TechNote 0008: Predefined XMP Properties in PDF/A-1

This TechNote lists all XMP schemas and properties which are allowed in PDF/A-1. Most importantly, it covers the predefined XMP schemas for use in PDF/A-1. In addition to providing a convenient summary, it also contains notes and recommendations regarding the use of these properties in PDF/A-1. This TechNote also covers the PDF/A-1 requirements regarding synchronization of document info entries and XMP properties.

For the purpose of this TechNote, the term "predefined XMP property" designates the set of all properties in the predefined XMP schemas for PDF/A-1, i.e. those from the XMP specification 2004 [4]. This version of the XMP specification differs significantly from earlier and later revisions.

For the sake of completeness, schemas and properties internally defined by PDF/A-1 are also listed in this TechNote. These are relevant for PDF/A identification and for describing custom XMP schemas. These are known as extension schemas, and are covered in more detail in TechNote 0009 [6].

Property names are listed with their preferred namespace prefix. However, for predefined XMP schemas these prefixes are only preferred, but not required. Note that the prefixes for the PDF/A identification schema and extension schema container schemas are required, though.

Some schemas and properties outside the set of predefined schemas and properties are listed as "false friends", and must not be used in PDF/A-1. They are listed here in order to caution users and developers because they are sometimes incorrectly regarded as predefined properties. There are even a few inappropriate references to such properties within the PDF/A-1 standard.

Predefined properties are important for users who want to include metadata in PDF/A. The list of predefined properties must be consulted in order to make the following decision:

- If an existing predefined property matches the user's metadata requirements, XMP for PDF/A-1 can be constructed using predefined properties.

- The need for an extension schema may arise where industry- or customer-specific metadata needs are not or not well covered by the predefined schemas. In this case one or more XMP extension schemas must be constructed for PDF/A-1. Details of this process are discussed in TechNote 0009 [6].

1 Summary of Schemas in PDF/A-1

By default, only the schemas listed in this section can be used in PDF/A-1. All other schemas must be defined as extension schema; see TechNote 0009 [6] for details. In order to add new properties to one of the predefined schemas you must also create an extension schema.

1.1 PDF/A Identification Schema

The only mandatory XMP entries are those which indicate that the file is a PDF/A-1 document and its conformance level. The table below lists all properties in the PDF/A identification schema. The namespace URI is incorrectly described in ISO 19005-1 [1], and corrected in [2]. Unlike predefined XMP schemas, the namespace prefix is not only preferred, but required.

Schema namespace URI: http://www.aiim.org/pdfa/ns/id/
Required schema namespace prefix: pdfaid

property name	value type	PDF/A-1 description	PDF/A-1 notes
pdfaid:amd	Open Choice of Text	Optional PDF/A amendment identifier	At this time there are no amendments.
pdfaid:conformance	Closed Choice of Text	PDF/A conformance level: A or B	Required
pdfaid:part	Open Choice of Integer	PDF/A version identifier	Required, always 1.

1.2 Predefined XMP Schemas for use in PDF/A-1

The table below summarizes the names, namespace URIs and preferred namespace prefixes for all predefined XMP schemas as defined in XMP 2004 [4]. These schemas are the basis for the predefined properties discussed in chapter 2, "Properties in predefined XMP Schemas" (page 5).

schema name and description	namespace URI	preferred namespace prefix
Adobe PDF schema	http://ns.adobe.com/pdf/1.3/	pdf
Dublin Core schema	http://purl.org/dc/elements/1.1/	dc
EXIF schema for EXIF-specific properties	http://ns.adobe.com/exif/1.0/	exif
EXIF schema for TIFF properties	http://ns.adobe.com/tiff/1.0/	tiff

schema name and description	namespace URI	preferred namespace prefix
Photoshop schema	http://ns.adobe.com/photoshop/1.0/	photoshop
XMP Basic Job Ticket schema	http://ns.adobe.com/xap/1.0/bj	xmpBJ
XMP Basic schema	http://ns.adobe.com/xap/1.0/	xmp
XMP Media Management schema	http://ns.adobe.com/xap/1.0/mm/	xmpMM
XMP Paged-Text schema	http://ns.adobe.com/xap/1.0/t/pg/	xmpTPg
XMP Rights Management schema	http://ns.adobe.com/xap/1.0/rights/	xmpRights

1.3 Auxiliary XMP Schemas for use in PDF/A-1

The table below summarizes the names, namespace URIs and preferred namespace prefixes for auxiliary schemas in XMP 2004. These schemas are used in the property value types of the predefined properties, and are therefore part of XMP 2004.

These schemas are detailed in chapter 3, "Auxiliary Schemas" (page 21).

schema name and description	namespace URI	preferred namespace prefix
Field Schema for the "Dimensions" Value Type	http://ns.adobe.com/xap/1.0/sType/Dimensions#[1]	stDim
Field Schema for the "Thumbnail" Value Type	http://ns.adobe.com/xap/1.0/g/img/	xapGImg
Field Schema for the "ResourceEvent" Value Type	http://ns.adobe.com/xap/1.0/sType/ResourceEvent#	stEvt
Field Schema for the "ResourceRef" Value Type	http://ns.adobe.com/xap/1.0/sType/ResourceRef#	stRef
Field Schema for the "Version" Value Type	http://ns.adobe.com/xap/1.0/sType/Version#	stVer
Field Schema for the "Job" Value Type	http://ns.adobe.com/xap/1.0/sType/Job#	stJob
Qualifier Schema for the "xmp:Identifier" Property	http://ns.adobe.com/xmp/Identifier/qual/1.0/	xmpidq

1. This namespace URI is incorrectly spelled in XMP 2004, and corrected in XMP 2005.

1.4 PDF/A-1 Extension Schema Container Schemas

The table below summarizes the schemas which are used to construct a schema description which is required whenever an extension schema, i.e. a schema outside the set of predefined XMP schemas, is used in PDF/A-1. They are collectively called "PDF/A-1 extension schema container schema". Unlike predefined

XMP schemas, the namespace prefixes are not only preferred, but required. XMP extension schemas for PDF/A-1 are detailed in TechNote 0009 [6].

schema name and description	namespace URI	required namespace prefix
PDF/A extension schema container schema[1]	http://www.aiim.org/pdfa/ns/extension/	pdfaExtension
PDF/A field type schema	http://www.aiim.org/pdfa/ns/field#[2]	pdfaField
PDF/A property value type	http://www.aiim.org/pdfa/ns/property#[2]	pdfaProperty
PDF/A schema value type	http://www.aiim.org/pdfa/ns/schema#	pdfaSchema
PDF/A ValueType value type	http://www.aiim.org/pdfa/ns/type#[2]	pdfaType

1. The description of this schema is missing in ISO 19005-1, and has been added in [2].

2. This namespace URI is incorrectly described in ISO 19005-1, and has been corrected in [2].

1.5 False Friends: Schemas not allowed in PDF/A-1

The schemas listed in the table below must not be used in PDF/A-1 because they are not included in the XMP 2004 Specification. They are mentioned here because they are in common use, or because they are included in some later version of the XMP specification.

schema name and description	namespace URI	preferred namespace prefix
Camera Raw Schema[1]	http://ns.adobe.com/camera-rawsettings/1.0/	crs
EXIF Schema for Additional EXIF Properties[1]	http://ns.adobe.com/exif/1.0/aux/	aux
IPTC Core[2]	http://iptc.org/std/Iptc4xmpCore/1.0/xmlns/	Iptc4xmpCore
PDF/E Identification extension schema	http://www.aiim.org/pdfe/ns/id/	pdfe
PDF Extension schema	http://ns.adobe.com/pdfx/1.3/	pdfx
PDF/X Identification extension schema	http://www.npes.org/pdfx/ns/id/	pdfxid
XMP Dynamic Media Schema[1]	http://ns.adobe.com/xmp/1.0/DynamicMedia/	xmpDM
XMP Support Schema[3]	http://ns.adobe.com/xap/1.0/s/	xapS

1. This schema has been introduced in the XMP 2005 specfication.

2. See www.iptc.org/IPTC4XMP/

3. This schema was defined in the XMP 2001 specfication, but has been discontinued.

2 Properties in predefined XMP Schemas

Note **The XMP 2001 specification defined aliases between properties in different schemas. This aliasing mechanism is no longer supported in the XMP 2004 specification [4] which is relevant for PDF/A-1. For example, the XMP 2001 specification established an alias between xmp:Title and dc:title. PDF/A-1 erroneously states that xmp:Title should be used for font metadata. This traces back to the unsupported aliasing, and is wrong. In PDF/A-1 dc:Title must be used instead.**

2.1 Dublin Core Schema

Schema namespace URI: `http://purl.org/dc/elements/1.1/`
Preferred schema namespace prefix: `dc`

See [7] and [8] for more information on the Dublin Core Metadata Initiative (DMCI) and details on DCMI Metadata Terms.

Predefined Properties allowed in PDF/A-1

property name	value type	XMP description and notes	PDF/A-1 notes
dc:contributor	bag Proper-Name	Contributors to the resource (other than the authors).	
dc:coverage	Text	The extent or scope of the resource.	
dc:creator	seq ProperName[1]	The authors of the resource (listed in order of precedence, if significant).	Must be synchronized with the **Author** document info entry. Although specified as a seq type, it must contain exactly one entry in PDF/A-1.
dc:date	seq Date	Date(s) that something interesting happened to the resource.	
dc:description	Lang Alt[1]	A textual description of the content of the resource. Multiple values may be present for different languages.	The x-default alternative must be synchronized with the **Subject** document info entry. ISO 19005-1 incorrectly maps **Subject** to dc:subject; this has been corrected in [2].
dc:format	MIMEType	The file format used when saving the resource. Tools and applications should set this property to the save format of the data. It may include appropriate qualifiers.	The MIME type for PDF is application/pdf.
dc:identifier	Text	Unique identifier of the resource.	

property name	value type	XMP description and notes	PDF/A-1 notes
dc:language	bag Locale	An unordered array specifying the languages used in the resource.	
dc:publisher	bag ProperName	Publishers.	
dc:relation	bag Text	Relationships to other documents.	
dc:rights	Lang Alt	Informal rights statement, selected by language.	Should be used for font metadata. xmpRights:Copyright was specified as an alias for this property in earlier versions of the XMP specification.
dc:source	Text	Unique identifier of the work from which this resource was derived.	
dc:subject	bag Text	An unordered array of descriptive phrases or keywords that specify the topic of the content of the resource.	see dc:description
dc:title	Lang Alt[1]	The title of the document, or the name given to the resource. Typically, it will be a name by which the resource is formally known.	The x-default alternative must be synchronized with the **Title** document info entry. Should be used for font metadata. xmp:Title was specified as an alias for this property in earlier versions of the XMP specification.
dc:type	bag open Choice	A document type; for example, novel, poem, or working paper.	

1. This value type is incorrectly described in ISO 19005-1, and has been corrected in [2].

2.2 XMP Basic Schema

Schema namespace URI: `http://ns.adobe.com/xap/1.0/`
Preferred schema namespace prefix: `xmp`
The preferred namespace prefix was `xap` in earlier versions of the XMP specification. Several applications still use `xap` for compatibility reasons.

Predefined Properties allowed in PDF/A-1

property name	value type	XMP description and notes	PDF/A-1 notes
xmp:Advisory	bag XPath	An unordered array specifying properties that were edited outside the authoring application. Each item should contain a single namespace and XPath separated by one ASCII space (U+0020).	
xmp:BaseURL	URL	The base URL for relative URLs in the document content. If this document contains Internet links, and those links are relative, they are relative to this base URL. This property provides a standard way for embedded relative URLs to be interpreted by tools. Web authoring tools should set the value based on their notion of where URLs will be interpreted.	The **URI** entry in the document catalog may also contain a base URL for the document
xmp:CreateDate	Date	The date and time the resource was originally created.	Must be synchronized with the **Creation-Date** document info entry.
xmp:CreatorTool	AgentName[1]	The name of the first known tool used to create the resource. If history is present in the metadata, this value should be equivalent to that of xmpMM:History's softwareAgent property.	Must be synchronized with the **Creator** document info entry.
xmp:Identifier	bag Text	An unordered array of text strings that unambiguously identify the resource within a given context. An array item may be qualified with xmpidq:Scheme to denote the formal identification system to which that identifier conforms. Note: The dc:identifier property is not used because it lacks a defined scheme qualifier and has been defined in the XMP Specification as a simple (single-valued) property.	Recommended for including a document identifier.
xmp:MetadataDate	Date	The date and time that any metadata for this resource was last changed. It should be the same as or more recent than xmp:ModifyDate.	
xmp:ModifyDate	Date	The date and time the resource was last modified. Note: The value of this property is not necessarily the same as the file's system modification date because it is set before the file is saved.	Must be synchronized with the **ModDate** document info entry.
xmp:Nickname	Text	A short informal name for the resource.	

property name	value type	XMP description and notes	PDF/A-1 notes
xmp:Thumbnails	alt Thumbnail	An alternative array of thumbnail images for a file, which can differ in characteristics such as size or image encoding.	

1. This value type is incorrectly described in ISO 19005-1, and has been corrected in [2].

False Friends: other Properties not allowed in PDF/A-1

property name	value type	XMP description and notes	PDF/A-1 notes
xmp:Author	ProperName		Use dc:creator
xmp:Description	alt Text		Use dc:description
xmp:Label[1]	Text	A word or short phrase that identifies a document as a member of a user-defined collection. Used to organize documents in a file browser.	
xmp:Rating[1]	Closed Choice of Integer	A number that indicates a document's status relative to other documents, used to organize documents in a file browser. Values are user-defined within an applicationdefined range.	
xmp:Title	alt Text		Use dc:title instead. PDF/A-1 erroneously states that xmp:Title should be used for font metadata.

1. This property has been introduced in XMP 2005.

2.3 XMP Rights Management Schema

Schema namespace URI: `http://ns.adobe.com/xap/1.0/rights/`
Preferred schema namespace prefix: `xmpRights`

Predefined Properties allowed in PDF/A-1

property name	value type	XMP description and notes	PDF/A-1 notes
xmpRights:Certificate	URL	Online rights management certificate.	
xmpRights:Marked	Boolean	Indicates that this is a rights-managed resource.	Should be used for font metadata.
xmpRights:Owner	bag ProperName	An unordered array specifying the legal owner(s) of a resource.	Should be used for font metadata.
xmpRights:UsageTerms	Lang Alt	Text instructions on how a resource can be legally used.	Should be used for font metadata.
xmpRights: WebStatement	URL	The location of a web page describing the owner and/or rights statement for this resource.	

False Friends: other Properties not allowed in PDF/A-1

property name	value type	XMP description and notes	PDF/A-1 notes
xmpRights:Copyright			Use dc:rights instead. PDF/A-1 erroneously states that xmpRights:Copyright should be used for font metadata.

2.4 XMP Media Management Schema

Schema namespace URI: `http://ns.adobe.com/xap/1.0/mm/`
Preferred schema namespace prefix: `xmpMM`

Predefined Properties allowed in PDF/A-1

property name	value type	XMP description and notes	PDF/A-1 notes
xmpMM:DerivedFrom	ResourceRef	A reference to the original document from which this one is derived. It is a minimal reference; missing components can be assumed to be unchanged. For example, a new version might only need to specify the instance ID and version number of the previous version, or a rendition might only need to specify the instance ID and rendition class of the original.	
xmpMM:DocumentID	URI	The common identifier for all versions and renditions of a document. It should be based on a UUID;	Recommended for including a document identifier.
xmpMM:History	seq ResourceEvent	An ordered array of high-level user actions that resulted in this resource. It is intended to give human readers a general indication of the steps taken to make the changes from the previous version to this one. The list should be at an abstract level; it is not intended to be an exhaustive keystroke or other detailed history.	Should be used to record all high-level user actions, e.g. converting from PDF to PDF/A-1, or signing a PDF/A-1 document
xmpMM:LastURL		Deprecated for privacy protection.	
xmpMM:ManagedFrom	ResourceRef	A reference to the document as it was prior to becoming managed. It is set when a managed document is introduced to an asset management system that does not currently own it. It may or may not include references to different management systems.	
xmpMM:Manager	AgentName	The name of the asset management system that manages this resource. Along with xmpMM:ManagerVariant, it tells applications which asset management system to contact concerning this document.	
xmpMM:ManagerVariant	Text	Specifies a particular variant of the asset management system. The format of this property is private to the specific asset management system.	
xmpMM:ManageTo	URI	A URI identifying the managed resource to the asset management system; the presence of this property is the formal indication that this resource is managed. The form and content of this URI is private to the asset management system.	

property name	value type	XMP description and notes	PDF/A-1 notes
xmpMM:ManageUI	URI	A URI that can be used to access information about the managed resource through a web browser. It might require a custom browser plugin.	
xmpMM:RenditionClass	Rendition-Class	The rendition class name for this resource. This property should be absent or set to default for a document version that is not a derived rendition.	Recommended for including a document identifier.
xmpMM:RenditionOf		Deprecated in favor of xmpMM:DerivedFrom. A reference to the document of which this is a rendition.	
xmpMM:RenditionParams	Text	Can be used to provide additional rendition parameters that are too complex or verbose to encode in xmpMM:RenditionClass.	
xmpMM:SaveID		Deprecated. Previously used only to support the xmpMM:LastURL property.	
xmpMM:VersionID	Text	The document version identifier for this resource. Each version of a document gets a new identifier, usually simply by incrementing integers 1, 2, 3 . . . and so on. Media management systems can have other conventions or support branching which requires a more complex scheme.	Recommended for including a document identifier.
xmpMM:Versions	seq Version	The version history associated with this resource. Entry [1] is the oldest known version for this document, entry [last()] is the most recent version. Typically, a media management system would fill in the version information in the metadata on check-in. It is not guaranteed that a complete history of versions from the first to this one will be present in the xmpMM:Versions property. Interior version information can be compressed or eliminated and the version history can be truncated at some point.	

False Friends: other Properties not allowed in PDF/A-1

Driven by requests from important user groups, the community of PDF/A creation and validation tool vendors came to the conclusion of not flagging InstanceID as a PDF/A-1 violation. In some workflows InstanceID is highly useful for the following reasons:

- Long-term archiving: each document having a unique identifier is important

- This property is internal, and does not immediately affect users

The PDF/A ISO committee is expected to address this situation in a future Technical Corrigendum.

property name	value type	XMP description and notes	PDF/A-1 notes
xmpMM:InstanceID[1]	URI	An identifier for a specific incarnation of a document, updated each time a file is saved. It should be based on a UUID;	See note above
xmpMM:Manifest[2]			

1. This property has been introduced in XMP 2005.

2. This property is created by some Adobe applications.

2.5 XMP Basic Job Ticket Schema

Schema namespace URI: `http://ns.adobe.com/xap/1.0/bj/`
Preferred schema namespace prefix: `xmpBJ`

Predefined Properties allowed in PDF/A-1

property name	value type	XMP description and notes	PDF/A-1 notes
xmpBJ:JobRef	bag Job	References an external job management file for a job process in which the document is being used. Use of job names is under user control. Typical use would be to identify all documents that are part of a particular job or contract. There are multiple values because there can be more than one job using a particular document at any time, and it can also be useful to keep historical information about what jobs a document was part of previously.	

2.6 XMP Paged-Text Schema

Schema namespace URI: `http://ns.adobe.com/xap/1.0/t/pg/`
Preferred schema namespace prefix: `xmpTPg`

Predefined Properties allowed in PDF/A-1

property name	value type	XMP description and notes	PDF/A-1 notes
xmpTPg:MaxPageSize	Dimensions	The size of the largest page in the document (including any in contained documents).	
xmpTPg:NPages	Integer	The number of pages in the document (including any in contained documents).	

False Friends: other Properties not allowed in PDF/A-1

property name	value type	XMP description and notes	PDF/A-1 notes
xmpTPg:Colorants[1]	Seq Colorant	An ordered array of colorants (swatches) that are used in the document (including any in contained documents).	
xmpTPg:Fonts[1]	Bag Font	An unordered array of fonts that are used in the document (including any in contained documents).	
xmpTPg:PlateNames[1]	Seq Text	An ordered array of plate names that are needed to print the document (including any in contained documents).	

1. This property has been introduced in XMP 2005.

2.7 Adobe PDF Schema

Schema namespace URI: `http://ns.adobe.com/pdf/1.3/`
Preferred schema namespace prefix: `pdf`

Predefined Properties allowed in PDF/A-1

property name	value type	XMP description and notes	PDF/A-1 notes
pdf:Keywords	Text	Keywords.	Must be synchronized with the **Keywords** document info entry.
pdf:PDFVersion	Text	The PDF file version (for example: 1.0, 1.3, and so on).	
pdf:Producer	AgentName[1]	The name of the tool that created the PDF document.	Must be synchronized with the **Producer** document info entry.

1. This value type is incorrectly described in ISO 19005-1, and has been corrected in [2].

False Friends: other Properties not allowed in PDF/A-1

property name	value type	XMP description and notes	PDF/A-1 notes
pdf:Author			Use dc:creator/*[1]
pdf:BaseURL			Use xmp:BaseURL
pdf:CreationDate			Use xmp:CreateDate
pdf:Creator			Use xmp:CreatorTool
pdf:ModDate			Use xmp:ModifyDate
pdf:Subject			Use dc:description/*[@xml:lang='x-default']
pdf:Title			Use dc:title/*[@xml:lang='x-default']
pdf:Trapped			

2.8 Photoshop Schema

Schema namespace URI: `http://ns.adobe.com/photoshop/1.0/`
Preferred schema namespace prefix: `photoshop`

Predefined Properties allowed in PDF/A-1

property name	value type	XMP description and notes	PDF/A-1 notes
photoshop:AuthorsPosition	Text	By-line title.	
photoshop:CaptionWriter	ProperName	Writer/editor.	
photoshop:Category	Text	Category. Limited to 3 7-bit ASCII characters.	
photoshop:City	Text	City.	
photoshop:Country	Text	Country/primary location.	
photoshop:Credit	Text	Credit.	
photoshop:DateCreated	Date	The date the intellectual content of the document was created (rather than the creation date of the physical representation), following IIM conventions. For example, a photo taken during the American Civil War would have a creation date during that epoch (1861-1865) rather than the date the photo was digitized for archiving.	
photoshop:Headline	Text	Headline.	
photoshop:Instructions	Text	Special instructions.	
photoshop:Source	Text	Source.	
photoshop:State	Text	Province/state.	
photoshop:SupplementalCategories	Text	Supplemental category.	XMP 2005 changed the value type of this property to bag Text.
photoshop:TransmissionReference	Text	Original transmission reference.	
photoshop:Urgency	Integer	Urgency. Valid range is 1-8.	

False Friends: other Properties not allowed in PDF/A-1

property name	value type	XMP description and notes	PDF/A-1 notes
photoshop:Author			Displayed in Acrobat 8
photoshop:Copyright			Displayed in Acrobat 8
photoshop:History[1]			
photoshop:Title			Displayed in Acrobat 8

1. This property is created by some Adobe applications.

2.9 EXIF Schema for TIFF Properties

Schema namespace URI: `http://ns.adobe.com/tiff/1.0/`
Preferred schema namespace prefix: `tiff`

Predefined Properties allowed in PDF/A-1

property name	value type	XMP description and notes	PDF/A-1 notes
tiff:Artist	ProperName	TIFF tag 315, 0x13B. Camera owner, photographer or image creator. NOTE: Each entry in EXIF string should become an individual entry in the dc:creator property. When round-tripping, each entry in the dc:creator property should be separated by a semicolon.	Use dc:creator
tiff:BitsPerSample	seq Integer	TIFF tag 258, 0x102. Number of bits per component in each channel.	
tiff:Compression	Closed Choice of Integer	TIFF tag 259, 0x103. Compression scheme:1 = uncompressed; 6 = JPEG.	
tiff:Copyright	Lang Alt	TIFF tag 33432, 0x8298. Copyright information. NOTE: This property is stored in XMP as dc:rights.	
tiff:DateTime	Date	TIFF tag 306, 0x132 (primary) and EXIF tag 37520, 0x9290 (subseconds). Date and time of image creation (no time zone in EXIF), stored in ISO 8601 format, not the original EXIF format. This property includes the value for the EXIF SubsecTime attribute. NOTE:This property is stored in XMP as xmp:ModifyDate.	
tiff:ImageDescription	Lang Alt	TIFF tag 270, 0x10E. Description of the image. NOTE:This property is stored in XMP as dc:description.	Use dc:description
tiff:ImageLength	Integer	TIFF tag 257, 0x101. Image height in pixels.	
tiff:ImageWidth	Integer	TIFF tag 256, 0x100. Image width in pixels.	
tiff:Make	ProperName	TIFF tag 271, 0x10F. Manufacturer of recording equipment.	
tiff:Model	ProperName	TIFF tag 272, 0x110. Model name or number of equipment.	

property name	value type	XMP description and notes	PDF/A-1 notes
tiff:Orientation	Closed Choice of Integer	TIFF tag 274, 0x112. Orientation: 1 = 0th row at top, 0th column at left 2 = 0th row at top, 0th column at right 3 = 0th row at bottom, 0th column at right 4 = 0th row at bottom, 0th column at left 5 = 0th row at left, 0th column at top 6 = 0th row at right, 0th column at top 7 = 0th row at right, 0th column at bottom 8 = 0th row at left, 0th column at bottom	
tiff: PhotometricInterpretation	Closed Choice of Integer	TIFF tag 262, 0x106. Pixel Composition: 2 = RGB; 6 = YCbCr.	
tiff:PlanarConfiguration	Closed Choice of Integer	TIFF tag 284, 0x11C. Data layout:1 = chunky; 2 = planar.	
tiff:PrimaryChromaticities	seq Rational	TIFF tag 319, 0x13F. Chromaticity of the three primary colors.	
tiff:ReferenceBlackWhite	seq Rational	TIFF tag 532, 0x214. Reference black and white point values.	
tiff:ResolutionUnit	Closed Choice of Integer	TIFF tag 296, 0x128. Unit used for XResolution and YResolution. Value is one of: 2 = inches; 3 = centimeters.	
tiff:SamplesPerPixel	Integer	TIFF tag 277, 0x115. Number of components per pixel.	
tiff:Software	AgentName	TIFF tag 305, 0x131. Software or firmware used to generate image. NOTE: This property is stored in XMP as xmp:CreatorTool.	Use xmp:CreatorTool
tiff:TransferFunction	seq Integer	TIFF tag 301, 0x12D. Transfer function for image described in tabular style with 3 * 256 entries.	
tiff:WhitePoint	seq Rational	TIFF tag 318, 0x13E. Chromaticity of white point.	
tiff:XResolution	Rational	TIFF tag 282, 0x11A. Horizontal resolution in pixels per unit.	
tiff:YCbCrCoefficients	seq Rational	TIFF tag 529, 0x211. Matrix coefficients for RGB to YCbCr transformation.	
tiff:YCbCrPositioning	Closed Choice of Integer	TIFF tag 531, 0x213. Position of chrominance vs. luminance components: 1 = centered; 2 = co-sited.	
tiff:YCbCrSubSampling	Closed Choice of seq Integer	TIFF tag 530, 0x212. Sampling ratio of chrominance components: [2, 1] = YCbCr4:2:2 [2, 2] = YCbCr4:2:0	
tiff:YResolution	Rational	TIFF tag 283, 0x11B. Vertical resolution in pixels per unit.	

2.10 EXIF Schema for EXIF-specific Properties

Schema namespace URI: `http://ns.adobe.com/exif/1.0/`
Preferred schema namespace prefix: `exif`

The list of almost 100 EXIF-specific properties is not repeated here; please refer to the XMP 2004 specification [4]. At this time there are no PDF/A-specific notes or recommendations regarding EXIF-specific properties.

3 Auxiliary Schemas

In addition to the main schemas defined in XMP 2004 there are several auxiliary schemas which are used in the main schemas.

The auxiliary schemas are used in structured property value types. The corresponding namespace URIs are allowed in PDF/A-1, and must therefore be supported by PDF/A-1 aware applications.

3.1 Field Schema for the "Dimensions" Value Type

This schema is used in the definition of the basic value type `Dimensions`.

Schema namespace URI: `http://ns.adobe.com/xap/1.0/sType/Dimensions#`
Preferred schema namespace prefix: `stDim`

This namespace URI is incorrectly spelled in XMP 2004, and corrected in XMP 2005.

Field Names

field names	value type	XMP description and notes	PDF/A-1 notes
w	Real	Width	
h	Real	Height	
unit	open Choice	Units. For example: inch, mm, pixel, pica, point	

3.2 Field Schema for the "Thumbnail" Value Type

This schema is used in the definition of the basic value type `Thumbnail`.

Schema namespace URI: `http://ns.adobe.com/xap/1.0/g/img/`
Preferred schema namespace prefix: `xapGImg`

Field Names

field names	value type	XMP description and notes	PDF/A-1 notes
height	Integer	Height in pixels	
width	Integer	Width in pixels	

field names	value type	XMP description and notes	PDF/A-1 notes
format	Closed Choice	The image encoding. Defined value: JPEG.	
image	Text	The thumbnail image (pixel data only) converted to base 64 notation (according to section 6.8 of RFC 2045).	

3.3 Field Schema for the "ResourceEvent" Value Type

This schema is used in the definition of the basic value type `ResourceEvent`.

Schema namespace URI:
`http://ns.adobe.com/xap/1.0/sType/ResourceEvent#`
Preferred schema namespace prefix: `stEvt`

Field Names

field names	value type	XMP description and notes	PDF/A-1 notes
action	open Choice	The action that occurred. Defined values are: converted, copied, created, cropped, edited, filtered, formatted, version_updated, printed, published, managed, produced, resized. New values should be verbs in the past tense.	
instanceID	URI	The instance ID of the modified resource.	
parameters	Text	Additional description of the action.	
softwareAgent	AgentName	The software agent that performed the action.	
when	Date	Optional timestamp of when the action occurred.	

3.4 Field Schema for the "ResourceRef" Value Type

This schema is used in the definition of the basic value type `ResourceRef`.

Schema namespace URI: `http://ns.adobe.com/xap/1.0/sType/ResourceRef#`
Preferred schema namespace prefix: `stRef`

Field Names

field names	value type	XMP description and notes	PDF/A-1 notes
instanceID	URI	The referenced resource's instance ID.	
documentID	URI	The referenced resource's xmpMM:DocumentID.	
versionID	Text	The referenced resource's xmpMM:VersionID.	
renditionClass	Rendition-Class	The referenced resource's xmpMM: Rendition-Class.	
renditionParams	Text	The referenced resource's xmpMM: Rendition-Params.	
manager	AgentName	The referenced resource's xmpMM:Manager.	
managerVariant	Text	The referenced resource's xmpMM: Manager-Variant.	
manageTo	URI	The referenced resource's xmpMM:ManageTo.	
manageUI	URI	The referenced resource's xmpMM:ManageUI.	

3.5 Field Schema for the "Version" Value Type

This schema is used in the definition of the basic value type `Version`.

Schema namespace URI: `http://ns.adobe.com/xap/1.0/sType/Version#`
Preferred schema namespace prefix: `stVer`

Field Names

field names	value type	XMP description and notes	PDF/A-1 notes
comments	Text	Comments concerning what was changed.	
event	Resource-Event	High level, formal description of what operation the user performed.	
modifyDate	Date	The date on which this version was checked in.	
modifier	ProperName	The person who modified this version.	
version	Text	The new version number.	

3.6 Field Schema for the "Job" Value Type

This schema is used in the definition of the basic value type `Job`.

Schema namespace URI: `http://ns.adobe.com/xap/1.0/sType/Job#`
Preferred schema namespace prefix: `stJob`

Field Names

field names	value type	XMP description and notes	PDF/A-1 notes
name	Text	Informal name of job. This name is for user display and informal systems.	
id	Text	Unique ID for the job. This field is a reference into some external job management system.	
url	URL	A file URL referencing an external job management file.	

3.7 Qualifier Schema for the "xmp:Identifier" Property

This schema can be used to qualify entries in the xmp:Identifier array.

Schema namespace URI: `http://ns.adobe.com/xmp/Identifier/qual/1.0/`
Preferred schema namespace prefix: `xmpidq`

Property Name

property name	value type	XMP description and notes	PDF/A-1 notes
xmpidq:Scheme	Text	The name of the formal identification system used in the value of the associated xmp:Identifier item.	Examples: DOI, URI

Bibliography

[1] ISO 19005-1: Document management — Electronic document file format for long-term preservation (PDF/A-1) — Part 1: Use of PDF 1.4 (PDF/A-1)
www.iso.ch

[2] ISO 19005-1: Document management — Electronic document file format for long-term preservation — Part 1: Use of PDF 1.4 (PDF/A-1). Technical Corrigendum 1
www.iso.ch

[3] PDF Reference: Adobe Portable Document Format, Version 1.4, Adobe Systems Incorporated – 3rd ed. (ISBN 0-201-75839-3).
www.aiim.org/documents/standards/PDFreference.pdf

[4] XMP Specification, January 2004, Adobe Systems Incorporated.
www.aiim.org/documents/standards/xmpspecification.pdf

[5] TechNote 0003: Metadata in PDF/A-1, PDF/A Competence Center
www.pdfa.org/doku.php?id=pdfa:en:techdoc

[6] TechNote 0009: XMP Extension Schemas in PDF/A-1, PDF/A Competence Center
www.pdfa.org/doku.php?id=pdfa:en:techdoc

[7] Dublin Core Metadata Element Set, Version 1.1: Reference Description; Dublin Core Metadata Initiative
dublincore.org/documents/2005/01/10/dcmi-terms/

[8] ISO 15836:2003: Information and documentation - The Dublin Core metadata element set
www.iso.ch

Copyright and Usage

Status of this Document

2008-03-20 First released version