

# Making the Case for PDF/A and Adobe® LiveCycle®

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The introduction of personal computers into business has drastically changed the archiving environment. Prior to the 1990s, most offices still had typing pools and word processing groups and kept records on paper in centralized files. But when computers became the norm for the majority of workers, the usefulness of the centralized file room disappeared. In those early days, it was everyone's responsibility to create, file, and maintain their own documents. As a result, corporations lost control over important records, and regulatory compliance fines began to rise. A few years ago, for instance, a major pharmaceutical company in the United States was fined \$125M by the Food and Drug Administration (FDA) because they were unable to provide information to an audit team in a timely manner during an investigation.

Today, organizations are embracing the need for digital archiving. Governments are defining regulatory standards that mandate, recommend, or accept PDF or PDF/A (a subset of PDF designed specifically for archiving). In addition, the PDF file format is rapidly overtaking paper for long-term storage. Recently, an AIIM Market IQ study, *Content Creation and Delivery: The On-Ramps and Off-Ramps of ECM*, found that 90% of the organizations studied were using PDF for long-term storage of scanned documents, and 89% were converting office files to PDF for distribution and archive. Not surprisingly, 100% of the organizations were still using paper. But when asked to predict the situation in five years, the use of paper for long-term storage dropped to 77%, while PDF rose to 93%.

## PDF/A in summary

PDF/A stands for PDF for Archiving. It is a set of ISO standards (ISO 19005) using a subset of the PDF format that leave out PDF features not suited for long-term preservation. It provides specifications for the creation, viewing, and printing of PDF documents with the intent of preserving final documents of record as self-contained files. It does not allow references to external content since those items may not exist in years to come.

In another study focusing specifically on PDF/A use in Europe, *Nearly all archiving projects use PDF/A*, the PDF/A Competence Center found that of the 400 survey respondents, 16% used PDF/A already, and an impressive 50% intended to introduce it in the next 12 months. Older archiving formats, such as TIFF, JPEG, and conventional PDF, had decreased by about 5% from the previous years' survey. Email archiving was identified as one of the key driving factors for the recent increase.

If you're like most IT or compliance professionals today, the need for digital archiving is clear but you're wondering how you're going to make it work. And perhaps more importantly, you're wondering how you and your team are going to make the case for investing in a new approach. You'll be faced with many questions. Why PDF/A versus other file formats? At what point after document creation should electronic records be converted to PDF/A? How will you authenticate documents entering the archive and protect them from being changed over time? How will you capture and archive electronic forms? How will you manage the metadata (information about the document itself)?

These questions and many more are being addressed every day, and PDF/A is playing a central role in the strategies that are being devised. This white paper provides the facts you need as well as links to the resources that will help you address these questions and make the business case for an investment in PDF/A and Adobe Acrobat software. If you're interested in Adobe LiveCycle® Enterprise Suite (ES) software for process automation, be sure to read the companion white paper, *Making the Case for PDF/A and Adobe Acrobat*.

## PDF/A adoption

Since it became an ISO standard in 2005, PDF/A has gained significant acceptance. The earliest adopters have been government organizations who define the regulatory standards businesses must live by. Here is a just a sampling of government organizations that mandate, recommend, or accept PDF/A.

- The US National Archives and Records Administration (NARA) accepts PDF/A submissions, and PDF/A is accepted or recommended by the national archives or libraries in Germany, France, Italy, Sweden, the Netherlands, Austria, Victoria Australia, and Norway.
- In the European Commission's "Model Requirements for the Management of Electronic Documents and Records" (MoReq), PDF/A is on the list of recommended data formats for scanned documents and long-term archiving.
- One of the earliest adopters, the US Courts, mandates PDF submissions for legal filings such as complaints, bankruptcy petitions, briefs, depositions, and so on. Upon receipt, documents are converted to PDF/A, time and date-stamped, and a certifying signature is applied before routing to the workflow for further processing.
- The "Organization for the Promotion of Automated Accounting" based in Europe defined a standard process for eBilling that uses PDF/A as a document format with the XML standard openTrans for embedding invoiced data. The PDF/A document and the embedded invoice data form a single entity which is "sealed" with a digital signature.
- Countries such as Germany, France and the Netherlands recommend PDF/A at a nationwide level when it comes to archiving administrative documents with static, inalterable content.

PDF/A is being put to use in real-world business scenarios too. The Illinois Municipal Retirement Fund (IMRF) for instance, turned to PDF and PDF/A to improve services and cut costs. IMRF provides employees of local governments and school districts with retirement, disability, and death benefits. Like many organizations, IMRF used the TIFF file format for their first generation of electronic documents, but large file sizes, long download times, and difficulties searching for information within those files drove them to look for a better approach. For their next-generation solution, they turned to conventional PDF for the distribution of member and employer correspondence, and PDF/A for archival. On average, member statements were generated up to 68% faster, with the total file size 76% smaller. Smaller file size also meant smaller storage requirements for the archived statements at a much lower cost than the previous solution.

The Illinois Municipal Retirement Fund (IMRF) replaced TIFF with PDF and PDF/A.

*Read more about IMRF*

## PDF/A: The digital document archiving standard

### Overview

PDF/A stands for PDF for Archiving. It is one set of standards amongst a larger suite of PDF-based standards managed by ISO, the International Organization for Standardization. As its name suggests, it was developed to enable long-term preservation of electronic documents. It provides specifications for the creation, viewing, and printing of PDF documents with the intent of preserving final documents of record as self-contained documents. The standard does not define an archiving strategy or the goals of an archiving system. Instead, it identifies a "profile" for a PDF file that makes it possible to reproduce the visual appearance of the document the exact same way in years to come. This profile specifies what must be included the file, while prohibiting features that are not suited for long-term archiving.

When making the case for PDF/A, you and your team may run into challenges from others in your organization. Typical questions include: "Wouldn't it be easier to archive documents in their original formats?" "We've already got a system that generates TIFF, why not use that?" "We're already using PDF files in other phases of the work, why don't we just archive those?" We'll take each of these in turn.

### Challenges archiving original formats

Archiving electronic documents in their original, or "native", formats certainly qualifies as the simplest and least expensive method in the short term. The documents are already there. You only need to capture them in your records management system. Unfortunately, it is also the most risky method for the long-term given the rise in more stringent, standards-based regulatory requirements.

Original format documents are editable by nature and can be read by only their authoring applications. These characteristics lead to serious difficulties from an archiving perspective.

- **Ensuring authenticity**—Most original documents are not locked and can't be read without putting them at risk of modification. During an audit, it's virtually impossible to prove a document hasn't been tampered with during its lifetime. While many applications do offer options to lock a document, each one deploys its own unique method, making future management of those records vastly more complex.
- **Ensuring file format compliance**—Increasingly, government bodies require standards-based document formats, rather than original formats, for legal or regulatory submissions.
- **Avoiding a costly effort to restore documents during a compliance event**—Government regulations require companies to store records for many years. If older versions of the software aren't available when a compliance event occurs, it might be necessary to open the original documents using newer versions of the software to print them or convert them to PDF/A. If the layout doesn't match the original, manual adjustment might be required.

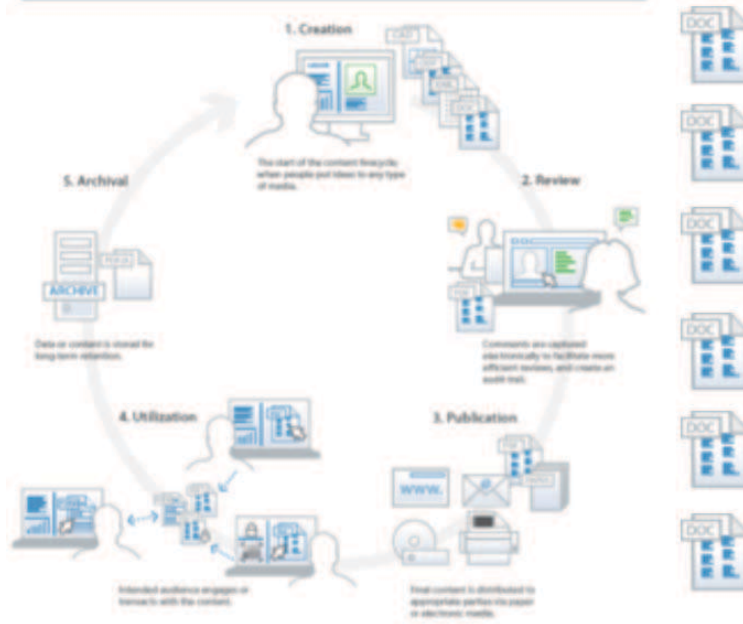
### Challenges archiving image formats

Many organizations chose TIFF as their first-generation archiving format for electronic documents. With so many paper documents to be converted to digital, it was a logical choice because of its ability to capture the appearance of the original document precisely. However, drawbacks, such as large file sizes, unreliable readers, and searchable text files that were separated from their TIFF counterparts, made archiving with TIFF a complex and expensive proposition. As time passed and more documents were "born digital," PDF began overtaking TIFF in popularity for a variety of reasons:

- PDF files are more compact and require only a fraction of the memory space of TIFF files, often with better quality.
- The availability and reliability of Adobe Reader® reduces the support burden for IT organizations.
- PDF stores structured objects (for example, text, vector graphics, and raster images), allowing for an efficient full-text search in an entire archive. This includes scanned images whose text has been extracted through optical character recognition (OCR) and incorporated into the same PDF.
- Because metadata, such as the title, author, and keywords, can be embedded in a PDF file, PDF files can be automatically classified based on the metadata without requiring human intervention.
- PDF files have become commonplace in upstream business processes, so rendering an archival version of the PDF file as a final step in the process is easier to do and simplifies the task of capturing the necessary metadata. Electronic forms, for instance, which can include XML-based data and digital signatures, can be processed as interactive documents and then frozen in an archival form.

### Using the appropriate PDF standard for the job

Demands of the 21st century are making corporations and governments rethink their old perceptions of documents. Content lifecycles have become more complex. Documents must be able to present diverse content to multiple audiences, each with different needs and goals. The simple truth is that no single file format is ideal for every purpose or stage of the content lifecycle. Document creation is still done with dedicated software, but increasingly, organizations are adopting different types of PDF files to streamline the subsequent steps. Each stage, including review, publication, utilization, and archiving, has its own unique requirements, so the PDF files used often require different characteristics, as shown in this content lifecycle example.



1. **Creation** is done with dedicated software, such as Microsoft Office or CAD applications.
2. **Review** typically uses PDF features like interactive commenting and external references for review tracking.
- 3a. **Electronic publication** might require PDF features like embedded audio, video, or hyperlinks.
- 3b. **Print publication** might require specific instructions in the PDF to render properly on a printing press.
4. **Utilization** might require interactive PDF features such as fillable form fields or digital signatures.
5. **Archiving** requires a self-contained PDF document with only final-form, static content.

Increasingly, organizations are adopting PDF to streamline steps like review, publication, utilization and archival.

A key question then, is how many different types of PDF are needed in your organization? If there's a document of record involved in any stage of the upstream process, does it make sense to convert documents to PDF/A during that stage, or should you wait until the end? The answer depends on your organization's requirements. In the US Courts example we mentioned earlier, the submissions they receive are official documents of record so it makes sense to convert to PDF/A quite early in the processing cycle. The Illinois Municipal Retirement Fund by contrast, uses a more traditional approach with a conventional PDF file used for publication and utilization, and PDF/A for final archival.

Determining where and when to use PDF/A in your organization starts by examining the specification closely. Review it with an eye toward archival first to make sure it meets your needs, then decide for yourself whether PDF/A or another type of PDF is appropriate for other stages in the content lifecycle.

### PDF/A-1 characteristics

ISO 19005-1 defines "a file format based on PDF, known as PDF/A, which provides a mechanism for representing electronic documents in a manner that preserves their visual appearance over time, independent of the tools and systems used for creating, storing or rendering the files." The current version of the standard is PDF/A-1, which is based on PDF v1.4. The next generation, PDF/A-2, is under development and will add selected features from the current master PDF standard, ISO-32000-1, which is now maintained by the International Organization for Standardization.

Here are the key characteristics of a PDF/A file. A complete copy of the ISO 19005-1 specification can be purchased from the *AIIM catalog*.

- **Self-contained**—Everything needed to render or print a PDF/A file must be contained within the file. This includes all visible content, such as text, raster images, vector graphics, fonts, and color information. In addition, a wide range of external content references are not allowed, including audio and video content, JavaScript, and executable files.
- **Self-documenting**—PDF/A promotes the use of metadata, enhancing the document by providing information about the document itself. It provides recommendations, for instance, for documenting file attributes such as the file identifier, file provenance, and font metadata. When metadata is used, PDF/A requires the use of the Adobe Extensible Metadata Platform (XMP) for embedding the data in the files.

#### Focus on fonts

All embedded fonts must be legally embeddable for unlimited, universal rendering. Organizations who have adopted PDF/A typically set corporate document standards defining fonts that are compatible with the standard.

#### Focus on metadata

There are many ways to work with metadata in PDF/A files. Read the article *PDF/A Metadata—XMP, RDF & Dublin Core* to learn more.

## Focus on digital signatures

Live digital signatures can be included in a PDF/A file as long as they are applied after the PDF/A has been created. To make sure the file remains compliant with the standard, be sure to apply the signature using software that is PDF/A-aware, such as Adobe Acrobat or Adobe LiveCycle ES.

Governments and standards bodies have done extensive work to advance the legal acceptance of digital signatures. For instance, the US Courts, the US Army, and the Belgian government have been among the leaders in defining policies and adopting digital signatures. As well, the European Telecommunications Standards Institute (ETSI) has developed multiple standards related to electronic signatures, including PAdES for PDF documents.

Many organizations have found ways to build effective processes that include digital signatures. Some of them create PDF/A files first, then apply certifying signatures and route the files for further processing. Other organizations use conventional PDFs with digital signatures earlier in the content lifecycle and then convert to PDF/A for archival. The latter use case is supported by Adobe LiveCycle ES, which sets up an automated process to capture metadata about the signature at the time of archival and then embeds it in the PDF/A file. LiveCycle ES also preserves the signature's appearance at the time of archival.

- **Device-independent**—PDF/A requires device-independent components, such as specific RGB or CMYK color profiles, so that the static visual appearance can be reliably and consistently rendered and printed without regard to the hardware or software platform used.
- **Two levels of compliance**—The lowest level of compliance, PDF/A-1b, meets all the core requirements, ensuring reliable reproduction of the visual appearance of a document. This specification is often applied to scanned images and preexisting PDF files that are converted to PDF/A. The higher level, PDF/A-1a, requires document structure called tags, which provides an underlying structure for the content within the document and facilitates searching, repurposing of content, and accessibility for people with disabilities such as blindness. This higher level specification is typically applied to “digitally born” documents captured directly from applications like Microsoft Word, which create document structure during the authoring process.
- **Unfettered**—PDF/A prohibits encryption. This means that a compliant PDF/A file must be open and available to anyone or any software that processes the file. User IDs and passwords cannot be embedded. Access control is typically managed outside the file format by a content or records management system.

## Comparing PDF/A to other PDF standards

PDF/A is uniquely designed to support long-term archiving, but what about other stages of the content lifecycle? This chart summarizes each of the standards based on PDF. Because the complete PDF specification is now a formal, open standard (ISO 32000), it is possible to use a wide range of PDF types and still be confident that your approach is standards-based.

PDF Standards		
Specification or guideline	Designed for:	Description
<b>PDF</b> ISO 32000	<b>The umbrella standard</b> Conventional PDF for a broad range of uses	PDF is a formal, open standard maintained by the ISO. ISO 32000 contains the complete PDF specification and supersedes the 1.7 edition of the Adobe PDF Reference. This standard will become the foundation for all future generations of derivative standards. The next generation of PDF/A, for instance, will build on ISO 32000 to enhance the definition of PDF files used for long-term archiving.
<b>PDF/A</b> ISO 19005	<b>Archiving</b> Records managers, archivists, compliance managers	Provides specifications for the creation, viewing, and printing of digital documents used for long-term preservation. PDF/A preserves and protects final documents of record as self-contained files. It does not allow references to external content because those items might not exist in years to come. PDF/A-1 is based on PDF v1.4. PDF/A-2 is under development.
<b>PAdES</b> ETSI TS 102 778	<b>PDF digital signatures in the European Union</b> Anyone who needs document-based signatures to enable electronic processes	Provides a standard that facilitates secure, paperless business transactions throughout Europe, in conformance with European legislation. Maintained by ETSI, this standard builds on the ISO 32000 standard to define a series of profiles for advanced electronic signatures that comply with European Directive 1999/93/EC.
<b>PDF/E</b> ISO 24517	<b>Engineering</b> Architects, engineers, construction professionals, manufacturing product teams	Provides specifications for the creation, viewing, and printing of documents used in engineering workflows. PDF/E facilitates the exchange of documentation and drawings to share with others in the supply chain or streamline review and markup. It specifies PDF settings suitable for building, manufacturing, and geospatial workflows and supports interactive media, including animation and 3D. PDF/E-1 is based on PDF v1.6.
<b>PDF/X</b> ISO 15930	<b>Print production</b> Print professionals, graphic designers, creative professionals	Provides specifications for the creation, viewing, and printing of final print-ready or press-ready pages. PDF/X provides guidelines for PDF settings affecting critical aspects of printing, such as color space and trapping. It also restricts other content, such as embedded multimedia, that does not directly serve high-quality print production output.
<b>PDF Healthcare</b>	<b>Healthcare</b> Healthcare providers and consumers	Provides best practice and implementation guidelines to facilitate the capture, exchange, preservation, and protection of healthcare information. Following these guidelines provides a secure electronic container that can store and transmit health information, including personal documents, XML data, DICOM images and data, clinical notes, lab reports, electronic forms, scanned images, photographs, digital x-rays, and ECGs.



PDF Standards		
Specification or guideline	Designed for:	Description
<b>PDF/UA</b> ISO 14289	<b>Universal access</b> People with disabilities, IT managers in government or commercial enterprises, compliance managers	Provides a set of guidelines for creating PDF files that are universally accessible. PDF/UA files enhance readability of a document for people with disabilities, such as vision impairment or limited mobility. These guidelines can be used in conjunction with a wide variety of other PDF creation settings.
<b>PDF/VT</b> ISO 16612-2	<b>Variable and transactional</b> Print professionals	Provides specifications for the creation, viewing, and printing of print files used in the variable and transactional printing industry, such as bank statements and business invoices.

## Previewing PDF/A-2

Like all great standards, PDF/A is designed to evolve over time to meet the changing needs of technology. The first generation, Part 1 (PDF/A-1), was adopted in 2005 and was based on the Adobe PDF Reference 1.4. The second generation is under development with a publication goal set in the second half of 2010. It will build on the open PDF standard, ISO-32000, which is now maintained by the ISO. While PDF/A-2 will remain focused on the "static paper" metaphor for archiving, many enhancements have been incorporated by the standards committee. Examples include:

- Supporting new and improved feature sets in the current PDF standard including areas such as fonts, metadata, transparency, compression, PDF layers, and digital signatures.
- Enabling new use cases, including: supporting collections and packages of PDF/A documents, archival preservation of PDF/X-4 and PDF/E-1 documents, and creating a new conformance level to designate documents that are searchable but not necessarily accessible.
- Continuing to maintain compatibility with other ISO standards, such as PDF/X-4, and PDF/E-1.
- Ensuring forward compatibility so that organizations using PDF/A-1 won't need to migrate or change existing workflows unless they want to use new features.

### Adobe LiveCycle ES

Adobe LiveCycle ES software helps organizations improve productivity through intuitive applications and efficient processes.

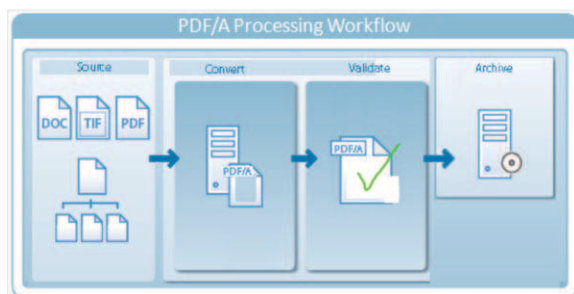
It provides an integrated set of server-based modules that extend the value of existing back-end systems. With LiveCycle ES, you can enable your organization to engage users with collaborative rich Internet applications (RIAs) and guided forms, streamline business processes, manage correspondence, and strengthen security. Adobe LiveCycle ES modules discussed in this white paper include:

- LiveCycle PDF Generator ES
- LiveCycle Output ES
- LiveCycle Digital Signatures ES

## Working with Adobe LiveCycle ES

Once you've decided to implement PDF/A as part of your archiving strategy, the first question you'll probably ask yourself is whether you want to automate the processing of PDF/A files or request company employees to create them one at a time as they go about their daily jobs. Chances are you'll be doing a combination of both. This white paper focuses on automated processing with Adobe LiveCycle ES2. If you're interested in desktop processing, read the companion white paper, *Making the Case for PDF/A and Adobe Acrobat*.

The basic workflow for processing PDF/A files looks the same whether you're working with files on the desktop or in an automated fashion. Content from a variety of sources is converted to PDF/A, validated, and then delivered to an archive.



If you plan ahead and configure your documents and conversion settings correctly, PDF/A files created directly from native file formats, email, or the web generally get converted and validated easily. Documents built to corporate standards, for instance, would only include fonts that work with the PDF/A specification. Similarly, image files convert and validate easily because of their relative simplicity. More difficulties arise, however,

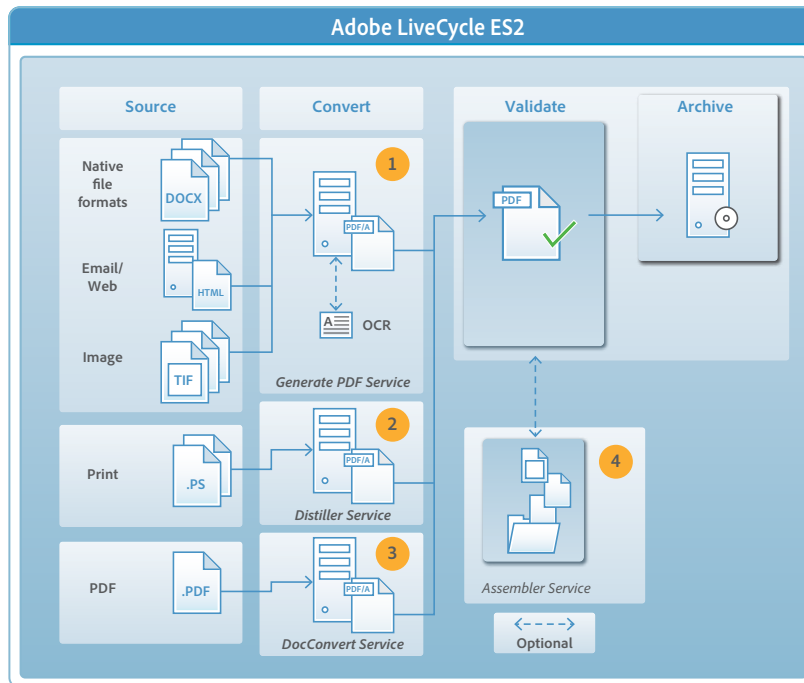
when you work with second-generation documents such as print files or existing PDF files. Because these documents were never created with PDF/A in mind, you might run into issues. Fonts might be missing or incompatible. PDF files might be encrypted or have other variations that don't comply with the PDF/A standard.

As you begin processing files with Adobe LiveCycle ES, you'll discover that your specific workflow will vary depending on your project requirements. The following section discusses typical workflows in the LiveCycle ES environment.

### Converting scans and electronically-authored content

Consider the project requirements of a Fortune 500 company delivering construction and engineering services to governments and corporations around the world. At the end of a large project like building a bridge or a high-rise office building, they need to collect and archive all the documents related to the project. These include planning documents created with Microsoft Office applications, team email communications, the project website used by planners and contractors, scanned receipts from the job site, purchase orders generated by their mainframe and stored as PostScript® print files, and change orders processed by employees and stored on a server as PDF files.

This company chooses to archive using PDF/A because they know the files will be accepted by government regulatory agencies if they are audited. They also want to enhance their archives to make it easier for staff members to search for and find requested information. For instance, they'll apply optical character recognition (OCR) to scanned receipts so that they can easily search for certain types of information, such as vendor names or items purchased. They'll also assemble all the purchase orders in a single PDF/A package so that researchers can search across the entire collection just once, instead of opening and searching through multiple files. To accomplish these tasks, they'll use several of the component services that come with LiveCycle PDF Generator ES, as shown in this workflow example.

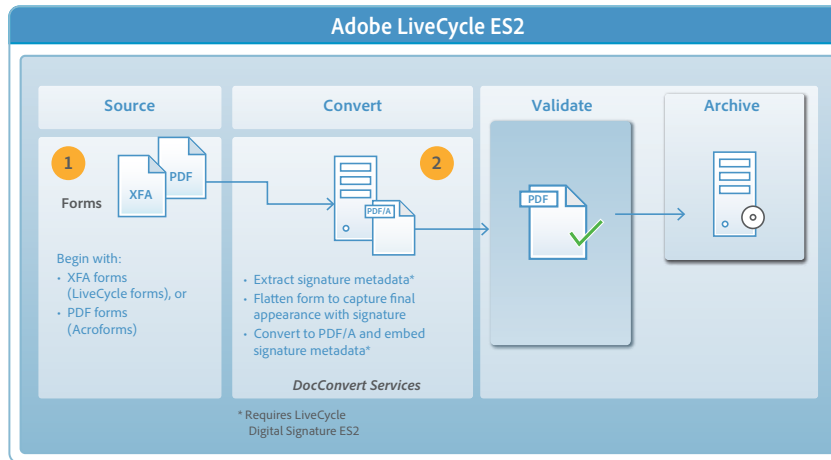


1. The Generate PDF Service converts the following source documents to PDF/A:
  - Native file formats. Microsoft Office documents are captured with structure tags for PDF/A-1a compliance.
  - TIFF and other image formats. Apply OCR to generate searchable text as an optional step.
  - Other output formats, including email and web pages.
2. The Distiller Service converts PostScript print files to PDF/A.
3. The DocConvert Service converts existing PDF files to PDF/A.
4. The Assembler Service creates a comprehensive project package for archive. This is an optional step typically applied after validation

### Converting interactive forms with digital signatures

To work with interactive forms, we'll consider a different scenario: the project requirements of a large European bank using electronic forms to process new account applications. Instead of filling out paper application forms, more and more banking customers are choosing to apply for new accounts electronically. This is typically done by accessing the form through the bank's website or getting an email attachment from a bank representative. The customer fills in the form, signs it digitally, and then submits it to the bank.

Because the application form is an official document of record, the bank must create an archive copy to comply with government regulations. They'll create a PDF/A before proceeding with the rest of the approval process. That means turning the interactive form into a static document retaining the information exactly as it was seen by the customer when it was signed. It also means capturing metadata during the archiving process so that auditors looking at it in the future can confirm that the document is an authentic record and hasn't been changed in any way. To do this, they'll use two LiveCycle modules, LiveCycle Output and LiveCycle Digital Signatures, as shown in this workflow example.

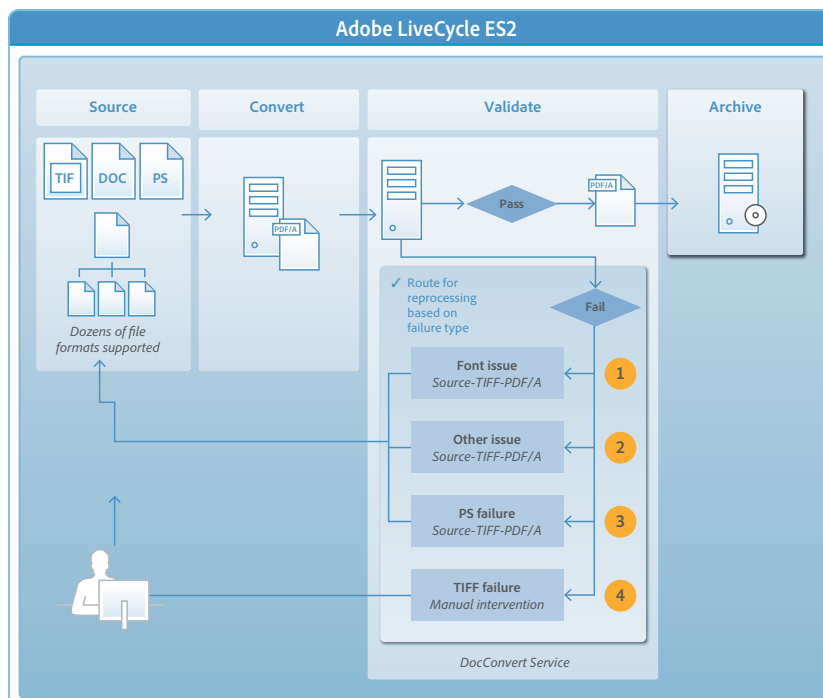


1. Interactive forms, including PDF Acroforms and XFA forms (XML Forms Architecture), are submitted for processing.
2. The DocConvert Service in LiveCycle Output ES evaluates the conversion requirements and orchestrates other LiveCycle services as needed to accomplish the job.
  - A call is made to LiveCycle Digital Signatures ES to extract signature metadata.
  - The form is "flattened" and a PDF/A file is created with embedded signature metadata. Flattening the form removes all interactivity and preserves the appearance of the document at the time of archiving, including the appearance of the signature. Multiple LiveCycle Output services are used for this step.

## Validating PDF/A

To explore validation, we'll return to the project requirements for the Fortune 500 construction company described earlier. The first step is to create and implement corporate document guidelines so that PDF/A files generated from Microsoft Office, email, project websites, and scanned receipts can pass through the validation step with the fewest possible errors. To handle the exceptions, including the purchase orders and change orders in PostScript and PDF, they'll need to set up a series of subprocesses to minimize the need for manual intervention. To do this, they'll use LiveCycle PDF Generator ES again, as shown in this workflow example.

The DocConvert Service in LiveCycle PDF Generator ES validates PDF/A documents. Failed documents are routed automatically for reprocessing.



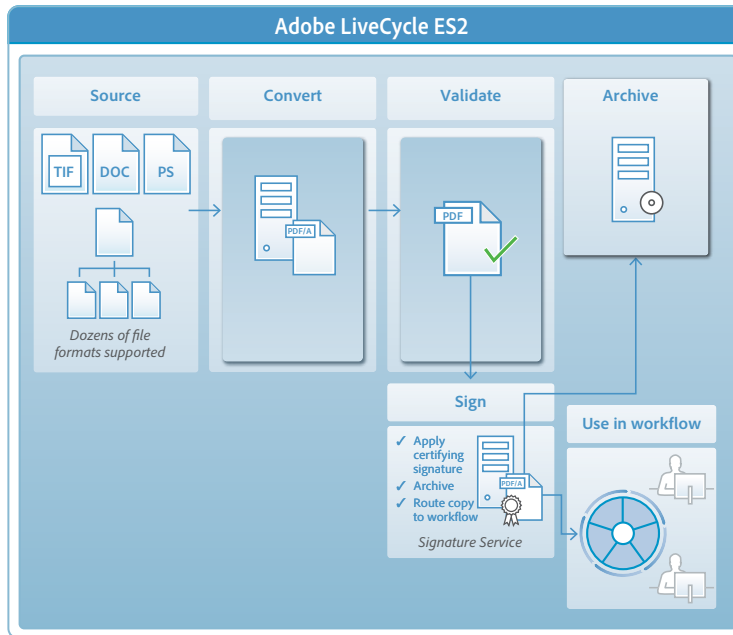
The DocConvert Service in LiveCycle PDF Generator ES validates PDF/A documents. Failed documents are routed automatically for reprocessing.

1. When the failure is due to missing or incompatible fonts, the source document is routed for conversion to TIFF and then to PDF/A.
2. When the failure is due to issues not related to fonts, the source document is routed for conversion to PostScript (PS) and then to PDF/A. This method retains the highest quality data with the smallest file size. The document is still searchable without OCR, and graphics retain their original resolution and quality.
3. When a failure occurs to a document whose source was a PostScript file, the source document is routed for conversion to TIFF and then to PDF/A. This method ensures basic compliance with the standard.
4. When a failure occurs to a document whose source was a TIFF file, the issue is routed to a specialist for manual intervention



## Authenticating PDF/A files with signatures

To explore authentication, we'll consider the case of a government regulatory agency. This agency requires the submission of various declarations in PDF/A from the businesses they regulate. Upon receipt, the agency validates PDF/A compliance using steps similar to those described earlier, and then begins a new internal workflow to process the declarations. A certifying signature is added to the document. One copy is archived, while a second copy is routed to the internal workflow. The addition of the certifying signatures protects the authenticity of both the archived version of original document and the copy of the document used during processing. If someone tried to tamper with the document, the signature would become invalid and display a red "X" instead of a certifying blue ribbon. To accomplish this, the government agency would add LiveCycle Digital Signatures ES to their process, as shown in this example.



The Signature Service in LiveCycle Digital Signatures ES adds certifying signatures to PDF/A documents automatically. One copy of the document is filed in the archive, while a second copy is routed to the workflow for subsequent processing. This approach protects the authenticity of the original document during the entire workflow.

## Summary

The fact that PDF/A is a well-adopted worldwide standard that has an extensive availability of tools to work with it, makes a strong case for using PDF/A for your digital archiving projects. Governments recognize the value of adopting digital standards such as PDF/A, because doing so streamlines their work processes to serve their constituents more efficiently, bridges international boundaries, and saves money. Corporations are taking on the challenge of re-engineering their document workflows and converting their existing document archives to PDF/A to be fully prepared for their next government audit. They know that prompt response times and the ability to prove that their digital documents are authentic records means they can avoid costly compliance penalties and use their employees' time more wisely.

As you and your teammates proceed in developing your case for investing in a new approach for digital archiving with PDF/A and Adobe LiveCycle ES, we encourage you to explore the following resources.

## Resources

### The ISO standard

- ISO 19005-1 Document management, Electronic document file format for long-term preservation: *Part 1: Use of PDF 1.4 (PDF/A-1); Addendum Cor 1:2007*

### Adobe

- Making the Case for PDF/A and Adobe Acrobat: *White paper*
- PDF/A Metadata - XMP, RDF & Dublin Core: *Article*

### AIIM PDF/Archive committee

- *Committee home*
- *Training classes*
- *Discussion forum*

### PDF/A Competence Center

- *Center home*
- *Events*
- *Discussion forum*

### PDF/A guidance examples

- U.S. National Archives: *FAQs; transfer instructions*
- European Commission MoReq: *The specification*
- Victoria, Australia: *Standards and Guides*
- Netherlands government: *The standard* (in Dutch)
- French Government: *Framework for interoperability* (in French)
- Organization for the Promotion of Automated Accounting E-billing: *Information* (in German)
- Additional examples: *PDF/A Competence Center Legislation page*

### Digital signatures

- PAdES—PDF Advanced Electronic Signatures, an ETSI standard: *Web page*
- U.S. District Court Judge issues first digitally signed judicial order: *Blog post*
- Foundations of Digital Evidence: *Book*
- Digital Signature Assurance and the Digital Chain of Evidence: *White paper*
- Belgian eID: website in *Dutch or French*

## For more information

Solution details: [www.adobe.com/products/lifecycle/](http://www.adobe.com/products/lifecycle/)

Contact information: 888-649-2990



Adobe

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345 Park Avenue  
San Jose, CA 95110-2704  
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