CUSTOM PRINT SETTINGS USINGANNOTATIONS

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Custom print settings using annotations

Abstract

Print settings for documents often are set using the print dialog and print preferences UI of the printer selected. These settings will be applied at document or page level only. Here, we propose a novel solution where user can customize print settings using annotations in the document at content level.

Problem Statement

When a digital document is to be printed, the user connects to a printer and gives the print to that printer. The user opens the document in relevant application and opens the print dialog (using ctrl+P in windows), which will open the print preferences UI. This UI have settings such as being able to print in color or black and white, print in draft quality (which uses less ink) or high quality (which produces a darker, crisper image), and more. We can modify these settings once for all documents you print. These settings are mostly dependent on the printer driver that is installed for the printer and the print settings cannot be dynamically changed for a document. The problem here is the settings are tightly coupled to the printer settings alone and once set in UI cannot be changed even though the printer supports several other options.

For example, if the document has a page which is full of text, a page which have an image alone, a page which have both image and text. When print settings are configured for this document, the user can specify the color of the print for the entire document or a page. When we want to print the text in black and white, the image in color, we cannot specify this in the printer UI.

Proposed Solution

The solution we propose provides a method where the print settings can be specified in the document itself using annotations. These annotations contain special print settings. These annotations can be inserted at portions of the documents which require special print preference settings. When a print is given for this document, the portions of the document with annotations will be printed using the settings described in it. Annotating a digital document may involve providing some relevant print setting within either a portion, or the entire digital document. The annotations are considered only for understanding the print settings and will be hidden from the actual print. The annotations can be in the form of comments, overlay or included in the metadata depending on the type of document.

Steps:

1. When the document is sent for print, the document will be analyzed for the presence of any annotations.
2. The analysis can be done by an analysis engine, which can be a separate plugin in addition to the printer driver or integrated with the driver also.
3. The analysis engine generates intermediate file which includes the portion of the content and the corresponding print setting and this file can be read by the printer driver.
4. The printer driver will read the settings, verify the setting exists in its PC (print capability). If the printer is capable to print with that settings, it will update its print ticket with the content and its relevant print setting. If printer cannot print with that setting, the default setting will be used.

Below is a document page which have an image and text.

In the document shown to the left, with the normal print settings, the options to print this page can be entirely print in either black/white or color only depending on the print preference chosen by the user.

This page has an image which is to be printed in color, some text which can be printed in black and white and few ads which can be hidden from printing.

Annotation can be added to the above page where the customs settings can be defined for various portions of the document. Below is an example of annotations embedded in the document. Here the annotations are embedded on the top of the page as an extra transparent layer which will be ready by the analysis engine.
Advantages:

1. Print settings can be customized at content level.
2. If documents have sensitive data, it can be hidden from printing.
3. Ink optimizations can be possible by saving color inks by printing images in color and all other text in black and white.
4. Document type agnostic, as the analysis engine can be modelled to read the annotations based on the document type.

Prior arts:

There are many prior arts which use annotations in documents for security and access. This disclosure uses the annotation technology for customizing print settings in a document.

1. TECHNIQUES FOR ANNOTATING MULTIMEDIA INFORMATION
   
   https://patents.justia.com/patent/20050216851

2. Digital content access using a machine-readable link
   
   https://patents.justia.com/patent/10063738

3. Capture and display of annotations in paper and electronic documents.
   
   https://patents.google.com/patent/KR101443404B1

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