IPTC Photo Metadata Conference 2024

Tuesday May 7 2024
Welcome!

- This is the 17th IPTC Photo Metadata Conference – the event has been running (almost) every year since 2007
- We have well over 200 registrants
  - from news agencies, publishers, broadcasters, software companies, museums and galleries, universities, consultants… and of course many photographers and image managers
- This conference will be recorded and made available online after the event
- Subtitles will be switched on
The IPTC is an open, non-partisan, non-political organisation dedicated to promoting interoperable standards and best practices in the news and media industries. We are a registered non-profit organisation funded by member subscriptions. Our work spans many areas:

- Standards creation in the news/media industry
- Running events for members and the public
- Developing software to work with our standards
- Acting as a forum for knowledge sharing between members, building industry best practice
<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Speakers</th>
</tr>
</thead>
</table>
| 15.00 – 15.30 UTC | Introduction and welcome: 20 years of IPTC Photo Metadata What’s new in IPTC Photo Metadata? | **Brendan Quinn**, Managing Director, IPTC  
**David Riecks**, co-lead, IPTC Photo Metadata Working Group  
**Michael Steidl**, co-lead, IPTC Photo Metadata Working Group |
**Dennis Walker**, Camera Bits, creators of Photo Mechanic  
**Dr. Neal Krawetz**, Computer security specialist, forensic researcher, and founder of FotoForensics  
**Bofu Chen**, Founder & CTO of Numbers Protocol |
| 16.30 – 17.00 UTC | Adobe’s Custom Metadata Panel                                        | **James Lockman**, Group Manager, Digital Media Services at Adobe |
| 17.00 – 18.00 UTC | Panel 2: AI-Powered Asset Management: Where does metadata fit in?     | **Nancy Wolff**, Partner, Cowan, DeBaets, Abrahams & Sheppard, LLP  
**Serguei Fomine**, Founder and CEO, IQPlug  
**Jeff Nova**, Chief Executive Officer, Colorhythm  
**Mark Milstein**, co-founder and Director of Business Development, vAlSual |
IPTC’s photo metadata specific work started in 2004

State of IPTC and photo metadata in 2003:
- IPTC standard IIM (1990): combined metadata for text, photo, audio …
- … a subset of photo specific IIM fields was adopted by Adobe for Photoshop (1995) and by other software makers too.
- In 2001 Adobe created a new metadata format: XMP (RDF/XML with constraints)
- … and used the IIM format and XMP in Photoshop
- Photo businesses asked IPTC how to deal with IIM and XMP: use both? use only one where is the specification that covers which IIM and XMP fields express the same thing?
20 Years of IPTC Photo Metadata

• 2004: IPTC created a first specification of a metadata standard for photos/images only: the IPTC Core schema – in collaboration with Adobe
• … and an active communication with the photo business community was started
• 2007: first IPTC Photo Metadata Conference – in conjunction with CEPIC
20 Years of IPTC Photo Metadata

• 2008: new set of additional metadata fields was specified: IPTC Extension schema + IPTC Core schema = IPTC Photo Metadata Standard

• 2008 – 2010: collaboration with the “Metadata Working Group” (Adobe, Apple, Canon, Microsoft, Nokia, Sony) on mapping field values across Exif, IIM and XMP.

• 2010: the first User Guide was published. Has been updated many times since then.

Field Reference Table

This section provides a table which should help finding the guidelines for the field you are searching for:

All field names appear in alphabetical order

Each field name is linked to the Guidelines section which describes this field. In electronic documents (Web page, PDF) click on the name and follow.

<table>
<thead>
<tr>
<th>IPTC Name / Label</th>
<th>Other names</th>
<th>Scheme</th>
<th>XMP id</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional Model Information</td>
<td>Extension</td>
<td></td>
<td>AIMPModelInfo</td>
</tr>
<tr>
<td>Address (Contact detail)</td>
<td>Core</td>
<td></td>
<td>Core</td>
</tr>
<tr>
<td>Artwork or Object in the Image</td>
<td>Extension</td>
<td></td>
<td>ArtworkOrObject</td>
</tr>
<tr>
<td>City (legacy)</td>
<td>Core</td>
<td></td>
<td>City</td>
</tr>
</tbody>
</table>

2 • IPTC Core and Extension Guidelines (July 2010)
20 Years of IPTC Photo Metadata

IPTC’s motto:
Talking to users – listening to needs –
specifying the standard – watching its use

• 2010 & 2019: How is the standard used? IPTC survey about how photo businesses use (IPTC) photo metadata in their workflow
• 2013, 2016, 2019: IPTC tested photo sharing & social media systems how well embedded photo metadata are supported, are preserved - 😊 & 😞
20 Years of IPTC Photo Metadata

• 2017: Get IPTC Photo Metadata site launched for reading and showing any IPTC property embedded into an image file on the web or local.

• 2018: IPTC and Google started to collaborate on photo metadata
  - Creator, Credit Line and Copyright Notice shown in search results (2018)
  - Web Statement of Rights ➔ “Licensable”, Licensor URL as link URL (2020) (see IPTC help page)
  - Google uses Digital Source Type to flag “AI generated images” (2023)

• 2020: IPTC gets active with Content Authenticity Initiative (CAI) and C2PA
What’s new in IPTC Photo Metadata?

- Data Mining property (added in 2023.1)
- Digital Source Type vocabulary (updated in 2022, 2023)
- Updated Photo Metadata User Guide (2024)
- Updated Photo Metadata Mapping Guidelines (2023)
- IPTC Media Provenance Committee (2024)
Data Mining Property

• Image rights owners made an urgent request to IPTC and PLUS:
• How to express that data mining is prohibited or permitted?
  – For various AI/Machine Learning purposes using a standardised list?
  – Embedded in the file, like other IPTC metadata?
• In both “machine-readable” & “human-readable” forms
• By Autumn/Fall 2023 the result was a PLUS property at ns.useplus.org
• Developed cooperatively by PLUS and IPTC for 2023.1 version of the IPTC Photo Metadata Standard spec
Data Mining Property

- Allows the communication of any permissions, prohibitions, constraints and obligations both for use of a visual work for data mining purposes AND for generative AI purposes (such as image prompts).
- Complies with EU directive for use in declaring prohibitions on data mining for non-research purposes.
- Intended for worldwide use.
- Allows options for communicating more complex information in the form of a rights statement.
- Has been supported by Exiftool and GetPMD.iptc.org since launch.
Values must come from the PLUS Data Mining vocabulary:

- **Name: Unspecified** – no prohibition defined
  Identifier: [http://ns.useplus.org/ldf/vocab/DMI-UNSPECIFIED](http://ns.useplus.org/ldf/vocab/DMI-UNSPECIFIED)

- **Name: Allowed**
  Identifier: [http://ns.useplus.org/ldf/vocab/DMI-ALLOWED](http://ns.useplus.org/ldf/vocab/DMI-ALLOWED)

- **Name: Prohibited for AI/ML training**
  Identifier: [http://ns.useplus.org/ldf/vocab/DMI-PROHIBITED-AIMLTRAINING](http://ns.useplus.org/ldf/vocab/DMI-PROHIBITED-AIMLTRAINING)

- **Name: Prohibited for Generative AI/ML training**
  Identifier: [http://ns.useplus.org/ldf/vocab/DMI-PROHIBITED-GENAIMLTRAINING](http://ns.useplus.org/ldf/vocab/DMI-PROHIBITED-GENAIMLTRAINING)
Data Mining Property

- Name: Prohibited except for search engine indexing*
  Identifier: http://ns.useplus.org/ldf/vocab/DMI-PROHIBITED-EXCEPTSEARCHENGINEINDEXING

- Name: Prohibited
  Identifier: http://ns.useplus.org/ldf/vocab/DMI-PROHIBITED

- Name: Prohibited, see <Other Constraints> property.
  Note: Other Constraints** field must be populated if this value is set.
  Identifier: http://ns.useplus.org/ldf/vocab/DMI-PROHIBITED-SEECONSTRAINT

- Name: Prohibited, see Embedded Encoded Rights Expression field
  Identifier: http://ns.useplus.org/ldf/vocab/DMI-PROHIBITED-SEEEMBEDDEDRIGHTSEXPR

- Name: Prohibited, see Linked Encoded Rights Expression field
  Identifier: http://ns.useplus.org/ldf/vocab/DMI-PROHIBITED-SEELINKEDRIGHTSEXPR
Basic Digital Source Types were in the 2008 Spec

- Direct Digital Capture
- Digitized from a negative on film
- Digitized from a positive on film (includes slides)
- Digitized from a print on non-transparent medium
- Created by Software (retired)

https://www.iptc.org/std/photometadata/documentation/userguide/#_guidance_for_using_digital_source_type
In 2022 Digital Source Type was revamped:

- Original media with minor human edits
- Composite of captured elements
- Algorithmically-enhanced media
- Data-driven media
- Digital art
- Virtual recording
- Composite including synthetic elements
- Trained algorithmic media (aka Generative AI)
- Composite with trained algorithmic media
- Pure algorithmic media

http://cv.iptc.org/newscodes/digitalsourcetype/

We are currently discussing further updates in alignment with C2PA and others.
Google, Meta, Midjourney and Shutterstock AI announced they will use the ‘Digital Source Type’ property with these specific CV terms to indicate “Created by Generative AI”:

• **Composite including synthetic elements** (compositeSynthetic) – at least one element is synthetic

• **Pure algorithmic media** (algorithmicMedia):
  Image was created purely by an algorithm not based on any sampled training data (for example, an image created by software using a mathematical formula like the Mandelbrot set)

• **Trained algorithmic media** (trainedAlgorithmicMedia):
  Image was created using a model derived from sampled content

Microsoft Bing Image Creator and Designer also have plans…

Also, **Google recommend that metadata tags are not stripped out** in order to preserve these fields: [https://support.google.com/merchants/answer/14572008](https://support.google.com/merchants/answer/14572008)
Google AI Test Lab’s Image FX is currently embedding:

• Link for “trainedAlgorithmicMedia” in ‘Digital Source Type’
• The text “Made with Google AI” in ‘Credit Line’

Prompt: Group photo of a diverse group of people wearing various colored lab coats, and arranged to mimic the Beatles cover for the "Sgt. Pepper's Lonely Hearts Club Band" album but showing the word "Metadata " at the bottom of the image, aspect ratio 1:1
Updated **User Guide** (2024)

- NEW: guide for using Accessibility fields
- NEW: guide for applying metadata to AI-generated images
- Guides for NEW fields added: Event Identifier, Product/Identifier, Contributor, Data Mining

Guides a user in …

- … using fields properly
- … dealing with use cases
- … understanding technical details

Field Reference Table

How to Edit Metadata for ...
- General Image Content
- Natural Language Free Text Descriptions
- Persons Depicted in the Image Locations
- Other Things Shown in the Image Rights Information
- Licensing Use of the Image Administration and Commissioning Details
- Image Regions

What is a … (help)
- What is a Field / Field Structure / Property?
- What is a Value List / Controlled Vocabulary?

Help on Specific Topics
- Recommended Minimal Set of Metadata Properties
- Fundamental Guidelines for the Preservation of Embedded Metadata
- Making images accessible for people with special needs
- IPTC Photo Metadata and Google Images
- Applying Metadata to AI-generated Images

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The Mapping Guidelines cover equivalent IPTC, Exif & schema.org fields

- CIPA introduced Exif 3.0 in May 2023 ...
- ... IPTC updated its Mapping Guidelines to cover the new 3.0 version and the old 2.3x versions in October 2023

Exif Note on Copyright Notice

Note on Exif 2.3x:

The Exif specification document notes that the Copyright tag can be used to cover the copyright of the photographer of the image as well as the copyright of an editor of the image. The use for a copyright for the editor is quite rare; but if you do need to include it be aware that the Exif specification directs you to terminate the string with the photographer copyright with a NULL byte and to concatenate the copyright for the editor following. An alternate solution that does not require a NULL byte is to prefix the copyright claim of the photographer with the string Photographer: and the claim of the editor with the string Editor:

Be aware that all Exif tag values of type ASCII must have a NULL-byte at the end, read the details in the Exif specification. Be aware that Exif defines ASCII as the type of this tag, read more about the use of ASCII and UTF-8 above.

Note on Exif 3.0:

The Exif specification changed the semantics of the tag to “It is the copyright notice of the person or organization holding rights to the image” which is much closer to the definition of the IPTC Copyright Notice than the Exif 2.3x definition (see above).

- Exif to IPTC mapping: copy the value of the Exif tag to the IPTC property.
- IPTC to Exif mapping: copy the value of the IPTC property to the Exif tag and use the UTF-8 data type with Exif 3.0.

Be aware that Exif 3.0 defines ASCII or UTF-8 as the data type of this tag.
IPTC Media Provenance Committee

- C2PA was created by both the Content Authenticity Initiative and Project Origin working together
- Until now, Project Origin has been the project driving advocacy and implementation of C2PA technology to the news and media industries
- But Project Origin is/was a collaboration agreement between a small number of companies - it couldn't scale
- So we established the IPTC Media Provenance Committee
- Project Origin will remain as a brand name – exact brand relationship is to be determined
How the Media Provenance Committee fits within IPTC’s structure
The first IPTC Media Provenance Committee deliverable is an IPTC-hosted “Trust List” of verified news publishers – currently only BBC and CBC/Radio Canada.

We also have launched a simple validator at https://originverify.iptc.org/.

One of the main tasks of the Committee is to work out how this will scale to a large number of media publishers.
IPTC Media Provenance Committee: who should join?

“I work for a media organisation. Should we join the IPTC and the Media Provenance Committee?”

• If you want to help to shape the policies and procedures around the Origin Verified Publisher Trust List, and to be a super-early adopter, understanding the work that that entails:
  ➢ Join IPTC (if you’re not already a member) and take part in the work of the Media Provenance Committee

• If you don’t want to be on the bleeding edge, and want to wait until we have established procedures for getting verified, getting a certificate and getting on the trust list:
  ➢ Wait for a while, then you can be a “customer” of the system when we have it finalised, and you can simply follow the steps to get a Verified Publisher certificate.
The IPTC Photo Metadata Working Group

A great bunch of photo metadata people (in random order)

Annette Feldman, AP
Alison Sullivan
Philippe Mougin (AFP)
Brendan Quinn, IPTC MD
Jeff Sedlik, PLUS
Michael Steidl, IPTC (co-lead)
Honor Craig-Bennett
Karl Csoknyay, Keystone-SDA
David Riecks, PLUS (co-lead)
Serguei Fomine, CEPIC
Margaret Warren

..and more. Come and join us!
IPTC Photo Metadata resources (with links)

• IPTC Photo Metadata landing page on the IPTC site
• IPTC Photo Metadata Standard latest specification
• IPTC Photo Metadata User Guide
• IPTC Photo Metadata Mapping Guidelines
• Quick Guide to IPTC Photo Metadata and Google Images
• List of software supporting IPTC Photo Metadata
• Get IPTC Photo Metadata Service
• The public IPTC Photo Metadata email discussion group
• Digital Source Type Newscodes

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AI and Image Authenticity

Leonard Rosenthal
Senior Principal Scientist, PDF Architect, and CAI Architect

Dennis Walker
President and Founder

Dr. Neal Krawetz
Computer security specialist, forensic researcher

Bofu Chen
Founder & CTO
Adobe’s Custom Metadata Panel

James Lockman
Group Manager
Digital Media Services
AI-Powered Asset Management: Where does metadata fit in?

17.00 – 18.00 UTC

Nancy Wolff
Partner

Serguei Fomine
Founder and CEO

Jeff Nova
Chief Executive Officer

Mark Milstein
Co-founder and Director of Business Development
Thanks, until next time!

Thanks for coming, for contributing, for presenting, for asking questions, for listening!

Videos of all sessions will be made available on iptc.org within the next week. Look out for a news post!

Thanks to the IPTC Photo Metadata Working Group, and especially to David Riecks and Michael Steidl for organising this event

Please contact IPTC for more information on anything you heard today