Introducing the PDF/A-3 Standard

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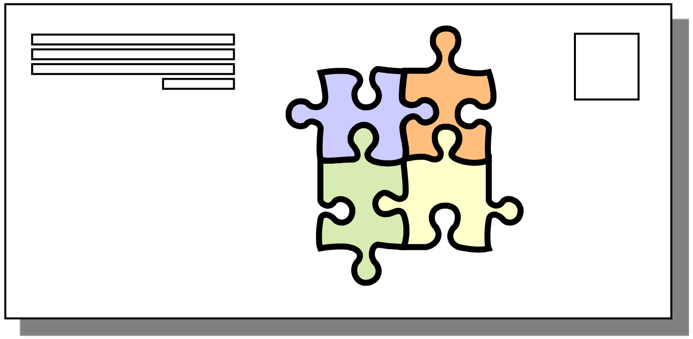
PDF/A: The Basics

- What is a **PDF** file?
  - A file format created by Adobe
  - It is a *wrapper*
    - NOT just "electronic paper"
  - It can store many different objects



- Raster Images (Pictures and Scans)
  - JPEG
  - TIF
  - FaxGroup 4
  - JBIG2
  - Colour Profiles
- Text and Fonts
- Vector Graphics
- Metadata
  - URL Links
  - Descriptive Information
  - Hidden Text
- 3D Objects
- Transparencies
- Field Objects
- Attachments
  - MS Office Files
  - Videos
- Java Script
- Digital Signatures
- Encryption Mechanisms

PDF/A: The Basics

- **What is a PDF/A file?**
  - **The ISO standard for Document Management**
  - **A document file format for long-term preservation (see later)**
    - Secures future ability to read the file
    - Preserves original formatting
- **Why do we need PDF/A?**
  - **Valuable information is being created in PDF form**
  - **There are issues with non-standardised PDF files**
    - Adherence to the PDF syntax varies
    - The Adobe Reader is NOT a PDF Validator
    - Dynamic, interactive PDFs can be created

PDF/A: The Basics

- PDF/A is:
  - Device/ Software/ Versions-independent, i.e. the content is displayed consistently
  - Self Contained: A PDF/A-compatible file contains all the components needed to display it
  - An evolving standard: additional PDF features are continually being added to the PDF/A standard definition
- PDF/A is NOT:
  - "Read Only": this is a common misunderstanding
  - A static definition: as new PDF options evolve, they are incorporated into the standard

PDF/A: The Basics

The ISO Standard family:

- “PDF/A-1” – released in 2005, ISO 19005-1
  - Based on PDF 1.4
- “PDF/A-2“ – released in 2011, ISO 19005-2
  - Based on PDF ISO 32000
  - Allows compression, transparency, Open Type font embedding, digital signatures, Unicode
- “PDF/A-3“ – released 2012, ISO 19005-3
  - Based on PDF ISO 32000
  - Allows embedded files

PDF/A: The Basics

PDF/A is currently the best option for long-term archiving

> **Definition of "long term":**
>
> ***"The period of time long enough for there to be concern about the impacts of changing technologies, including support for new media and data formats, and of a changing user community, on the information being held in a repository, which may extend into the indefinite future."***

Goals of PDF/A

- To maintain a static visual representation of documents
- To provide consistent handing of Metadata
- To guarantee future access by remaining transparent
- To limit number of restrictions imposed in return

PDF/A: The Basics

Prohibited content for a PDF/A file:

- Active/Variable content (e.g. JavaScript)
- ~~External content and embedded files~~
- Encryption

In Summary:

- No component of a PDF/A file may jeopardise the consistent format of the document
- The presentation of the document must not rely on external dependencies

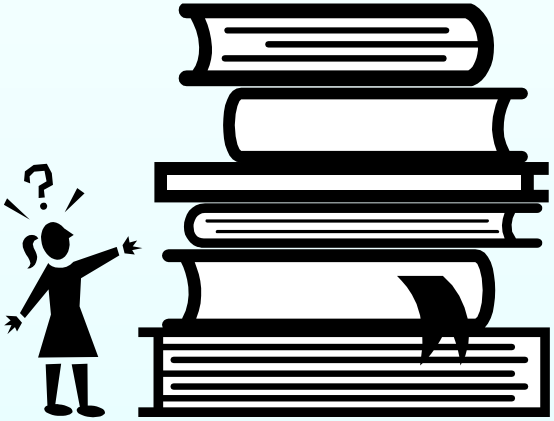
Limitations of Alternative File Formats

- TIFF, TIFF G4, JPEG (typically scanned images)
  - Cannot include hidden text and standardised metadata
  - May be of bad image quality (e.g. highly compressed JPEG)
  - Sub-optimal compression algorithms
  - No unified file format possible

- Digital Documents (MS Office, CAD, XML, PDF)
  - No unified file format, and multiple versions (Office 95, 97, 2003, 2007, 2010)
  - "Ordinary" PDFs carry risks of inconsistency
  - Formats can easy change (e.g. switch to OpenOffice)
  - Proprietary software vendors may make irreversible changes

Is PDF/A-3 a contradiction?

Native formats should be converted to PDF/A



Now native formats are embedded in PDF/A-3

Distinguish between archive and non-archive

Goals achieved by embedding files in PDF/A-3

- ✓ Save archive ready rendition with source format
- ✓ Save archive ready rendition with machine readable data
- ✓ Save meta data that is inseparable from archive material

Avoid saving archive material as an attachment

Attachments in PDF/A-3

- Embedded files have a relationship to PDF objects
  - Attachment is ***Data***, ***Source***, ***Alternative*** to/of an object (will be further defined in ISO 32000-2)
- Embedded files are “Associated Files” for:
  - A page, pages or the whole PDF/A document
  - Specific content, e.g. a diagram or text paragraph

For example:

- ➢**data.xls is *Data* for a specific diagram**
- ➢**metadata.csv is *Data* for a number of pages**
- ➢**text.doc is the *Source* of the PDF/A-3 file**
- ➢**audio.m4a is an *Alternative* for text content**

PDF/A-3 Practical Limitations

- PDF/A-3 allows for embedding of files of any type
- In practice, there are some limitations
  - **Adobe Reader prevents viewing and/or saving of embedded dangerous files**
    - e.g. .exe, .bat, .cmd, .zip, .gz, .pst, .url
    - Only a registry hack can circumvent that, thus not a practical solution
  - **User: black/white listing**
    - Additional formats to be configured by user
    - Acrobat only opens .pdf by default “without comment”

PDF/A-3 Application: Scanned Documents

- Metadata is often the most important component
  - Metadata is usable without images
  - Images without metadata are often not usable
- PDF/A-3 offers a complete solution
  - Documents are readable for the long term
  - Compresses to very small (colour) documents
  - OCR enables searchable documents
  - Metadata attachments mean documents are in context
- Always check and decide whether to use XMP, XMP Extension Schemas or native format for meta data

PDF/A-3 Application: Born Digital Files

- **Hybrid Archiving**
  - **For a document still in its life cycle, further versions might be created**
  - **Answers the question of when to create an archive ready rendition (PDF/A)**
- **Using PDF/A-3**
  - **Still open to change native format as attachment embedded into archive ready PDF/A rendition**
- **Scope of use**
  - **PDF/A is a long term archiving format**
    - Works for many years and decades
  - **Attachments may have a limited lifetime**
    - Maybe a couple of years
    - Dependent on external software application

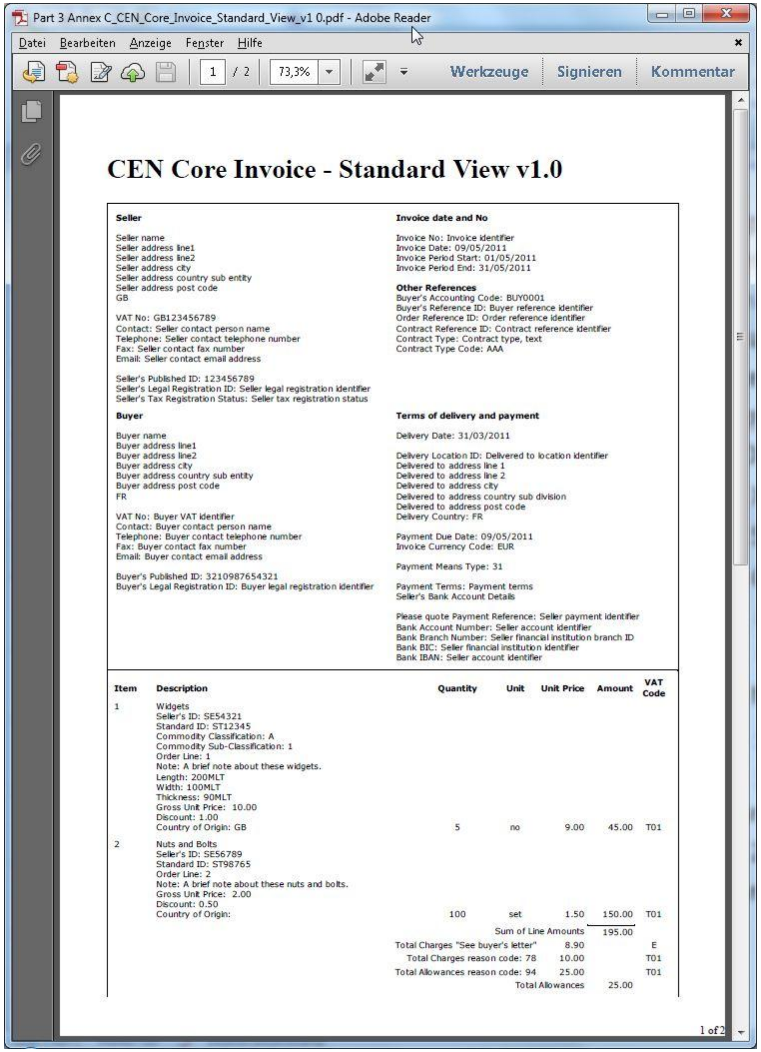
PDF/A-3 Application: Document Communication

- **Electronic invoice exchange format**
  - **Goal: no capture needed on receiving side**
    - Also for users, without EDI systems
  - **German initiative of Ministry of Economics, associations, stakeholders**
  - **German DIN standard under construction, thereafter:**
    - PDF/A-3 is the electronic invoice, XML based invoice data embedded
    - XML: Core Invoice Data Model MUG (CEN EU specification)
      - Subset of UN/CEFACT Cross Industry Invoice (CII)
      - CWA 16356-1 to -3 describes the data model (very technical)
  - **Outlook: get it to the EU level and international standards**

PDF/A-3 Application: Document Communication

PDF/A file is the invoice.
XML data is embedded files with Data relationship

- **Invoice can be CI-invoice**
- **Alternatively rendering XML using CEN Core Invoice Standard View**



CEN Core Invoice - Standard View v1.0

Seller

Seller name
Seller address line1
Seller address line2
Seller address city
Seller address country sub entity
Seller address post code
GB

VAT No: GB123456789
Contact: Seller contact person name
Telephone: Seller contact telephone number
Fax: Seller contact fax number
Email: Seller contact email address

Seller's Published ID: 123456789
Seller's Legal Registration ID: Seller legal registration identifier
Seller's Tax Registration Status: Seller tax registration status

Buyer

Buyer name
Buyer address line1
Buyer address line2
Buyer address city
Buyer address country sub entity
Buyer address post code
FR

VAT No: Buyer VAT identifier
Contact: Buyer contact person name
Telephone: Buyer contact telephone number
Fax: Buyer contact fax number
Email: Buyer contact email address

Buyer's Published ID: 3210987654321
Buyer's Legal Registration ID: Buyer legal registration identifier

Invoice date and No

Invoice No: Invoice identifier
Invoice Date: 09/05/2011
Invoice Period Start: 01/05/2011
Invoice Period End: 31/05/2011

Other References
Buyer's Accounting Code: BUY0001
Buyer's Reference ID: Buyer reference identifier
Order Reference ID: Order reference identifier
Contract Reference ID: Contract reference identifier
Contract Type: Contract type, text
Contract Type Code: AAA

Terms of delivery and payment

Delivery Date: 31/03/2011

Delivery Location ID: Delivered to location identifier
Delivered to address line 1
Delivered to address line 2
Delivered to address city
Delivered to address country sub division
Delivered to address post code
Delivery Country: FR

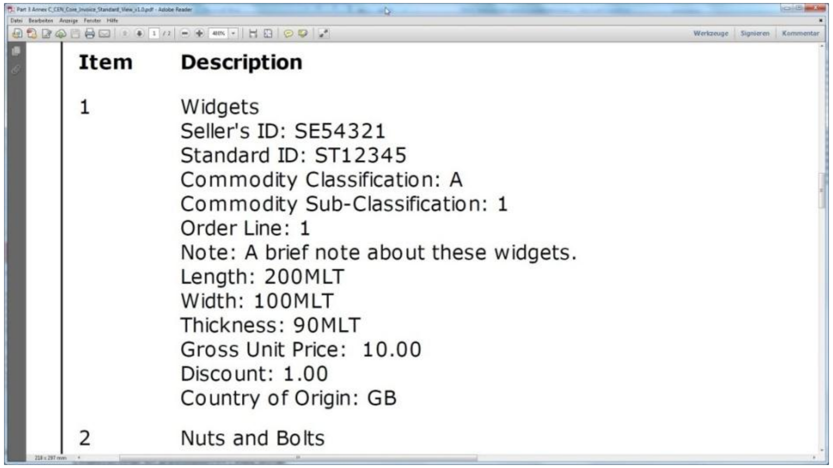
Payment Due Date: 09/05/2011
Invoice Currency Code: EUR

Payment Means Type: 31

Payment Terms: Payment terms
Seller's Bank Account Details

Please quote Payment Reference: Seller payment identifier
Bank Account Number: Seller account identifier
Bank Branch Number: Seller financial institution branch ID
Bank BIC: Seller financial institution identifier
Bank IBAN: Seller account identifier

Item	Description	Quantity	Unit	Unit Price	Amount	VAT Code
1	Widgets Seller's ID: SE54321 Standard ID: ST12345 Commodity Classification: A Commodity Sub-Classification: 1 Order Line: 1 Note: A brief note about these widgets. Length: 200MLT Width: 100MLT Thickness: 90MLT Gross Unit Price: 10.00 Discount: 1.00 Country of Origin: GB	5	no	9.00	45.00	T01
2	Nuts and Bolts Seller's ID: SE56789 Standard ID: ST98765 Order Line: 2 Note: A brief note about these nuts and bolts. Gross Unit Price: 2.00 Discount: 0.50 Country of Origin:	100	set	1.50	150.00	T01
				Sum of Line Amounts	195.00	
		Total Charges "See buyer's letter"		8.90		E
		Total Charges reason code: 78		10.00		T01
		Total Allowances reason code: 94		25.00		T01
				Total Allowances	25.00	


Part 3 Annex C_CEN_Core_Invoice_Standard_View_v1.0.pdf - Adobe Reader
Datei
Bearbeiten
Anzeige
Fenster
Hilfe
Werkzeuge
Signieren
Kommentar

Item	Description
1	Widgets Seller's ID: SE54321 Standard ID: ST12345 Commodity Classification: A Commodity Sub-Classification: 1 Order Line: 1 Note: A brief note about these widgets. Length: 200MLT Width: 100MLT Thickness: 90MLT Gross Unit Price: 10.00 Discount: 1.00 Country of Origin: GB
2	Nuts and Bolts

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