Adobe PDF Print Engine

Control, automate and optimize full-gamut rendering

Key Highlights

Color
Exceptional print quality

Performance
Maximum efficiency

Content Aware
Print-time decisions based on job intelligence

Core strengths

Color – Exceptional print quality

Advanced color science

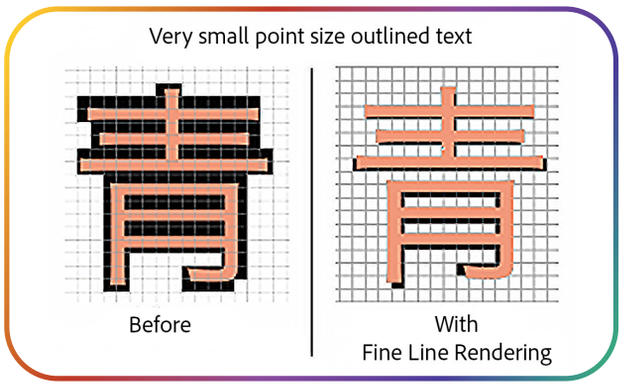
PDF Print Engine is built on decades of color innovation at Adobe. It includes the Adobe Color Engine (ACE), the same Color Management Module (CMM) used in Creative Cloud applications. Support for 16-bit color conversions, spot color emulation, Expanded Color Gamut printing (ECG), spectral brand colors, and PDF/X-6 color capabilities.

Adobe live transparency blending

PDF Print Engine blends overlaid objects with arbitrary transparency levels, and adds attention-getting transparency effects to text, images, graphics and smooth shades. Drop shadows, soft edges and glows created in Illustrator CC, InDesign CC and other authoring applications are seamlessly rendered for maximum impact.

Appearance-based spot mixing

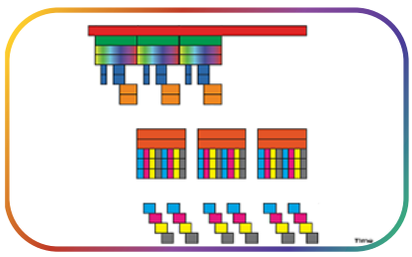
When the press does not contain a dedicated ink for a given spot color, PDF Print Engine will emulate it. When a spot color is overprinted on another spot color or combination of process colors, PDF Print Engine uses modern perceptual-based color management to mix the color levels, so that the overprinted result matches expectations.



Fine Line Rendering

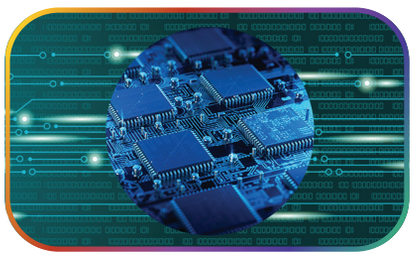
Elements with very thin lines or fills, such as barcodes, security lines, or outlined text in a small pointsize, can optionally be rendered using Fine Line Rendering. A light touch prevents ink from spreading, and results in a clean, crisp appearance. Fine Line Rendering is often used in packaging.

Performance – Maximum efficiency



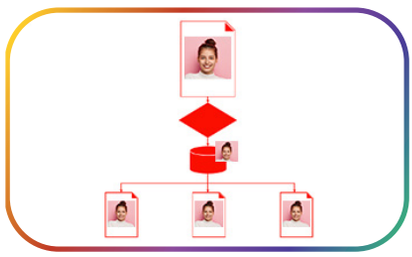
Multi-threaded parallel processing

A single instance of PDF Print Engine can spawn multiple threads to perform actions in parallel: color conversions, transparency blending, rendering, compression. The threads can take advantage of multiple cores, running on multiple processors on the system.



Mercury RIP Architecture

Mercury is a scalability framework for processing VDP & variable lot & item print-streams to drive the fastest digital presses at full speed. The Mercury RIP Architecture dynamically allocates jobs and surfaces across multiple instances of APPE running on multiple-cores, and across multiple servers.



Automated caching of recurring elements in variable print

PDF Print Engine recognizes and honors hints in PDF/VT files to cache and retrieve recurring elements for optimal rendering of Variable Data Print.
PDF Print Engine will also detect undeclared repeating elements in multi-page PDF files, and automatically cache them for rapid retrieval.

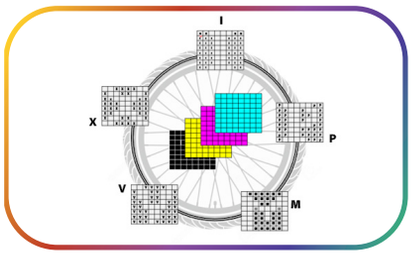
Content Aware – Print-time decisions, based on job intelligence

Element-based actions

When graphic objects in a PDF job file are tagged with custom metadata, PDF Print Engine can execute conditional instructions. Discrete element-based actions enable solutions to treat content on an element-by-element basis. Possible actions include applying object-specific screening, color conversions, and image processing.

Transparency decision engine

PDF Print Engine analyzes pages containing transparent elements, and automatically selects the optimal transparency rendering algorithm to maximize performance and graphic fidelity.



Smart pixels

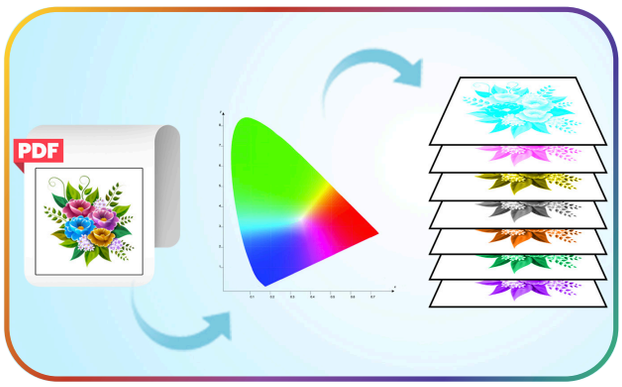
PDF Print Engine augments ink-channel values with 5 dimensions of metadata for each pixel. The metadata conveys information about the origin of each graphic, which can be harnessed to enhance color management, optimize compression, caching and other purposes.

New

Control, automate and optimize full-gamut rendering

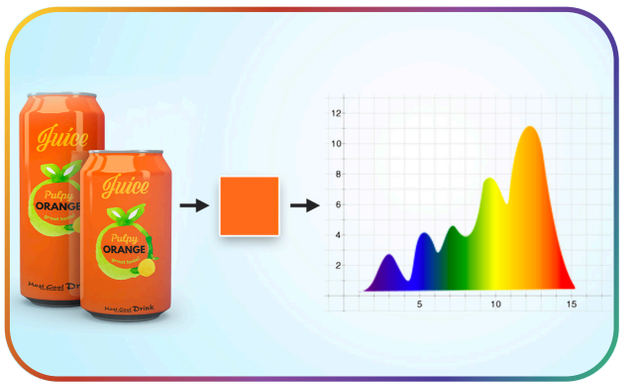
Version 6.0 of PDF Print Engine (June 2022 release) includes new color processing controls for maximum leverage of press capabilities. These features will increase production efficiencies and delight customers for a wide range of jobs. In particular, they advance color workflows in: commercial print production, package printing and converting, finishing and embellishing, textile and garment production, variable item and lot printing, large format and signage, and industrial applications.

The new features in PDF Print Engine 6 will enhance every class of inkjet printing, which continues to make in-roads across industry segments, either as a stand-alone press, or in a hybrid environment along with a traditional press, i.e. complementary to offset, flexographic, gravure printing. The new features in PDF Print Engine 6 will also deliver the benefits of global standards, developed over many years by industry experts, to commercial printers, publishers, and manufacturers.



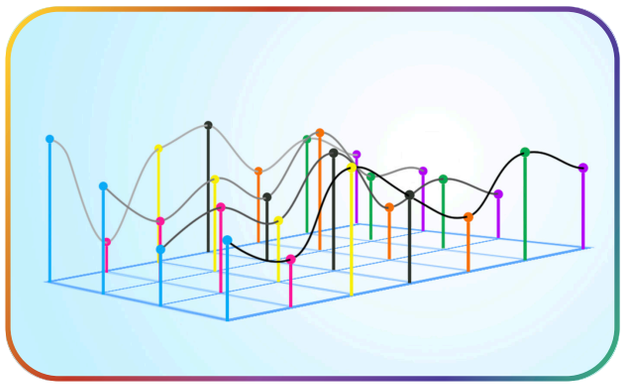
Streamlined ECG processing (Expanded Color Gamut)

PDF Print Engine 6 features single-stage color conversions for output to presses running Orange and/or Green and/or Violet inks (OGV) in addition to CMYK process colors.



Spectral brand colors

The new spectral module in PDF Print Engine 6 will process spectrally defined spot colors so that they can be color managed with other job elements.



Sophisticated image scaling

Version 6 adds a sophisticated method to generate new pixels when resizing an image.

Integrated graphics and manufacturing

PDF Print Engine 6 will provide advanced methods to manage and automate embellishments such as varnish and foils, along with other non-graphic elements and converting dielines.

Derived plates/planes – overprint and underprint

PDF Print Engine 6 will enable varnishes and white underprints to be dynamically auto-generated from job elements at run-time.

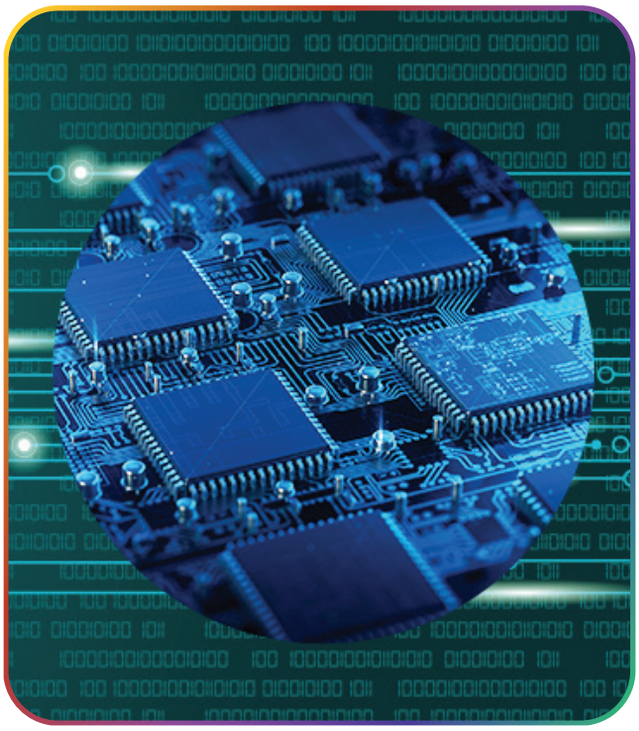
Variable, versioned and lot-specific content

PDF Print Engine 6 includes enhanced support for Variable Data Print (VDP) and variable item & lot printing workflows.

Mercury RIP Architecture

The Mercury RIP architecture is a parallel processing framework for dynamically managing multiple instances of Adobe PDF Print Engine, working in tandem on multicore, networked, or cloud platforms. It is a scalability platform optimized for outputting variable data jobs to the fastest digital presses on the market today and tomorrow. It's most useful for packaging, industrial, personalized marketing communications, and statements.

A Mercury-certified system maximizes hardware efficiency, ensuring the most efficient use of system resources. Processing of jobs, pages, and complete signatures occurs in parallel and can be load balanced, so that no CPUs remain idle while jobs are waiting to be rendered. With the Mercury RIP architecture, PDF Print Engine can scale up to drive high-volume production on a single press or across multiple presses.



Tile Parallel Processing is a feature of the Mercury RIP architecture. It accelerates system performance for large surfaces by subdividing them into smaller sections, each of which is assigned to a separate instance of PDF Print Engine. By processing multiple tiles in parallel and then seamlessly reassembling them, Tile Parallel Processing significantly reduces overall rendering time for posters, signage, and architectural drawings.

Advantages of PDF Print Engine

Achieve reliable reproduction with the industry's top print rendering platform

PDF Print Engine is the leading rendering technology for print reproduction. It powers workflows in every industry segment, driving over 200,000 presses and proofers around the globe: offset, gravure, flexographic, inkjet, electrostatic, and nanographic. Since 2006, PDF Print Engine has delivered the latest developments in imaging science to commercial printers, in partnership with the world's leading vendors. PDF Print Engine enables reliable reproduction of every print job, especially rich graphic content designed in Adobe Creative Cloud applications like Adobe Photoshop CC, Illustrator CC, and InDesign CC. It employs the same PDF technology as Adobe Acrobat DC, ensuring that the final printed product will match the customer's expectations.

Increase job predictability and consistency

Everyone benefits when the print workflow employs the same core technology at every stage, from design to approval to final output. PDF Print Engine uses the same software libraries as the Creative Cloud authoring applications and Acrobat DC. When PDF Print Engine is built into your prepress solution, your customers will benefit from greater reliability and fewer errors during the prepress cycle.

Accelerate and automate job processing

PDF Print Engine is the industry's fastest platform for rendering complex graphics and variable data printing. Content and context-aware processing enables intelligence-based automation. Every new version of PDF Print Engine is tested using the latest features in Illustrator, InDesign, and Photoshop. PDF Print Engine is also highly scalable: multiple instances can be configured to run in parallel to drive variable data printing on the fastest digital presses.

Harness the latest advances from Adobe

PDF Print Engine incorporates the latest technological advancements for managing spectral brand colors, Expanded Color Gamut presses (ECG), spot color mixing, overprinting, trapping, special effects, and transparency blending. PDF Print Engine's supporting eco-system includes: Adobe PDF Library, PDF Helper, Adobe PDF Converter, Adobe PDF Print Driver, and JDF Print Processor.

Leverage the power of the Adobe brand

Partnering with Adobe has many advantages. Commercial printers and their customers have used Adobe products for over 35 years and trust the Adobe brand. OEMs and RIP vendors that build products powered by PDF Print Engine may license Adobe trademarks and logos, as applicable, in their marketing brochures, web pages, application screens, and directly on hardware. Highlighting your association with Adobe can be a powerful marketing tool. Adobe partners also benefit directly from collaboration with world-class engineers and project managers, who work tirelessly to support your products and business strategies.

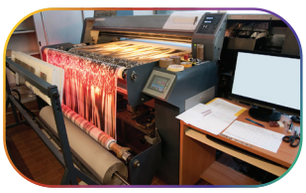
Optimize vertical solutions for industry growth segments

Inkjet print technologies are evolving, and being deployed in new ways, fueling rapid growth in some print industry segments. Product manufacturers, package printers/converters, and textile makers are harnessing hardware innovation to create new business opportunities. PDF Print Engine delivers the latest imaging science to raise the bar on graphic reproduction, and unlock the potential of new equipment. Its architectural framework facilitates integration into custom workflows, streamlined vertical environments, and bespoke finishing scenarios.

Adobe PDF Print Engine at a glance

Every market segment

Package and label printing



Textile printing

Industrial printing and embellishing

Graphic arts and commercial printing

Digital production printing

Large format printing

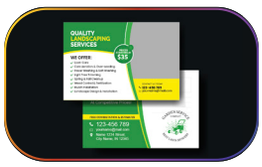
Variable data printing

Proofing

Every job type

Graphically rich content produced with Adobe Creative Cloud and non-Adobe applications

Consumer packaged goods, grocery, electronics, pharmaceuticals, etc.



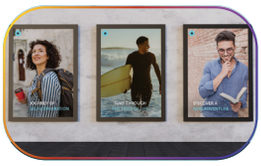
Customer correspondence, direct mail

Brochures

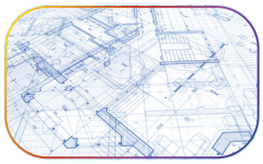
Annual reports

Publications and advertising

Books



Signage



CAD, GIS maps, architectural blueprints

Manufacturing - direct to object

Apparel - direct to garment

Specifications

Solutions

- Hardware DFE – Digital Front End
- Software RIP
- Prepress workflow system
- Raster preview
- Proofing
- Industrial printing

Input File Types

- PDF, PDF 2.0, PDF/X-6, PDF/VT-3
- JDF 1.4
- PostScript – via Adobe PDF Converter SDK
- TIFF and other image formats

Parallel Processing

- Mercury RIP Architecture branding and certification
- Dynamic distributed RIP models for multi-core, multi-blade, networked cluster, RIP farm, and multi-press systems
- Tile Parallel processing for Large Format jobs

System Requirements

- Intel i5/i7/Xeon or higher
- RAM: 1 GB minimum, 2 GB+ recommended for each PDF Print Engine instance
- Hard disk required

Operating System

- Windows 10 (64 bit)
- MacOS 10.14 or 10.15 (64 bit)
- Linux Ubuntu 18 (64 bit)

Print and Adobe

As the print landscape continues to evolve, Adobe continues to innovate. Adobe revolutionized printing with the introduction of PostScript in 1984, Portable Document Format (PDF) in 1993, and Adobe PDF Print Engine in 2006. Adobe continues to lead the industry, bringing award-winning, patented technologies to printers around the globe. Our portfolio spans the entire workflow, with products for authoring, managing, and outputting print jobs. Our partners are market leaders in every category, delivering best-in-class solutions for today and tomorrow.

Adobe PDF Print Engine

Adobe PDF Print Engine is the industry's leading rendering technology that maximizes the print potential of every press. It powers workflows in every industry segment, driving over 200,000 presses and proofers around the globe: offset, gravure, flexographic, inkjet, electrostatic and nanographic. As designers continue to push creative boundaries with the new features in Adobe Photoshop, Illustrator and InDesign, the PDF Print Engine employs the same PDF technology used in Adobe Creative Cloud applications and Adobe Acrobat DC to render them for reliable reproduction on any surface and in any manufacturing process.

Adobe Advantage

World-class solutions built on Adobe imaging technologies

World-class support infrastructure

Financial strength and ongoing R&D investment

Competitive licensing models tailored to your needs

Adobe is committed to advancing the print industry through the development of new standards, such as the JDF job ticket and the PDF/X series of digital master formats. Adobe is an active participant in standards bodies and industry associations such as the International Organization for Standardization (ISO); the International Cooperation for the Integration of Processes in Prepress, Press, and Postpress Organization, or CIP4 (JDF); the International Color Consortium (ICC profiles); and the PDF Association (PDFA). Adobe initiated and drove the development of PDF/VT, the standard for graphically rich variable data printing (ISO 16612-2).

Adobe print technologies are the product of decades of development, enhanced and extended by ongoing investment and innovation. The Adobe print imaging platform is the most comprehensive and efficient in the industry. Our foundational technologies—including the Adobe PDF Library, Adobe CoolType (font rendering), Adobe Graphics Engine, and Adobe Color Engine—are employed by Adobe applications such as InDesign, Illustrator, Photoshop, and Acrobat DC. The result is reliable rendering, the most trusted in the industry. All Adobe print technologies are supported by world-class project managers and consulting engineers. Adobe is ranked among the top 30 global brands. Adobe's brand equity is at a premium in the graphic arts, a valuable asset which our partners may leverage in their marketing programs.

Become an Adobe Partner

Does your company manufacture printing equipment, or develop DFE software for rasterizing PDF files? If so, please write to us at **pdfprintengine@adobe.com**

Get started

For more information on how Adobe PDF Print Engine can benefit your business,

contact us at pdfprintengine@adobe.com

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