



Advanced Rendering:

OPTIMIZING BUSINESS PROCESS EFFICIENCY THROUGH DOCUMENT TRANSFORMATION

WHITE PAPER



PDF to the Rescue?

Over the past decade, the Portable Document File (PDF) has emerged as the solution to the numerous document-related issues organizations face today. PDF is truly the only digital equivalent of paper that enhances the value proposition of virtually any document management solution.

However, PDF alone is often insufficient to meet a growing organization's needs when it comes to content management. With the many versions of PDFs available, and the different archiving, compliance and document management needs of each organization, simply pressing the print-to-PDF button is often a bad solution. Organizations that have document output management needs can turn to technology partners who have experience and expertise in dealing with the specific formats they require, and who can assist in implementing the most efficient solution to help them execute their document management strategy.

In some cases, especially where the organization is dealing with complicated or multiple file formats or has a large volume of conversion needs with strict compliance standards to adhere to, more advanced PDF formats and solutions are necessary. The basic PDF options available may not easily integrate with back-end systems and architecture, and may cause more complications in the long run, instead of leading toward much-needed rendering efficiency. Organizations need to consider the many factors that will help make their document management strategy a success, such as document fidelity, rendering speed, quality and enhanced features available.

This white paper explores the next level of document-to-PDF conversion: Advanced Rendering. Specifically, it provides insight on key considerations that many organizations need to evaluate when considering Advanced Rendering, and how this can help increase their business process efficiency.

TARGET AUDIENCE

This paper covers topics of interest for CIOs, IT professionals (including system architects, developers, and system administrators), information management professionals, ECM architects and business strategists.

[For more information on the differences between basic rendering and Advanced Rendering, see the Adlib white paper, *The Fundamentals of Content Rendering*.](#)

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Responding to the Data Explosion

The modern workplace has experienced an explosion in document creation and information management. Within a single organization, employees author documents in dozens – sometimes hundreds – of different file formats each day, and the total number of files created increases exponentially on a regular basis. Companies in all sectors are experiencing growth in a number of areas regarding content:

Unstructured content is growing exponentially: Organizations are seeing year-over-year increases in the volume of unstructured content – emails, notes, word processing documents, etc. The volume of unstructured content is growing by 20% each year, proliferating through a network of multiple channels with multiple audiences.

Content is driving enterprise processes: At the enterprise level, up to 80% of operations are triggered by and resulting from unstructured content.

Content management costs are growing: Managing the content is becoming costly. Today, organizations spend 5-15% of their gross revenues on handling content.

Regulatory compliance is increasing: Government oversight is increasing for most industries, and regulatory requirements are being introduced in a range of new business areas. For example, public sector organizations are required to archive their documents in a reliable, accessible format. Similarly, companies are increasingly required to maintain their records in a high-fidelity and auditable format, partially as a result of the Sarbanes-Oxley Act.

In order to deal with these changes, companies need a method of compiling divergent file formats into a single format that doesn't rely on native file applications. Because the amount of content is increasing, the need for digitally archiving data is also increasing, partly due to government and regulatory body rules, and partly due to the inefficiencies of archiving documents in print. In addition, meeting document compliance standards is becoming more and more of a necessity, especially for organizations that deal directly with governments and regulatory bodies like the FDA. On top of it all, organizations need to ensure quick access to information and the ability to collaborate among business units. While digital content increases, the demands on organizations to effectively manage that documentation increase as well. This is where the PDF file format comes in. After all, what good is information if one is not able to access it or share it?

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Rendering Content to PDF

Rendering is a common term associated with PDF. It refers to the process of taking source documents and creating copies in a standardized format. In the typical workplace scenario, the source documents are Microsoft® Office® documents and the output format is PDF. However, this becomes complicated when organizations are dealing with large volumes of content, document compliance regulations, long-term storage needs and corporate consistency.

The terminology for rendering differs among organizations and industries, and while companies may refer to conversion, transformation, content management and PDF-ing, this paper uses the term rendering to describe the conversion of popular and legacy files types – including Microsoft Office documents, CAD, XML, HTML and other formats – into a consolidated PDF format.

EXPLORING THE RANGE OF RENDERING OPTIONS

The PDF rendering function can enter the business environment through a range of source platforms. Just as there are multiple ways of managing content (as in Enterprise Content Management, Product Lifecycle Management and Workflow solutions), there are multiple roads to take when rendering that content into PDF.

Shareware or freeware: A number of openly-accessible software solutions – including shareware or freeware solutions – have built-in PDF reading and rendering functions. While these PDF functions may be effective for personal use, they lack dependable fidelity, their overall functionality is limited and they offer minimal benefits for growing organizations. They aren't scalable and do not offer high availability.

Basic rendering in consumer products: Familiar product suites such as Microsoft Office include a PDF reader and basic rendering functions through its save-as-PDF option. Similar to the shareware and freeware options, these functions may prove useful for basic office functions such as saving articles or working files as PDFs, but they lack the long-term, high-fidelity benefits that an enterprise platform offers.

Default or basic rendering: Most Enterprise Content Management (ECM) platforms offer a default rendering solution. While some ECM platforms including OpenText® and EMC® Documentum® 6.x (ADTS) utilize Adlib as their OEM default solution, most ECM vendors provide less robust solutions as the built-in rendering tool.

Advanced Rendering: Advanced Rendering is a term used to describe set of attributes that take simple document conversion or PDF-ing to the next level by adding document-enhancement features, focusing on fidelity, integrating with multiple business systems, and providing enterprise-grade deployment features. This solution is typically woven into business processes, automating document workflows and increasing organizational efficiencies.

TACKLING THE CONTENT ISSUES THAT ARISE WITH RENDERING

As many organizations begin relying on the PDF format to manage their content, they are realizing certain limitations with the basic rendering process. Basic rendering is mostly limited to desktop save-as-PDF functions, and while it has proven reliable for individual projects on a small scale that generally do not require high-fidelity output, it lacks the features of the Advanced Rendering solution, and cannot increase business process efficiency when implemented on an enterprise level.

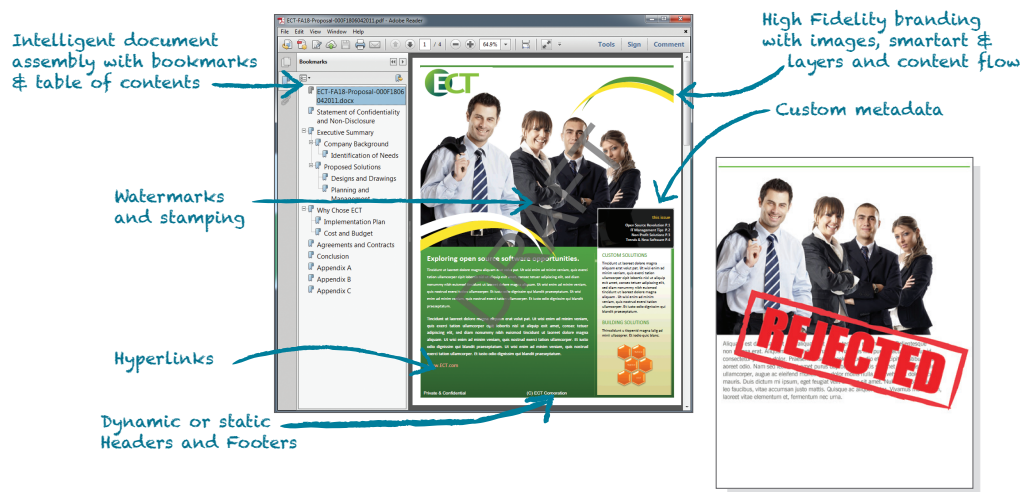
When rendering from one document format to another, inconsistencies will often present themselves between the original and the rendition. This can result in many issues:

- Images are missing or distorted
- Fonts are substituted and cause reformatting or reflowing of content, or cause the data to be unreadable
- Content reflows cause inaccurate page counts, tables of contents, headers and footers
- Proprietary formats cause a reformatting of content or the absence of some content
- Document fields and other in-file menus end up with the menu options or control-codes instead of the intended values
- Embedded content of an external file goes missing, gets distorted or results in many pages of code in the output file
- Inaccurate interpretations of page margins and pagination occur
- Additional embedded files from other file formats do not get rendered, and appear as an X in the file indicating missing content

Organizations should be particularly detailed when testing various document conversion solutions to ensure the highest possible document fidelity. In order to provide Enterprise Content Management systems with the effective document output management capabilities, only solutions offering Advanced Rendering capabilities to address the above issues should be considered acceptable.

An example of rendering issues is highlighted in the images below, pointing out key aspects of a high-fidelity converted document (left), and illustrating the risk or rejection of a low fidelity conversion (right). The document to the right is an example of what a low-fidelity rendition can look like. While the main image and some of the content has been rendered successfully, much of the styling on the page is missing, as is some of the actual text. The low-fidelity document is almost unrecognizable when compared to the high-fidelity document on the left.

ADVANCED RENDERING DOCUMENT (LEFT) AND BASIC RENDERING DOCUMENT (RIGHT)



Defining Advanced Rendering

Advanced Rendering offers sophisticated document management by implementing a set of specialized features that meet the requirements of enterprise organizations dealing with content management issues.

While there are a number of attributes, some of the key features of Advanced Rendering are as follows:

High-fidelity conversion of 400+ file types including Microsoft Office, Lotus Notes®, CAD drawings, images, faxes, scans, emails, maps, forms, charts and other types of content. Fidelity describes a faithful or accurate copy of the original source document. True fidelity is a 100% copy of the original document. Working with the native application of the source document is the only way to ensure complete document fidelity when making renditions. Organizations that submit documents to regulatory bodies or use documents for litigation and e-discovery need to be concerned about document fidelity.

Conversion of images into fully-searchable PDFs — including JPG, TIFF, CAD and vector graphic—through advanced Optical Character Recognition (OCR) and support for barcode and Optical Mark Recognition (OMR). Content which has been scanned and converted to PDF using basic rendering software lacks the Optical Character Recognition feature to make those files searchable.

Intelligent and automated document assembly and merging with application of tables of contents, headers and footers, watermarks, active hyperlinks, digital signatures and security settings. With automated document assembly and merging, users and/or workflows can automatically render and merge multiple documents to PDF eliminating the time wasted on manually assembling files. Manual conversion can take up to 25 seconds. With automated assembly, the time can be reduced to 5 seconds. When dealing with hundreds of thousands of documents on a regular basis, saving 15 seconds per rendition adds up to an enormous amount of time. In addition, thumbnail images of the documents can be created to enable users to preview documents before opening them.

Metadata-driven rendering for document workflows that automate business processes. Using shared transformation services allows content to be personalized or tailored to a specific business process automatically and consistently. Take for instance the lifecycle state of a document which is tagged as DRAFT in the metadata. That piece of metadata can dictate that the document be automatically stamped with a DRAFT watermark.

Integration into commonly-used ECMs and other repositories, including not only Enterprise Content Management tools like EMC® Documentum®, IBM® FileNet®, OpenText®, and Microsoft® SharePoint®, but also Workflow, PLM, ERP and other systems such as K2 Blackpearl®, Nintex® and Dassault ENOVIA®.

Enterprise-grade architecture is a key element of an Advanced Rendering deployment. IT departments need to ensure these tools support massive scalability, high availability, fault tolerance, load balancing and can be monitored and controlled from a centralized management console. This allows hundreds of thousands of documents to be rendered daily within an efficient amount of time. Reports can also be easily generated to review performance summaries.

Putting Advanced Rendering to Work Throughout the Document Lifecycle Process

Advanced Rendering enables organizations to improve their Enterprise Content Management document processes by transforming different types of content from multiple sources into more manageable and usable formats — turning content into a true business advantage.

The graphic below, based on content from [The Association for Information and Image Management \(AIIM\)](#), outlines the path a document takes from conception to completion.

THE DOCUMENT LIFECYCLE



Advanced Rendering enhances the 4 key stages of document processing within any ECM environment for organizations in virtually any industry, whether they have departmental or enterprise-wide requirements:

1. Capturing Content and Information

By eliminating manual rendering through integrating directly with workflow and ECM systems to automatically convert content into high-fidelity, fully-searchable PDFs upon output, Advanced Rendering eliminates manual processes and the chances of human error. Over 400+ file types are supported, enhanced Optical Character Recognition is applied making content searchable, and unstructured content is standardized, speeding up the ingestion for more accurate processing and data analytics.

2. Managing Content and Workflow

With Advanced Rendering, manual intervention is reduced as renditions are automated, reducing the dependence on individual actions. One rendering solution meets all document rendering needs, reducing the strain on IT, and dispensing with the need to manage and support multiple solutions and systems. By deploying rendering as a shared service across the organization, multiple departments and business systems are supported, streamlining organizational processes. In addition, the dependence on 3rd party viewers or specialized authoring software is reduced by migrating and automating conversion of legacy content into high-fidelity PDF formats for simplified access and distribution.

3. Storing and Archiving Content

Long-term access to content is supported, without the need to maintain native applications by automating the conversion of content to PDF/A, ensuring content is available in perpetuity. In addition, email storage can be improved by rendering incoming and outgoing emails of business value to PDF/A without any manual user intervention. By converting content to PDF/A, organizations can ensure the files can be viewed over 100 years from now.

4. Delivering Consistent Output

Advanced Rendering delivers content in a consistent format that is viewable across devices. Content is available in thumbnail format to enable previews of content quickly, minimizing the bandwidth while increasing efficiencies for users. Mobile access to content is available across phones, laptops and tablets, without the need for costly platform-specific applications, enabling fast and easy access to key content for remote staff and those in the field. PDFs are optimized for faster downloading from the web by allowing a file to be viewed one page at a time, instead of forcing the user to wait until the entire document has downloaded. Finally, both internal and external regulatory requirements are met by rendering content to high-fidelity PDFs with consistent output in an automated fashion, thereby reducing risk and cost associated with manual intervention.

Using Advanced Rendering to Improve ROI

While basic rendering has proven effective at creating PDFs, Advanced Rendering takes the conversion process further towards meeting the growing needs of complex organizations and their multifaceted document management requirements. Advanced Rendering technology integrates into the most commonly used Enterprise Content Management systems and automates the conversion of content from multiple sources into more manageable and usable formats to enhance documents at each stage of document processing.

For modern organizations, investing in the ability to manage content across an enterprise is a tangible return on investment.

Advanced Rendering allows organizations to increase efficiency and reduce costs and resources by offering a set of specialized features that enhance the document management process. Advanced Rendering increases the collaboration across departments, business units and the entire enterprise by automating the collection, merging and enhancement of various documents into platform-agnostic PDFs that are more usable and easy to share. Many organizations have employees who work in different versions of authoring software. With Advanced Rendering, all users can review and mark up documents without needing a specific native application version on their machine. The improved access accelerates the flow of content into, through and out of an organization, improving efficiencies and minimizing costs.

Creating efficiency of document-centric processes is the ultimate goal of using an Advanced Rendering solution. The ability to eliminate manual conversion, merge multiple documents, increase navigation with tables of contents and hyperlinks, add enhancements such as headers and page numbers, and enrich content with Optical Character Recognition allows businesses across verticals to improve their return on investment by reaching business efficiency.

Increasing Business Process Efficiency with Adlib's Advanced Rendering Software

Over the last few years, the amount of digital data organizations produce has increased exponentially. Users are creating unstructured content in multiple file formats, and the cost to manage this content is also increasing. In addition, many business processes are reliant on content creation, increasing the importance of having a document management strategy. Externally, governments and regulatory bodies are placing strict requirements on document

archiving and formatting, further increasing the burden on users to spend time and resources ensuring all regulations are met.

More and more, organizations are turning to PDF as the standard format for document rendering, as PDF is truly the only digital equivalent of paper that enhances the value proposition of virtually any document management solution. However, basic document-to-PDF rendering software does not even begin to address the multifaceted requirements of enterprise organizations requiring a complex content management solution.

Advanced Rendering, on the other hand, provides organizations with a set of specialized features that allow users to automate the rendering process, apply document-enhancing features, and ensure a true high-fidelity conversion.

Adlib's leading Advanced Rendering solution offers the most sophisticated rendering engine on the market. With Advanced Rendering capabilities, Adlib delivers high-fidelity, high-performance document-to-PDF conversion and assembly with powerful OCR capabilities to create searchable PDFs that support business processes, collaboration, compliance and long-term archiving goals.

ADLIB'S ADVANCED RENDERING PROCESS



INPUT

- MS Office
- MS InfoPath
- MS Project
- Various CAD
- Various PDF
- Images
- OpenOffice
- HTML
- Over 400 File Types

PROCESS

- Conversion
- Recognition (OCR)
- Publication
 - Merge
 - TOC
 - Bookmarks
 - Headers/Footers
 - Digital Signatures

OUTPUT

- PDF
- PDF/A
- XPS
- XML
- TIFF/JPG /BMP/PNG
- TXT
- HTML

When rendering documents to PDF, Adlib uses the native application that was used by the original author to create the best possible reproductions of the original document. As a result, Adlib's technical innovation ensures virtually any document is converted to the highest quality possible. Adlib meets the complex requirements of virtually any industry that deals with large volumes of content.

Adlib's Advanced Rendering software is designed for demanding high-volume environments where accurate, scalable and highly available document-to-PDF transformation services are required to improve business productivity and document output management.



As the global leader in Advanced Rendering, Adlib helps organizations in the Energy, Life Sciences, Insurance and Banking sectors, among others, enhance document-centric processes by unlocking the value in unstructured content. Integrating with key business tools, Adlib's sophisticated data extraction and classification approach enables improved compliance, customer experience, collaboration and the long-term digital preservation of critical business information.

For more information, visit www.adlibsoftware.com.

Adlib Publishing Systems Inc.

General Inquiries	info@adlibsoftware.com
Sales Support	sales@adlibsoftware.com
Technical Support	support@adlibsoftware.com
Phone	905-631-2875
Fax	905-639-3540

Toll Free

Sales	1-866-991-1704
Support	1-866-991-1705 (North America Only)

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215-3228 South Service Road, Burlington, Ontario Canada L7N 3H8 | 1.866.991.1704 | 1.905.631.2875 | adlibsoftware.com | adlibsoftware.de