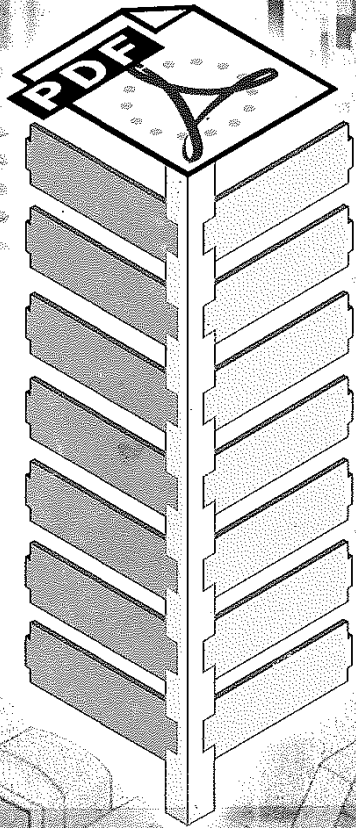


The Future of Production Workflows

Agfa Apogee, for
PDF-Based High
End Prepress
and Publishing
Environments



The Future of Production Workflows

Arteveldehogeschool
Industrieweg 228, 9030 Marinkerke



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The Future of Production

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AGFA APOGEE™, FOR PDF-BASED HIGH END PREPRESS AND PUBLISHING ENVIRONMENTS

Introduction.

At the critical junctures of an industry's evolution, it is worth stepping back to take stock of developments and survey the scene.

In this paper, we will explore the evolution of PostScript® with PostScript® 3, the PostScript® Extreme® approach based on PDF, the workflow concept behind this change, and the positioning of the Agfa offerings.

We all know what the state-of-the-art is in prepress today:

- Desktop creation and production are respected, accepted and implemented.
- PostScript is the established standard page description language.
- The prepress industry prefers open, "multivendor" systems instead of closed, proprietary ones.

New production techniques, such as direct-to-plate and digital short run printing, are emerging, with specific new workflow requirements. New electronic media allow us to repurpose content originally produced for print.

The question "can we do it?" has become "how fast and efficiently can we do it?" The way we manage our workflows is constantly evolving too, in accordance with new solutions for two interlinked core issues: *data format and data flow*.

Data format refers to the use of a flexible, predictable, compact "content description" format: the new PDF format.

Data flow describes the efficient connection of prepress—premedia—functions: creation, trapping, imposition, RIPping, OPI-replacement, job tracking, image database management, etc.

We call it the PDF-based (Portable Document Format) workflow, based on the processing of PDF files and the use of the electronic Job Ticket technology.

We first take a look at what PDF means for the prepress industry and check how different formats meet the current, and future, industry requirements.

Second, we cover PostScript 3, PostScript Extreme and the new PDF-based workflow concept.

Finally, we describe how Agfa's current and future products fit into the new workflow paradigm.



EGON Hogeschool
Industrieweg 228, 9030 Mariakerke



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THE PDF STANDARD.

Originally designed as a uniform, portable data format...

Adobe® Systems introduced the Adobe Acrobat® software in 1993 so users could view and manage documents on screen, independently, regardless of the device and application used. These documents were called PDF files since they were converted into the Portable Document Format.

The user can easily handle, view, edit, navigate, print and archive PDF files on any computer platform. In PDF, each page of the document is independent of the others to simplify, quite dramatically, any handling of the data on that page. For optimal portability, PDF files are also highly structured and “normalized or standardized”.

The critical issue with the first and second version of PDF (PDF 1.0 and PDF 1.1) was that a number of features required for high-end prepress workflows —such as overprinting, UCR, halftone screens and OPI comments— were not retained in the PDF file. This is why the PDF format was only used for information exchange and viewing.

It has become the high-end processing format for production workflows

As well accepted as the PostScript programming language may be, the graphic arts and publishing industries are definitely eager to see major improvements made to PostScript. In particular, they hope to see it evolve into a more standardized, predictable, flexible and higher-performing prepress production tool.

Adobe Systems and Agfa believe the PDF format would be the ideal processing page description format if it would only retain all the necessary high-end printing features included in PostScript files. Today, Adobe's efforts to improve the PDF format led to the next generation of Adobe Acrobat, based on what we call “high-end PDF” (PDF 1.2). This format matches all of the requirements mentioned above

PostScript	High-end PDF v1.2	PDF v1.1
No ←	-Viewable -Sound and movies -Links -Annotations -Object database structure -Page independent	→ Yes
Yes ←	-OPI support -Advanced color support: transfer functions, halftone screening, -Support from all major software vendors	→ No

PostScript versus PDF.

PostScript is a general purpose programming language. It contains procedures, variables, and control constructs. This means that a PostScript document must, as a first step, be interpreted in order to render the page. Different applications generate different types of PostScript, making the page descriptions arbitrarily complex. This complexity results in unpredictable output. Also, PostScript files are not inherently page independent because the imaging operations performed on the last page of a document may depend on settings that have accumulated since the first page.

The PDF file contains the same imaging operations as the PostScript language file, described in a very accessible way, as a database. In PDF files, general programming constructs are not permitted and pages are completely independent of each other. The apparent arbitrariness of PostScript is eliminated and PDF provides the foundation for a print production system that can deliver consistent, predictable results.

• **The high-end PDF format is standardized**

No two individuals in the world write identically. The same holds true for PostScript developers. As a result, the implementation of PostScript procedures, variables and controls may differ radically from one application to another.

These differences in programming tend to make PostScript page descriptions arbitrarily complex. When publishing a document, you might typically use image data in a proprietary software format, mix them with multi-layer illustrations, combine them in a complex page layout, convert them into PostScript which is then processed by a possibly out-of-date version of the RIP... The analogy would be writing a book in which you mix five different sets of grammar rules, as you write. Imagine the burden placed on the reader or, in our case, the RIP!

The conversion from PostScript to PDF transforms the document to "a single grammar": a compact, highly standardized and structured way to describe everything, on each page, using a database of objects. These objects are easily accessible and standardized and no intricate programming tricks are allowed to describe the page content.

Each PDF file is like an object database containing the data of the file content you created as well as the fonts, graphics, annotations, the links to variable data forms and databases and links to digital video and audio.

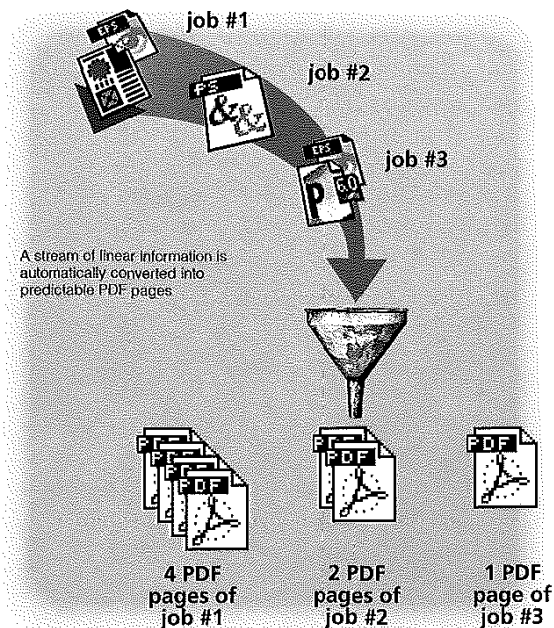
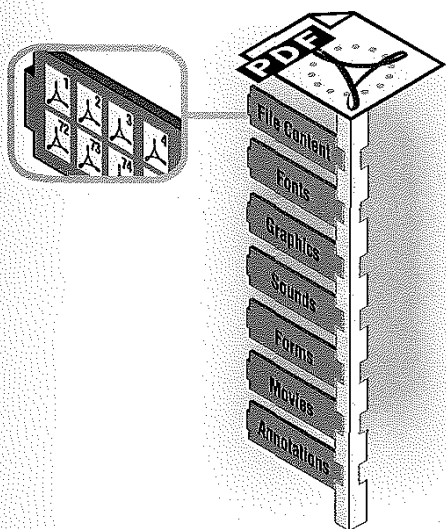
• **A high-end PDF file is predictable.**

The high-end PDF format eliminates much of the unpredictability of PostScript and provides a real foundation for professional prepress workflows.

In a traditional RIP, the PostScript file is interpreted and turned into a list of elementary page objects, referred to as the 'display list'. That is the hard part typically happening at the moment of output and causing inefficiency in output. The second phase then is to rasterize the display list into black on/off dots, or CMYK color values, depending on the type of output device used.

In a PDF-based context, the relatively unstructured PostScript language is converted into the highly structured PDF format. In other words the "linear" PostScript code is interpreted and turned into PDF pages, each consisting of a database of imaging objects (an object database).

This is similar to the first two steps in the traditional RIP. Having made a PDF therefore means that the hard part is already done. The variability and unpredictability of PostScript disappear when you create a PDF file. The PDF delivers true output predictability in prepress workflows. This is true for content as well as for output, since all content elements are embedded and the interpretation into imaging objects is already done when making the PDF. The rasterizing should be smooth and fast.



• The High-end PDF format is very flexible

Flexible as in easy to repurpose, accessible and editable.

In the overlap between “prepress” and “pre-media” designers and publishers want to be able to re-use or repurpose their content for different media: digital proofing and printing, multimedia CD-ROM, Intranet and Internet publishing. Since PDF files can be viewed with popular browsers, they can be easily re-used for the web, lending designers the same latitude of creativity they enjoy with traditional media. It also means they only have to do the designing once.

Where in PostScript the procedures, variables and controls are performed on a document basis, the PDF format allows you to focus on individual pages. This is crucial in environments where different documents, or pages of documents, must be handled differently or when imposition of specific pages, or last minute corrections, need to be carried out rapidly. The high-end PDF format allows you to do all of this very conveniently!

Since the high-end PDF format is page independent and ready-to-use across all platforms, operating systems and software applications, it is ideal for repurposing information.

High-end PDF is created with Acrobat plug-in mechanisms which can search and edit the file right down to the page level, at every step of the production process.

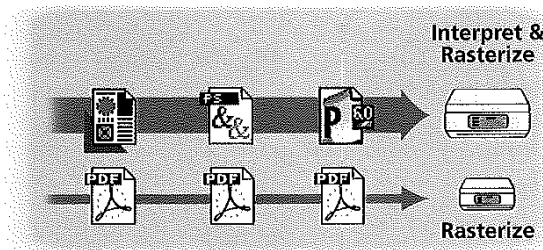
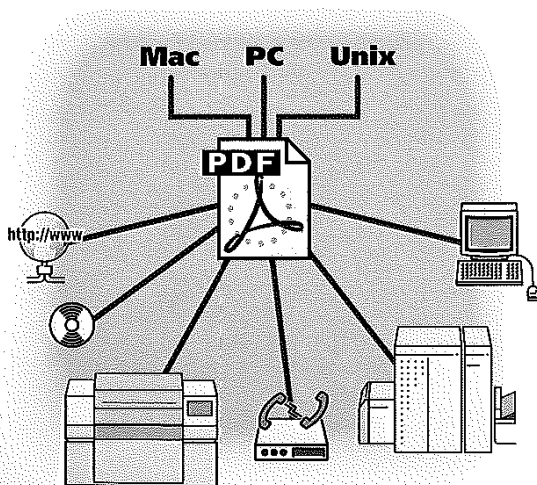
• The High-end PDF format is more performant

Today, transferring huge bitmap files over the network remains a problem. The process inevitably reduces the efficiency of your operation owing to today's low network transfer speeds and small transfer bandwidths. Bitmap files also require large and expensive storage space on the workstations involved.

The far smaller object oriented PDF files glides swiftly through the network, dramatically improving total system performance.

In addition, the PDF file is a highly optimized and structured file, which considerably reduces processing times in a RIP.

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