



The Printer Working Group

New IPP Attributes Proposal

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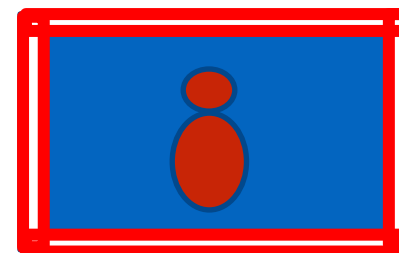
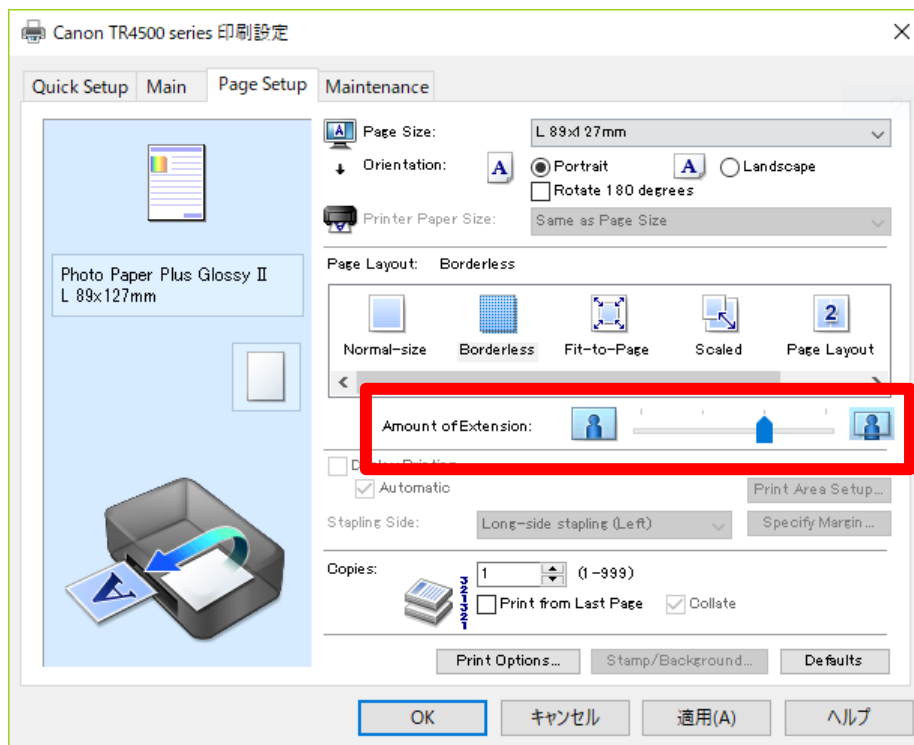
2019-06-20

Attributes to be added to IPP standard



- Following slides present new attributes that Canon proposes to add onto the Standard IPP attributes to give more control in IPP printing.
- June 20, 2019 update (original April 17, 2019)

Borderless adjustment setting



Amount of extension

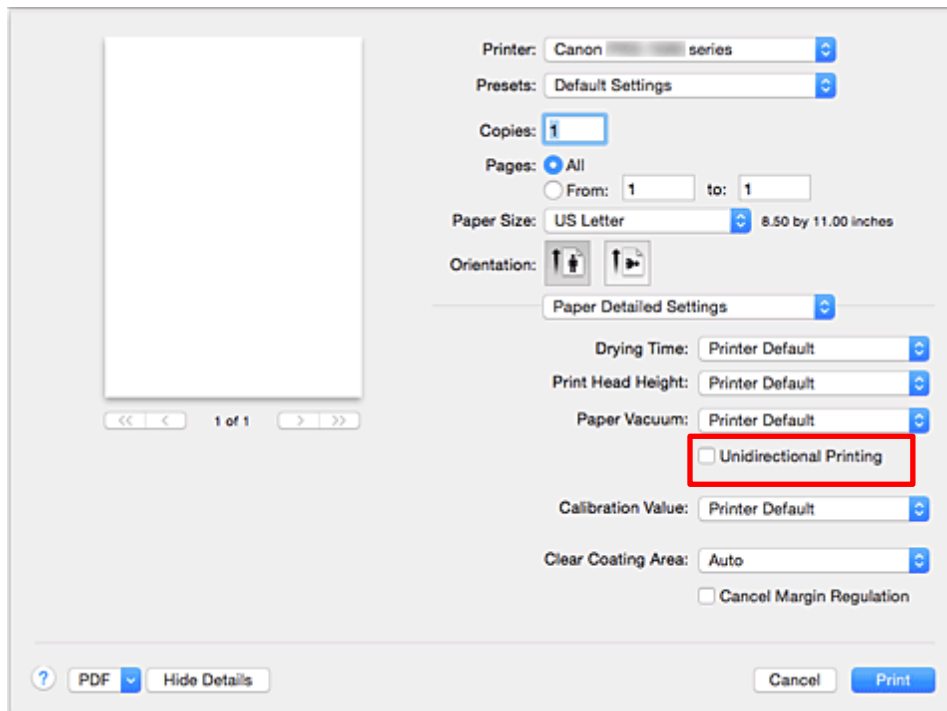
At the time of borderless printing, white margins may possibly be printed at the border area due to paper skew. This setting is to suppress that possible white margin. If it is set larger, more coverage is guaranteed. If you want to reduce the image loss, make it smaller. The setting is valid only when the margin of media-col = 0 (no border).



Borderless adjustment setting

- Solution from April F2F: The Printer perform the "borderless overbleed"
 - Relieves the Client and App from having to deal with another (awkward) media size variant
- New attributes
 - "media-overbleed (integer)" / "media-overbleed-supported (1setOf integer)"
 - How far to "overbleed"
 - Units? "PWG Units" **.01mm**
 - "media-overbleed-type (type2 keyword)"
 - 'scaling': Have the Printer scale up to reach the target overbleed value
 - 'extension': Have the Printer extend the border pixels to reach the target overbleed

Unidirectional Printing



Unidirectional Printing

In long format printing, uneven coloring and line shifts may happen during printing.

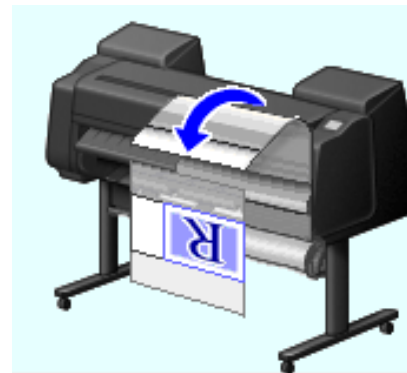
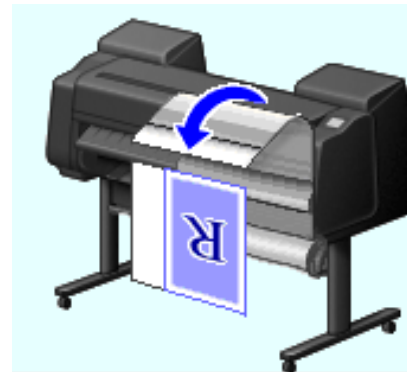
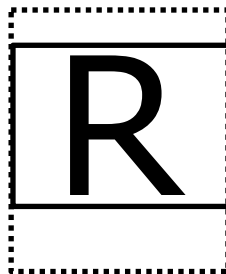
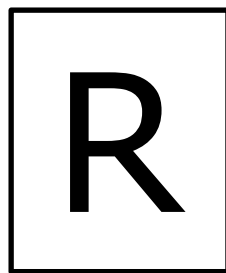
Unidirectional printing works to avoid that problem.

Unidirectional Printing



- Solution from April F2F: Map this to occur when one of the supported "print-quality" enums is chosen by the user
- IPP Print Quality Customizations extensions to "print-quality" and related IPP additions would allow a custom label to be presented to the user.

Eliminate Upper and Lower Margins



Eliminate the margins

When printing on roll paper, a user can save paper by eliminating the upper and lower margins when printing with this setting.



Eliminate Upper and Lower Margins

- "minimize-whitespace (integer)"
 - Value is the new margin after all whitespace has been trimmed
- "minimize-whitespace-supported (rangeOfInteger)" or "minimize-whitespace-supported (1setOf integer)"
 - Specifies the range or set of margin values selectable by the user

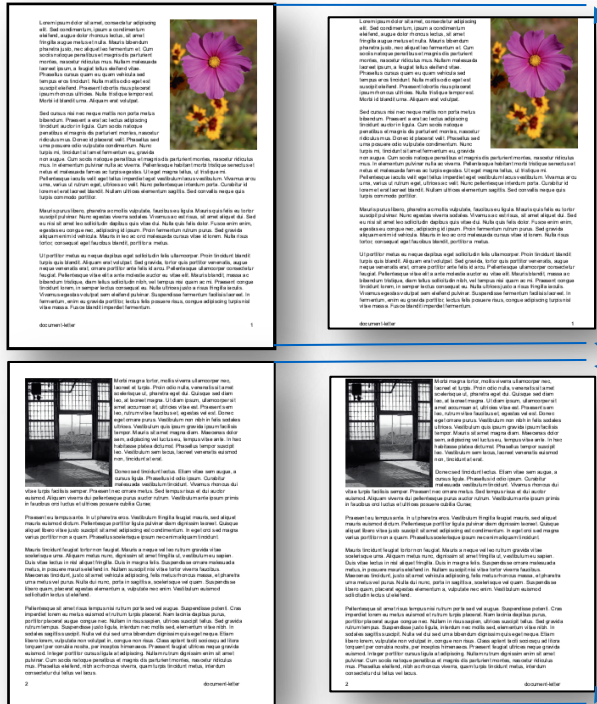
Q: What about the removal of left / right margins? Does that start to make things tricky and overly complex?

- Canon does not need left/right margin removal.
- Canon suggests making the attribute a boolean rather than integer, i.e. "eliminate-margins". Please see the next three slides for a usage example. Note that both media-top-margin & media-bottom-margin are removed as well as media content margins.

What "eliminate-margins" feature does?



"Eliminate Upper and Lower Margins" is to eliminate role paper wasting. Client sends the command for job unit, and the printer controls the paper feed in that manner (to eliminate the white margins) for every page in the job.



Eliminate margins

Roll paper cut maybe controlled separately by another IPP Attribute, likely finishing-col. Similarly to Eliminate margins, the paper cut is performed for every page once finishing-col is issued at the beginning of the job. See the page 4.

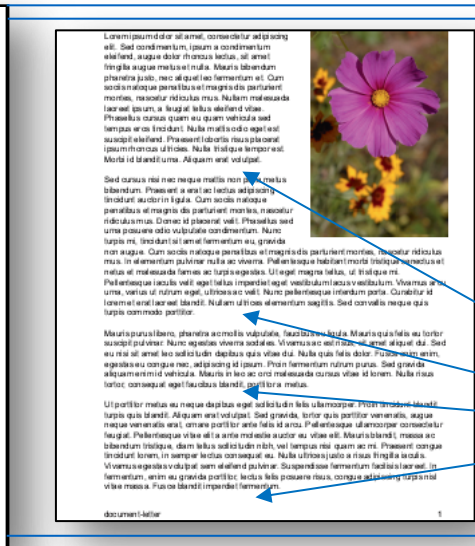
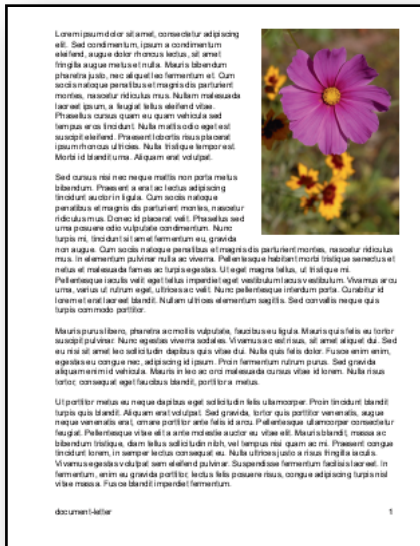
Original Document

Printed pages

How it determines the margins to eliminate?



(In other words, how the printer controls paper feed.)



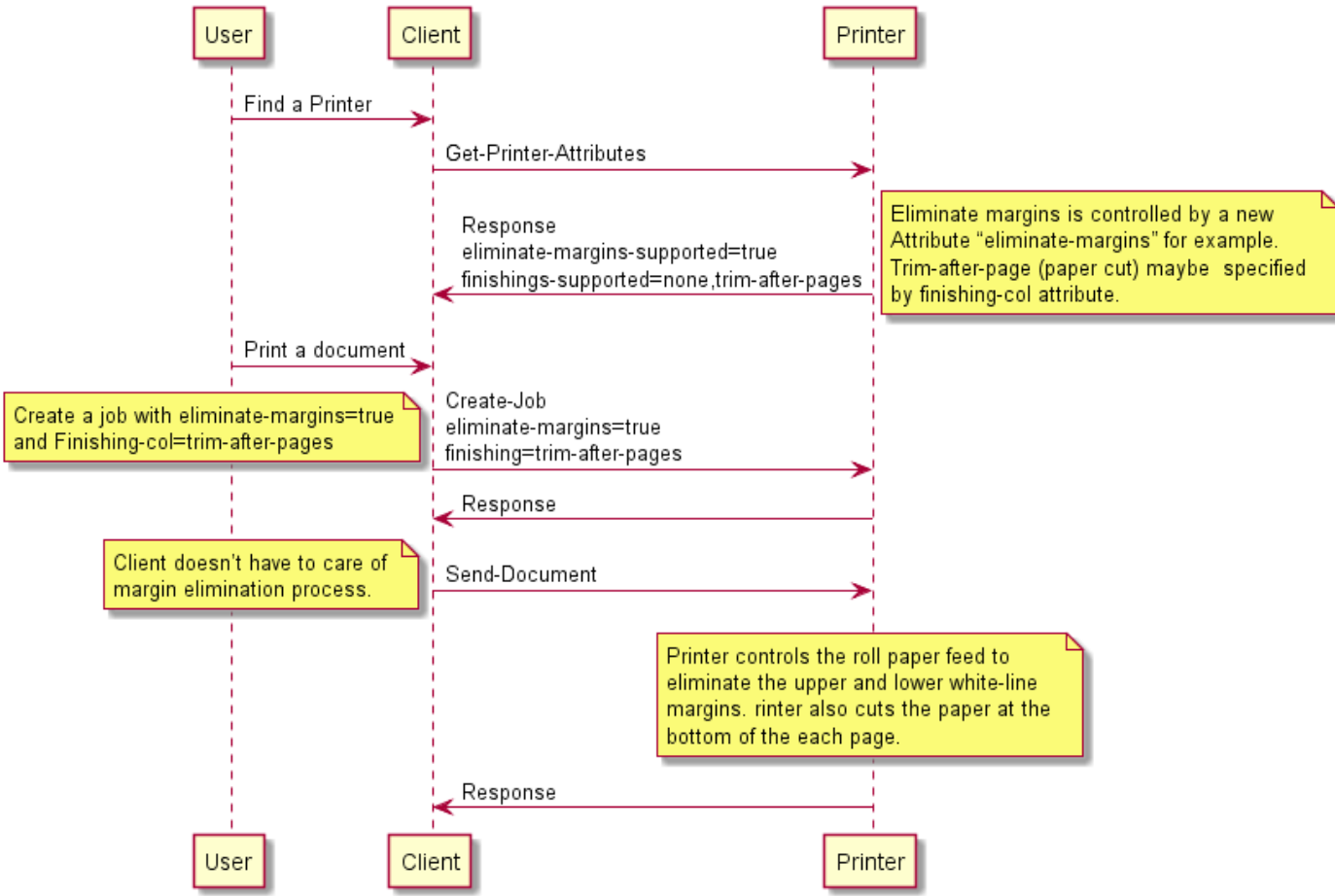
Original Document

Printed pages

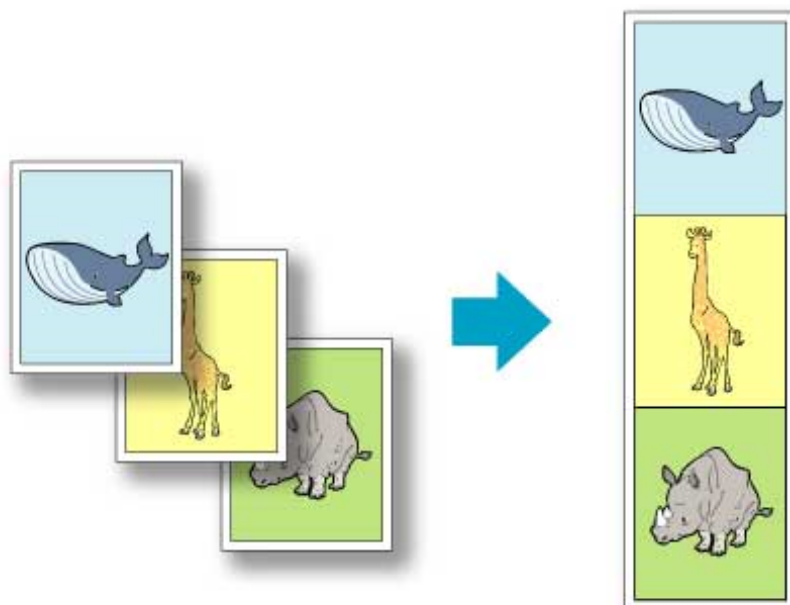
- 1 Stop paper feed for the white lines length which is specified by IPP standard protocol as Top margin.
(The length is notified from the printer by standard IPP protocol in advance.)
- 2 Stop paper feed for the following white lines until any non-white line comes.
- 3 Suspend paper feed for the white lines until the next non-white line comes. When the next non-white line comes, resume the suspended paper feed to fill the lines.
- 4 Stop paper feed for the white lines length which is specified by IPP standard protocol as Bottom margin.



Expected new IPP attribute (example)



Banner printing



Banner printing

When printing on roll paper, a user can print multiple pages as a single continuous image without margins between pages with this setting.



Banner printing

- "banner-print-pages (boolean)"
 - Hint instructing the Printer to collapse the top and/or bottom margins to zero for adjacent pages in a multi-page document.

Discussed solution at April F2F suggested that this could be solved using finishings-col and trimming. But this is more about collapsing adjacent pages' adjoining margins. Trimming or any finishing operation is orthogonal to this feature.

Banner Printing does not eliminate content margins like the Eliminate Top and Bottom Margins feature does. Banner Printing only eliminates IPP defined media-top-margin and media-bottom-margin between pages. Banner Printing keeps the media-top-margin of the first page and the media-bottom-margin of the last page in the job.



What "Banner Printing" feature does?


Original Document

L'original est en français, comme on le voit à gauche. Les caractères de l'original sont en français. L'original est en français, comme on le voit à gauche. Les caractères de l'original sont en français.



Document title

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Document title

Leave the top margin of 1st page.

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Document title

Cut the white lines length which is specified by IPP standard protocol as top/bottom margin.

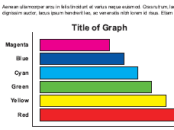
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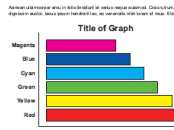
Banner Printing

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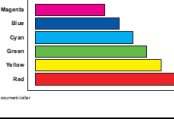
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Document title

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Document title

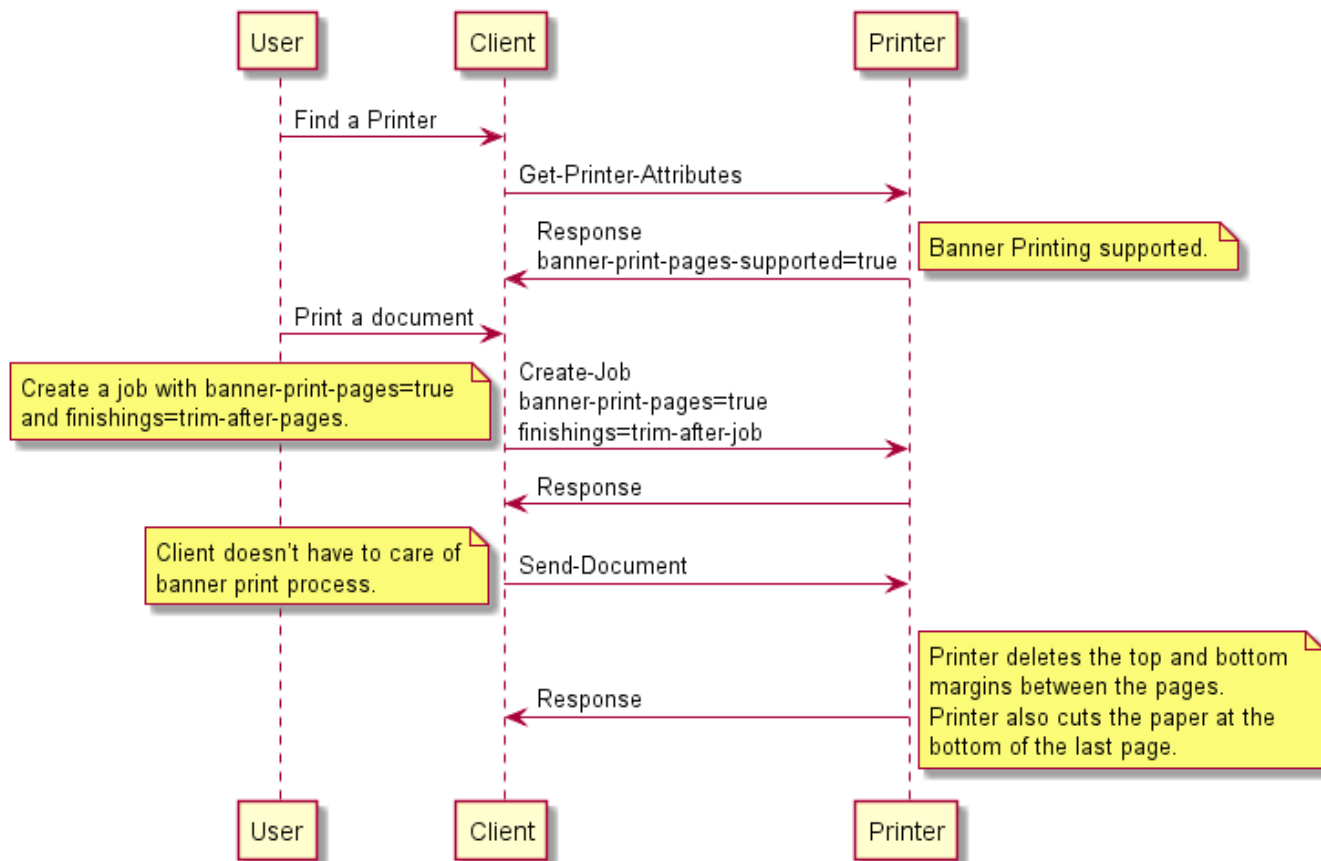


Image Composite print

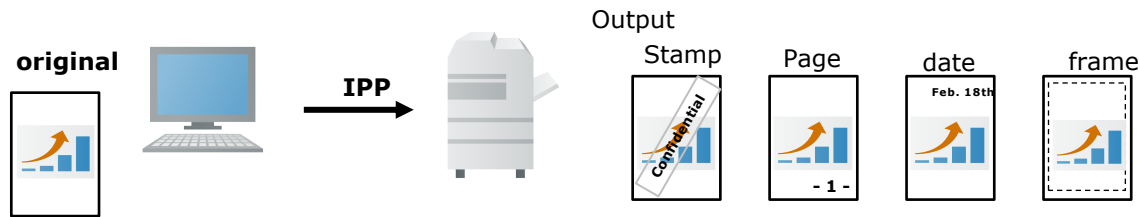


Image Composite print

This is to overlay other images, for example stamp, page number, date stamp, border line, onto the original image at the printer side before printing. This function became a basic function recently so should be handled by IPP as well.



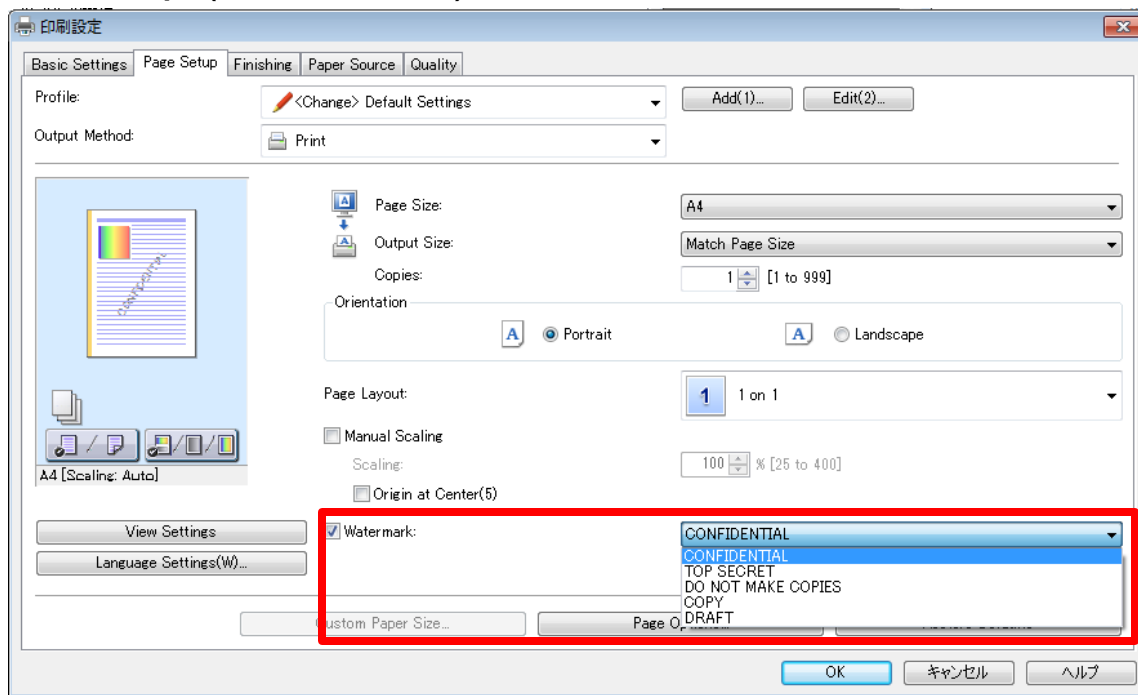
Image Composite print

- Printer vendors typically support this in their vendor drivers (or in content creating applications in some cases)
- @ April F2F extending "imposition-template" was suggested as a possible solution but Canon and HP do not understand what that would look like.
 - Current IPP imposition-template values are "none" and "signature" where signature means do a printer dependent function.
 - How is this supposed to work? Contributions?



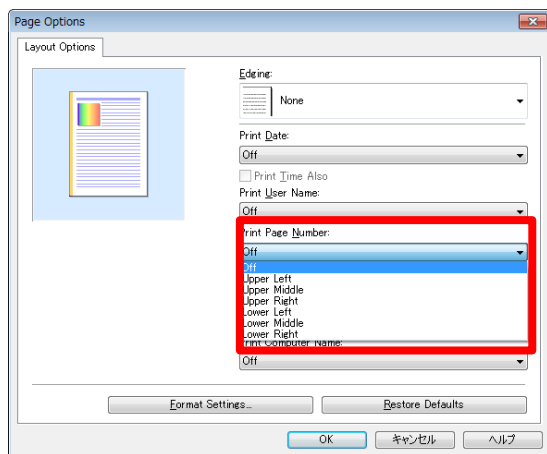
Example 1 of composite print

Stamp (Watermark)

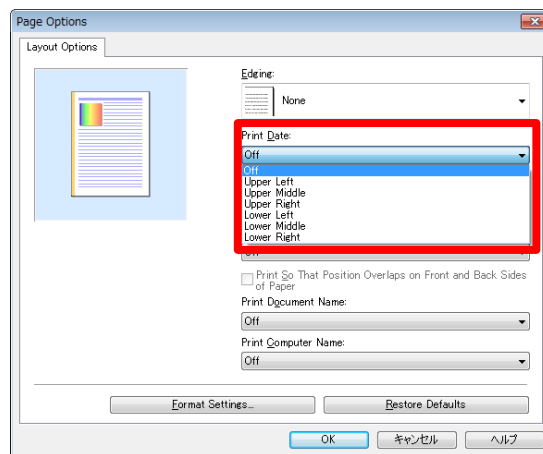


Example 2 of composite print

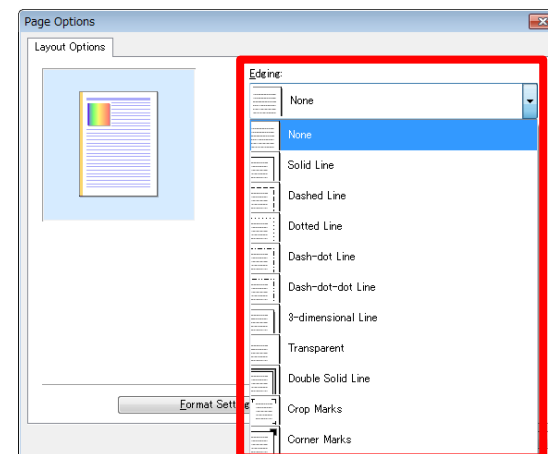
Page



Date



Frame(Edging)



Special print mode



Special print mode

The printer setting includes a special print mode which adjusts print process at printer side according to the printing object. For example, there is a special process for correcting and printing thin lines, and a function used to print small characters and bar codes clearly. It is useful if this can be controlled by standard IPP attributes.

However, there are various print modes depending on the printers. So it would be useful if we could have one general attribute which can handle the variations (TBD).

Special print mode



- Rendering different objects on a per-object basis (?)
 - Do we need more examples?
 - Document format needs to support "object tagging" to indicate different content types (already supported in PDF, not yet supported in PWG Raster or other raster image types)
 - IPP needs to support attributes to indicate a "print-color-mode" (e.g. color, monochrome, process-monochrome) on a per-object granularity
 - "print-content-optimize" attribute (5100.7 and 5100.13) works on a page or job basis
- The "print-quality-hints-supported" proposed in IPP Print Quality Customizations might be the best way to support other unique vendor instructions for this and similar niche features
- **Canon is OK with applying special print mode on a page and/or job basis. Per-object basis not needed.**