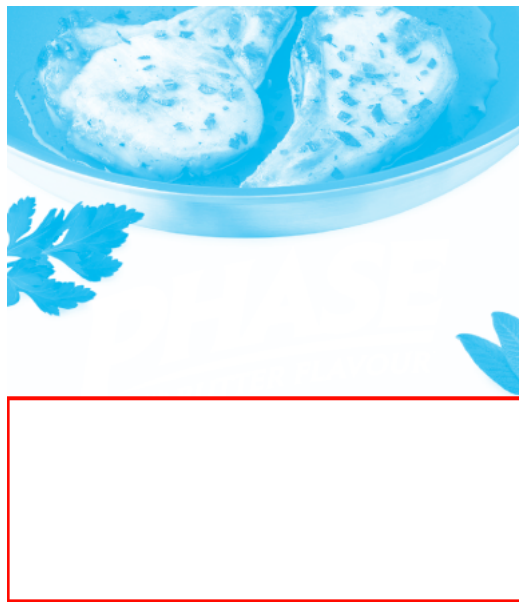
You can do this the following way:

- a) Select **Write skip areas to file** (or use a SmartName resolving to `true`).
- b) In **Threshold**, enter the number of lines that need to be empty before an area is skipped (each line being 1 pixel wide).

You can select any (integer) number that is at least 1, but we recommend you use a large enough number so that it makes sense to lift the engraving head for that amount of empty space (the default threshold is 240 **empty lines**).

You can also use a SmartName resolving to your desired number of lines.

In the example below, the whole area at the bottom of the Cyan separation can be skipped.



- c) The task outputs a skip area file (`.svs`) per output separation (whether you output to TIFF or PDF), even for separations that have no empty areas (so the engraving machine will know it cannot skip anything in those separations).

Those `.svs` are generated in the same output folder as your output separations. If you are using the task in a workflow, the task has a separate output pin for the `.svs` files.

- d) When sending your output separations to your engraving machine software, make sure you also send the `.svs` files.

## 6.5.7. Separations

Use the **Separations** settings to define the *dot gain compensation* to apply to the separations that will be output (the separations you selected in the *Inks tab*).

You can:

- apply general curves to all output separations,
- apply specific curves to certain separations.

1. If desired, you can apply a **Plate Curve** to all output separations.

A plate curve is used to compensate for the dot growth or dot reduction (for example in Digital Flexo) happening when making the plate. You can choose either:

- **None** if you don't want to apply any plate curve.
- **Single Curve** if you want to apply one curve for all separations.

In this case, select the `.dgc` curve to apply at right. You can choose from a list of curves available in the curves database.

- **Curve Strategy** if you want to apply a curve strategy (a file created in Curve Pilot that contains several curves to apply in different cases: it can have different curves per separation, dot shape, ruling, for continuous tone images or line work...).

In this case, select the `.icpro` curve strategy or legacy `.scredgc` screen-based DGC file to apply at right.

You can choose from a list of curve strategies available in the curves database.

For more information, see:

- [Dot Gain Compensation Curves](#) on page 46,
- [DGC Curve Strategies](#) on page 47,
- [The Curves Database](#) on page 49.

**Note:**

- You can use SmartNames resolving to the exact name of the **Single Curve** or **Curve Strategy** (including the extension).
- This will set the **Plate Curve** type to `Unknown` in the ticket, but will resolve to the correct curve type if the SmartNames are correct.

2. If desired, apply a **Press Curve** to all output separations.

This curve is used to compensate for the dot gain on press. You can choose either:

- **None** if you don't want to apply any press curve,
- **Single Curve** if you want to apply one curve for all separations (you can still define exceptions for some of the separations later).

In this case, select the `.dgc` curve to apply at right. You can choose from a list of curves available in the curves database.

- **Curve Strategy** if you want to apply a curve strategy (a file created in Curve Pilot that contains several curves to apply in different cases: it can have different curves per separation, dot shape, ruling, for continuous tone images or line work...).

In this case, select the curve strategy to apply at right (you can select a `.icpro` curve strategy, a `.prsync` PressSync curve set or a legacy `.scredgc` screen-based DGC file).

You can choose from a list of curve strategies available in the curves database.

- **PressSync** if you want to apply a PressSync curve (a predefined curve applicable to your printing environment).

In this case, select the letter and number of the PressSync curve.

For more information, see:

- [Dot Gain Compensation Curves](#) on page 46,
- [DGC Curve Strategies](#) on page 47,
- [PressSync Curves](#) on page 48,
- [PressSync Curve Sets](#) on page 49,
- [The Curves Database](#) on page 49.

**Note:**

- You can use SmartNames resolving to the exact name of the **Single Curve, Curve Strategy** (including the extension) or **PressSync** curve.
- This will set the **Press Curve** type to `Unknown` in the ticket, but will resolve to the correct curve type if the SmartNames are correct.

3. If desired, you can also apply a specific press curve to a specific separation (when launching the task on a single file).

To do this, click that separation's **Press Curve** in the table and select the curve you want to use instead.

Your separation-specific curve is shown in italics.

If you want to go back to the previous curve, right-click the curve you just set and select **Clear Custom Value**.

4. If you notice a specific problem in your job, and you want to compensate for it without changing your main curves, you can apply some corrections (to all separations).

See [Corrections](#) on page 238.

5. If you are setting up a task ticket to use in a workflow for example, you can create a rule to always apply a specific press curve to a specific separation.

You can do this if for example you have a curve you want to use for Yellow in all your jobs, or to use specific curves for specific spot colors...

See [Exceptions](#) to know how to create rules.

**Tip:**

Applying a specific press curve to a specific separation manually (in the table) also automatically creates a rule. So if you are not used to working with rules yet, you can:

1. Take a file containing the separations you usually work with, and open the task on it.
2. In the **Separations** table, set your desired press curves on your separations manually.
3. The task automatically creates the corresponding rules in the **Exceptions** tab (if you change your press curves again, these rules will be updated).
4. Save your ticket. You can now use it on other files that need the same press curves for those separations.

## Corrections

If you notice a specific dot gain related problem in your job, you can use the **Corrections** settings to compensate for that problem without changing your [general dot gain compensation settings](#) (that you may also use for other jobs).

You can:

- apply a correction curve,
- correct dot gain problems in the highlights,
- correct dot gain problems in the shadows.

**Note:**

The corrections you define here are applied to all output separations. If you need to apply a different correction to a specific separation, we recommend you create a **curve strategy** in Curve Pilot for this purpose.

When doing this, the tools in Curve Pilot help you keep your gray balance in check when changing the dot gain compensation for specific separations.

Please see the [Curve Pilot documentation](#) for more information.

1. If needed, select a **Correction Curve** to apply to all the separations that will be output.

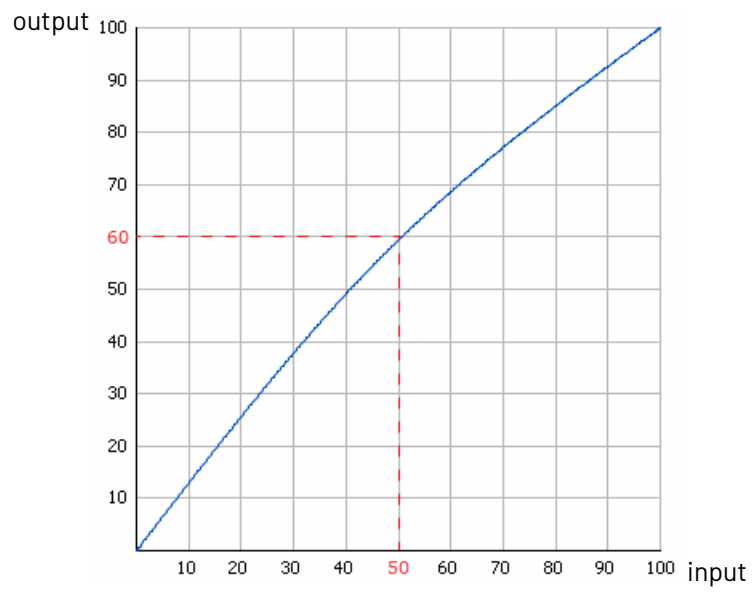
You can select any single curve (.dgc) available in your [curves database](#). You can also use SmartNames resolving to the exact .dgc file name (including the extension).

2. Choose when to **Apply the Correction Curve**:

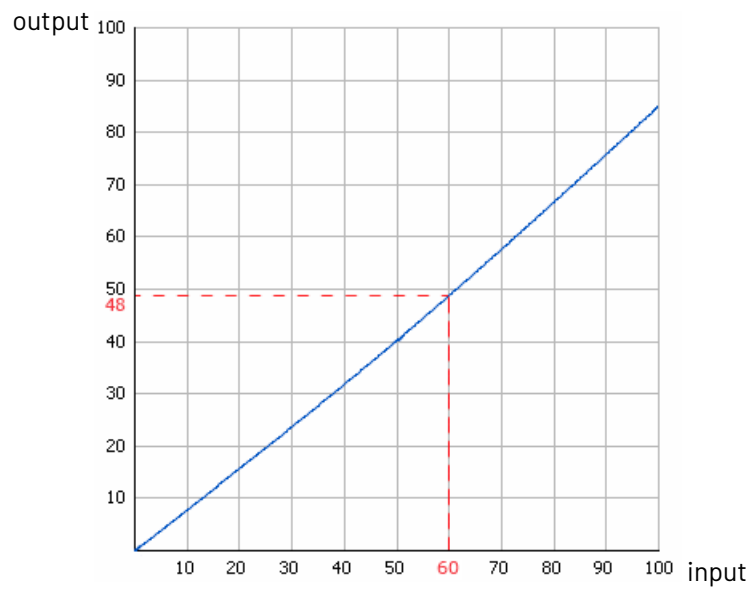
- **Before Press Curve**
- **Between Press & Plate Curve**
- **After Plate Curve**
- you can also use a SmartName resolving to BeforePress, BetweenPressAndPlate or AfterPlate.

The order in which you apply your dot gain compensation curves makes a difference to your final result. In the example below, you can see what happens to the 50% value depending on the order of the curves:

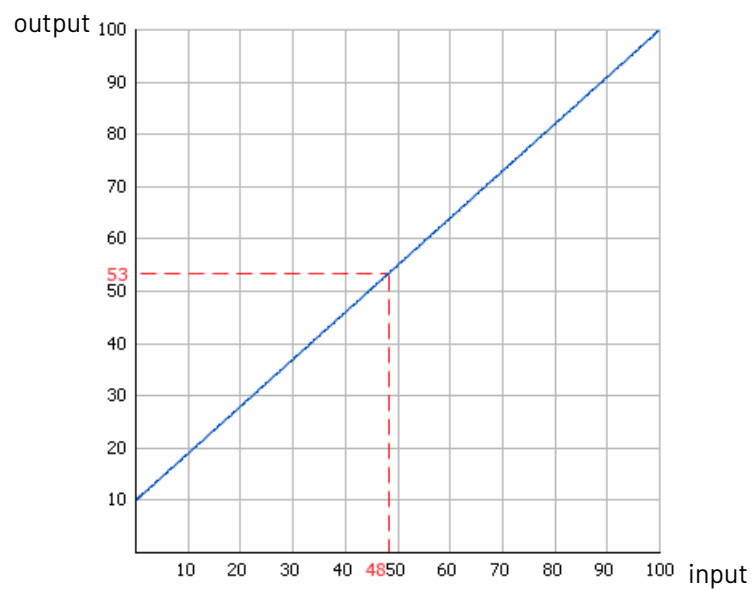
- When applying the correction curve first (**Before Press Curve**):
  1. The **Correction Curve** changes the initial 50% value to 60%.



2. For that 60% value, the **Press Curve** gives 48%.

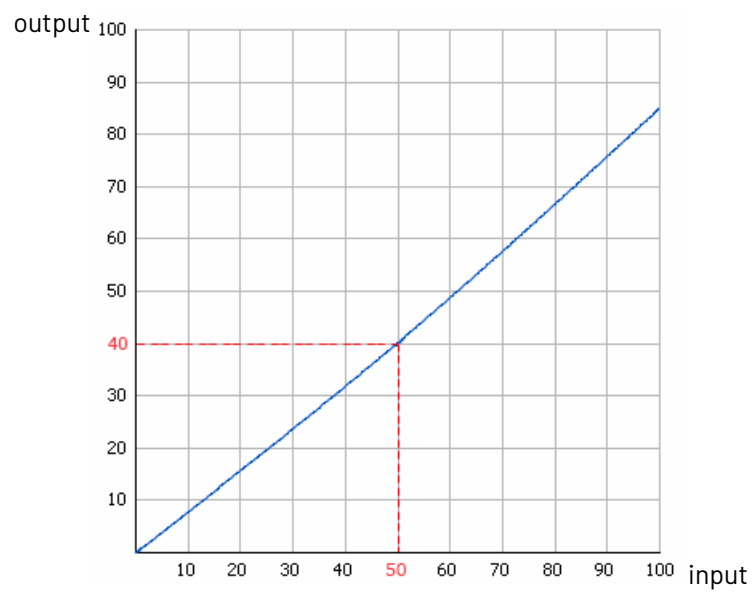


3. For that 48% value, the **Plate Curve** gives a final value of **53%**.



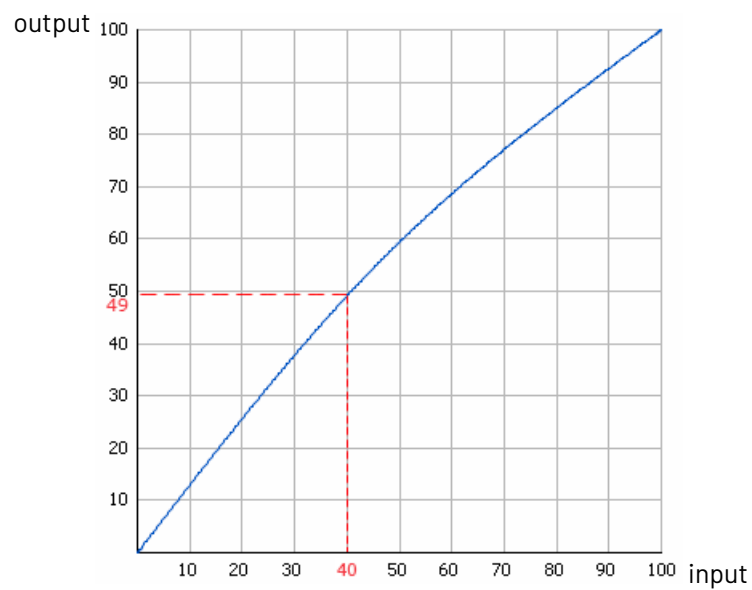
- When applying the correction curve **Between Press & Plate Curve**:

1. The **Press Curve** changes the initial 50% value to 40%.

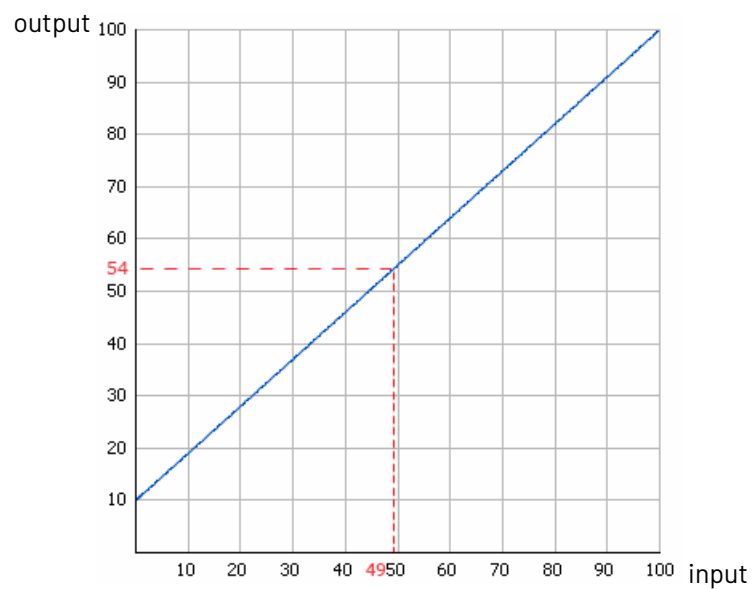


2. For that 40% value, the **Correction Curve** gives 49%.

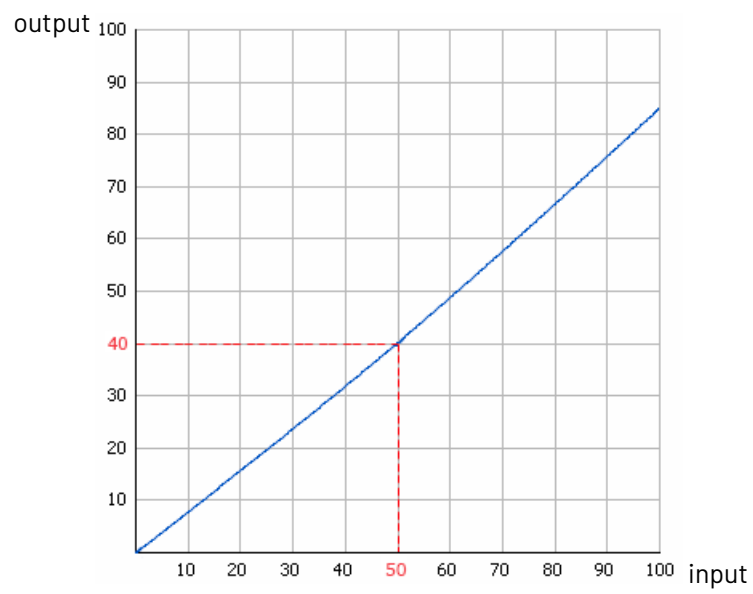




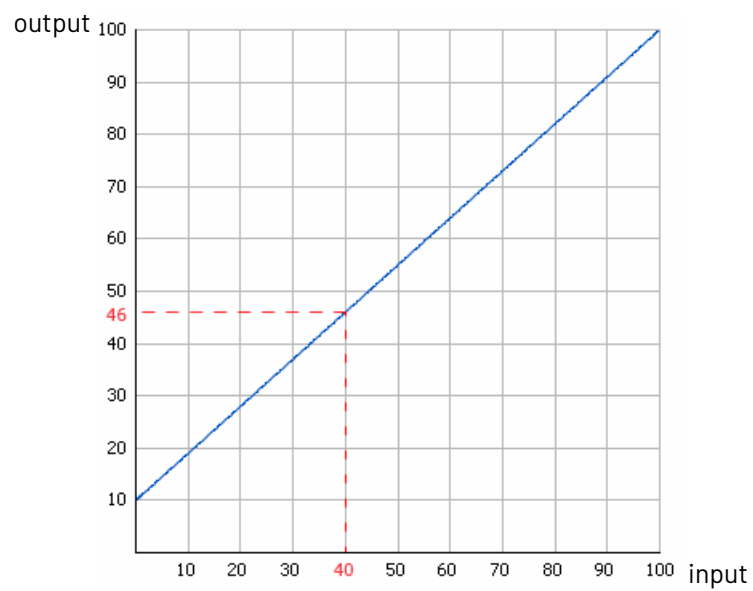
3. For that 49% value, the **Plate Curve** gives a final value of **54%**.



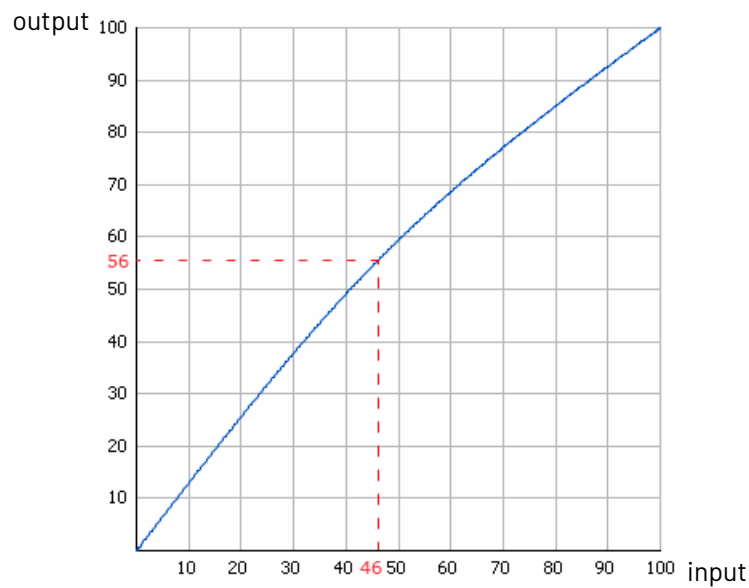
- When applying the correction curve last (**After Plate Curve**):
  1. The **Press Curve** changes the initial 50% value to 40%.



2. For that 40% value, the **Plate Curve** gives 46%.



3. For that 46% value, the **Correction Curve** gives a final value of **56%**.



3. After your curves have been applied, you can also use the **Range Correction** to correct dot gain problems in the highlights and/or shadows.
  - Select **Minimum Correction** if you only want to correct the highlights.
  - Select **Maximum Correction** if you only want to correct the shadows.
  - Select **Minimum & Maximum Correction** if you want to correct both highlights and shadows.
  - You can also use a SmartName resolving to `Minimum`, `Maximum` or `MinimumAndMaximum`.

**Note:**

- If you have already applied a highlights and/or shadows correction in your [plate curve](#) or [press curve](#) you don't need to make that correction again here.
- Correcting your highlights and/or shadows does not affect your mid-tones. If you want to correct your mid-tones, you can use a **correction curve**.

4. If you have problems with the highlights (for example if they are grainy or print unevenly), you can do the following to correct them:
  - a) In **Minimum Dot**, enter the smallest percentage that you know won't give you any printing problem. In the unscreened files, Imaging Engine will not generate percentages any smaller than what you enter here.

**Note:**

- The **Minimum Dot** must be within the 0%-30% range. If you enter a percentage outside of this range it will be automatically adjusted to the nearest value in the range (for example 32 will be adjusted to 30%).
- When using a SmartName, it must resolve to a number between 0 and 30 (without the % sign). If you use a SmartName that resolves to a percentage outside the range, the task will end in error.
- You can enter a simple formula and it will be calculated automatically (for example you can enter 10+2 and this will be changed to 12%). This only works with numerical values and not with SmartNames.

- b) In **How to Handle Minimum Job Tones**, enter the range of input file tones that typically gives you problems on output (for example, you may find that tones between 0% and 1% in your input file give you grainy images on output).

**Note:**

- The **Minimum Job Tones** range always starts at 0% and can go up to 10%. If you enter a percentage outside of this range it will be automatically adjusted to the nearest value in the range.
- When using a SmartName, it must resolve to a number between 0 and 10 (without the % sign). If you use a SmartName that resolves to a percentage outside the range, the task will end in error.
- You can enter a simple formula and it will be calculated automatically. This only works with numerical values and not with SmartNames.

- c) Decide how to treat this range of problematic tones to prevent output problems. You can either:

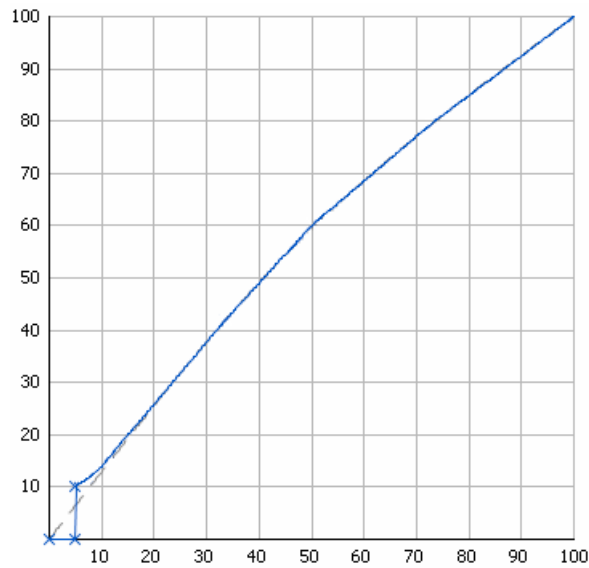
- Not print those small percentages (select **Drop To 0%**).

In this case, anything in that range will be rendered at 0% (so removed from the output), and the first percentage above that will become the **Minimum Dot**.

In the example below, the **Minimum Job Tones** are 0% to 5% and the **Minimum Dot** is 10%.

If you select **Drop To 0%**, the 0% to 5% range in your input file becomes 0% in the output, and the first percentage after that (5.01%) becomes 10% (the **Minimum Dot**).

Higher percentages follow the dot gain compensation you applied (the combination of the plate curve, press curve and correction curve you have set). Note that the transition between your highlights correction and the combined curve is smoothed to give you better printing results.

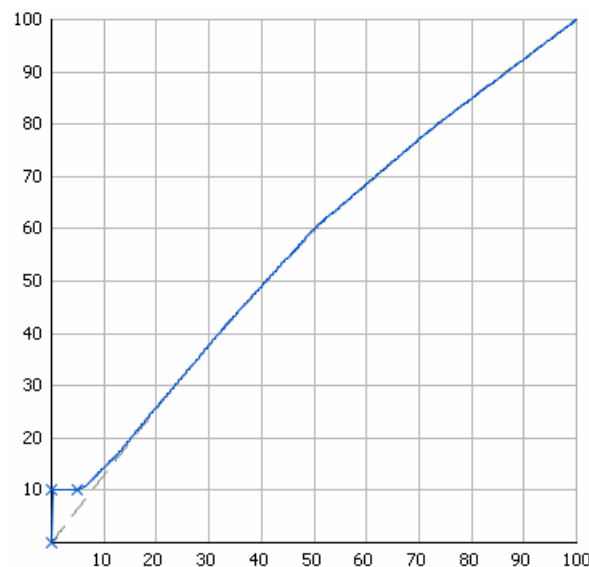


- Increase those small percentages so they meet the threshold to become your **Minimum Dot** on output (select **Hold To Minimum Dot**).

In this case, anything in that range (except 0%) will be rendered at the percentage you entered as **Minimum Dot**.

With the same example, if you select **Hold To Minimum Dot**, 0% will stay 0%, and the 0.01% to 5% range in your input file will become 10% in the output (the **Minimum Dot**).

Higher percentages follow the dot gain compensation you applied (the combination of the plate curve, press curve and correction curve you have set). Note that the transition between your highlights correction and the combined curve is smoothed to give you better printing results.



5. If you have problems with the shadows (for example you lose detail in the darkest areas), you can do the following to correct them:
- a) In **Maximum Dot**, enter the highest percentage that you know you can safely print for a good result in the shadows. In the unscreened files, Imaging Engine will not generate percentages any higher than what you enter here.

**Note:**

- The **Maximum Dot** must be within the 70%-100% range. If you enter a percentage outside of this range it will be automatically adjusted to the nearest value in the range (for example 68 will be adjusted to 70%).
- When using a SmartName, it must resolve to a number between 70 and 100 (without the % sign). If you use a SmartName that resolves to a percentage outside the range, the task will end in error.
- You can enter a simple formula and it will be calculated automatically (for example you can enter 70+5 and this will be changed to 75%). This only works with numerical values and not with SmartNames.

- b) In **How to Handle Maximum Job Tones**, enter the range of input file tones that typically gives you problems on output (for example, you may find that tones between 97% and 100% don't show enough details on output).

**Note:**

- The **Maximum Job Tones** range can start from 90% and always go up to 100%. If you enter a percentage outside of this range it will be automatically adjusted to the nearest value in the range.
- When using a SmartName, it must resolve to a number between 90 and 100 (without the % sign). If you use a SmartName that resolves to a percentage outside the range, the task will end in error.
- You can enter a simple formula and it will be calculated automatically. This only works with numerical values and not with SmartNames.

- c) Decide how to treat this range of problematic tones to prevent output problems. You can either:

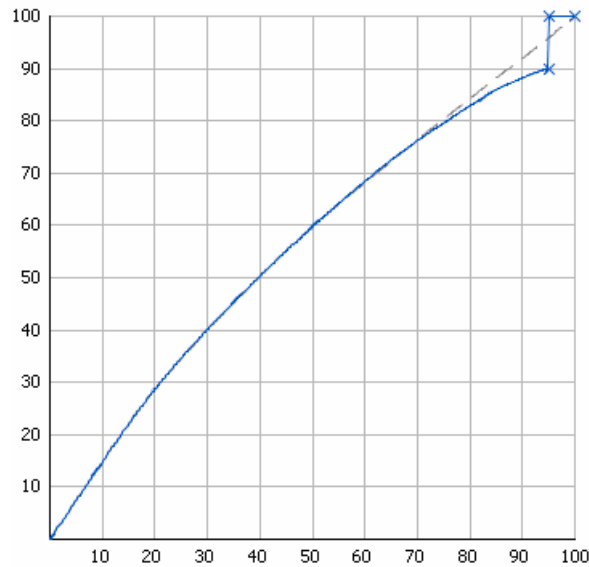
- Make those large percentages solid (select **Raise To 100%**).

In this case, anything in that range will be rendered at 100%, and the first percentage below that range will become the **Maximum Dot**.

In the example below, the **Maximum Job Tones** are 95% to 100% and the **Maximum Dot** is 90%.

If you select **Raise To 100%**, the 95% to 100% range in your input file becomes 100% in the output, and the first percentage below that (94.99%) becomes 90% (the **Maximum Dot**).

Lower percentages follow the dot gain compensation you applied (the combination of the plate curve, press curve and correction curve you have set). Note that the transition between the combined curve and your shadows correction is smoothed to give you better printing results.

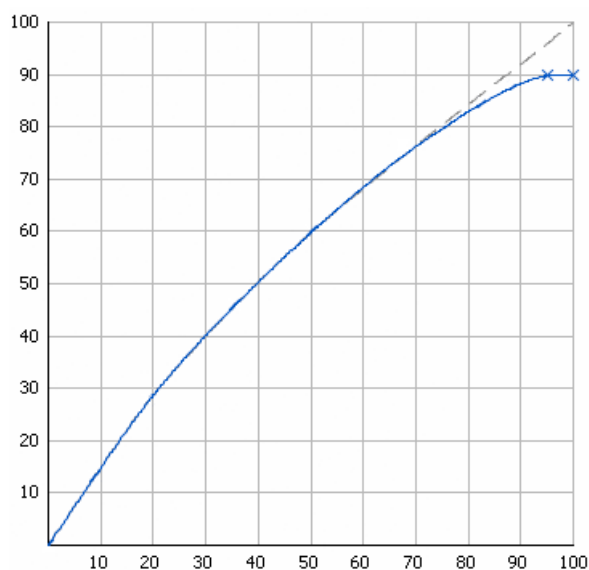


- Decrease those large percentages so they become your **Maximum Dot** on output (select **Hold To Maximum Dot**).

In this case, anything in that range (including 100%) will be rendered at the percentage you entered as **Maximum Dot**.

With the same example, if you select **Hold To Maximum Dot**, the 95% to 100% range in your input file will become 90% in the output (the **Maximum Dot**).

Lower percentages follow the dot gain compensation you applied (the combination of the plate curve, press curve and correction curve you have set). Note that the transition between the combined curve and your shadows correction is smoothed to give you better printing results.



6. You can see the number of corrections you applied next to the **Corrections** tab at left.

For example, if you apply a **Correction Curve**, a **Minimum Correction** (on the highlights), and a **Maximum Correction** (on the shadows), you will see **Corrections (3)**.

### Exceptions

Use the **Exceptions** tab if you want to always apply specific press curves to certain separations (for example spot colors).

The press curves you select in this tab will overrule your general [press curve](#) for those separations.


You can do this anytime (when launching the task on one or more input files, when defining ticket settings, when setting up a workflow...).

You do this by setting up **rules**. This works as follows:

- You create a rule for each separation or set of separations that need a specific press curve.
- Within each rule:
  1. You select the separation(s) you want to apply a specific curve to. You do this by setting criteria that a separation has to match to be selected.

For example if you want to select all process inks, you can set that the ink book must be `process` for the inks to be selected.

You can use the following ink characteristics in your criteria:

<b>Ink name</b>	
<b>Ink book</b>	
<b>Ink index</b>	<p>The <b>Ink index</b> is the order in which the file's inks will be printed (the ink with ink index 1 is at the bottom of the document and will be printed first).</p> <p>To find the ink index of a file:</p> <ol style="list-style-type: none"> <li>1. select the file in the Automation Engine Pilot's <b>Files</b> view,</li> <li>2. click ,</li> <li>3. in the <b>Info</b> dialog that opens, select <b>Inks</b> in the left panel.</li> </ol> <p>The order of the inks at right is the ink index (the topmost ink has an index of 1, the second of 2, etc.).</p> <p>Note that if you reorder the inks by one of the columns (for example by <b>Ink name</b>), they won't be ordered by ink index anymore. You will need to close that dialog and reopen it to see the ink index order again.</p>
<b>Spot ink index</b>	<p>The <b>Spot ink index</b> is the order in which a spot ink will be printed (when counting only spot inks and not process inks).</p> <p>For example, if the first 4 inks of the document are CMYK, the first spot ink will have 5 as <b>Ink index</b> but 1 as <b>Spot ink index</b>.</p>
<b>Ink type</b>	This can be for example Normal, Technical, Varnish...



<b>Printing method</b>	<p>If you have set a <b>Printing method</b> for an ink it will be shown here (this can be for example <i>Offset, Gravure, Flexo...</i> or any custom printing method you configured).</p> <p>See the Automation Engine documentation for more information about printing methods.</p>
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2. You choose the press curve to apply to the selected separation(s).

- If you have several rules, you can reorder them in order of priority (the top one is applied first).


In practice, you need to do the following in the **Exceptions** tab:

1. Click **+** at the bottom of the table.
2. In the **Rules Properties** dialog, enter a **Rule Name**.
3. Under **If separation matches**, define one or more criteria to select your desired separation(s).

You can use the following elements:

- **Ink name:** you can define if it **contains/begins with/ends with/is** a piece of text (alphanumerical characters), or if it **is empty**.
- **Ink book:** you can define if it **contains/begins with/ends with/is** a piece of text (alphanumerical characters), or if it **is empty**.
- **Ink index:** you can define if it **equals/is less than/is greater than** the number you enter, or **is between** the two numbers you enter (in this case the ink indexes you enter as boundaries are also selected).
- **Spot ink index:** you can define if it **equals/is less than/is greater than** the number you enter, or **is between** the two numbers you enter (in this case the spot ink indexes you enter as boundaries are also selected).
- **Ink type:** you can define if it **is** a piece of text (alphanumerical characters).
- **Printing method:** you can define if it **is** a piece of text (alphanumerical characters).

**Tip:**

- You can enter several values to check for: just use a semicolon (;) between them.  
For example, to check for both inks called *Cyan* and inks called *Magenta*, choose **Ink name is** and enter *Cyan;Magenta*.
- Click **+** to add more criteria. You can also add sub-criteria by holding **Alt** while clicking **+**.  
For example, if you want to make a rule for *Process Yellow*, you can use:  
**All of the following are true:**  
**Ink name is** *Yellow*  
**Ink book is** *Process*
- When launching the task on a file, you can also click  to select one or more of the **Ink names/Ink books/Ink types/Printing methods** used in your input file(s).  
A criterion will automatically be created based on your selection.

4. Select **Press Curve** and choose the press curve to use for the selected separation(s).
5. Click **Add**.

You can see your rule and the **Press Curve** that will be applied to your selected separation(s) in the **Exceptions** tab table.

**Tip:** You can double-click your rule if you still want to edit it.

**Note:** If you have defined specific press curves for certain separations *manually* (when launching the task on a single file), you can see that these curves have been automatically added as rules in the **Exceptions** tab (and shown in italics).

6. Repeat steps 1 to 5 to define more rules if desired.

If you want to remove a rule, select it and click **Remove**.

You can see the number of rules defined next to the **Exceptions** tab at left.

7. If desired, you can reorder your rules (they are applied from top to bottom). To do this, select a rule and click **Move Up** or **Move Down** (or drag it up or down).
8. When launching the task on a single file, you can see the file's separations and the press curves that will be applied to them in a table (make sure to leave the **Preview** option selected).

This is the same table as at the bottom of the [Separations](#) tab. It includes:

- the curves you have *defined for all separations*,
- the curves you have defined *for specific separations*,
- the curves defined by your exception rules.

As in the **Separations** tab, you can use this table to define specific press curves for certain separations.

To do this, click that separation's **Press Curve** in the table and select the curve you want to use instead.

Your separation-specific curve is shown in italics.

If you want to go back to the previous curve, right-click the curve you just set and select **Clear Custom Value**.

**Note:**

When launching your Imaging Engine ticket on a file from Automation Engine Shuttle, you cannot see the exceptions defined in the ticket (Shuttle always displays the parameter values found in the input file).

However, if you modify some public parameter values in Shuttle then launch the ticket, when you go to back to the Automation Engine Pilot and open the ticket, you will see all your modified parameters saved as exceptions.

### 6.5.8. Summary

This shows a summary of all the settings you defined in the ticket.

- To show the settings from a tab, click + (on PC) or ► (on Mac) beside the tab name in the right pane. Click **Expand All** to show the settings from all tabs.
- To hide the settings from a tab, click - (on PC) or ▼ (on Mac) beside the tab name in the right pane. Click **Collapse All** to hide the settings from all tabs.

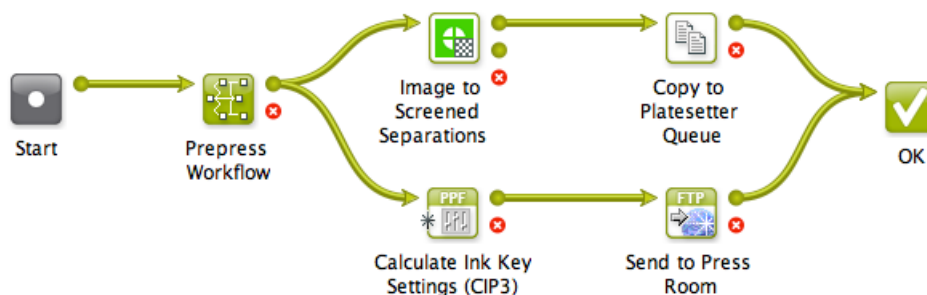
## 6.6. Calculate Ink Key Settings (CIP3)

Use this task to generate *ink distribution data* for the files you want to send to your offset press.

If you send this data to the press along with your press-ready RIP'ed files, the press can automatically calculate the amount of ink needed for each separation of your RIP'ed files, without needing manual adjustments from the press operator.

In the example below, after the prepress is done, your file is both:

- RIP'ed by the *Image to Screened Separations* task to produce your press-ready files, which are then copied to the platesetter queue,
- RIP'ed by the **Calculate Ink Key Settings (CIP3)** task to produce the ink distribution data, which is then sent to the press room.



### Task Output

When sending a file to the **Calculate Ink Key Settings (CIP3)** task, it generates its ink distribution data in the form of one or more (unscreened) CIP3 file(s), in the .ppf format.

This is a press standard format which can be used with many types of press (for example Heidelberg, Man Roland, Creo, Komori...).

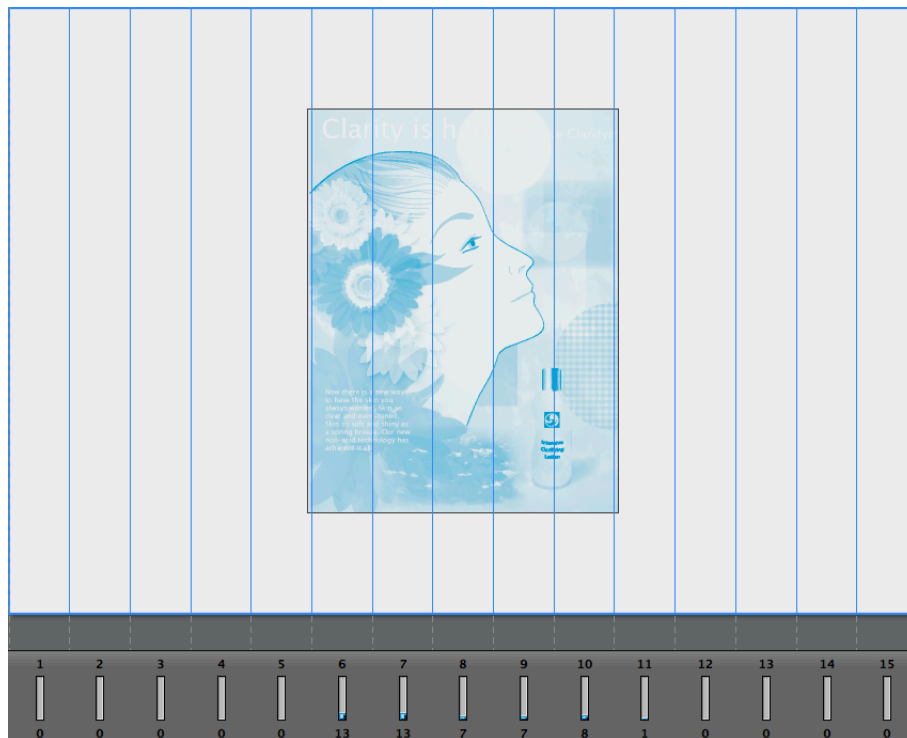
A CIP3 file contains:

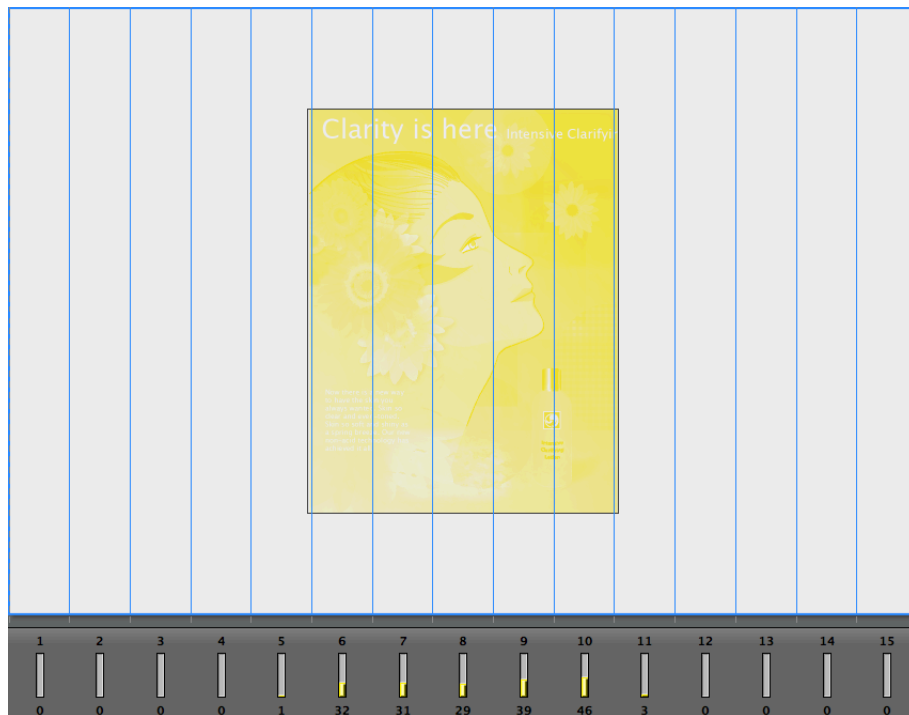
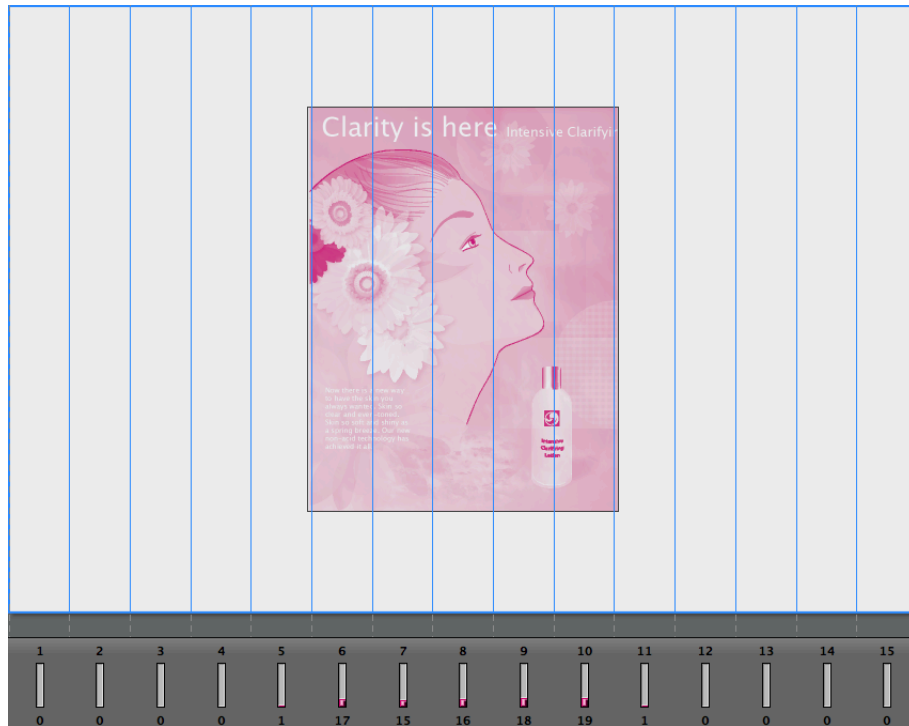
- a low resolution version of the part of the input file it corresponds to (you can output a CIP3 file per separation, per page, per side of a two-sided file...),
- the ink distribution for that part of the file (an overview of how much of which separation is used in which area of the file).

For example, for the following single page CMY input file:



... the task can generate a Cyan, a Magenta and a Yellow .ppf file, indicating where the ink needs to be.





**Task Parameters**

In the **Device** field, select the imaging device *that you configured*.

Then use the tabs at left to show more settings to fill in. See:

- [General](#) on page 254,
- [Transformations](#) on page 255,
- [PDF Objects](#) on page 256,
- [Processing Steps](#) on page 258
- [Inks](#) on page 261,
- [Sizes and Offsets](#) on page 269,
- [Production Data](#) on page 270,
- [Output](#) on page 271,
- [Summary](#) on page 276.

### 6.6.1. General

1. Define what **Page Box** of the input PDF you want to RIP.

You can either select **Media Box**, **Trim Box**, or insert a SmartName `[]` that must resolve to either `media` or `trim`.

After selecting your file's page box you will see its dimensions under the **Page Box** option.

2. If your input file is a multi-page PDF, select which **Pages** you want to RIP:

- a) First select **All pages**, **Odd pages only** or **Even pages only** in the **Pages** option.

You can also insert a SmartName resolving to either `All`, `Even` or `Odd`.

- b) Then you can refine your selection by entering page numbers or a **Page Range**.

You can separate page numbers by a comma, or use a dash to indicate a page range (for example `3, 6-9`). You can also use a SmartName resolving to page numbers and/or page ranges using this same format.

**Note:**

- Page numbers are always physical pages. If your document starts with page 5, you should not use 5 but 1 to get the first page.
- If you enter page numbers that are not part of your document, they will be excluded from the output (all the other valid pages will be RIP'ed).
- If you enter the same page(s) more than once (for example `1, 1-2`), it/they will only be output once.
- Pages are RIP'ed in the order of the document (entering `5-1` will be automatically changed to `1-5`).

3. If you want to invert your output so it is compatible with the output device or software system that will process it, click **A**.

You can also click `[]` or **Edit...** to insert a SmartName that must resolve to `1` or `true` (to invert the output), or to `0` or `false` (to leave the output as it is).

4. If you want to mirror your output so it is compatible with the output device or software system that will process it, click **M**.

You can also click `[]` or **Edit...** to insert a SmartName that must resolve to `1` or `true` (to mirror the output), or to `0` or `false` (to leave the output as it is).

- If you want to add a **SmartMark** to your output file(s), select it in the **SmartMark** list, or use a SmartName that will resolve to the SmartMark name.

A **SmartMark** is a mark whose content is variable, so you can make it display information about that specific job. For example, you can include some of the parameters used during RIP'ing in your output file(s) by using a SmartMark.

You need to:

- First create the SmartMark you want to use in **PackEdge** (see the **SmartMarks** section in the PackEdge manual for details).

You can create either:

- a SmartMark with RIP-specific parameters,

Use this SmartMark parameter in PackEdge:	to display this value from the Imaging Engine parameters:
Device	the <i>imaging device</i> you used
Image	whether you inverted your output
Emulsion	whether you mirrored your output
V Distortion	the vertical distortion you applied to your output file(s)
H Distortion	the horizontal distortion you applied to your output file(s)
Resolution	the <i>resolution</i> of your output file(s)

- another type of SmartMark (for example a corner mark).

If your PackEdge application is linked to your Automation Engine server, your SmartMark will automatically be saved in the correct location and will be available in Imaging Engine.

- Then select that SmartMark in your **Imaging Engine task**.

The SmartMark will be added to each output file generated from your input file.

## 6.6.2. Transformations

Use the **Transformations** settings to rotate or distort your output relative to your input file.

- If you want to rotate your file's contents, select the **Rotation** you want to apply here.

This can be:

- 0°
- 90° Counter Clockwise
- 180°

- **90° Clockwise**



Any other value will give an error.

**Note:**

- You can use a SmartName that resolves to 0, 90 (for **90° Counter Clockwise**), 180 or 270 (for **90° Clockwise**).
- You need to use a numerical value (`ninety` will not work).
- This is a public parameter, that you can fill in when submitting files through Shuttle.

2. If you want to apply **Distortion** to your file's contents, select the type of distortion to apply:

- a) **Flexo distortion**

If you want to apply **Flexo distortion**, enter the vertical  and horizontal  distortion percentages to use.

You can enter numerical values, or insert SmartNames that resolve to numerical values (without the % sign).

**Note:**

- The values should be within the 85%-115% range. If you enter a percentage outside of this range it will be automatically adjusted to the nearest value in the range (for example 80 will be adjusted to 85%).  
  
However, if you use a SmartName that resolves to a percentage outside the range, the task will end in error.
- You can enter a simple formula and it will be calculated automatically (for example you can enter `100+2` and this will be changed to `102%`). This only works with numerical values and not with SmartNames.

- b) **Values from file**

If you selected **Values from file** and the input file contains distortion values, you will see these in the fields below (greyed out)

**Note:** The values should be within the 85%-115% range. If the input file's distortion values are outside of this range, the task will end in error.

- c) **No distortion**

This is the default option and no distortion will be selected.

You can also use a SmartName that resolves to `Flexo`, `File` or `Not`.

### 6.6.3. PDF Objects

Use the **PDF Objects** settings to define:

- how to color manage RGB objects in your input file,



- what dot gain compensation to apply to your input file's images.

All parameters in this tab are public parameters, that you can fill in when submitting files through Shuttle.

1. In **Default RGB Profile**, specify the profile to use if no profile is specified for a certain RGB object in the input file. The default is `srgb.icc`.

You can use a SmartName that resolves to the full profile name.

2. Select what output profile you want to use when converting RGB objects to CMYK:

- If you want to use the output profile from the input file (if there is one available), leave **Use output intent from file** selected (it is selected by default).
- If you don't want to use the output profile from the input file, deselect **Use output intent from file** and specify the output profile to use in **Output Color Profile**.

This output profile will also be used if there is none available in the input file.

The default is `ISOcoated_v2_300_eci.icc`.

For the **Use output intent from file** option, you can use a SmartName that resolves to `true` (to use the file's profile) or `false` (to not use it).

For **Output Color Profile**, you can use a SmartName that resolves to the full profile name.

3. Select **Use PDF transfer curves** if you want to use:

- the [Dot Gain Compensation curves](#) attached to the images in your input PDF. These curves compensate for the unwanted characteristics of the device that created the images (scanner, digital camera...).
- the **Color Correction curves** added by ArtPro+ version 20 and higher. These curves allow you to correct individual separations for color deviations on proof from the reference proof. The correction will be applied on both the proof and the production files.

**Note:**

You can only use the correction curves if the Color Correction curves option is enabled in the global Imaging Engine configuration.

Please contact Esko Support for assistance.

You can use a SmartName that resolves to `true` (to use the input file's curves) or `false` (to not use them).

4. If you experience issues with a font that doesn't look smooth enough at your selected resolution, your font may have **font hinting errors**.

Font hinting is the rendering of the outline (vectorized) font to pixels. For certain fonts, this rendering sometimes doesn't give a visually pleasing result, especially at low resolutions. In the image below, the top font has font hinting errors, the bottom font doesn't.

# Label Pack

# Label Pack

Choose how to handle files containing font hinting errors:

- Leave **Task ends in error when the job contains font hinting errors** selected if you want the task to end in error when encountering font hinting errors. You can also use a SmartName resolving to `true`.
- Deselect **Task ends in error when the job contains font hinting errors** if you want to output your file anyway, whether it has font hinting errors or not (your task will end with a warning). You can also use a SmartName resolving to `false`.

This may lead to reduced quality rendering of the text, but it will not generate incorrect characters in your output file.

5. If your PDF+ input file has linked artwork and the external reference files have been modified, the changes do not get updated automatically in the PDF+ file. This will result in outdated data in the input as well as output files.

Choose how to handle files containing **outdated linked artwork**:

- Select **Task ends in error when linked artwork is not up to date** if you want the task to end in error if the input file contains outdated external references. You can also use a SmartName resolving to `true`.
- Deselect **Task ends in error when linked artwork is not up to date** if you want to output the file anyway, whether the references are outdated or not (your task will end with a warning). You can also use a SmartName resolving to `false`. This is the default option.

## 6.6.4. Processing Steps

Your PDF input files may contain additional objects and metadata that will not be used for printing. These correspond to additional processing steps a job needs to go through after printing: for example die cutting, creasing, etc.

Imaging Engine and Pack Proof display the processing steps associated with the layers in your input file (or files placed in it) in the **Processing Steps** tab.

The list of processing steps that you see depends on various factors like the number of jobs you select, the input file type, etc.

- If you select only one job, only the printable processing steps are listed under the **Processing Steps** tab. Layers which are set as unprintable will not be listed as processing steps.
- If you select multiple jobs or if you don't select any job, all the supported processing steps are listed.
- If your input file contains no layers, the processing steps tab will display an empty table with a "No printable processing steps found" message.

- If you select input files that are not PDF files, the **Processing Steps** tab will not be visible as processing steps are only applicable to PDF files. For example, for Normalized PDF files, the **Processing Steps** tab will always be hidden.
- If your input file contains layers that do not have equivalent processing steps in Imaging Engine/ Pack Proof, those layers will not be listed under this tab.

**Note:** Adobe Illustrator layers can also be used as processing steps though they are not the same as PDF layers.

## Processing Steps - Groups and Types

### Groups

In the ISO 19593 standard, the types of processing steps are grouped as follows:

- **Structural Data:** A collection of contours that describe how the printed product will be finished to produce a 3D end product from a flat substrate. These are as lines defining cutting, creasing, folding etc. The types of this group are listed below.
- **Positions:** Objects that indicate intended, allowed or forbidden positions for certain types of elements. For example, the positions on a flap of a carton where content is allowed. The types of this group are listed below.
- **Braille:** Braille characters that are applied after printing, typically by a die cutter or inkjet device.
- **Legend:** Job related data added outside the boundaries of the actual printed products.
- **Dimensions:** Indications of the physical sizes.
- **White:** White ink to be printed on a transparent or metallic substrate.
- **Varnish:** Indicating the application of varnish after printing.

Imaging Engine and Pack Proof also include the **Esco\_PlateCutting** custom processing step by default.

### Types of "Structural Data" Processing Steps

Group	Type	Description
Structural Data	Cutting	Processing step objects indicating where the printed artwork will be cut from the printed sheet for example with a guillotine cutter or die cutting device.
Structural Data	PartialCutting	Processing step objects indicating where the substrate will be cut partially (not entirely through the material).
Structural Data	ReversePartialCutting	Processing step objects indicating where the substrate will be cut partially (not entirely through the material) on the back side of the substrate.
Structural Data	Creasing	Processing step objects indicating where the substrate will be creased to guide subsequent folding.
Structural Data	ReverseCreasing	Processing step objects indicating where the substrate will be creased on the back side of the substrate.
Structural Data	CuttingCreasing	Processing step objects indicating where the substrate will undergo alternating cutting and creasing.
Structural Data	ReverseCuttingCreasing	Processing step objects indicating where the substrate will undergo alternating cutting and creasing on the back side of the substrate.

Group	Type	Description
Structural Data	PartialCuttingCreasing	Processing step objects indicating where the substrate will undergo alternating partial cutting and creasing.
Structural Data	ReversePartial-CuttingCreasing	Processing step objects indicating where the substrate will undergo alternating partial cutting and creasing on the back side of the substrate.
Structural Data	Drilling	Processing step objects indicating locations where the substrate will be drilled and the intended size of the resulting hole.
Structural Data	Gluing	Processing step objects enclosing an area where glue will be applied.
Structural Data	FoilStamping	Processing step objects enclosing an area where foil will be applied through hot foil stamping.
Structural Data	ColdFoilStamping	Processing step objects enclosing an area where foil will be applied through cold foil stamping (using glue).
Structural Data	Embossing	Processing step objects enclosing an area where embossing will be applied.
Structural Data	Debossing	Processing step objects enclosing an area where debossing will be applied.
Structural Data	Perforating	Processing step objects indicating where the substrate will be perforated.
Structural Data	Bleed	Processing step objects indicating the intended bleed for print.
Structural Data	VarnishFree	Processing step objects enclosing an area where it is not allowed to have varnish.
Structural Data	InkFree	Processing step objects enclosing an area where it is not allowed to have printing ink.
Structural Data	InkVarnishFree	Processing step objects enclosing an area where it is not allowed to have printing ink and where it is not allowed to have varnish.
Structural Data	Folding	Processing step objects indicating where the substrate will be folded without prior creasing.
Structural Data	Punching	Processing step objects indicating the locations at which the substrate will be punched and the size and shape of the resulting holes.
Structural Data	Stapling	Processing step objects indicating the locations at which the substrate will be stapled or stitched, and the size of the staples or stitches to be used.

**Types of "Positions" Processing Steps**

Group	Type	Description
Positions	Hologram	Processing step objects that indicate the intended position of holograms.

Group	Type	Description
Positions	Barcode	Processing step objects that indicate the intended position of barcodes.
Positions	ContentArea	Processing step objects that indicate areas where it is allowed to place text and other graphical elements.
Positions	CodingMarking	Processing step objects specific to packaging that indicate areas where additional information not contained in the PDF will be printed on the packaging at a post-press stage, such as on filling lines where final products are being packed. Some examples of information that might be marked as CodingMarking include but are not limited to best before dates, lot numbers, production dates, and tracking codes.
Positions	Imprinting	Processing step objects that indicate areas where additional information (for example variable data) will be printed on pre-printed shells which contain the bulk of the graphical content, as a secondary print stage prior to finishing.

## Using Processing Steps

### Deselecting Processing Steps

Use the processing steps settings to deselect the processing steps that should not appear in the output. All the processing steps will be selected by default.

You can use the checkboxes to deselect or select a processing step or a group. When you deselect a group, all processing steps that are part of the group will be deselected.

Inks that are only related to deselected or non-printable processing steps will not be displayed in the inks tab or separations tab.

### Custom Processing Steps

Custom processing steps can be added manually in the **Processing Steps** tab. Adding custom processing steps will be useful when you want to reuse the same ticket with the selected/deselected processing steps settings for different files.

You can add or remove custom processing steps using the add and remove buttons at the bottom of the tab.

**Note:** The same custom processing step cannot be added twice.

## 6.6.5. Inks

Use the **Inks** settings to select for which separations of your input file(s) you want to generate [ink distribution data](#).

For example, you can use these settings to make sure that technical and/or varnish inks are not taken into account.

You can choose to generate ink distribution data for either:

- **All** separations.

- A number of separations you select **Manually**.
- A number of separations you select **by using selection criteria**.  
 Selection criteria are rules that you define to select separations automatically for you when the task is launched on a file.

Selecting separations manually is the easiest option, but you can only do it on a file by file basis (when you launch the task on a single input file).

Using selection criteria is more advanced but also more powerful than selecting separations manually, and you can do it anytime (when launching the task on one or more input files, when using the task in a workflow, when defining ticket settings...).

Therefore, we recommend that you first try selecting separations manually when running the task on individual files, then switch to using selection criteria to automate your workflow further.

**Tip:**

To get used to working with selection criteria, try the following on a few of your files:

1. select the separations you want to output manually,
2. then change **Select Inks** to **by using selection criteria** and see which rules have been created based on your manual selection.

For more information, see [Selecting Inks Manually](#) on page 262 and [Selecting Inks Using Selection Criteria](#) on page 263.


**Tip:** You can also make the ink selection parameter public so that an operator can set it [through Shuttle](#) as needed for each job. See [Selecting Inks through Shuttle](#) on page 266 for more information.

### Selecting Inks Manually

**Note:** You can only select inks manually when you are launching the task on a (single) file, not when you are defining a generic ticket without an input file.

When choosing to **Select Inks Manually**, you will see a table containing all of your document's inks, showing each ink's:

<b>Ink Name</b>	
<b>Ink Book</b>	If an ink book is not present in your color database, it will show here as <unregistered "">.
<b>Ink Index</b>	<p>The <b>Ink index</b> is the order in which the file's inks will be printed (the ink with ink index 1 is at the bottom of the document and will be printed first).</p> <p>If your file has several of the same ink, they will have the same ink index, and the next ink will have the next one (for example two Cyans will both have ink index 1, then Magenta will have ink index 2).</p> <p>This means that when selecting inks for processing, both Cyans will be selected together and handled the same way.</p>

	<p><b>Tip:</b></p> <p>To find the ink index of a file:</p> <ol style="list-style-type: none"> <li>1. select the file in the Automation Engine Pilot's <b>Files</b> view,</li> <li>2. click ,</li> <li>3. in the <b>Info</b> dialog that opens, select <b>Inks</b> in the left panel.</li> </ol> <p>The order of the inks at right is the ink index (the topmost ink has an index of 1, the second of 2, etc.).</p> <p>Note that if you reorder the inks by one of the columns (for example by <b>Ink name</b>), they won't be ordered by ink index anymore. You will need to close that dialog and reopen it to see the ink index order again.</p>
<b>Spot Ink Index</b>	<p>The <b>Spot Ink index</b> is the order in which a spot ink will be printed (when counting only spot inks and not process inks).</p> <p>For example, if the first 4 inks of the document are CMYK, the first spot ink will have 5 as <b>Ink Index</b> but 1 as <b>Spot Ink Index</b>.</p> <p>As for the ink index, if your file has several of the same spot ink, they will have the same spot ink index, and will be handled together when you select them.</p>
<b>Ink Type</b>	<p>This can be for example <i>Normal, Technical, Varnish...</i></p>
<b>Printing Method</b>	<p>If you have set a <b>Printing Method</b> for an ink it will be shown here (this can be for example <i>Offset, Gravure, Flexo...</i> or any custom printing method you configured).</p> <p>See the Automation Engine documentation for more information about printing methods.</p>

Select the ink(s) you want to RIP, or select the toggle in the table header to select/deselect all inks.

### Selecting Inks Using Selection Criteria

If you don't want to [select inks manually](#) every time, you can define some rules to automatically select certain inks in your input file(s).

You can do this:


- either when running the task on one or more files, or when creating a task ticket to use later,
- by choosing to **Select Inks by using selection criteria** in the **Document Inks** settings.

#### How Does it Work?

You select the inks to be output by checking a combination of criteria:

1. You define what to check. You can check any of the following ink characteristics in your criteria:

<b>Ink name</b>	
<b>Ink book</b>	
<b>Ink index</b>	The <b>Ink index</b> is the order in which the file's inks will be printed (the ink with ink index 1 is at the bottom of the document and will be printed first).

	<p>To find the ink index of a file:</p> <ol style="list-style-type: none"> <li>1. select the file in the Automation Engine Pilot's <b>Files</b> view,</li> <li>2. click ,</li> <li>3. in the <b>Info</b> dialog that opens, select <b>Inks</b> in the left panel.</li> </ol> <p>The order of the inks at right is the ink index (the topmost ink has an index of 1, the second of 2, etc.).</p> <p>Note that if you reorder the inks by one of the columns (for example by <b>Ink name</b>), they won't be ordered by ink index anymore. You will need to close that dialog and reopen it to see the ink index order again.</p>
<b>Spot ink index</b>	<p>The <b>Spot ink index</b> is the order in which a spot ink will be printed (when counting only spot inks and not process inks).</p> <p>For example, if the first 4 inks of the document are CMYK, the first spot ink will have 5 as <b>Ink index</b> but 1 as <b>Spot ink index</b>.</p>
<b>Ink type</b>	<p>This can be for example <i>Normal, Technical, Varnish...</i></p>
<b>Printing method</b>	<p>If you have set a <b>Printing method</b> for an ink it will be shown here (this can be for example <i>Offset, Gravure, Flexo...</i> or any custom printing method you configured).</p> <p>See the Automation Engine documentation for more information about printing methods.</p>

For example, you can check whether the **Ink book is** *process*, whether the **Ink name is** *yellow*...

You can use as many criteria as you want.

2. You define how to combine your criteria into a rule. For example:

- If you want to output only process yellow, you should check for inks that match **both** of the criteria:

**Ink book is** *process*  
**Ink name is** *yellow*

- If you want to output both all process inks and all yellow inks, you should check for inks that match **either** of the criteria:

**Ink book is** *process*  
**Ink name is** *yellow*

- If you don't want to output any process inks or any yellow inks, you should check for inks that match **neither** of the criteria:

**Ink book is** *process*  
**Ink name is** *yellow*

**How Do I Build Rules?**

Build your rules the following way:

1. Choose how to combine the criteria in your rule:

- Select **All of the following are true** if you want to only select the inks that match **all** of the criteria you define.




- Select **Any of the following are true** if you want to select all the inks that match **at least one** of the criteria you define.
  - Select **None of the following are true** if you want to only select the inks that match **none** of the criteria you define.
2. Define your first selection criterion.

You can select an ink based on its:

- **Ink name:** you can define if it **contains/begins with/ends with/is** a piece of text (alphanumerical characters), or if it **is empty**.
- **Ink book:** you can define if it **contains/begins with/ends with/is** a piece of text (alphanumerical characters), or if it **is empty**.
- **Ink index:** you can define if it **equals/is less than/is greater than** the number you enter, or **is between** the two numbers you enter (in this case the ink indexes you enter as boundaries are also selected).
- **Spot ink index:** you can define if it **equals/is less than/is greater than** the number you enter, or **is between** the two numbers you enter (in this case the spot ink indexes you enter as boundaries are also selected).
- **Ink type:** you can define if it **is** a piece of text (alphanumerical characters).
- **Printing method:** you can define if it **is** a piece of text (alphanumerical characters).

For example, you could use:	to:
<b>All of the following are true</b> <b>Ink book is</b> <code>designer</code>	select all inks from the "designer" ink book
<b>None of the following are true</b> <b>Ink name is</b> <code>crease</code>	exclude an ink called "crease"
<b>None of the following are true</b> <b>Ink type is</b> <code>Technical</code> <b>Ink type is</b> <code>Varnish</code>	exclude all technical and all varnish inks

**Tip:**

- You can enter several values to check for: just use a semicolon (;) between them.  
For example, to check for both inks called `Cyan` and inks called `Magenta`, choose **Ink name is** and enter `Cyan;Magenta`.
- When launching the task on a file, you can also click  to select one or more of the **Ink names/Ink books/Ink types/Printing methods** used in your input file(s).  
A criterion will automatically be created based on your selection.

3. Click + to add more criteria and define them.

To remove a criterion, click - next to it.

**Tip:** If you are launching the task on a single input file, you will see a table listing the **Selected document inks**, and another table with the **Document inks that are not selected** under the rules you defined.



**Attention:** If no ink is selected, you cannot launch the task.

## Switching How You Select Inks

You can switch between the two methods of selecting inks (*manually* and *using selection criteria*), and this will keep the same inks selected.

### Switching from Selecting Inks Manually to Selecting Inks Using Selection Criteria

When switching from selecting inks manually to selecting inks using selection criteria, the task will translate your manual ink selection into rules, so that the same inks are selected (you can see them in the **Selected document inks** table).

The rules you get are based on the characteristics of the inks you selected.

For example, if you selected all the process colors but no spot color in your file, for an offset job, you will get the following rule:

**All of the following are true**

**Ink name is** Cyan;Magenta;Yellow;Black

**Ink book is** process

**Ink type is** Normal

**Printing method is** Offset

**Note:**

If you...

- first selected inks using selection criteria,
- then switched to manual selection without changing the selection,
- then switched back to selection criteria,

... then your rules will be kept.

If you did change the selection in manual mode, the task will automatically generate new rules.

### Switching from Selecting Inks Using Selection Criteria to Selecting Inks Manually

When switching from selecting inks using selection criteria to selecting inks manually, all the inks selected by the rules you defined (the inks in the **Selected document inks** table) become selected manually.

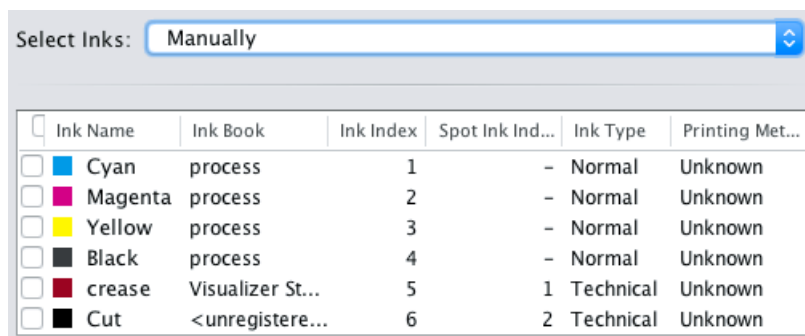
**Note:** You can only switch to selecting inks manually when you are launching the task on a (single) file.

## Selecting Inks through Shuttle

If you want to be able to decide which inks to RIP when submitting your input file *through Shuttle*, do the following:

### In Your Imaging Engine Ticket

- To make the ink selection a public parameter, you can either:
  - Right-click **Select Inks** and choose **Make Parameter Public**.
  - If you (are currently launching the ticket on a file and) have chosen to *select inks manually*, right-click the preview table under **Select Inks** and choose **Make Parameter Public**.

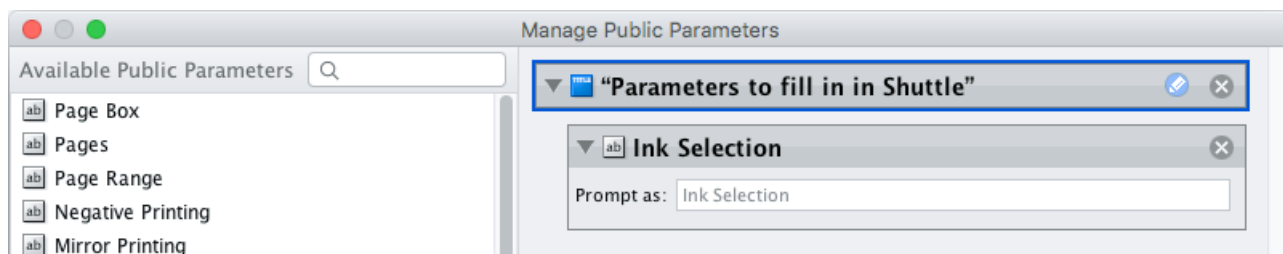


- If you have chosen to *use selection criteria*, right-click the rules builder under **Select Inks** and choose **Make Parameter Public**.



**Note:** You will not be able to create rules using Shuttle, you will only be able to select inks manually.

- Go to **Advanced > Manage Public Parameters...**, find the **Ink Selection** parameter at the bottom of the list, and drag it to the right hand side.



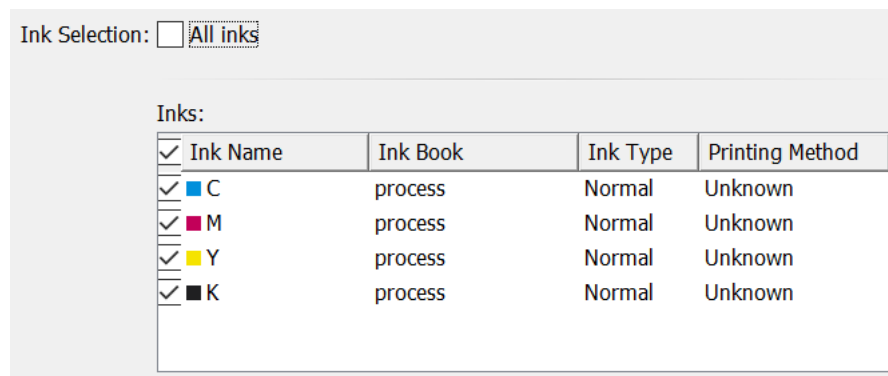
- By default, the public parameter that appears in Shuttle will be called **Ink Selection**. You can change its name by:

- right-clicking one of the elements mentioned above, selecting **Modify Public Parameter** and entering a new name,
  - if you are using the **Manage Public Parameters** window, entering the new name in **Prompt as**.
3. Make sure your ticket is also **Public**.

### In Shuttle

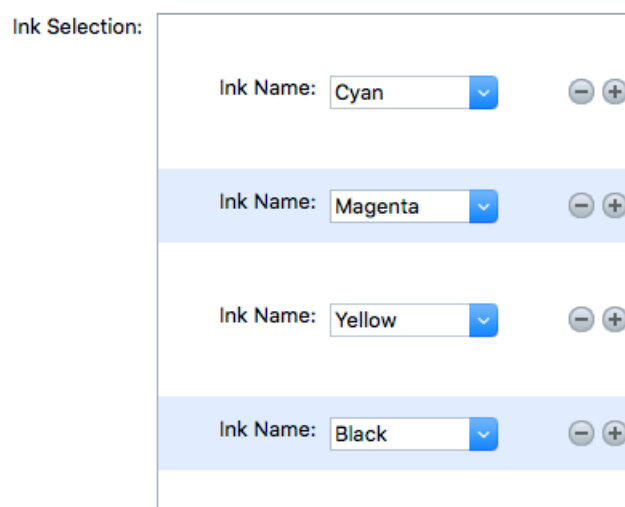
The ink selection parameter may look a bit different depending on which Shuttle you are using (the Shuttle standalone application or a Shuttle plug-in in an Editor application).


- In the Shuttle standalone, the ink selection parameter will look like this:



The table shows a preview of all inks in your input file, with their characteristics.

- To RIP all inks from your input file, either leave all inks selected in the preview table, or select **All inks** at the top (this will hide the preview table).
- To only RIP certain inks, make sure **All inks** is not selected, and deselect the input inks that you don't want to RIP.
- In ArtPro+ for example, the ink selection parameter will look like this:



By default, all the inks from your input file will be RIP'ed, but you can remove any ink you don't want to RIP using the  button.

### 6.6.6. Sizes and Offsets

Use the **Sizes and Offsets** settings to define the size and relative positioning of your file, plate, press drum and paper.

**Note:** The default unit for size and positioning is the **Dimension** unit you have set in your Pilot preferences. You can type in a different unit and your values will be converted to that default unit.

1. If you are working with XMP metadata in your input files, you can use the plate and paper information from the metadata. To do this, select **Use plate and paper values from file**.
2. The **File Width** and **Height** information is calculated automatically, taking into account:
  - the *page box* you are RIP'ing,
  - the *rotation* you applied to your file,
  - the *distortion* you applied to your file.

When launching the task on a single file, the calculated values are shown in the ticket (unless any of the parameters used in the calculation are set using SmartNames).

3. For the **Plate** and **Paper**:
  - If you selected **Use plate and paper values from file**, the size and positioning will be taken from the XMP metadata, and be uneditable (if the metadata doesn't contain this information, it will not be included in the CIP3 files).
  - Otherwise you will be able to edit them manually (if the file has metadata that contains this information, it will still be filled in as a default).

**Tip:** The number of decimals you can set depends on your Pilot preference. You can also use simple calculations.

**Note:**

You will only be able to see the size and positioning values from the metadata when launching the task on a single file.

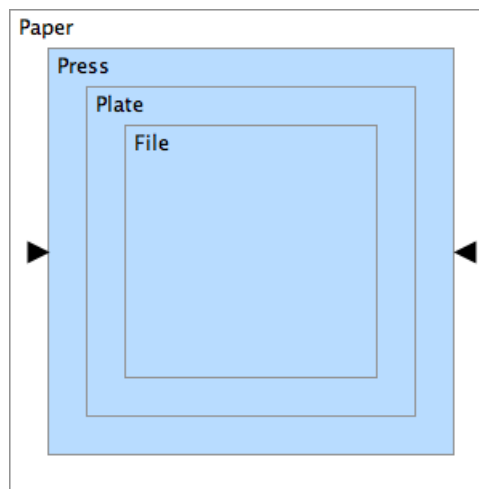
When launching it on several files at once or creating a ticket, those values will be retrieved when processing each file / when using the ticket.

4. You can always define the **Press** drum's **Width**, **Height**, **H Offset** (horizontal offset relative to the right edge of the plate) and **V Offset** (vertical offset relative to the bottom edge of the plate) manually.

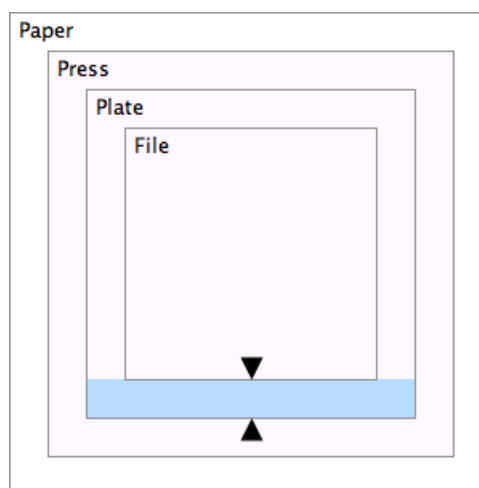
When defining size and positioning values manually, you need to first select the component you want to define (**Plate**, **Press** and/or **Paper**).

A preview shows the components you selected (**File**, **Plate**, **Press** and/or **Paper**), and the size or offset you are currently defining is highlighted in blue.

For example, if you are entering the press drum width, you will see this:



If you are entering the vertical offset between the file and the plate, you will see this:



### 6.6.7. Production Data

Use the **Production Data** settings to add job tracking and paper information to your CIP3 files. This can help press operators control the workflow.

1. Add job tracking information to your CIP3 files. You can use text and/or SmartNames to add:

- the job name in **Job Name Template**,
- the code used for job identification in **Job Code Template** (this is optional),
- the sheet name in **Sheet Name Template**.

If you are working with several sheets, the **Sheet Name Template** needs to resolve to a unique name for each sheet.

**Note:**

- Your press manufacturer may require you to enter this information in a specific format. Please check your press user manual.
- If you use a SmartName that resolves to an empty value for **Job Name Template** or **Sheet Name Template**, the task will end in error.

2. Enter the **Paper Weight** you are planning on using for printing your RIP'ed files.

The default paper weight unit is g/m<sup>2</sup>. You can type in a different unit and the paper weight will be converted to g/m<sup>2</sup>.

**Note:**

For both **Paper Weight** and **Paper Thickness**:

- You must use a numerical value (*ninety* will not work). The number of decimals you can set depends on your Pilot preference.
- If you use a SmartName that doesn't resolve to a numerical value, the task will end in error.
- The task will also execute simple calculations.

3. Enter the **Paper Thickness** you are planning on using for printing your RIP'ed files.

The default paper thickness unit is the **Dimension** unit you have set in your Pilot preferences. You can type in a different unit and the paper thickness will be converted to your default unit.

4. Enter the **Paper Type** you are planning on using for printing your RIP'ed files.

You can use text and/or SmartNames.

### 6.6.8. Output

Use the **Output** settings to define what type of output you want and where to output it.

You can set these through public parameters or using SmartNames.

1. Enter your output **File Name** and output **Folder**.

**Note:**

- You can use Imaging-specific SmartNames for the **File Name**.  
By default, it is set to [File]\_[Sheet Number]\_[ShortInk] (which gives output file names like Myfile\_1\_C.ppf).
- The **File Name** and **Folder** can contain special characters (except \ / : \* ? < > " |).
- The whole path to the output file (including the container, **Folder** and **File Name**) can be up to 255 characters.
- You can set a local or remote URL for the output **Folder**, but it must be an absolute path.
- If your output folder doesn't exist yet, the task will create it if the location you request is valid (you should place this folder on an Automation Engine container accessible by your Automation Engine user).  
  
If the output folder creation fails, please check the task log for the full list of conditions and adapt your output folder path accordingly.

2. Define what to do if a file of the same name already exists in your output folder:


a) Click **Set Overwrite Policy...**

b) Choose what to do **If files exist already**. You can either:

- **Extend the file name** if you want to keep the existing output file and give the new output file a different name. In this case, your new output file name consists of:
  - the **Output file name** (the **File Name** you set earlier) - which is what the file would be called if no file with the same name existed,
  - a custom suffix that you can define using plain text and/or SmartNames (by default, this is `_c`, for "copy"),
  - an automatic suffix made of the three last digits of the task **ID**,

**Tip:**

To see the task ID of your tasks:

1. Go to the Pilot's **Tasks** pane (in the **Files** or **Tasks** view).
2. Go to **View > Select Columns in 'Tasks'...**
3. In the **Columns** dialog, select **Task ID** in the **Available columns** list and click  to move it to the **Show these columns:** list.
4. Click **OK**.
5. You now have a **Task ID** column in the **Tasks** pane, listing the task ID of all the tasks.

- the file extension.

For example, you are working with a single-page CMYK input file called `file.pdf`, and you have left the tasks' output **File Name** to its default value (`[File]_[Sheet Number]_[ShortInk]`). You are generating one CIP3 file per separation.



The first CIP3 files you generate will be called:

- file\_1\_C.ppf
- file\_1\_M.ppf
- file\_1\_Y.ppf
- file\_1\_K.ppf

If you generate output from this input file again, with the task 3669, and you have set the overwrite policy to **Extend the file name** with the default **Output File Name + \_c + ID** name, the new output files will be called:

- file\_1\_C\_c669.ppf
- file\_1\_M\_c669.ppf
- file\_1\_Y\_c669.ppf
- file\_1\_K\_c669.ppf
- **Overwrite** the existing file(s).
- **End the task in error.**

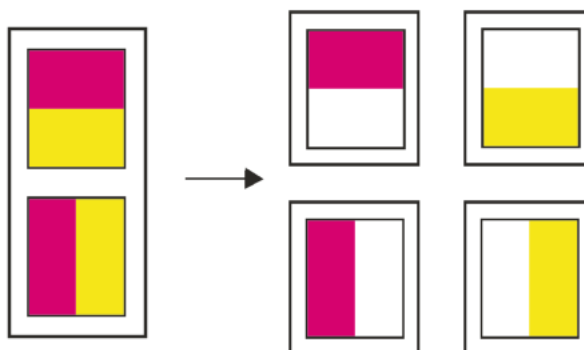
**Note:** If you use a SmartName to set this, it must resolve to `extend` or 0 (for **Extend the file name**), `overwrite` or 1 (for **Overwrite**), or `error` or 2 (for **End the task in error**).

c) Click **Set**.

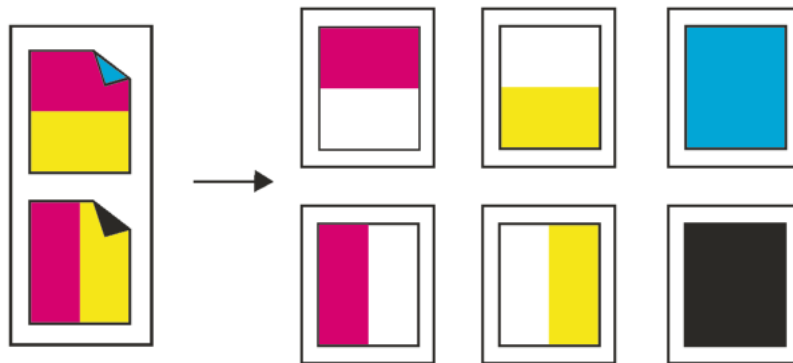
**3.** In **File Assembly**, select how you want to generate the CIP3 files:

- Select **1 File Per Separation** if you want a CIP3 file for each separation of your input file. If your input file is multi-page and/or two-sided, this will generate one CIP3 file per separation, per page and per side.

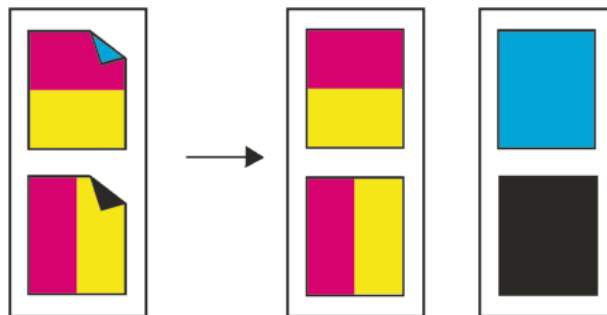
For example, for a two-page file with two separations on each page, you will get a CIP3 file for each separation of the first page, and for each separation of the second page:



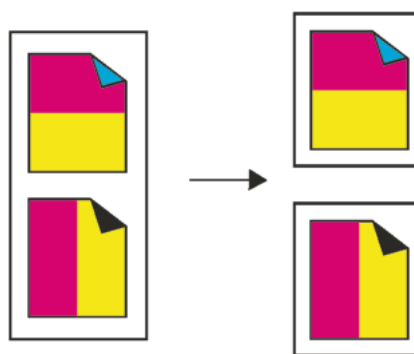
If your file is recto verso, you will also get CIP3 files for each separation on the back side of the file:



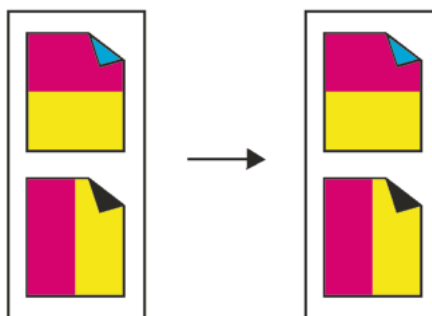
- Select **1 File Per Surface** if you want one CIP3 file for the front of your input file, and another CIP3 file for the back (for two-sided input files). For a multi-page input file the CIP3 file for each side contains all the pages of that side.



- Select **1 File Per Sheet** if you want one CIP3 file for both sides of each page/sheet of your input file.



- Select **1 File Per Job** if you only want one CIP3 file for the whole input file (containing all the separations, pages, and both sides).



4. In **Side Control**, select what you want to create CIP3 files for, in case your input file is two-sided:
  - only for the **Front**,
  - only for the **Back**,
  - for both sides (**Alternate**).
5. In **Compression**, choose whether to compress your output files. You can either:
  - use the **PackBits** compression, a fast lossless compression method for graphic files.
  - output **Uncompressed** CIP3 files.
6. Choose the **Encoding** according to what your press supports: **Binary**, **ASCII** or **ASCII85**.
7. Set the **Resolution** of your output files.

**Note:**

- The **Resolution** unit is taken from the general Automation Engine Preferences.
- The default resolution is 72 `ppi`, but you can enter values from 1 to 300 `ppi` (or equivalent in your unit). SmartNames must also resolve to a value in that range.
- Values in another unit than the one from the general Preferences will be recalculated, and values like `72ppi + 100ppm` will be calculated correctly.

8. If your input file contains outlines, line art or contoured text, and you notice that they look too thick on print, we recommend you select the **Fine Line Rendering** option.

This will render objects with fine lines, for example Asian characters or barcodes, with a "thin fill".

You can set this option with a SmartName resolving to `true` to use **Fine Line Rendering** or `false` to use the standard rendering (also known as "fat fill").

**Note:** You cannot select both **Fine Line Rendering** and **Compensate for Outline Thickness** for the same job.

9. Select **Compensate for Outline Thickness** if:
  - You want to use older tickets and workflows created using this option.
  - You want to compare the output with output created using the **Fine Line Rendering** option.

**Note:**

The **Compensate for Outline Thickness** option is based on an older technology to make fine objects look less thick on print. The **Fine Line Rendering** option (available from Imagine Engine 20.1 onwards) solves the same problem with better results.

**Compensate for Outline Thickness** will be removed in future versions of Imaging Engine. If you are creating a new ticket or workflow, we recommend you use **Fine Line Rendering** instead.

10. If you experience problems with jagged edges, for example in small text, you can set an **Anti-aliasing** factor to smooth those edges.

In the example below, you can see the difference between output without anti-aliasing (on the left), and with anti-aliasing applied (on the right).



text text

You can adjust the amount of anti-aliasing applied by choosing a factor of 2 to 8 (note that using a higher anti-aliasing factor may slow down processing).

You can also set this with a SmartName resolving to `None` (if you don't need anti-aliasing), or to the anti-aliasing factor you want (for example 2).

### 6.6.9. Summary

This shows a summary of all the settings you defined in the ticket.

- To show the settings from a tab, click + (on PC) or ► (on Mac) beside the tab name in the right pane. Click **Expand All** to show the settings from all tabs.
- To hide the settings from a tab, click - (on PC) or ▼ (on Mac) beside the tab name in the right pane. Click **Collapse All** to hide the settings from all tabs.