Frequently Asked Questions (FAQs)

ISO 24517-1:2008

PDF/E-1

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Statement:
This FAQ is prepared in support of ISO 24517-1:2008, Document management — Electronic document format using PDF — Part 1: Use of PDF 1.6 (PDF/E-1)

This document is published by the PDF/E Joint Working Group working under the auspices of TC-171 Document Management Applications Subcommittee 2 Application Issues, with representatives from ISO Technical Committees 184 and 171. It may be obtained directly from ISO (www.iso.org) or from national body standards organizations (e.g., ANSI, BSI, DIN, AFNOR, etc.).

Frequently Asked Questions (FAQs)

ISO 24517-1:2005 (PDF/E-1)

Introduction

PDF is a digital format for representing documents and may be created natively in PDF form, converted from other electronic formats or digitized from paper, microform, or other hard copy format. Businesses, governments, libraries, archives and other institutions and individuals around the world use PDF to represent considerable bodies of information.

The primary purpose of PDF/E is to define a file format based on PDF which provides a mechanism for representing electronic documents in a manner that preserves their visual appearance and content rich data for purposes of reliable exchange of engineering documentation.

What is PDF/E?

ISO 24517-1, Document management – Engineering document format using PDF – Part 1: Use of PDF 1.6 (PDF/E) is the first in a new family of ISO Standards to address the growing need to have an exchange format for PDF-based engineering workflows. PDF/E is based on the published Adobe PDF specification, version 1.6, available at: http://partners.adobe.com/public/developer/en/pdf/PDFReference16.pdf.

Why PDF/E?

Publishing and exchanging engineering and mapping data in a format that is ubiquitous has been an industry concern for many years. The cost of managing distribution and change throughout project/product development and the lack of reliable engineering drawing representation for downstream lifecycle management prompted PDF users and partners to form the PDF/E committee. The group now includes industry representatives, software and hardware vendors, and government representatives.

Common problems encountered include:

- Multiple creation tools that produce inconsistent results
- Exchange barriers, including content such as inaccessible external links
- Multiple proprietary formats, each with their own expensive viewers

PDF/E attempts to address these problems by:

- Ensuring a minimum level of compliance, thereby producing consistent results and quality
- Providing a format that allows for secure distribution and supports digital signatures and authentication
- Supporting an electronic exchange of documents, thereby reducing the costs associated with paper distribution
- Enabling content rich data, such as 3D and measurements

- Taking advantage of the extensive PDF ecosystem, thereby enabling vendor independence
- Supporting multiple software platforms
- Enabling the free viewing of content through the ubiquitous and freely available Adobe Reader

What is the difference between PDF, PDF/E, PDF/A and PDF/X?

The published Adobe PDF specification is the basis for the PDF/E, PDF/A, and PDF/X standards. While each of the individual standards addresses a different set of functional or industry requirements, the goal was to maintain a relationship between these PDF-based standards.

The PDF/E-1 (ISO 24517-1) standard is based on Adobe's PDF Reference 1.6, and specifies how to use PDF features to develop software that creates, renders and otherwise processes a subset of PDF that is suitable for building, manufacturing, and geospatial workflows.

PDF/E also supports security and encryption. PDF/E is used in dynamic workflows where a document is published and may continue to be revised. PDF/E allows interactive media, including animation and 3D, whereas PDF/A and PDF/X do not.

The PDF/A-1 (ISO 19005-1:2005) standard is based on Adobe's PDF Reference 1.4, and specifies how to use a subset of PDF features to develop software that creates, renders and otherwise processes a flavor of PDF that is more suitable for archival preservation than traditional PDF. PDF/A-1 aims to preserve the static visual appearance of electronic documents over time while also supporting future access and future migration needs.

Frameworks for this include:

- Embedding metadata about electronic documents
- Defining the logical and semantic properties of electronic documents.

More suitable for long-term preservation, PDF/A-1 files result in a more self-contained, self-describing and device-independent than traditional PDF 1.4 files. PDF/A is the final form of a document.

The PDF/X family of standards was developed to address the needs of the printing and publishing industries, and has several versions. Both PDF/X-4 and PDF/X-5 have recently been approved and are in the process of being published by ISO.

- PDF/X-1a (ISO 15930-1:2001 and 15930-4:2003) addresses blind exchanges where all files should be delivered in CMYK (and/or spot colors), with no RGB or device independent (color-managed) data.
- PDF/X-3 (ISO 15930-3:2002 and 15930-6) addresses blind exchanges where all files are based on device independent (color-managed) data.
- PDF/X-4 (ISO 15930-7:2007) is based on Adobe's PDF Reference 1.6, and supports print publishing workflows in which content is maintained at its highest level of abstraction until it is rendered. It supports full ICC color management (including support for tagged RGB and CMYK graphical content), "live" transparency, and versioning via PDF layers.
- PDF/X-5 (ISO 15930-8:2007) is based on PDF/X-4, adding support for external graphics via reference XObjects, as well as external n-colorant profiles for rendering intent.

Why is PDF/E based on the PDF Reference 1.6?

All standards take some time to develop, and the ISO, PDF-based standards are no exception, having spanned releases of the PDF Reference. When the PDF/E work was started, PDF Reference 1.5 was the current version. As the work progressed, PDF Reference 1.6 was released and it was decided to move to that version. The PDF Reference 1.7 was released after the primary development of the PDF/E specification was completed. Future versions of PDF/E will reference current versions of PDF.

What does PDF/E allow/disallow?

One of the key differences between PDF and PDF/E is the restrictions that PDF/E places on PDF.

PDF/E files must include:

- Embedded fonts
- Device-independent color
- XMP for metadata

PDF/E files may not include:

- External content references
- JavaScript not associated with 3D
- Dynamic (XFA based) forms

PDF/E files may include:

- JavaScript associated with 3D
- Embedded files
- Encryption
- Digital Rights
- Digital Signatures

- Transparency
- Layers

When should PDF/E be used?

PDF/E should be used as a way to standardize the use of PDF for electronic document creation and exchange in engineering workflows. This is important to ensure that a user has access to properly formed PDF which contains the kind of complex documentation (drawings, spreadsheets, schedules, mapping, product and project information, etc.) typical in engineering and mapping workflows.

What will PDF/E do for me?

1. Ensure a standard for the exchange of engineering documentation
2. Allow project, product, or mapping documentation to be securely and reliably distributed to a global audience
3. Provide assurances that this is an open standard, approved by an international standards organization, and ultimately deployed in multiple industries

Will there be revisions or new versions of PDF/E?

We understand that the requirements of the engineering community are ever changing. Work has already begun on PDF/E-2 that will allow new options or features. Our intent is to enhance PDF/E-1 (ISO 24517-1) and not replace it. Future revisions of PDF/E will be written in such a way that older PDF/E files will be compliant with newer revisions of the standard. Decisions about what goes into newer revisions are ultimately decided by the voting members of ISO.

Does PDF/E support digital signatures?

Yes, PDF/E allows the use of digital signatures, so it is possible to have a digitally signed PDF/E document. The full range of PDF's digital signature technology is available including timestamping and certified documents.

Does PDF/E support encryption?

Yes, PDF/E supports the PDF standard security as described in Adobe's PDF Reference 1.6.

Why does the PDF/E specification not include the PDF Reference 1.6?

It is an ISO practice to have standards documents reference existing documents. The PDF/E-1 document would become extremely large if the PDF Reference 1.6 was included as it also references other documents that would need to be included.

Frequently Asked Questions (FAQs)

ISO 24517-1:2005 (PDF/E-1)

Are there any Intellectual Property restrictions for using PDF/E?

No, please reference the ISO policies for Intellectual Property.

Who is involved in developing PDF/E?

National standards bodies were represented and included: Australia, China, France, Germany, Japan, Poland, Spain, Sweden, Switzerland, the United Kingdom, the Ukraine, and the United States.

The core PDF/E working group consists of representatives from the following organizations: Actify, Adobe, Agile, Army Corps of Engineers, Autodesk, Bentley Systems, Boeing, Callas Software, Caterpillar, Documentum, e3open, Fujitsu, GE (General Electric), Global Graphics, Halliburton/KBR, Hewlett Packard, Honeywell, Intel, NGA (National Geospatial–Intelligence Agency), Océ, Parkview International, PFS Corporation, PTC, Solidworks, TerraGo (formerly Layton Graphics), UGS PLM Solutions, Xerox.

AIIM (The Enterprise Content Management Association) and NPES (Association for Suppliers of Printing, Publishing and Converting Technologies) are secretariats to ISO for the PDF/E working group.

What If I Want To Archive Engineering Content?

PDF/E was not developed as an archiving format, however, given the restrictions of PDF/A-1, some organizations may wish to consider using PDF/E to retain information for longer periods of time. There is nothing to prevent using PDF/E and U3D for longer-term preservation, and both formats are open standards maintained by standards organizations (ISO and ECMA, respectively). U3D is the 3D format referenced by PDF/E-1, and the principles of PDF/A can be applied to PDF/E-1 compliant files.

However, long-term preservation of multimedia content is still an open question, as the long-term availability of multimedia players is not assured. As such, the format used for document preservation needs to be part of a comprehensive archiving strategy. While the PDF/A working group is currently defining requirements for future versions of the standard, there are no assurances if or when 3D or multimedia will be supported.

What is U3D?

The ECMA 363 standard, or Universal 3D (U3D) was developed by a working group for the sharing and visualization of 3D data in non-engineering applications. This standard format—an industry standard for 3D graphics—is designed to support the re-purposing of existing 3D CAD data for use in other applications. The standard was developed in close collaboration with Ecma International, an industry standards group, and the 3D Industry Forum (3DIF). In December

2004, Ecma International officially adopted U3D as an open international specification referred to as standard ECMA-363 Universal 3D File Format. The working group included end users of 3D data, as well as leading 3D graphics hardware and software developers.

Why does the standards development process take so long?

Developing a standard according to national standards bodies and ISO policies ensure that the process is an open and consensus driven process. Several participants with expertise in the area come together to contribute to development of the standard.
In order to ensure that there is ample opportunity for all interested parties to provide input and express opinions there is a very formal balloting process determined by the standards organization.

Where can I get more information on PDF/E?

There is a considerable amount of information about PDF/E listed on the AIIM website at http://www.aiim.org/pdf_e. There are copies of initial requirements, meeting minutes, meeting notes and presentation materials at this site. In addition both AIIM and NPES have posted the PDF 1.6 Reference and the XMP Specification to the following sites:
www.aiim.org/standards
www.npes.org/standards

How can I get involved?

You are encouraged to contact your national standards body for information on how to participate. If you have difficulty in contacting your standards body, please contact the TC171 secretariat at AIIM at bfanning@aiim.org.