

Image preparation

Instructions for creating layouts for physical and digital production.
PostNord Strålfors Oy, version 2024-01-01

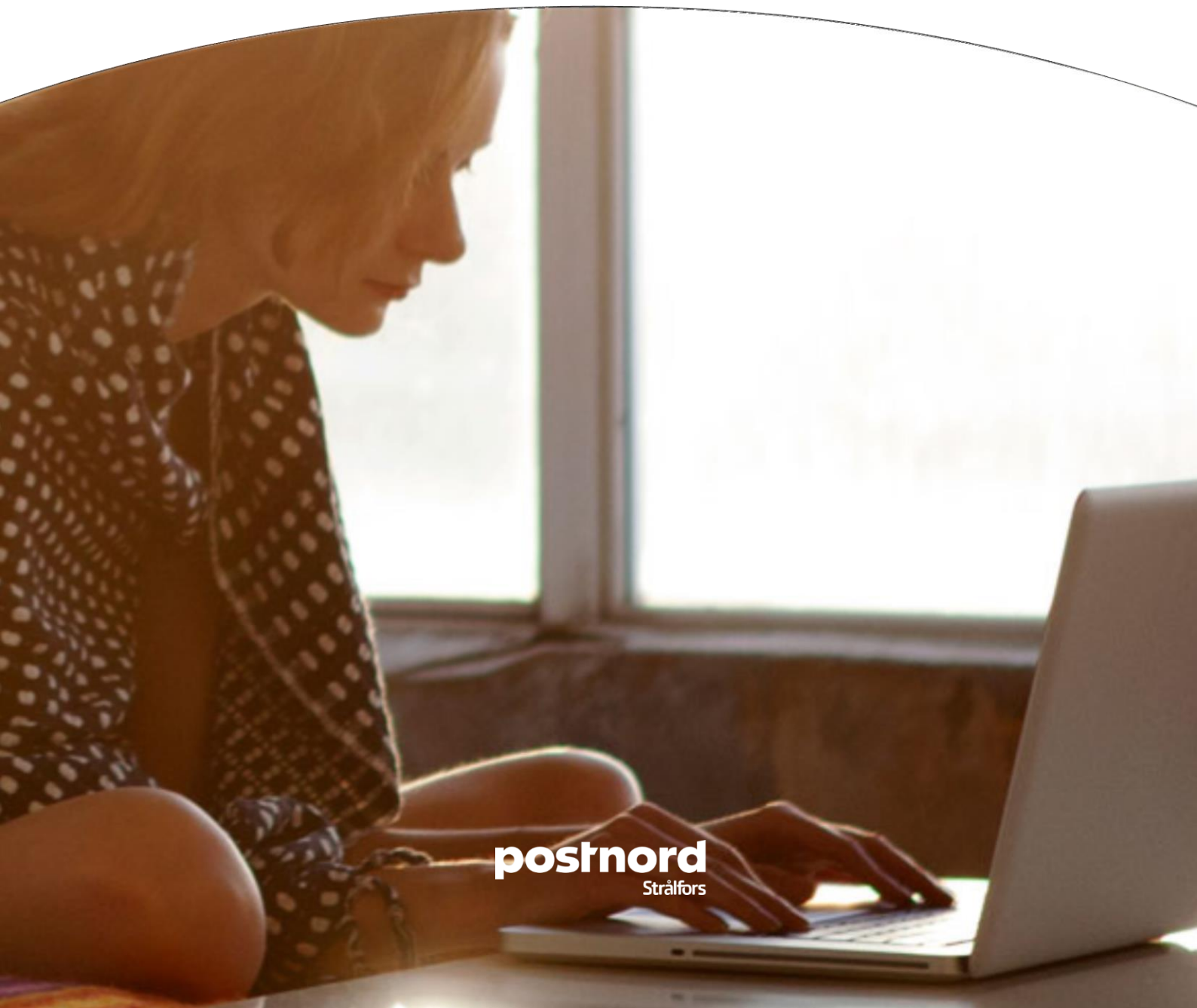


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1. General

1.1. Purpose of this document

This document is a generic instruction for preparing the material in the layout point of view for the print and digital services in PostNord Strålfors Oy (later Strålfors) for the Customer. Purpose of this document is to give advice how to generate most suitable PDF and other digital images for high volume production.

1.2. Specifications, terms, and abbreviations

Term	Definition
Artificial typeface	Font style (like bold or italic) which is selected in the style menu of the used software and doesn't use the real typeface from font family
Bleed	Area that extends past a trim edge of the page. Bleeds are never used in Strålfors high volume production.
Color Space	Color space can be either CMYK, which uses process color primaries which are used in color printing; Cyan, Magenta, Yellow, Black, or RGB, which is normally used in digital production using colors: Red, Green, Blue. Warning! Do not mix color spaces.
Continuing page	Page that is added to a document in file and can be produced in the same flow with the other pages of the document. Can contain for example additional information or advertisement. The page size shall be the same as the actual document page size.
External layout resource	For example, image/graphic object that is dynamically used in layout.
Duplex printing	Printing on both sides of the paper.
Layout object	Any object used in layout: text, graphic, image, color.
Negative line or text	White line or text on the top of a color area
Pixel graphic	Pixel graphics, also known as raster graphics or bitmap images, are digital images composed of individual pixels. Each pixel is a tiny square or dot that represents a single point of color within an image. The arrangement of these pixels creates the overall visual appearance of the image. Unlike vector graphics, which use mathematical equations to define shapes, pixel graphics are based on a grid of individual color information. Pixel graphics have a fixed resolution and pixel graphics may lose quality and appear pixelated.
Resolution	Resolution is the term used to describe the number of dots (printer, dpi), or number of pixels (screen, ppi) per inch that are used to display an image. The more pixels the sharper but also heavier is the image. Normally 200 ppi is enough for printing and less than 100 ppi for digital production.
Rich Black	Black shade that contains CMY color components in addition to black. Rich Black should be never used within Strålfors production.
Simplex	Simplex printing refers to the process of printing on only one side (top) of a sheet of paper during a single pass through the printing equipment. In other words, each sheet is printed on one side only, and there is no printing on the reverse side.
SRM	Strålfors Reliable Mailing. Visible as Data Matrix 2D barcode in the envelope window.

Vector graphic	A vector graphic is a type of digital image that is created using mathematical equations to define geometric shapes, such as points, lines, and curves. Unlike raster graphics, which are composed of pixels and can lose quality when resized, vector graphics can be scaled to any size without a loss of quality. This scalability makes vector graphics ideal for logos, icons, illustrations, and other design elements.
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2. File settings

2.1. Page size

Page shall be portrait A4, 210 mm x 297 mm. Page size restriction is fixed for physical production, for digital production page size can vary, but recommendation is to use same A4 size as the same document can be used in several output channels.

2.2. Simplex or Duplex printing

One document can contain only simplex or duplex. Strålfors needs to have knowledge how to resolve if the document is using simplex or duplex printing. This can be decided on batch level or on document level using the document metadata.

NB! Notice that page count must be even when printing duplex.

2.3. Colors

The entire file including all external objects and continuous pages shall use only one color space, RGB or CMYK.

One document can be either color or black & white when printed. This can be decided on batch level or on document level using the document metadata. If the document is created as color document but black&white printing is used, the color document will be converted to raster black & white image which will affect the output quality.

Normally color printing in simplex is described as 4/0 printing as duplex is 4/4 printing, for black&white printing it is 1/0 or 1/1. High volume color printing is using business quality instead of press quality.

Strålfors uses following standard ICC / color profiles for optimal color reproduction:

- RGB: sRGB
- CMYK: Coated FOGRA39

Rendering Intent is Relative Colorimetric.

If you are unsure of the color management settings, contact Strålfors Customer Service.

Use always one of the mentioned profiles, but when creating a file with these color profiles, do not include or tag the color profile in the file.

2.3.1. Recommendations

Recommendation	Category	Information
Use the same color values in every element that should have the same color	layout objects	Even a slight difference in color values can be very visible in printout
Use only pure black or pure shades of grey	texts & graphics	Use only K values in CMYK color space or use even amount of RGB colors for to create pure black/gray. Do not use rich black.
Test brand colors separately to get best result	graphics	The business color printer has a limited color gamut and Strålfors recommends that the brand colors are tested in implementation phase to get best result when moving to production.

2.3.2. Restrictions

Restriction	Category	Information
Don't convert colors from one CMYK profile to another CMYK profile	document/ image	Wrongly made CMYK to CMYK profile conversion can cause pure black to turn to rich black.
Spot colors	layout/graphics	Strålfors doesn't support spot colors and they are converted to CMYK in the printing process

3. File Preparation

3.1. General information about print production

Printing technology in high volume business color printing is using inkjet printing to standard inkjet 80m² paper. For the best result do not use small details, thin negative lines or small font sizes as the ink might spread and these items becomes unclear or unreadable. Also, avoid using large, dark, color areas since the color can affect the output quality.

3.2. Margins and bleeds

Bleeds and crop marks are not used in Strålfors. It is highly recommended to design all pages to use A4 size and at least 3mm margins in all edges of the printed page as the We Mail service will whiten these areas. See figure below for examples.

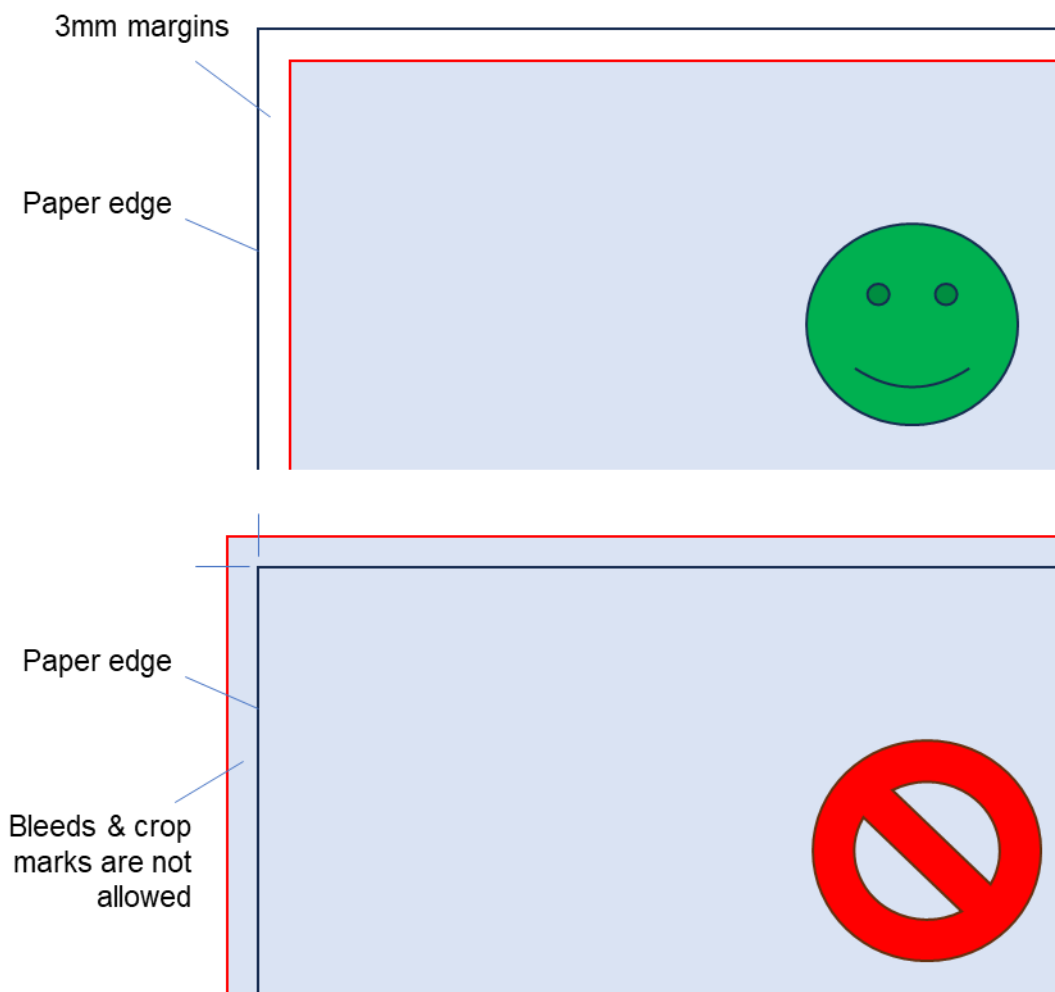


Figure 1 Illustration of margins and bleeds

3.2.1. Layout elements

Banners and other page elements like logos that are used in layout must be the same size or smaller as the defined area (width & height). Margins are not used in object level. Bleeds are not allowed since objects are not cut clean before aligning them to the page in automatic processes.

3.3. Reserved areas

When creating a document layout for printing, please follow the document “We Mail – Varatut alueet, suomenkielinen” or “We Mail – Reserved areas, in English” which can be found from <https://www.stralfors.fi/yritys/Ehdot--Materiaaliohjeet/>.

3.4. Fonts

All fonts must be embedded in resource files or print ready documents. Prefer OpenType or TrueType fonts as these type of fonts works best in all the different channels. Avoid using artificial font types as different ripping processes handles artificial typefaces different ways and the result is unpredictable.

If layout is created and maintained by Strålfors, the used font needs to be licensed by Strålfors. Strålfors has a wide set of fonts that may be used in the documents. However, if any special typeface is needed, it must be purchased by Strålfors under the terms of the font license. The costs of the special fonts are charged from the customer.

3.5. Image formats

Image format must be chosen regarding the type of the resource. Each format has own pros and cons. The image should be created to the dimensions in which they are meant to be used in the layout.

3.5.1. Pixel images

Pixel graphics, also known as raster graphics or bitmap images, are digital images composed of individual pixels. Pixel graphics have a fixed resolution and pixel graphics may lose quality and appear pixelated.



Figure 2 Pixel graphics are typically photorealistic.

It is recommended to use JPEG/JPG format for pictures and other complex images. JPEG uses lossy compression, meaning that some image information is lost during compression to reduce the file size. The compression is achieved by discarding certain details that the human eye might not easily notice. When saving a JPEG file, users can often choose the level of compression, balancing image quality and file size. Higher compression results in smaller files but may lead to more noticeable loss of quality.

Another recommendation is to use PNG which is commonly used for images that require high quality, transparency, and lossless compression, such as logos, icons, illustrations, and graphics. It is a suitable alternative to formats like JPEG when maintaining the highest possible image quality is a priority. Normally PNG file size is larger than JPEG.

PNG is ideal for images requiring transparency, such as logos, icons, and graphics with sharp edges. It is suitable for images where preserving the highest quality is essential.

JPEG is commonly used for photographic images where smaller file sizes are important for high processing volumes. JPEG is suitable for images where a small amount of quality loss is acceptable.

Strålfors recommends checking the image quality and file size after saving to the file for optimal result. In normal situations, the file size A4 size image should not be more than 500-1000 kb, ie. image size for small logo should be only approximately 50-100 kb.

3.5.2. Vector images

A vector graphic is a type of digital image that is created using mathematical equations to define geometric shapes, such as points, lines, and curves. Unlike raster graphics, vector graphics can be scaled to any size without a loss of quality. This scalability makes vector graphics ideal for logos, icons, illustrations, and other design elements.

Vector files are generally smaller in size compared to raster graphics.

As vector graphics consist of basic geometric elements such as points, lines, and curves, which are defined by mathematical formulas complex vector graphics require lot of processing power and complex vector images shall not be used in print production, instead use pixel image format.

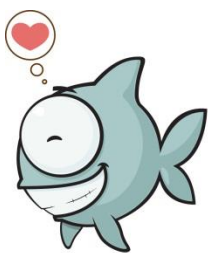


Figure 3 Example of simple vector graphics



Figure 4 Complicated vector graphics are advisable to turn to pixel graphic JPEG

SVG (Scalable Vector Graphics) is an XML-based file format commonly used for vector graphics on the web. Another file format used for vector graphics is EPS (Encapsulated

PostScript) which is a file format that can contain both vector and raster elements, widely used for vector graphics in print applications.

3.5.3. PDF images

PDF, which stands for Portable Document Format, is a file format developed by Adobe to present documents consistently across different devices and platforms. PDF files can contain text, images, vector graphics, hyperlinks, forms, and more.

Creating PDFs for high-volume production requires attention to detail to ensure that the output meets the standards and minimizes issues during the production process.



Figure 5 PDF can contain text, pixel, and vector graphics. For example, banners are best delivered as PDF.

Here are some best practices for creating PDFs:

1. **Use one color profile:** Use either CMYK or RGB, not mixed profiles in one file
2. **Embed fonts:** Embed all fonts used in the document to ensure consistent display and printing. This is especially important for maintaining the intended typography and avoiding font substitution issues. If merging several PDF files together, make sure that fonts are still embedded correctly and not multiplied.
3. **Image quality:** PDF supports use of pixel and vector graphics. Use purpose driven approach to select correct image quality, see previous sections. Check image resolution before embedding them in the PDF, as wrong kind of images can result in unwanted results.
4. **Bleed and Trim Marks:** Never use Bleed and Trim Marks as instructed in previous section.
5. **Forms:** Never use form elements in PDF files
6. **Security:** Never password protect PDF files
7. **PDF version:** Try not to use newest versions of PDF as all new features might not be supported by processing platform.
8. **Transparency Flattening:** Flatten transparent objects to prevent unexpected results during processing. High volume print production handle transparency better when it's flattened into raster images.
9. **Image overlapping and rotation:** Avoid overlapping and rotated images as they dramatically increase processing times.
10. **Optimize PDF for print and digital production:** If possible, create separate version of the PDF file for print production and for digital production as the needs varies (resolution, links, fonts, web viewing, tagging)

By adhering to these best practices, you can create PDFs that are well-suited for high-volume production, minimizing potential issues and ensuring a smooth process.

If these best practices are not followed, it might affect the processing speed of the files, and therefore SLA's might not be met, or processing can be even terminated.