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New standards on the horizon: PDF 2.0 and PDF/X-6

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Topics

- PDF 2.0
- PDF 2.0 in pdfToolbox 9.4
- PDF/X-6

PDF 2.0 - ISO 32000-2

- Developed in almost 10 years
- Almost 1000 pages
- First instance of PDF as a true ISO document
  - ISO 32000-1 was more or less identical to PDF 1.7
  - Democratic ISO processes
  - Adobe was involved as one of many contributors
- First instance of a PDF specification that is not free, e.g. ISO charges 198 CHF
  - Selling standards finances the administrative ISO organization (experts are unpaid)
  - The price the community has to pay for owning the standard?

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Summary: PDF 2.0 - ISO 32000-2

- No revolutions, no completely new USPs or features
- Many chapters have been completely rewritten, many clarifications and more clear regulations
- Some deprecations
- ISO has started work on PDF 2.0 based standards:

  PDF/X PDF/E

  PDF/A PDF/UA

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PDF 2.0 will not break most PDF 1.x workflows

- All new features in PDF 2.0 are optional
- PDF has always been open for extensions and private data, PDF 1.x tools will usually ignore PDF 2.0 features
- The most dangerous new “feature” is the version entry in the PDF header: %PDF-2.0
  - Simple test with examples e.g. from PDF Association: https://www.pdfa.org/pdf-2-0-examples-now-available/
- PDF 2.0 will create problems when new features are expected to be used in workflows…

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Print developments having an impact on PDF 2.0

- Automation and industrialization
  - Smaller print runs, individualization, price pressure
- Color Management for spot colors
  - on an increasing number of different substrates
  - used as process color (e.g. the German “Post-Gelb” used as Yellow ink)

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DPart Metadata for PDF pages

- **Document Parts**
  (Source: PDF/VT - Variable and Transactional Printing)
- **Examples**
  - **Associating PDF pages with ZIP code areas allows for sorted print output of high volume PDFs (e.g. invoices)**
  - **Marking PDF pages for different print processes, e.g. a 4c cover with b/w inner part pages (important also for digital print click fees)**
- **Organized as a tree structure in PDF,**
  easier to manage pages and page ranges
- **PDF 2.0 does, however, only define syntax, no semantics**
  (neither standard fields nor standard values)
  No real interoperability possible…

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ISO is working on "Common document metadata"

- ISO 21812-1 will define standardized metadata fields intended to be used in PDF in DPart structures
- Names and semantics are based on work of
  - CIP4 (XJDF)
  - Ghent Workgroup
  - PDF/VT Competence Center of the PDF Association
- Working Draft - Published not before 2019

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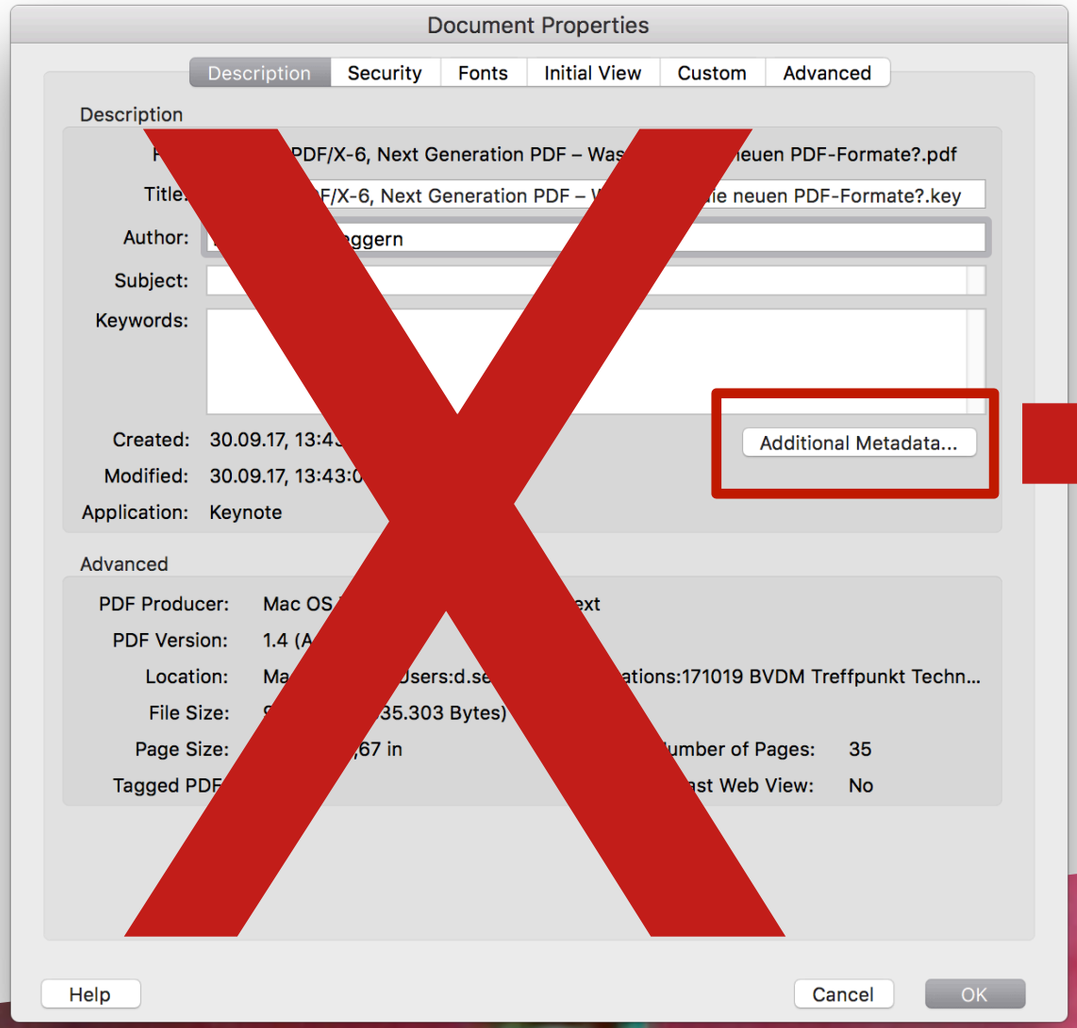
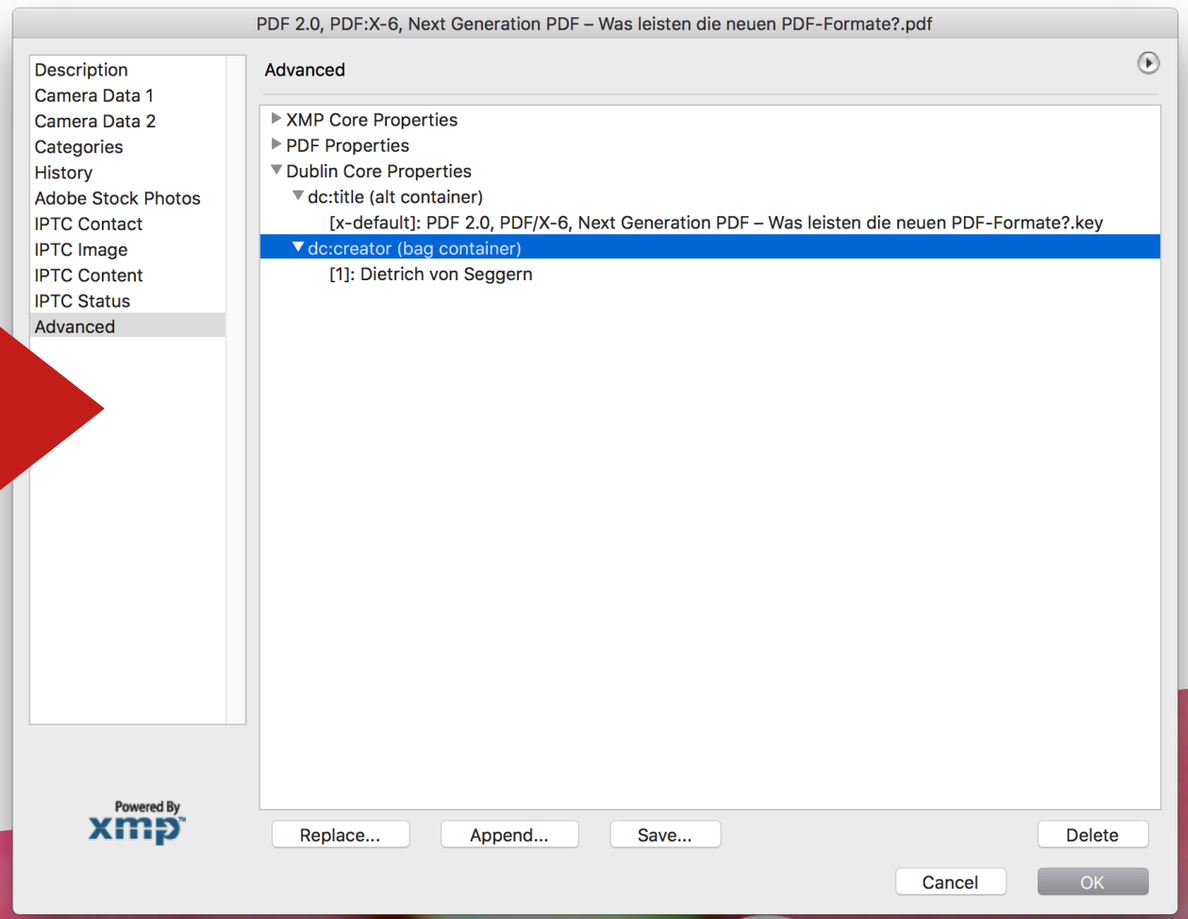
Document Information Dictionary

- Deprecated
- The one format and place for metadata is XMP





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Page based Output Intents

- What are Output Intents?
  - Intended color space for printing (via an ICC Profile)
  - Default color space for objects created during transparency flattening
- PDF 2.0 allows for having different Output Intent profiles for PDF pages
  - Example: 4c cover with b/w inner part pages
  - Page based Output Intents overwrite Output Intents on document level

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Black Point Compensation

- Takes max black into account for ICC based color conversion (standardized in ISO 18619)
- Usually better results and as of today usually active
- If not appropriate for certain objects there was so far no way to embed that information into PDF (similar to a source ICC profile)
- This has been changed by PDF 2.0

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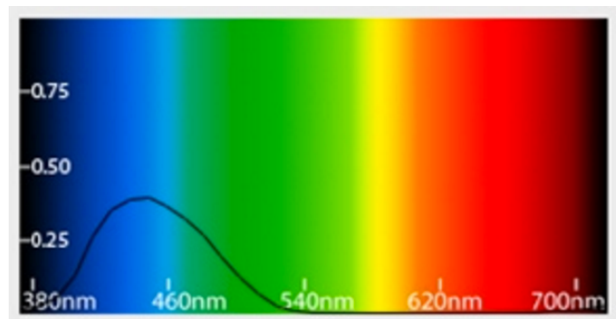
CxF and Mixing Hints (in Output Intent Dictionaries)

- **Mixing Hints: Hints to mix spot colors, in PDF 1.x only in NChannel colors**
- **CxF (ISO 17972-4): Spectral data for spot colors (XML)**
  - **On blank substrate**
  - **Optional on black preprinted substrate**
  - **No standard for application of measurements, proprietary solutions**



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Screening

- New entries for
  - Arbitrary spot functions
  - Origin of halftone screen

- Similar to entries defined in PDF 1.0, now open and better interoperable

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Requirements array

- Optional document level array may define features used by the PDF
- Already defined in PDF 1.7 only for “Enable JavaScripts”
- In PDF 2.0 a total of 25 possible entries (e.g. Rich Media, Attachment, …)

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Preparations to when PDF 2.0 features become relevant

1. **Now: Ask vendors of tools about their plans to support PDF 2.0**
2. **Test existing workflow with `PDF 2.0 Examples pdfa.org´**

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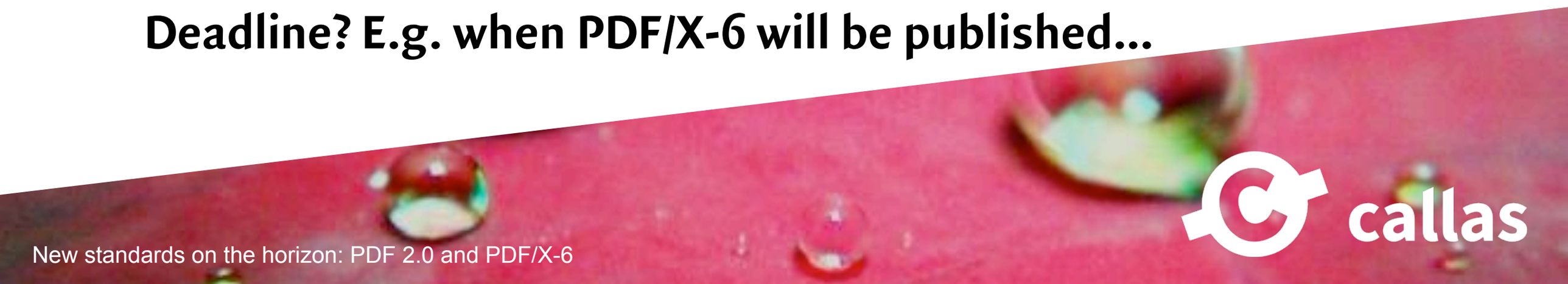
3. **Preflight incoming PDFs for 2.0 features**
4. **Convert: Plan conversion of PDF 2.0 features to PDF 1.7 where possible (e.g. extract DPart Metadata)**
5. **Adjust workflows: Usually starting at the end (DFE, Rip), to avoid using PDF 2.0 features when subsequent workflow steps are not prepared**

Deadline? E.g. when PDF/X-6 will be published…



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Topics

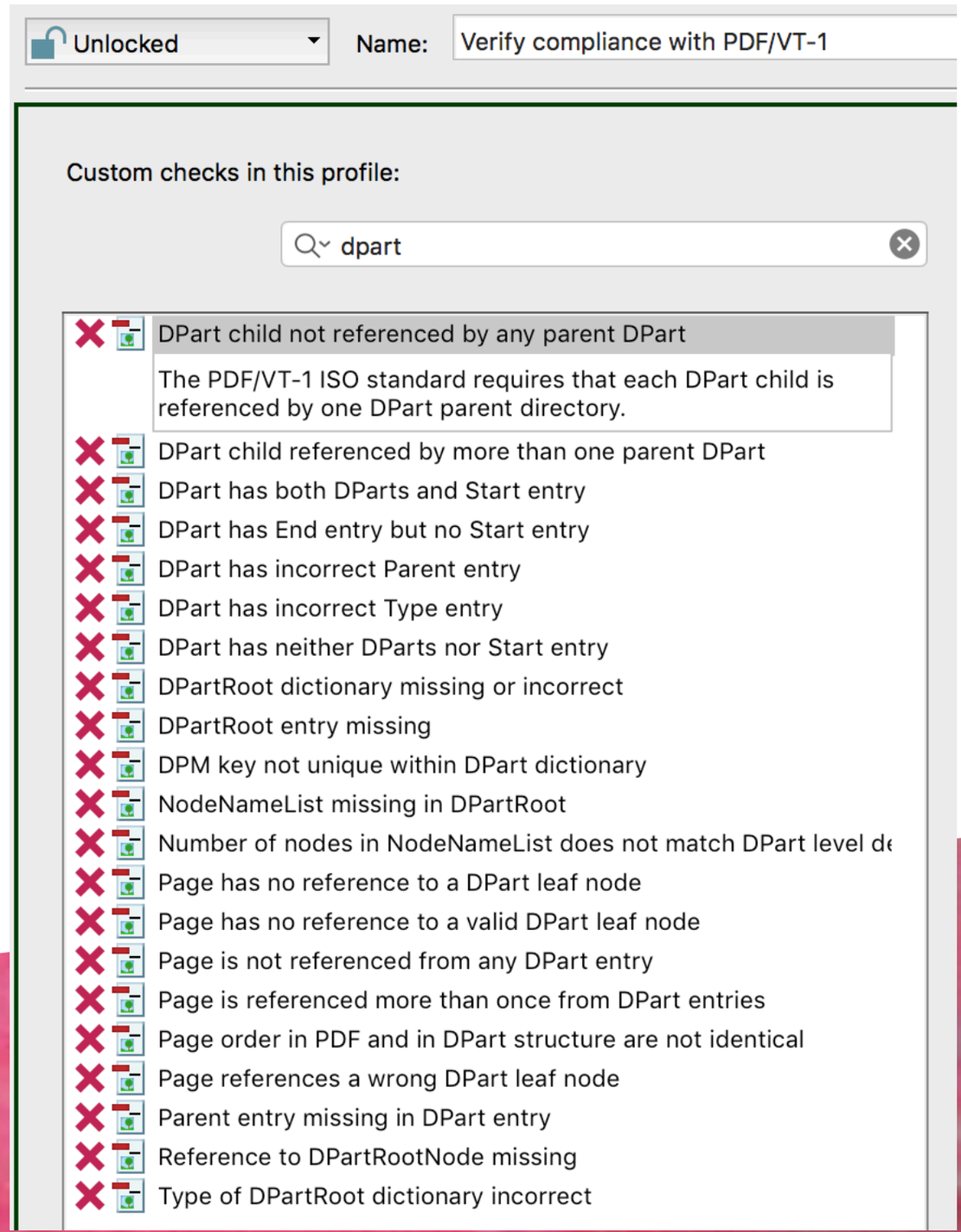
- PDF 2.0
- PDF 2.0 in pdfToolbox 9.4
- PDF/X-6

pdfToolbox 9.4:
“Uses PDF 2.0 features”

- Profile can be downloaded from help.callassoftware.com/hilfe.callassoftware.com
- Covers all relevant PDF 2.0 features
  - DPart metadata
  - Page based Output Intents
  - Blackpoint Compensation
  - CxF
  - Mixing Hints
  - Halftone configuration
  - Requirements array

Profiles, Checks and Fixups for DPart metadata

- Several properties (in the PDF/VT group)
- pdfToolbox can check for the validity of DPart metadata tree structures
- The PDF/VT validation Profile can be used to do so



Checks and Fixups for page based Output Intents

- **“Has page level Output Intent”**
- **“Embed Output Intent on page level”**
  - **Usually combined with a filter to identify pages**
  - **Uses an Output Intent created with pdfToolbox**
- **“Embed Output Intent with specified parameters on page level”**
  - **Uses an ICC Profile and specified values**
- **“Remove page level Output Intents”**

- **Result view and footer info in Desktop list page level Output Intents**

Checks and Fixups for Black Point Compensation entry

- “Has Black Point Compensation entry”
- “Value of Black Point Compensation entry”
  - Value can be Default, On or Off
  - If Default the result is application dependent
- “Remove all Black Point Compensation entries”
- “Set Black Point Compensation” -
  usually combined with a filter

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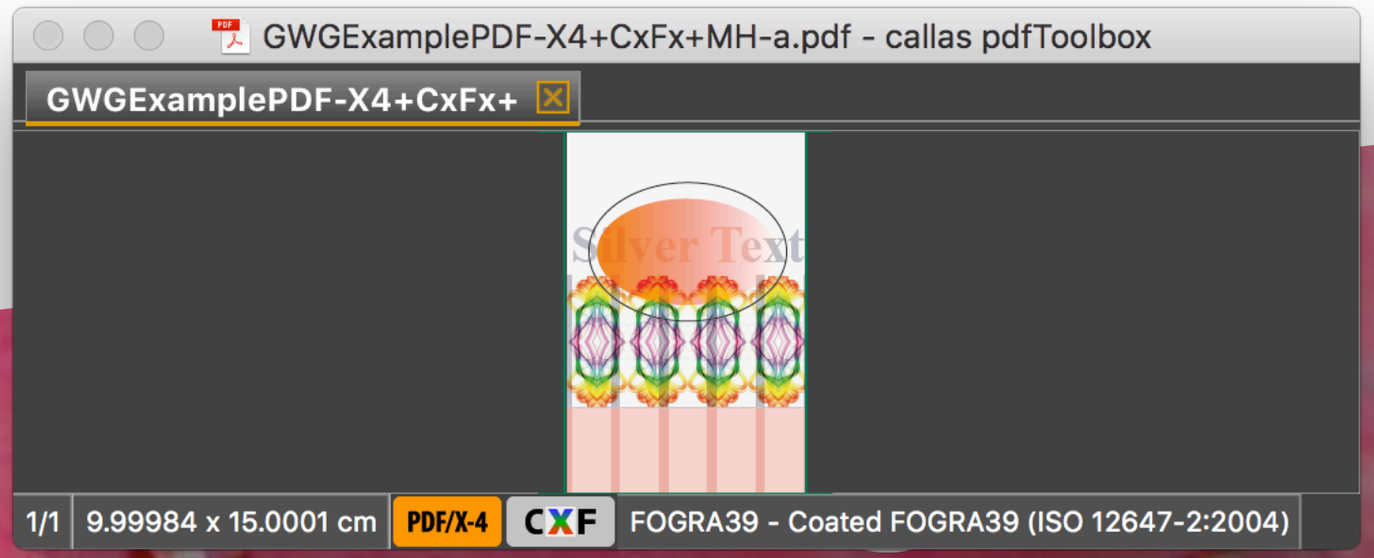
Checks and Fixups for CxF entries in Output Intent (since V9)

- “Number of CxF entries”
- “CxF conformance level is CxF/X-4, CxF/X-4a, CxF/X-4b”
- “CxF entry conforms to CxF/X-4 XML schema”
- “CxF entry present for this colorant name”
- “Number of spot colorants without CxF entry”
- “Delete CxF data” - Removes all CxF entries from PDF/X Output Intents
- CxF info displayed via info button in Desktop



Checks and Fixups for Mixing Hints entries in Output Intent

- **“Output Intent has Mixing Hints entry”**
  - **In Output Intent for PDF/X, PDF/A, PDF/E**
- **“Spot color is present in CxF and in MixingHints/ Solidities”**
  - **Not permitted in CxF/X-4 (ISO 17972-4)**

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Checks and Fixups for Halftone configuration

- **“Has halftone origin entry (HTO)”**
- **“Has halftone”**
- **Several other checks in group “Halftone”**

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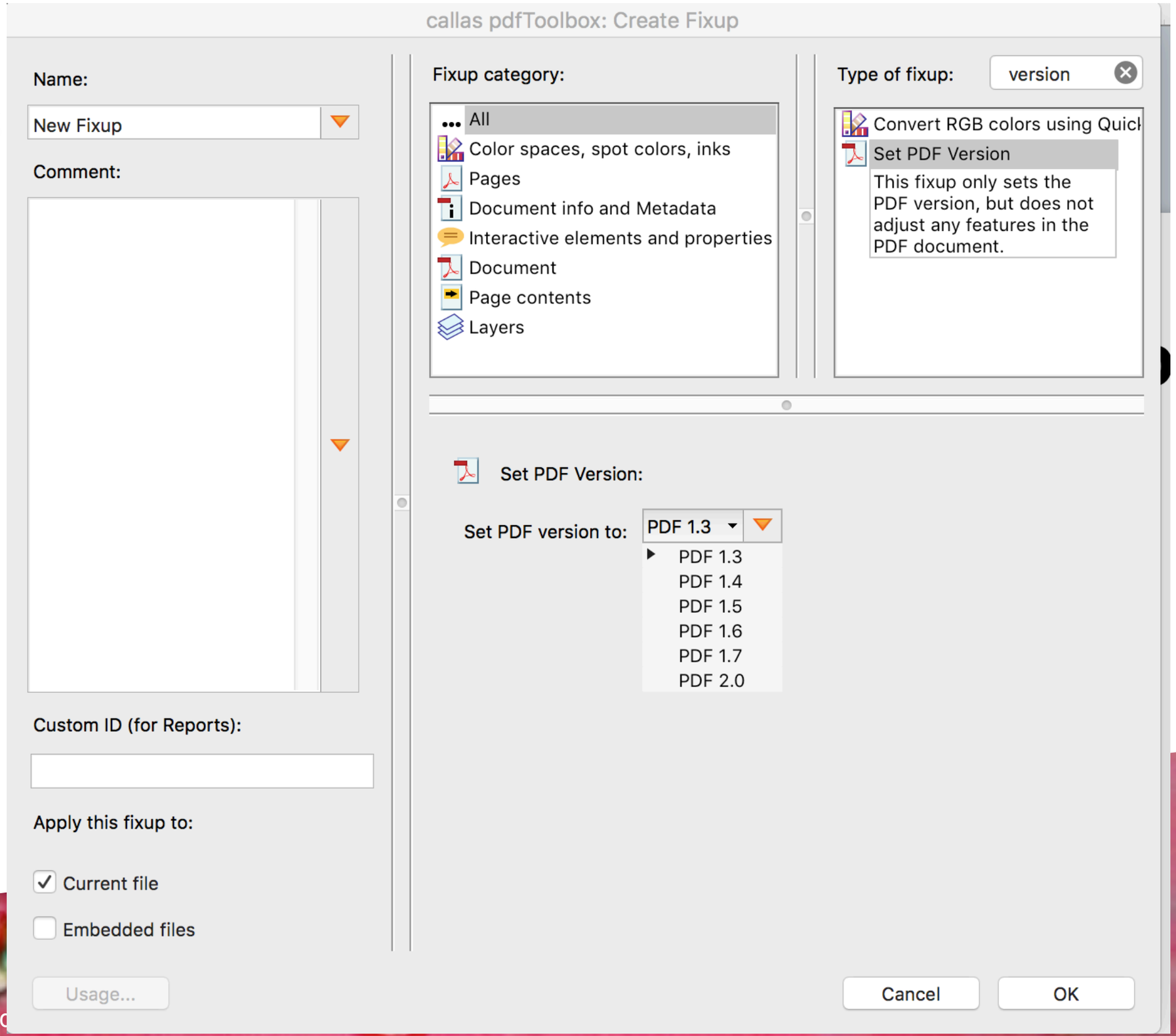
Requirements array

- “Requirements key is present”
- “Requirements array in Catalog requires PDF 2.0”

Fixup “Set PDF version”

- Now supports “PDF 2.0”



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- PDF 2.0
- PDF 2.0 in pdfToolbox 9.4
- PDF/X-6

PDF/X-6, ISO15930-9 Features

- Inherited from PDF 2.0
  - DPart metadata
  - Page based Output Intents
  - Blackpoint Compensation
  - CxF, Mixing Hints
  - Halftone configuration
- PDF comments are allowed inside print area, when an appearance is defined that follows PDF/X-6 rules

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PDF/X-6 - Current state

- "Working Draft"
  - Publication expected for first half of 2019
- Structure
  - PDF/X-6 – Complete exchange (usually CMYK)
  - PDF/X-6p – Referenced Output Intents (Successor of PDF/X-4p)
  - PDF/X-6n – N-channel color spaces (e.g. CMYKOGV) (Successor of PDF/X-5n)

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Summary

- PDF 2.0 : 2017
  - New features address trends like automation or advanced color management for spot colors
  - pdfToolbox 9.4 support checking, removing, converting and adding of PDF 2.0 features
- PDF/X-6 : 2019?
  - PDF 2.0 features will have to be mastered

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Thats all about PDF 2.0, Thanks.

New standards on the horizon: PDF 2.0 and PDF/X-6

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