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2. What is Imaging Engine?

**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* (PDF, TIFF and LEN).

**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

Files coming from a graphic designer often need a lot of prepress work before being printed (for example, they contain objects in the wrong color space, vector graphics, etc.). 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.
- 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.

**Tip:** For **contract proofing**, we recommend you use *Pack Proof* together with Imaging Engine, as Pack Proof enables you to verify the color accuracy of your proof against your customer’s criteria.
4. What Does Imaging Engine Do?

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 good on press,
- **rasterize** the vector graphics to continuous tone bitmaps,
- output your file to the **file format** needed for your proofing workflow or proofing device (TIFF or PDF).

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,
- **screen** those bitmaps at the correct resolution for your output device and which 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, PDF).

4.1 Color Management

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.

Proofer 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 proofer from different brands may print completely differently.

A device’s **gamut** is the totality of the colors that device can reproduce.
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 Engine Pilot documentation for more information).

Imaging Engine support the following types of device profiles:

- Esko profiles, created in the Color Engine 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. For proofers and presses, you need a profile for every type of substrate you are using.
Once you 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).

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 the Color Engine Pilot, and you can simply select the one you need in your proofing ticket.

For more detailed information about Color Strategies, see the *Color Engine 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 of the four rendering intents available 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 sometimes 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.
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.

**Note:** You can only use a Perceptual or Saturation rendering intent if you are working with ICC source and destination profiles.

### 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 the Color Engine 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.

See [The PantoneLIVE Workflow](#).

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

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

Please see the [Color Engine 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 pixellated, 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 Proof to File - Unscreened 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

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.

![Screen images with different LPI](image1)

### 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.

![Moiré effect example](image2)

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

![Screen pattern positioning](image3)

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

![Rosette Patterns](image)

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.
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 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 off**set** 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.

<table>
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<th>On plate</th>
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<td><img src="image1.png" alt="Image" /></td>
<td><img src="image2.png" alt="Image" /></td>
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</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>On film</th>
<th>On plate</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image3.png" alt="Image" /></td>
<td><img src="image4.png" alt="Image" /></td>
</tr>
</tbody>
</table>

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.

**Monet (short name: M)**

The Monet screen has dot sizes exactly equal all over the density range, and 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.
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.

Organic (short name: O)
Unlike first generation stochastic screens like 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: GGY1 to GGY5)
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:

<table>
<thead>
<tr>
<th>Long name</th>
<th>Short name</th>
<th>Pattern angle</th>
<th>Pattern ruling</th>
<th>Transition start</th>
<th>Maximum pattern percentage</th>
<th>Pattern</th>
</tr>
</thead>
<tbody>
<tr>
<td>Groovy1</td>
<td>GVY1</td>
<td>Close to 45 degrees</td>
<td>3 times the original ruling</td>
<td>95%</td>
<td>45%</td>
<td>Lines</td>
</tr>
<tr>
<td>Groovy2</td>
<td>GVY2</td>
<td>Close to 45 degrees</td>
<td>3 times the original ruling</td>
<td>90%</td>
<td>45%</td>
<td>Lines</td>
</tr>
<tr>
<td>Groovy3</td>
<td>GVY3</td>
<td>Close to 45 degrees</td>
<td>4 times the original ruling</td>
<td>95%</td>
<td>45%</td>
<td>Lines</td>
</tr>
<tr>
<td>Groovy4</td>
<td>GVY4</td>
<td>Close to 45 degrees</td>
<td>4 times the original ruling</td>
<td>90%</td>
<td>45%</td>
<td>Lines</td>
</tr>
<tr>
<td>Groovy5</td>
<td>GVY5</td>
<td>Close to 45 degrees</td>
<td>3 times the original ruling</td>
<td>93%</td>
<td>45%</td>
<td>Eccentric1</td>
</tr>
</tbody>
</table>

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.
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, an horizontal or vertical shift near the seam of maximum 1 pixel,
- 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).
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.

You can use the Bitmap Viewer from:

- your desktop (using its shortcut icon),
- your output file in Automation Engine (see more details here).

Inspecting Screens with Advanced Screening Effects

What are Advanced Screening Effects?

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.

<table>
<thead>
<tr>
<th></th>
<th>Plain solid</th>
<th>Solid with surface screening effect</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Digital file</strong></td>
<td><img src="image1" alt="Digital file" /></td>
<td><img src="image2" alt="Solid with surface screening effect" /></td>
</tr>
<tr>
<td><strong>Printed result (with white ink)</strong></td>
<td><img src="image3" alt="Printed result (with white ink)" /></td>
<td><img src="image4" alt="Printed result (with white ink)" /></td>
</tr>
</tbody>
</table>

• **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.
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 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 GVY5).
Platecell screen at 100% (with platecell 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.

<table>
<thead>
<tr>
<th></th>
<th>10</th>
<th>15</th>
<th>20</th>
<th>50</th>
<th>75</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Original job</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Digital film</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Print</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th></th>
<th>Dot on plate</th>
<th>Dot on press</th>
</tr>
</thead>
<tbody>
<tr>
<td>Without DGC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>With DGC</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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% density 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 densities expected in the job: to print a 57% density on press, a 20% density will be used on the plate. To print a 20% density on press, you would need a density of about 5% on the plate.
Creating a Dot Gain Compensation Curve

You can create dot gain compensation curves in Curve Pilot (see the Curve Pilot documentation for more information).

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 these 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 20 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 (see the PressSync Pilot documentation for more information).
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 RIP’ed File Formats

Imaging Engine can output to the following formats:

- **TIFF**, a bitmap file format widely supported by image-processing, publishing, DTP and other applications. You can output to screened or unscreened TIFF.

- **PDF**, a multifunctional file format, supported by most graphics-related applications. You can output to screened or unscreened PDF.

- **LEN**, a bitmap file format developed for Esko’s CDI (Cyrel Digital Imager). You can send LEN files to the Grapholas software, which will use them to expose flexo plates on the CDI drum.
LEN files have high resolutions of 2100 ppi and more. They are always screened.

4.5.1 Composite and Separated Files

When proofing with Imagine Engine, you can generate either composite or separated files. 
RIP'ing with Imagine Engine always generates separated files.

Composite Files

Composite files are files that contain several separations. Imaging Engine can generate composite PDF and composite TIFF files.

When generating composite output for:

• 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 and LEN files.

When generating separated output for:

- 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.

- 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.
4.6 Calculating Ink Distribution

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

5.1 Licensing

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 and LEN), 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

5.2.1 Before Installing Imaging Engine

Before you install Imaging Engine 14.1 on your system, check the following:

- You have the Suite 14 Imaging Engine Software Installation DVD.

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

- You need to have Administrator privileges.
- You need Internet access.
- Your computer must meet the minimum requirements for the installation, as described on www.esko.com/en/SystemRequirements/.
- **Data Execution Prevention (DEP)** must not block the installation.
- The **Password Policy** must not block the installation.
- You must make sure your anti-virus software is not blocking the installation or configuration.
- You need a product key file for Imaging Engine 14.1. If you do not have a product key file yet, contact Esko Customer Support.

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**.

**How to Activate the Licenses**

Imaging Engine 14.1 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 14.1. 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. 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** by going to **Start > All Programs > Esko > Network License Manager > Network License Manager**.
2. In the **Esko Network License Manager**, do one of the following:
   - click in the **Click to activate your Product Key File** area,
   - drag your product key file in the area marked **or drag your Product Key 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.

### 5.2.2 Installing Imaging Engine

You need the Suite 14 Imaging Engine Software Installation DVD for the installation. Use the following procedure to install Imaging Engine 14.1:

1. Open the Suite 14 Imaging Engine Software Installation window:
   - If you insert the Suite 14 Imaging Engine Software 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 14.1 installation, including related tools (Color Engine Pilot, Curve Pilot, HD Flexo Screens and ScreenManager)**, click **Install**.
5. On the **Imaging Engine 14.1 Installer** page:
   a) Install the License Server Components and activate the licenses. Read more in **How to Connect to the License Server** on page 51.
   b) Check and install the prerequisites. Read more in **How to Install the Imaging Engine Prerequisites** on page 52.
   c) Proceed with the software installation. Read more in **How to Install Imaging Engine** on page 53.
   d) Install the Bitmap Viewer. Read more in **How to Install the Bitmap Viewer** on page 53.

#### How to Connect to the License Server

1. On the **Imaging Engine 14.1 Installer** page, click on **Install the Network License Manager 14.1**.
2. Follow the instructions of the installation wizard.
3. Open the **Network License Manager** by going to **Start > All Programs > Esko > 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 to go back to the **Imaging Engine 14.1 Installer** page.
How to Install the Imaging Engine Prerequisites

Before you install Imaging Engine 14.1, you need to install the Imaging Engine 14.1 prerequisites.

1. On the **Imaging Engine 14.1 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 14.1, and starts the Imaging Engine 14.1 prerequisites installation.

2. If:
   - you see an error message about the Windows version, your operating system is not suited for running Imaging Engine 14.1. Read the **System Requirements** again and install Imaging Engine 14.1 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 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 doesn't find a running Automation Engine 14.1 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 14.1 machine.
   - You can still use the local machine as Automation Engine server (if Automation Engine 14.1 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 14.1 server.

<table>
<thead>
<tr>
<th>If you get the following error:</th>
<th>then:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ERROR - Imaging Engine requires Automation Engine 14.1.0</strong> The provided master server does not have Automation Engine 14.1.0 running Checked server: [yourservename]</td>
<td>Automation Engine 14.1 is not running on the server you entered.</td>
</tr>
</tbody>
</table>

   1. Check that you entered the server name correctly.
5. Click Exit.

How to Install Imaging Engine

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 (ScreenManager, Curve Pilot, Color Engine Pilot...).
   • 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 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.
     See the Automation Engine installation guide if needed.
   • The System Components group cannot be deselected and will be installed on all systems.
5. Select a Destination Folder for the chosen products or accept the defaults.
6. At the end of the installation, click Finish.

How to Install the Bitmap Viewer

1. On the installation page, click Install the Bitmap Viewer 14 software.
2. Follow the instructions of the installation wizard.
3. Select the Destination Directory or accept the default.
4. Select the file types which you want to associate with the Bitmap Viewer or accept 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.
5.3 Configuration in the Automation Engine Pilot

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**.

<table>
<thead>
<tr>
<th>If you see...</th>
<th>it means that...</th>
</tr>
</thead>
<tbody>
<tr>
<td>a grey dot with the message <strong>Imaging Engine is starting up on host</strong></td>
<td>you need to wait a few minutes before you can use Imaging Engine.</td>
</tr>
<tr>
<td>a red dot with the message <strong>No license for Imaging Engine on host</strong></td>
<td>your Imaging Engine <strong>license</strong> is missing. Please check your licenses.</td>
</tr>
<tr>
<td>a red dot with the message <strong>No Imaging Engine available on host</strong></td>
<td>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.</td>
</tr>
</tbody>
</table>

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 quit.

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, 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.
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.
6. The Imaging Engine Tasks

Imagine Engine consists of:

- a proofing task: Proof to File - Unscreened,
- 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).

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 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.

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 selector pane at left to show more settings to fill in. See:

- General on page 59,
- Transformations on page 61,
- PDF Objects on page 62,
- Document Inks on page 63,
- Output on page 66,
- Summary on page 71.

6.1.1 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 [ ].

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).

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

A Smart Mark 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 Smart Mark.

You need to:

a) First create the Smart Mark you want to use in PackEdge (see the SmartMarks section in the PackEdge manual for details).

You can create either:

• a Smart Mark with RIP-specific parameters,

<table>
<thead>
<tr>
<th>Use this Smart Mark parameter in PackEdge:</th>
<th>to display this value from the Imaging Engine parameters:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resolution</td>
<td>the Resolution of your output file(s)</td>
</tr>
<tr>
<td>V Distortion</td>
<td>the vertical distortion you applied to your output file(s)</td>
</tr>
</tbody>
</table>
6.1.2 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
   • 90° Clockwise
   • 180°
   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:
   a) Select the type of distortion to apply: No distortion, Flexo distortion or Values from file.
      You can also use a SmartName that resolves to Not, Flexo or File.
      **Note:** If you selected Values from file and the input file contains distortion values, you will see these in the fields below (greyed out).
   b) 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 90%-110% range. If you enter a percentage outside of this range it will be automatically adjusted to the nearest value in the range (for example 85 will be adjusted to 90%).
  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.

### 6.1.3 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...).
You can use a SmartName that resolves to true (to use the input file's curves) or false (to not use them).

### 6.1.4 Document Inks

Use the **Document 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.

<table>
<thead>
<tr>
<th>Tip:</th>
</tr>
</thead>
<tbody>
<tr>
<td>To get used to working with selection criteria, try the following on a few of your files:</td>
</tr>
<tr>
<td>1. select the separations you want to output manually,</td>
</tr>
<tr>
<td>2. then change <strong>Select Inks to by using selection criteria</strong> and see which rules have been created based on your manual selection.</td>
</tr>
</tbody>
</table>

For more information, see **Selecting Inks Manually** on page 63 and **Selecting Inks Using Selection Criteria** on page 64.

#### 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:

- **Ink Name**,
- **Ink Book**,
- **Ink Index** (the order of that ink in the document),
- **Ink Type**,
- **Printing Method**.

Select the ink(s) you want to RIP, or select the toggle in the table header to select/deselect all inks.
You will see a table listing the **Selected document inks**, and another table with the **Document inks that are not selected**.

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

**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?**

- Each rule you create will check something about the inks in your file.
  
  This check can be about the **Ink name**, **Ink book**, **Ink Index**, **Ink type** or **Printing method**. For example, you can check if the **Ink book** is **designer**.

**Tip:**

The **Ink index** is the order in which the ink will be printed (the ink with ink index 1 is at the bottom of the document and will be printed first).

To find the index of a file’s inks:

1. select the file in the Automation Engine Pilot’s **Files** view,
2. click ![info_icon](image),
3. in the **Info** dialog that opens, select **Inks** in the left panel.

The order of the inks at right is the ink index (the topmost ink has an index of 1, the second of 2, etc.).

Note that if you reorder the inks by one of the columns (for example by **Ink name**), 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.

- You can create as many rules as you want.
- You can decide if you want to select the inks that match **All** of your rules, **Any** of your rules (at least one) or **None** of your rules (if you want to exclude the inks that match the rules).

**How Do I Build Rules?**

Build your rules the following way:

1. Choose how to apply your rules:
   - **Select All of the following are true** if you want to only select the inks that match **all** of the rules you define.
   - **Select Any of the following are true** if you want to select all the inks that match **at least one** of the rules you define.
   - **Select None of the following are true** if you want to only select the inks that match **none** of the rules you define.
2. Define your first selection rule.

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).

- **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).

See the *Printing methods* section of the Automation Engine documentation for more information about printing methods.

<table>
<thead>
<tr>
<th>For example, you could use:</th>
<th>to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>None of the following are true</td>
<td>exclude an ink called “crease”</td>
</tr>
<tr>
<td>Ink name is <em>crease</em></td>
<td></td>
</tr>
<tr>
<td>None of the following are true</td>
<td>exclude all technical inks</td>
</tr>
<tr>
<td>Ink type is <em>Technical</em></td>
<td></td>
</tr>
</tbody>
</table>

**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 rule will automatically be created based on your selection.

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

To remove a rule, 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 rules:

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.

6.1.5 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:

  ![Diagram](image)

  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 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 example](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).
9. If desired, you can add some custom information to the CIP3 files, using text and/or SmartNames, in:
   - Job Name Template
   - Job Code Template
   - Sheet Name Template

6.1.6 Summary

This shows a summary of all the settings you defined in the ticket.
- To show the settings from a tab, click + 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 - beside the tab name in the right pane.
  Click Collapse All to hide the settings from all tabs.

6.2 Image to Screened Separations

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 or LEN 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.

![Image](image.png)

**Task Parameters**

In the Device field, select the imaging device that you configured.

Then use the selector pane at left to show more settings to fill in. See:
- General on page 72,
- Transformations on page 73,
6.2.1 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 1.

   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 1.

   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 Smart Mark to your output file(s), select it in the Smart Mark list, or use a SmartName that will resolve to the Smart Mark name.
A **Smart Mark** 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 Smart Mark.

You need to:

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

You can create either:

- a Smart Mark with RIP-specific parameters,

<table>
<thead>
<tr>
<th>Use this Smart Mark parameter in PackEdge:</th>
<th>to display this value from the Imaging Engine parameters:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resolution</td>
<td>the <em>Resolution</em> of your output file(s)</td>
</tr>
<tr>
<td>Screen based DGC</td>
<td>the <em>Curve Strategy</em> you applied to your separation(s)</td>
</tr>
<tr>
<td>DGC</td>
<td>the <em>Single Curve</em> you applied to your separation(s)</td>
</tr>
<tr>
<td>Dot shape</td>
<td>the <em>screen or dot shape</em> you used on your separation(s)</td>
</tr>
<tr>
<td>V Distortion</td>
<td>the <em>vertical distortion</em> you applied to your output file(s)</td>
</tr>
<tr>
<td>H Distortion</td>
<td>the <em>horizontal distortion</em> you applied to your output file(s)</td>
</tr>
<tr>
<td>Device</td>
<td>the <em>imaging device</em> you used</td>
</tr>
<tr>
<td>Negative Printing</td>
<td>whether you <em>inverted</em> your output</td>
</tr>
<tr>
<td>Mirror Printing</td>
<td>whether you <em>mirrored</em> your output</td>
</tr>
</tbody>
</table>

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

b) Then select that Smart Mark in your **Imaging Engine task**.

### 6.2.2 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
• 90° Clockwise

• 180°

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:
   a) Select the type of distortion to apply: No distortion, Flexo distortion or Values from file.

      You can also use a SmartName that resolves to Not, Flexo or File.

      Note: If you selected Values from file and the input file contains distortion values, you will see these in the fields below (greyed out).

   b) 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 90%-110% range. If you enter a percentage outside of this range it will be automatically adjusted to the nearest value in the range (for example 85 will be adjusted to 90%).

      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.

6.2.3 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...).

   Aside from these curves applied on individual images, 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).

6.2.4 Document Inks

Use the Document 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 76 and Selecting Inks Using Selection Criteria on page 76.

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:

- Ink Name,
- Ink Book,
- Ink Index (the order of that ink in the document),
- Ink Type,
- Printing Method.

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

You will see a table listing the Selected document inks, and another table with the Document inks that are not selected.

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

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?

- Each rule you create will check something about the inks in your file.

This check can be about the Ink name, Ink book, Ink Index, Ink type or Printing method. For example, you can check if the Ink book is designer.
**Tip:**
The **Ink index** is the order in which the ink will be printed (the ink with ink index 1 is at the bottom of the document and will be printed first).

To find the index of a file’s inks:

1. select the file in the Automation Engine Pilot’s Files view,
2. click 🔄.
3. in the Info dialog that opens, select Inks in the left panel.

The order of the inks at right is the ink index (the topmost ink has an index of 1, the second of 2, etc.).

Note that if you reorder the inks by one of the columns (for example by Ink name), 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.

- You can create as many rules as you want.
- You can decide if you want to select the inks that match **All** of your rules, **Any** of your rules (at least one) or **None** of your rules (if you want to exclude the inks that match the rules).

**How Do I Build Rules?**

Build your rules the following way:

1. Choose how to apply your rules:
   - Select **All of the following are true** if you want to only select the inks that match **all** of the rules you define.
   - Select **Any of the following are true** if you want to select all the inks that match **at least one** of the rules you define.
   - Select **None of the following are true** if you want to only select the inks that match **none** of the rules you define.

2. Define your first selection rule.

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).
- **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).

See the *Printing methods* section of the Automation Engine documentation for more information about printing methods.
For example, you could use: | to:
--- | ---
None of the following are true | exclude an ink called "crease"
Ink name is crease | 
None of the following are true | exclude all technical inks
Ink type is Technical | 

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 rule will automatically be created based on your selection.

3. Click + to add more rules and define them.
   To remove a rule, 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 rules:

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.

6.2.5 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),
- 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,
      - the file extension.

      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.

      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**, a **PDF File** or a **LEN File** (see **RIP’ed File Formats** on page 44 for more information).

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 information (metadata about file creation, separations, calibration curves, etc.).
- You can view this XMP information by selecting your output file in the Automation Engine Pilot’s **Files** view and clicking `i`.
- For more information about XMP metadata, see the **XMP Metadata white paper** on help.esko.com.

- 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.

4. 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 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) 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 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.

5. If you are using a screen with **advanced screening effects**, select **Save print simulations** to also generate print simulations 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 **Inspecting Screens with Advanced Screening Effects** on page 34 for more information.

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
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 `C:\Program Files (x86)\BitmapViewer\BitmapViewer.exe`.
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 use Automation Engine’s **Prepare for Viewer** task on your print simulations, then compare them to your input file(s) in the Automation Engine Viewer.
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**.

6. 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.
- Depending on the **Resolution** you set here, you will have different screen **Rulings** available in the **Separations tab**.

7. If your input file contains images, the images’ pixels may not map exactly to output pixels because:
   - the images’ resolution is different from the output resolution you chose,
   - scaling and rotation effects change the size and placement of the images’ pixels.
   
   You then need to resample these images to be able to output them at the same resolution as the rest of the file.

   In the **Resample Images** option, choose the resampling method you want to use (you will have to make a trade-off between processing time and image quality).
   - Choose **From File** to use the resampling method defined in the input PDF (this is the default option). This method can be either:
     - the "nearest neighbor" algorithm, which keeps the image very sharp but can make it look jagged (pixelated but sharp). This is mostly recommended if you have small images with sharp lines/sudden differences in intensity, and/or you do not want your images to be fuzzy at all.
     
     This resampling method is very fast but may cause broken dots if the original image has sharp jumps in intensity, small and sharp detail, hairlines...
Broken dots can be more susceptible to dot gain than regular dots, they can be washed away while making the plate or can become unstable during printing (for example on flexo plates they can flap around and smear ink on the substrate).

They can have an especially noticeable effect when using advanced screening technologies such as Concentric.

- the "PDF interpolation" algorithm, that smooths the image while resampling (see below).

**Note:** Most PDF files don’t specify a preferred resampling method, so the default (“nearest neighbor” algorithm) is used. If you want to make sure that the "PDF interpolation" algorithm is used, choose PDF Interpolation instead of From File in the Resample Images option.

You can also use a SmartName resolving to FromPDF.

- Choose PDF Interpolation to smooth the image while resampling.

With this method, you get images that are pixellated and fuzzy, so it is only recommended if you have small images with gradual differences in intensity, like photographs of nature.

This is slightly less fast but reduces the chance of having broken dots.

You can also use a SmartName resolving to PDFInterpolate.

- Choose Auto Resampling to upsample the images to an automatically calculated resolution (generally half or a third of the output resolution) before smoothing it.
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 (unless you want an extra sharp image and have no broken dots problem, in which case you should choose From File).

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).
6.2.6 Separations

Use the Separations settings to define the screening and dot gain compensation to apply to the separations you selected in the Document Inks settings.

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 30 and Using Seamless Screening on page 93 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 present in the input file (dot shape, ruling and angle),

   Note:
   If some objects in your input file have a specific screen assigned, they will be screened with it.
   You can assign screens from Imaging Engine’s screens database to specific objects in a file using ArtPro 14.1 or later. See the ArtPro documentation for more information.
   For objects in the file that don’t have a screen assigned, Imaging Engine will use the Default Screening Settings you define here.

   • 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.

3. 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):

   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 **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** at a resolution of 4000 ppi.

• 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 Ruling to use.**

**Note:**
• The ruling values offered depend on the **Dot** you selected, and on the **Resolution** you entered in the **Output settings**.

• If you have used SmartNames for the **Dot** and/or the **Resolution**, you will not see **Ruling** values to choose from, and will need to enter a ruling manually (which must be a valid ruling for the dot shape and output resolution your SmartNames resolve to).

• 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.

The task will automatically calculate the correct angles to use based on the **Resolution**, **Dot** shape and **Ruling** you set.

If you are using SmartNames, make sure they resolve to a correct **Resolution**, **Dot** shape and **Ruling** combination. If your combination is incorrect and no valid set of angles can be found, the task will end in error.

c) **The default angles are fixed:**
• 15° for Cyan,
• 75° for Magenta,
• 0° for Yellow,
• 45° for Black,
• 45° for other inks.

The angle direction used (clockwise or counter clockwise) is the one you choose in the Screen Angle Direction setting.

4. Define the Plate Curve you want to use on the separations to RIP.

This curve is used to compensate for the dot growth or dot reduction (for example in Digital Flexo) happening when making the plate. 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 (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 .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.

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.

5. 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.

6. Define the Default Press Curve you want to use on the separations to RIP (or on the objects that do not have a press curve assigned if you selected Use press curves from file).

This curve is used to compensate for the dot gain on press. 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 `.scrdgc` 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.

---

**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.

---

**7.** Click **Advanced Screening Settings...** to set options to modify your chosen screen.

a) When working with AM Screening, you can minimize *yellow moiré* by changing the ruling of the yellow separation.

To do this:

1. 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).

2. 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.

b) In Screen Angle Direction, choose how Imaging Engine should read the screening angles (whether you are using angles from your file, default screening settings or exception settings).

- 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 96 for details.

Attention:

Certain screens can only be used with a clockwise Screen Angle Direction (see Clockwise Only Screens on page 96).

- 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 97 for more information.

c) Click Set to confirm your choices.

8. If you want to set specific screening and dot gain compensation settings for certain separations (for example spot colors), you can Define Exceptions...

See Defining Exception Settings on page 99 for more information.

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 \(\text{[}}\) 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 \(\text{[}}\) 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.

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**:

<table>
<thead>
<tr>
<th>Screen types</th>
<th>Which are clockwise only?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Groovy screens</strong></td>
<td>All groovy screens</td>
</tr>
<tr>
<td>(short names: GVY1 to GVY5)</td>
<td></td>
</tr>
<tr>
<td><strong>HD Flexo screens</strong></td>
<td>HD Flexo screens that use surface screening effects</td>
</tr>
<tr>
<td>(short names starting with HD)</td>
<td></td>
</tr>
<tr>
<td><strong>Full HD Flexo screens</strong></td>
<td>All Full HD Flexo screens</td>
</tr>
<tr>
<td>(short names starting with HD)</td>
<td></td>
</tr>
<tr>
<td><strong>Custom screens created in ScreenManager</strong></td>
<td>Any custom screen that is modulo 90 and uses surface screening effects</td>
</tr>
<tr>
<td>(short names starting with SCR)</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** You can check this in HD Flexo: any screen that mentions **Enhanced Shadows and Solids** has surface screening effects.

---

### 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:

<table>
<thead>
<tr>
<th>Input file</th>
<th>Output in older Imaging Engine versions</th>
<th>Output in Imaging Engine 14.1.1 onwards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normalized PDF file with Cyan at 45°</td>
<td>45° clockwise, which could be displayed in the ticket as either:</td>
<td>For both Normalized PDF and standard PDF files:</td>
</tr>
<tr>
<td></td>
<td>• 45° clockwise</td>
<td>• 45° clockwise if you set a clockwise screen angle direction.</td>
</tr>
<tr>
<td></td>
<td>• 135° counter clockwise</td>
<td>• 45° counter clockwise if you set a counter clockwise screen angle direction.</td>
</tr>
<tr>
<td></td>
<td>... depending on what you chose in the Preferences of your old Imaging Engine version.</td>
<td></td>
</tr>
<tr>
<td>Standard PDF file with Cyan at 45°</td>
<td>45° counter clockwise, which could be displayed in the ticket as either:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• 45° counter clockwise</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• 135° clockwise</td>
<td></td>
</tr>
<tr>
<td></td>
<td>... depending on what you chose in the Preferences of your old Imaging Engine version.</td>
<td></td>
</tr>
</tbody>
</table>

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 \textit{modulo 180} screens,
- different when working with \textit{modulo 90} screens.

For more details, please see \textit{Angle interpretation: behaviour for existing IE tickets} in the \textit{Knowledge Base}.

**Working with Screen Angles from Exceptions**

If you have set your screen angles using \textit{exceptions}, we recommend you choose a \textbf{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.

**Defining Exception Settings**

If desired, you can set specific screening and dot gain compensation settings for certain separations (for example spot colors):

1. Click \textbf{Define Exceptions}...
2. In the \textbf{Define Exceptions} dialog, select to \textbf{Define Exceptions} either:
   - Manually.
   - by using exception criteria.

   Exception criteria are rules that you define to apply certain RIP'ing settings to certain separations automatically when the task is launched on a file.

   Defining exceptions 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 exception criteria is more advanced but also more powerful than defining exceptions 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 defining exceptions manually when running the task on individual files, then switch to using exception criteria to automate your workflow further.

**Tip:**

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

1. apply your desired RIP'ing settings to certain separations manually,
2. then change \textbf{Define Exceptions} to \textbf{by using exception criteria} and see which rules have been created based on your manual settings.

For more information, see \textit{Defining Exceptions Manually} on page 100 and \textit{Defining Exceptions Using Exception Criteria} on page 100.
Defining Exceptions Manually

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

If you *have chosen* to define exceptions manually, do the following:

1. Click **Add**.
2. In the **Exception Properties** dialog, select the **Separation** you want to make an exception for.
3. Define the settings you want to use for this separation (**Dot**, **Ruling**, **Angle** and/or **Press Curve**).
4. Click **Add**.
   
   You can see your exception separation with its settings in the **Define Exceptions** dialog.

**Tip:** You can double-click your exception if you still want to edit it.

5. Repeat steps 1 to 4 to define more exceptions if desired.

   If you want to remove an exception, select it and click **Remove**.

   **Tip:** Leave the **Preview** option at the bottom of the dialog selected so you’ll be able to see the settings for that separation in the main task panel.

6. Click **OK** to save your exceptions and close the **Define Exceptions** dialog.

Defining Exceptions Using Exception Criteria

If you want to define exceptions to the default screening and/or dot gain compensation settings for certain inks, you can also do it using exception criteria.

This works as follows:

- You create a rule per separation or set of separations that need specific screening and/or dot gain compensation settings.
- Within each rule:
  - You define criteria to select the separation(s) you want to apply specific settings to.

  Each criterion will check something about the inks in your file.

  This check can be about the **Ink name**, **Ink book**, **Ink Index**, **Ink type** or **Printing method**. For example, you can check if the **Ink book** is **designer**.
Tip:
The **Ink index** is the order in which the ink will be printed (the ink with ink index 1 is at the bottom of the document and will be printed first).

To find the index of a file's inks:

1. select the file in the Automation Engine Pilot's **Files** view,
2. click ![Info](image)
3. in the **Info** dialog that opens, select **Inks** in the left panel.

The order of the inks at right is the ink index (the topmost ink has an index of 1, the second of 2, etc.).

Note that if you reorder the inks by one of the columns (for example by **ink name**), 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.

- You select these settings.
- If you have several rules, you can reorder them in order of priority (the top one is applied first).

**Note:** You can do this either when running the task on one or more files, or when creating a task ticket to use later.

If you **have chosen** to **Define Exceptions by using exception criteria**, do the following:

1. Click **Add**.
2. In the **Exception Properties** dialog, enter a **Rule Name**.
3. Under **If separation matches**, define one or more criteria to select your desired separation(s).
   a) Define your criteria the following way:

   - **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).

   - **Ink type**: you can define if it **is** a piece of text (alphanumerical characters).

   - **Printing method**: you can define if it is **is a piece of text (alphanumerical characters)**.

   See the *Printing methods* section of the Automation Engine documentation for more information about printing methods.
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.

b) Click + to define more criteria.

Note: You can create as many criteria as you want, they will be applied from top to bottom (the top one will be applied first).

4. Define the settings (Dot, Ruling, Angle and/or Press Curve) you want to use for the selected separation(s).

For example, you can use exceptions rules to change the angles to use for your separations (if you don’t want to use the angles set in the file or the default offset angles).

5. Click Add.

You can see your rule and the settings you selected for the exception separation(s) in the Define Exceptions dialog.

Tip: You can double-click your rule if you still want to edit it.

6. Repeat steps 1 to 5 to define more exception rules if desired.

If you want to remove an exception, select it and click Remove.

Tip: Leave the Preview option at the bottom of the dialog so you’ll be able to see your exception separation(s) with its/their settings in the main task panel.

7. Click OK to save your exceptions and close the Define Exceptions dialog.

Switching How You Define Exceptions

You can switch between the two methods of defining exceptions, and this will give the same results.

Switching from Defining Exceptions Manually to Defining Exceptions Using Exception Criteria

If you defined exceptions manually but then choose to Define Exceptions by using exception criteria, the task will translate your manual exceptions into rules, so that the same inks are selected, and they have the same exception settings.

For example, if you manually selected Cyan, Magenta and Black and assigned to each of these separations the Press Curve CMK.dgc, you will get the following rules:

- Rule Name: Cyan (process)
- Ink name is Cyan
- Press Curve: CMK.dgc
Rule Name: Magenta (process)
Ink name is Magenta
Press Curve: CMK.dgc

Rule Name: Black (process)
Ink name is Black
Press Curve: CMK.dgc

Tip: The rule names are created automatically from the contents of the exceptions, but you can still double-click each rule to edit them.

Note:
If you...
• first defined rules with exception criteria,
• then switched to defining manual exceptions but didn’t make any changes,
• then switched back to exception criteria,
... then your rules will be kept.
If you did change the exceptions in manual mode, the task will automatically generate new rules.

Switching from Defining Exceptions Using Exception Criteria to Defining Exceptions Manually
If you defined rules with exception criteria but then choose to Define Exceptions Manually, each separation selected by a rule will be selected individually, and have the settings you defined in the rule.
For example if you had as criteria:

Ink name is Cyan;Magenta;Black
Ink book is process

and you selected as Press Curve CMK.dgc, you will get the following manual exceptions:

<table>
<thead>
<tr>
<th>Ink Name</th>
<th>Ink Book</th>
<th>Press Curve</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyan</td>
<td>process</td>
<td>CMK.dgc</td>
</tr>
<tr>
<td>Magenta</td>
<td>process</td>
<td>CMK.dgc</td>
</tr>
<tr>
<td>Black</td>
<td>process</td>
<td>CMK.dgc</td>
</tr>
</tbody>
</table>

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

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 + 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 - beside the tab name in the right pane.
  Click **Collapse All** to hide the settings from all tabs.

6.3 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.

![Image to Unscreened Separations Example](image)

**Task Parameters**

In the **Device** field, select the imaging device *that you configured*.

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

• **General** on page 104,
• **Transformations** on page 106,
• **PDF Objects** on page 107,
• **Document Inks** on page 108,
• **Output** on page 111,
• **Separations** on page 121,
• **Summary** on page 127.

6.3.1 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 **[]**.

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 **Smart Mark** to your output file(s), select it in the **Smart Mark** list, or use a SmartName that will resolve to the Smart Mark name.

A **Smart Mark** 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 Smart Mark.

You need to:

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

You can create either:

- a Smart Mark with RIP-specific parameters,

<table>
<thead>
<tr>
<th>Use this Smart Mark parameter in PackEdge:</th>
<th>to display this value from the Imaging Engine parameters:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resolution</td>
<td>the Resolution of your output file(s)</td>
</tr>
</tbody>
</table>


Use this Smart Mark parameter in PackEdge: | to display this value from the Imaging Engine parameters:
---|---
Screen based DGC | the Curve Strategy you applied to your separation(s)
DGC | the Single Curve you applied to your separation(s)
V Distortion | the vertical distortion you applied to your output file(s)
H Distortion | the horizontal distortion you applied to your output file(s)
Device | the imaging device you used
Negative Printing | whether you inverted your output
Mirror Printing | whether you mirrored your output

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

b) Then select that Smart Mark in your Imaging Engine task.

### 6.3.2 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
   - 90° Clockwise
   - 180°

   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:
a) Select the type of distortion to apply: **No distortion, Flexo distortion or Values from file.**

You can also use a SmartName that resolves to Not, Flexo or File.

**Note:** If you selected **Values from file** and the input file contains distortion values, you will see these in the fields below (greyed out).

b) 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 90%-110% range. If you enter a percentage outside of this range it will be automatically adjusted to the nearest value in the range (for example 85 will be adjusted to 90%).
  - 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.

### 6.3.3 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...).

You can use a SmartName that resolves to \textit{true} (to use the input file's curves) or \textit{false} (to not use them).

6.3.4 Document Inks

Use the \textbf{Document 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:

- \textbf{All separations}.
- A number of separations you select \textit{Manually}.
- A number of separations you select \textit{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.

\textbf{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 \textbf{Select Inks} to \textit{by using selection criteria} and see which rules have been created based on your manual selection.

For more information, see \textit{Selecting Inks Manually} on page 108 and \textit{Selecting Inks Using Selection Criteria} on page 109.

\section*{Selecting Inks Manually}

\textbf{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 \textbf{Select Inks Manually}, you will see a table containing all of your document's inks, showing each ink's:

- \textit{Ink Name},
- \textit{Ink Book},
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?

- Each rule you create will check something about the inks in your file.
  This check can be about the Ink name, Ink book, Ink Index, Ink type or Printing method. For example, you can check if the Ink book is designer.

  Tip:
  The Ink index is the order in which the ink will be printed (the ink with ink index 1 is at the bottom of the document and will be printed first).

  To find the index of a file’s inks:
  1. select the file in the Automation Engine Pilot’s Files view,
  2. click ,
  3. in the Info dialog that opens, select Inks in the left panel.

  The order of the inks at right is the ink index (the topmost ink has an index of 1, the second of 2, etc.).

  Note that if you reorder the inks by one of the columns (for example by Ink name), 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.

- You can create as many rules as you want.
- You can decide if you want to select the inks that match All of your rules, Any of your rules (at least one) or None of your rules (if you want to exclude the inks that match the rules).

How Do I Build Rules?

Build your rules the following way:

1. Choose how to apply your rules:
   - Select All of the following are true if you want to only select the inks that match all of the rules you define.
• Select **Any of the following are true** if you want to select all the inks that match **at least one** of the rules you define.

• Select **None of the following are true** if you want to only select the inks that match **none** of the rules you define.

2. Define your first selection rule.

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).

• **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).

   See the *Printing methods* section of the Automation Engine documentation for more information about printing methods.

<table>
<thead>
<tr>
<th>For example, you could use:</th>
<th>to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>None of the following are true</td>
<td>exclude an ink called &quot;crease&quot;</td>
</tr>
<tr>
<td>Ink name is crease</td>
<td></td>
</tr>
<tr>
<td>None of the following are true</td>
<td>exclude all technical inks</td>
</tr>
<tr>
<td>Ink type is Technical</td>
<td></td>
</tr>
</tbody>
</table>

**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 ![button] to select one or more of the **Ink names/Ink books/Ink types/Printing methods** used in your input file(s).

   A rule will automatically be created based on your selection.

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

   To remove a rule, 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 rules:

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.

6.3.5 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`),
  
  
- 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 RIP’ed File Formats on page 44 for more information).

The task generates Separated output for both 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 both file types).
Note:

- Every output file that Imaging Engine generates contains XMP information (metadata about file creation, separations, calibration curves, etc.).

You can view this XMP information 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 on help.esko.com.

- TIFF files produced by Imaging Engine are fully compatible with Esko’s Bitmap Viewer and DotSpy.

4. 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).

<table>
<thead>
<tr>
<th>If you want lossless compression...</th>
<th>choose either:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• <strong>PackBits</strong>, a fast lossless compression method for graphic files.</td>
</tr>
<tr>
<td><strong>Tip</strong>: Use this if you want fast output and file size is not too much of an issue.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• <strong>LZW</strong>, a lossless compression method for graphic files and other files.</td>
</tr>
<tr>
<td><strong>Tip</strong>: This compression method works best for files with large images.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>If you want lossy compression...</th>
<th>choose one of the <strong>JPEG</strong> 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).</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>They are sorted from very low compression (<strong>JPEG Limited</strong>), which doesn’t lose much detail but doesn’t reduce the file size much, to very high compression (<strong>JPEG Extreme</strong>), which reduces the file size a lot but loses a lot of detail.</td>
</tr>
</tbody>
</table>
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).

  **Tip:** The **Compression** method offered by default for the output **File Type** you select (**LZW** for **TIFF** and **PackBits** for **PDF**) 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**, **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.

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 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 Example](image)

   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 **Resample Images** option) if you use anti-aliasing.

7. If your input file contains images, the images’ pixels may not map exactly to output pixels because:

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

   You then need to resample these images to be able to output them at the same resolution as the rest of the file.

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

   - **Choose From File** to use the resampling method defined in the input PDF (this is the default option). This method can be either:
     - the "nearest neighbor" algorithm, which keeps the image very sharp but can make it look jagged (pixelated but sharp). This is mostly recommended if you have small images with sharp lines/sudden differences in intensity, and/or you do not want your images to be fuzzy at all.
This resampling method is very fast.

- the "PDF interpolation" algorithm, that smooths the image while resampling (see below).

**Note:** Most PDF files don't specify a preferred resampling method, so the default ("nearest neighbor" algorithm) is used. If you want to make sure that the "PDF interpolation" algorithm is used, choose **PDF Interpolation** instead of **From File** in the **Resample Images** option.

You can also use a SmartName resolving to **FromPDF**.

- Choose **PDF Interpolation** to smooth the image while resampling.

With this method, you get images that are pixellated and fuzzy, so it is only recommended if you have small images with gradual differences in intensity, like photographs of nature.
This is slightly less fast.

You can also use a SmartName resolving to PDFInterpolate.

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

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 (unless you want an extra sharp image, in which case you should choose From File).

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`.

8. 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.

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.

### 6.3.6 Separations

Use the **Separations** settings to select the *dot gain compensation* to apply to the separations you selected in the **Document Inks settings**.

1. **Define the Plate Curve** you want to use on the separations to RIP.

   This curve is used to compensate for the dot growth or dot reduction (for example in Digital Flexo) happening when making the plate. 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 (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 *.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**.
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. Define the Press Curve you want to use on the separations to RIP.

   This curve is used to compensate for the dot gain on press. 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 .scrdgc 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.

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 you want to set specific dot gain compensation settings for certain separations (for example spot colors), you can Define Exceptions...

   See Defining Exception Settings on page 122 for more information.

Defining Exception Settings

If desired, you can set specific dot gain compensation settings for certain separations (for example spot colors):

1. Click Define Exceptions...
2. In the Define Exceptions dialog, select to Define Exceptions either:
   - Manually.
• **by using exception criteria.**

Exception criteria are rules that you define to apply certain RIP’ing settings to certain separations automatically when the task is launched on a file.

Defining exceptions 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 exception criteria is more advanced but also more powerful than defining exceptions 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 defining exceptions manually when running the task on individual files, then switch to using exception criteria to automate your workflow further.

**Tip:**

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

1. apply your desired RIP’ing settings to certain separations manually,
2. then change **Define Exceptions** to **by using exception criteria** and see which rules have been created based on your manual settings.

For more information, see *Defining Exceptions Manually* on page 125 and *Defining Exceptions Using Exception Criteria* on page 123.

**Defining Exceptions Using Exception Criteria**

If you want to define exceptions to the default dot gain compensation settings for certain inks, you can do it using exception criteria.

This works as follows:

• You create a rule per separation or set of separations that need a specific dot gain curve.
• Within each rule:
  • You define criteria to select the separation(s) you want to apply a specific curve to.
    Each criterion will check something about the inks in your file.
    This check can be about the **Ink name**, **Ink book**, **Ink Index**, **Ink type** or **Printing method**. For example, you can check if the **Ink book** is **designer**.
Tip:
The **Ink index** is the order in which the ink will be printed (the ink with ink index 1 is at the bottom of the document and will be printed first).

To find the index of a file’s inks:
1. select the file in the Automation Engine Pilot’s **Files** view,
2. click ,
3. in the **Info** dialog that opens, select **Inks** in the left panel.

The order of the inks at right is the ink index (the topmost ink has an index of 1, the second of 2, etc.).

Note that if you reorder the inks by one of the columns (for example by **ink name**), 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.

- You select that curve.
- If you have several rules, you can reorder them in order of priority (the top one is applied first).

**Note:** You can do this either when running the task on one or more files, or when creating a task ticket to use later.

If you **have chosen** to **Define Exceptions by using exception criteria**, do the following:

1. Click **Add**.
2. In the **Exception Properties** dialog, enter a **Rule Name**.
3. Under **If separation matches**, define one or more criteria to select your desired separation(s).
   a) Define your criteria the following way:

   - **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).

   - **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).

   See the **Printing methods** section of the Automation Engine documentation for more information about printing methods.
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 ![check] 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.

b) Click + to define more criteria.

  **Note:** You can create as many criteria as you want, they will be applied from top to bottom (the top one will be applied first).

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** you selected for the exception separation(s) in the **Define Exceptions** dialog.

  **Tip:** You can double-click your rule if you still want to edit it.

6. Repeat steps 1 to 5 to define more exception rules if desired.

  If you want to remove an exception, select it and click **Remove**.

  **Tip:** Leave the **Preview** option at the bottom of the dialog so you’ll be able to see your exception separation(s) with its/their **Press Curve** in the main task panel.

7. If desired, you can reorder your exception rules (they are applied from top to bottom). To do this, select a rule and click **Move Up** or **Move Down**.
8. Click **OK** to save your exceptions and close the **Define Exceptions** dialog.

### Defining Exceptions Manually

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

If you **have chosen** to **Define Exceptions Manually**, do the following:

1. Click **Add**.
2. In the **Exception Properties** dialog, select the **Separation** you want to make an exception for.
3. Select **Press Curve** and choose the press curve you want to use for this separation.
4. Click **Add**.

  You can see your exception separation with its **Press Curve** in the **Define Exceptions** dialog.

  **Tip:** You can double-click your exception if you still want to edit it.

5. Repeat steps 1 to 4 to define more exceptions if desired.
If you want to remove an exception, select it and click **Remove**.

**Tip:** Leave the **Preview** option at the bottom of the dialog selected so you’ll be able to see the settings for that separation in the main task panel.

6. Click **OK** to save your exceptions and close the **Define Exceptions** dialog.

### Switching How You Define Exceptions

You can switch between the two methods of defining exceptions, and this will give the same results.

#### Switching from Defining Exceptions Manually to Defining Exceptions Using Exception Criteria

If you defined exceptions manually but then choose to **Define Exceptions by using exception criteria**, the task will translate your manual exceptions into rules, so that the same inks are selected, and they have the same exception settings.

For example, if you manually selected **Cyan**, **Magenta** and **Black** and assigned to each of these separations the **Press Curve** `CMK.dgc`, you will get the following rules:

- **Rule Name:** Cyan (process)
  - **Ink name is** Cyan
  - **Press Curve:** `CMK.dgc`

- **Rule Name:** Magenta (process)
  - **Ink name is** Magenta
  - **Press Curve:** `CMK.dgc`

- **Rule Name:** Black (process)
  - **Ink name is** Black
  - **Press Curve:** `CMK.dgc`

**Tip:** The rule names are created automatically from the contents of the exceptions, but you can still double-click each rule to edit them.

**Note:**

If you...

- first defined rules with exception criteria,
- then switched to defining manual exceptions but didn't make any changes,
- then switched back to exception criteria,

... then your rules will be kept.

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

#### Switching from Defining Exceptions Using Exception Criteria to Defining Exceptions Manually

If you defined rules with exception criteria but then choose to **Define Exceptions Manually**, each separation selected by a rule will be selected individually, and have the settings you defined in the rule.

For example if you had as criteria:
Ink name is Cyan; Magenta; Black

Ink book is process

and you selected as Press Curve CMK.dgc, you will get the following manual exceptions:

<table>
<thead>
<tr>
<th>Ink Name</th>
<th>Ink Book</th>
<th>Press Curve</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyan</td>
<td>process</td>
<td>CMK.dgc</td>
</tr>
<tr>
<td>Magenta</td>
<td>process</td>
<td>CMK.dgc</td>
</tr>
<tr>
<td>Black</td>
<td>process</td>
<td>CMK.dgc</td>
</tr>
</tbody>
</table>

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

6.3.7 Summary

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

- To show the settings from a tab, click + 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 - beside the tab name in the right pane.
- Click Collapse All to hide the settings from all tabs.

6.4 Proof to File - Unscreened

Use this task if you need unscreened but color managed output, in a file that you can send to a proofer.

Task Output

The Proof to File - Unscreened task can generate composite PDF or TIFF 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 selector pane at left to show more settings to fill in. See:

- **General** on page 128,
- **Proofer** on page 130,
- **Transformations** on page 130,
- **PDF Objects** on page 131,
- **Document Inks** on page 132,
- **Color Management** on page 136,
- **Output** on page 139,
- **Summary** on page 149.

### 6.4.1 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 [ ].

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 **Smart Mark** to your output file(s), select it in the **Smart Mark** list, or use a SmartName that will resolve to the Smart Mark name.

A **Smart Mark** 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 Smart Mark.

You need to:

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

You can create either:

- a Smart Mark with proof-specific parameters,

<table>
<thead>
<tr>
<th>Use this Smart Mark parameter in PackEdge:</th>
<th>to display this value from the Imaging Engine parameters:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resolution</td>
<td>the <em>Resolution</em> of your output file(s)</td>
</tr>
<tr>
<td>V Scale</td>
<td>the <em>vertical scaling</em> you applied to your output file(s)</td>
</tr>
<tr>
<td>H Scale</td>
<td>the <em>horizontal scaling</em> you applied to your output file(s)</td>
</tr>
<tr>
<td>Color Strategy</td>
<td>the <em>Color Strategy</em> you applied to your output file(s)</td>
</tr>
<tr>
<td>Source Profile</td>
<td>the Source Profile contained in the Color Strategy you applied to your output file(s)</td>
</tr>
<tr>
<td>Destination Profile</td>
<td>the Destination Profile contained in the Color Strategy you applied to your output file(s)</td>
</tr>
<tr>
<td>Rendering Intent</td>
<td>the Rendering Intent contained in the Color Strategy you applied to your output file(s)</td>
</tr>
<tr>
<td>Device</td>
<td>the <em>imaging device</em> you used</td>
</tr>
<tr>
<td>Negative Printing</td>
<td>whether you <em>inverted</em> your output</td>
</tr>
<tr>
<td>Mirror Printing</td>
<td>whether you <em>mirrored</em> your output</td>
</tr>
</tbody>
</table>

- another type of Smart Mark (for example a corner mark).
b) Then select that Smart Mark in your Imaging Engine task.

### 6.4.2 Proofer

When outputting your RIP’ed files to a proofer:

- Select the **Substrate Size** from a list of predefined sizes, or enter the substrate **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.

**Note:**
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.

**Tip:**
The **Substrate 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**).

### 6.4.3 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.
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 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**
   - **90° Clockwise**
   - **180°**

   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.

### 6.4.4 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 **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...).

   You can use a SmartName that resolves to `true` (to use the input file’s curves) or `false` (to not use them).

### 6.4.5 Document Inks

**Selecting Which Separations to Proof**

Use the **Document 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 133 and Selecting Inks Using Selection Criteria on page 133.
**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 **Generate an error if 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 **Generate an error if the job contains unregistered inks**.

In both cases, you will also see a message in the log.

| Note: If your 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:

- Ink Name,
- Ink Book,
- Ink Index (the order of that ink in the document),
- Ink Type,
- Printing Method.

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

You will see a table listing the **Selected document inks**, and another table with the **Document inks that are not selected**.

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

---

**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?

- Each rule you create will check something about the inks in your file.
  This check can be about the **Ink name**, **Ink book**, **Ink Index**, **Ink type** or **Printing method**. For example, you can check if the **Ink book** is **designer**.

**Tip:**
The **Ink index** is the order in which the ink will be printed (the ink with ink index 1 is at the bottom of the document and will be printed first).

To find the index of a file's inks:
1. select the file in the Automation Engine Pilot's **Files** view,
2. click ![icon](image)
3. in the **Info** dialog that opens, select **Inks** in the left panel.

The order of the inks at right is the ink index (the topmost ink has an index of 1, the second of 2, etc.).

Note that if you reorder the inks by one of the columns (for example by **Ink name**), 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.

- You can create as many rules as you want.
- You can decide if you want to select the inks that match **All** of your rules, **Any** of your rules (at least one) or **None** of your rules (if you want to exclude the inks that match the rules).

How Do I Build Rules?

Build your rules the following way:

1. Choose how to apply your rules:
   - Select **All of the following are true** if you want to only select the inks that match **all** of the rules you define.
   - Select **Any of the following are true** if you want to select all the inks that match **at least one** of the rules you define.
   - Select **None of the following are true** if you want to only select the inks that match **none** of the rules you define.

2. Define your first selection rule.

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).
- **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 (alphanumeric characters).

  See the *Printing methods* section of the Automation Engine documentation for more information about printing methods.

<table>
<thead>
<tr>
<th>For example, you could use:</th>
<th>to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>None of the following are true</td>
<td>exclude an ink called &quot;crease&quot;</td>
</tr>
<tr>
<td>Ink name is crease</td>
<td></td>
</tr>
<tr>
<td>None of the following are true</td>
<td>exclude all technical inks</td>
</tr>
<tr>
<td>Ink type is Technical</td>
<td></td>
</tr>
</tbody>
</table>

**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 rule will automatically be created based on your selection.

3. **Click +** to add more rules and define them.

   To remove a rule, 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 rules:

**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.

6.4.6 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.


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 137.

### 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 10 for more information about color strategies.

You can either select an existing color strategy (that you have created in the Color Engine 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 the Color Engine 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, the Color Engine 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 **outputting to TIFF**, 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:** When **outputting to TIFF**, you can only select CMYK destination profiles.

  c) Select a **Rendering Intent**.

  See *Rendering Intents* on page 10 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:** You can only use a **Perceptual** or **Saturation** rendering intent if you are working with Esko source and/or destination profiles.

  d) Click **OK**.

  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 emulsion 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, the Color Engine 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.

   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.


   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 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, the Color Engine 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.

### 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] for single page input files (which gives output file names like Myfile.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),

- 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 or a PDF File (see RIP’ed File Formats on page 44 for more information).

• 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.
Note:
The 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).

- For PDF 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:
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).
Note:

- Every output file that Imaging Engine generates contains XMP information (metadata about file creation, separations, calibration curves, etc.).

You can view this XMP information 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 on help.esko.com.

- TIFF files produced by Imaging Engine are fully compatible with Esko’s Bitmap Viewer and DotSpy.

4. 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).

<table>
<thead>
<tr>
<th>If you want lossless compression...</th>
<th>choose either:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PackBits, a fast lossless compression method for graphic files.</td>
<td><strong>Tip:</strong> Use this if you want fast output and file size is not too much of an issue.</td>
</tr>
<tr>
<td>• LZW, a lossless compression method for graphic files and other files.</td>
<td><strong>Tip:</strong> This compression method works best for files with large images.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>If you want lossy compression...</th>
<th>choose one of the JPEG 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).</th>
</tr>
</thead>
<tbody>
<tr>
<td>They are sorted from very low compression (JPEG Limited), which doesn’t lose much detail but doesn’t reduce the file size much, to very high compression (JPEG Extreme), which reduces the file size a lot but loses a lot of detail.</td>
<td></td>
</tr>
</tbody>
</table>
• 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).

  **Tip:** The Compression method offered by default for the output File Type you select (LZW for TIFF and PackBits for PDF) 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, 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.

5. Set the Resolution of your output files.
6. **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 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 comparison](image.png)

   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 **Resample Images** option) if you use anti-aliasing.

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

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

   You then need to resample these images to be able to output them at the same resolution as the rest of the file.

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

   - Choose **From File** to use the resampling method defined in the input PDF (this is the default option). This method can be either:
     - the "nearest neighbor" algorithm, which keeps the image very sharp but can make it look jagged (pixelated but sharp). This is mostly recommended if you have small images with sharp lines/sudden differences in intensity, and/or you do not want your images to be fuzzy at all.
This resampling method is very fast.

- the "PDF interpolation" algorithm, that smooths the image while resampling (see below).

**Note:** Most PDF files don't specify a preferred resampling method, so the default ("nearest neighbor" algorithm) is used. If you want to make sure that the "PDF interpolation" algorithm is used, choose **PDF Interpolation** instead of **From File** in the **Resample Images** option.

You can also use a SmartName resolving to **FromPDF**.

- **Choose PDF Interpolation** to smooth the image while resampling.

With this method, you get images that are pixellated and fuzzy, so it is only recommended if you have small images with gradual differences in intensity, like photographs of nature.
This is slightly less fast.

You can also use a SmartName resolving to PDFInterpolate.

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

  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 (unless you want an extra sharp image, in which case you should choose From File).

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`.

### 6.4.8 Summary

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

- To show the settings from a tab, click + 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 - beside the tab name in the right pane.
  
  Click **Collapse All** to hide the settings from all tabs.