



# Introduction to Description and Metadata

Digital Stewardship Curriculum

## Description and Metadata

- Description, metadata is INFORMATION
- About...
  - Collections
  - Items
  - Digital collections
  - Parts of collections
- How you understand materials internally
- How your community understands your collections

- Description is information about your materials - stories, knowledge, memories, history
- Can describe collections, items,
- Makes your collections and items understandable and usable

# The Importance of Description and Metadata

## “A love note to the future”

- Description and metadata is a **process** that you create
- Can be built on and expanded over time
- Generative process for **your community**

## “Never neutral”

- Description and metadata is created by **humans**
- Can come with human biases, mistakes, and agendas

- You are creating information and context for collections and items to help future generations understand a “love note to the future”
- Metadata in practice—
- Not so much a thing as a set of actions— a **PROCESS** that is generative >> it creates other things.
- Metadata is not neutral, and has never been neutral.
  - Who wrote that description
  - Who classified that photo?
  - What biases did they have?
  - Especially if working with metadata from other institutions:
    - Were they part of your community?
    - What structures and systems were they working within?

## What kind of information?

- **WHO**
  - created it, who it's about, biographical info
- **WHAT**
  - events, subjects
- **WHEN**
  - date(s), other context
- **WHERE**
  - Location(s)
- **HOW**
  - What software, what technical specifications?

- WHO- created it, who its about (biographical info)
- WHAT - events and subjects
- WHEN- date (s) other context that may help determine timeframe
- WHERE- location / s

# Description

- There are many **levels** of description
  - Collection level
  - Series level
  - Folder or Box level
  - Item level
  - Range of minimum detail to high detail for each
- Many tools for creating description
  - Collections: Word documents, systems
  - Item level: Spreadsheets, embedding into digital files

- Collection level
- Folder level
- Item level
  - “Best” level of description will depend on the project
- A/V materials, photographs, paper collections have different needs

## Where it is located?

- Finding aid
- Register
- Collection guide
- Collection summary
- Item level metadata
- Embedded metadata
- Note:
  - Any or all of these locations or forms of description might be part of your sharing platform, database, or website.

- Description, metadata can be general term, can also say “collection information” when thinking about broad description

# Tools for Description

- **Collections: Finding aids, collection guides, registers**
  - Word documents
  - Software tools: ArchivesSpace
- **Item level:**
  - Software tools, systems
  - Spreadsheets
  - Databases
  - Embedding into digital files

- Many options available from free tools, low cost tools, and expensive all-inclusive systems
- Understanding all of these types of descriptive tools can also help you understand how other organizations organize their materials
  - Useful if you are interested in collections at federal, state, or other institutions
- More information on finding aids on the SHN - resources like:
  - Finding Aid Template
  - Finding Aid Worksheet for EAD Markup
  - Creating a Finding Aid Using Microsoft Word [Tutorial]

**Tools for recording collection information**

- Tools for recording collections information like finding aids
- Documents - very common
- Systems like ArchivesSpace or a home grown database
  - Benefit of being structured (follow a standard format)



well, it's rather, not a fine mill (I like *aggenom* in die *Baine*) along the river mostly, that is why it is different from *Upsi*! We used Bear grass too to put in the *Aufste* and used the *Spies* fibers to fill in to string. We made the *mountains* the *get* for the *order*. In the *field* is long get straight—in lower levels it is more knotty there to go to the higher areas to get the straight bark.

to more okay  
on painted, it was made early so it could  
twice or a decoration change in the same place to show people who made the basket that is why one *Strize* is faded more than the others—they didn't just make it all at once, so *St* is faded. The *stars* would match — the squares show balance that is the way *St* was taught to me, the modern we *he* *stars* would match — the squares show balance that is the way *St* was taught to me, the modern we

and the woman back on this one  
deer, the man would walk along way to get the deer that is why he was so skinny.  
Looks like natural eye, it is not faded at all.

In the middle, some kind of bird, then the people, then on top the frog (called...?), then also the that such fine weaves, in *Wacco* the *Thunderbird* is called ....(trying to remember), also the turtle, on the side there is a small design looks like a frog, there are deer in there, sturgeon, it is a con we went north, some went south because they disagreed over the sound the frog made.

dressies, they used to do that, brown ones too, my non did that.

old, the blue ones anyway, some of beads are milk, some look like they are not all done, the are in *he* — like that color at sizes

Thunderbird, we keep things, the small things, get kept.

Fancy deer, I wonder if this is the same person that has the one with the deer, the Sally bags Full of the

the *Wacco* man and women, *Stetson* was a lot in the art work. We traded off our Sally bags Full of the one our food stuffs in them, the *drad* roots. Maybe not one this small. If they only had the natural stuff to make the baskets.

adorable, it's all string work.

We happened with the design, could have been a beginner or someone finished it off, that could be the made lots of mistakes like that when I *Stizt* started. You run out of room. They braided the top *Bistt*.

ID	Format	Content	Identifier	Type Field	Date	Subject	Language	Author
phph B00	photograph	8000 House Bank & Post MAC	MAC_20717	Photograph Code		Pintura, Spoken English	EWG/SM	
D A P / Bc	height: 10"	width: 10"	Trainer MAC	Photograph Code	8/21/1945	Pintura, Spoken English	EWG/SM	
photograph	height: 10"	width: 10"	Indiana Pintura	Photograph Code	8/24/1948	Pintura, Spoken English	EWG/SM	
6.5x3.5	photograph	Indiana Pintura	MAC_20825	Photograph Code		Pintura, Spoken English	EWG/SM	
various photos		"An" "Thousand	Inda MAC	Photograph Code	5/17/1974	Pintura, Spoken English	EWG/SM	
inst (2)	7x Statement of Case	Chaf Sakely	1-8 MAC	Photograph Code Unknown		Pintura, Color of English	EWG/SM	
photograph	height: 3"	width: Back Row	4-10 MAC	Photograph Code Unknown		Pintura, Unknown English	EWG/SM	
inst 1	Statement of Case	of Margaret	Inda MAC	Photograph Code Unknown		Pintura, Color of English	EWG/SM	
inst 2	Statement of Case	But been as a	MAC	Photograph Code 1936 - 1939		Pintura, Color of English	EWG/SM	
inst 3	Statement of Case	in	MAC	Photograph Code Unknown		Pintura, Color of English	EWG/SM	
inst 4	Statement of Case	Group of men	MAC	Photograph Code Unknown		Pintura, Color of English	EWG/SM	
inst 5	Statement of Case	Group of women	MAC	Photograph Code Unknown		Pintura, Color of English	EWG/SM	
inst 6	Statement of Case	Two girls	MAC	Photograph Code Unknown		Pintura, Color of English	EWG/SM	
inst 7	Statement of Case	of Hank	MAC	Photograph Code Unknown		Pintura, Color of English	EWG/SM	
inst 8	Statement of Case	Two boys	MAC	Photograph Code Unknown		Pintura, Color of English	EWG/SM	
inst 9	Statement of Case	Lisa	MAC	Photograph Code Unknown		Pintura, Color of English	EWG/SM	
inst 10	Statement of Case	of Lucy	MAC	Photograph Code Unknown		Pintura, Color of English	EWG/SM	
inst 11	Statement of Case	of Lucy	MAC	Photograph Code Unknown		Pintura, Color of English	EWG/SM	
inst 12	Statement of Case	Four women	MAC	Photograph Code Unknown		Pintura, Color of English	EWG/SM	
inst 13	Statement of Case	Indian Congress	MAC	Photograph Code 1912 - 1920		Pintura, Indian of English	EWG/SM	
inst 14	Statement of Case	Three	MAC	Photograph Code 1912 - 1920		Pintura, Color of English	EWG/SM	
inst 15	Statement of Case	Three	MAC	Photograph Code 1912 - 1920		Pintura, Color of English	EWG/SM	
inst 16	Statement of Case	Indian	MAC	Photograph Code 1912 - 1920		Pintura, Spanish, English	EWG/SM	
inst 17	Statement of Case	Indian	MAC	Photograph Code 1912 - 1920		Pintura, Spanish, English	EWG/SM	
inst 18	Statement of Case	Indian	MAC	Photograph Code 1912 - 1920		Pintura, Color of English	EWG/SM	
inst 19	Statement of Case	Indian	MAC	Photograph Code 1912 - 1920		Pintura, Color of English	EWG/SM	
inst 20	Statement of Case	Indian	MAC	Photograph Code 1912 - 1920		Pintura, Color of English	EWG/SM	
inst 21	Statement of Case	Indian	MAC	Photograph Code 1912 - 1920		Pintura, Color of English	EWG/SM	
inst 22	Statement of Case	Indian	MAC	Photograph Code 1912 - 1920		Pintura, Color of English	EWG/SM	
inst 23	Statement of Case	Indian	MAC	Photograph Code 1912 - 1920		Pintura, Color of English	EWG/SM	
inst 24	Statement of Case	Indian	MAC	Photograph Code 1912 - 1920		Pintura, Color of English	EWG/SM	
inst 25	Statement of Case	Indian	MAC	Photograph Code 1912 - 1920		Pintura, Color of English	EWG/SM	
inst 26	Statement of Case	Indian	MAC	Photograph Code 1912 - 1920		Pintura, Color of English	EWG/SM	
inst 27	Statement of Case	Indian	MAC	Photograph Code 1912 - 1920		Pintura, Color of English	EWG/SM	
inst 28	Statement of Case	Indian	MAC	Photograph Code 1912 - 1920		Pintura, Color of English	EWG/SM	
inst 29	Statement of Case	Indian	MAC	Photograph Code 1912 - 1920		Pintura, Color of English	EWG/SM	
inst 30	Statement of Case	Indian	MAC	Photograph Code 1912 - 1920		Pintura, Color of English	EWG/SM	
inst 31	Statement of Case	Indian	MAC	Photograph Code 1912 - 1920		Pintura, Color of English	EWG/SM	
inst 32	Statement of Case	Indian	MAC	Photograph Code 1912 - 1920		Pintura, Color of English	EWG/SM	
inst 33	Statement of Case	Indian	MAC	Photograph Code 1912 - 1920		Pintura, Color of English	EWG/SM	
inst 34	Statement of Case	Indian	MAC	Photograph Code 1912 - 1920		Pintura, Color of English	EWG/SM	
inst 35	Statement of Case	Indian	MAC	Photograph Code 1912 - 1920		Pintura, Color of English	EWG/SM	

WordPress 4.3.2 is available (WordPress.com)

### Dashboard

WordPress 4.3.2 has been updated to version 4.3.2. Click here to find out what's new!

At a glance

- 3 Posts
- 0 Pages

WordPress 4.3.2 is running (WordPress.com)

Activity

- May 2016, 3:05 am Top 8 Tips to Keep Up with Digital Marketing Trends in 2016
- May 19th, 5:52 am 8 Must-Have Post-Closing Tips from Webinars
- May 17th, 11:54 am 3 Social Media Marketing Tips for Non-Tech Professionals and SME's
- May 16th, 11:02 am International Law & Corporate Services Regulatory Institute Design (Launched by W&L Design Inc.)
- May 15th, 10:13 am Dean & Ready Water to make a website Now Good Speed!

Comments

- Phyback on Top 8 Tips to Keep Up with Digital Marketing Trends in 2016
- Top 8 Tips to Keep Up with Digital Marketing Trends in 2016
- 6,184 New members ago I attended one of the best digital marketing conferences when an audience full of brain...

WordPress 4.3.2 Security Bulletin

WordPress 4.3.2 is now available. This release encourages you to update and makes you affected by a critical security issue. For updating, see the reference #2016-04

WordPress 4.3.2

WordPress 4.3.2 is now available. This release encourages you to update and makes you affected by a critical security issue. For updating, see the reference #2016-04

WordPress 4.3.2

WordPress 4.3.2 is now available. This release encourages you to update and makes you affected by a critical security issue. For updating, see the reference #2016-04

# Tools for recording metadata

- Tools for recording metadata
  - Documents
  - Spreadsheets
  - Database
  - CMS
  - Embedded in files

## Who is creating description, metadata?

- In your institution, in other institutions
- Not neutral, carries bias
- Finding information outside of your department
- Re-narrating, re-contextualizing, gathering multiple perspectives

- No matter who is creating description, they bring assumptions, worldviews into what information they are picking up and documenting ---- all parts of managing archives are not neutral, but description is especially subjective
- Every description carries bias, or perspective ----
- Keep in mind when you are describing your community's collections, and also your when you encounter materials that have been dispersed elsewhere
- How can you expand?
  - Layer in more description - multiple perspectives
  - If something has been described outside of your community, then who do you know who can correct mistakes or explain an event, person, or topic more completely and appropriately?

## What to gather? How much?

- Determine the level of description
- Core elements of information
- Context and history
- Physical information about collection
- Subjects, topics
- Related collections or items
- Administrative information

- How much time/detail you can put into this description
- Who, what, where, when
- What were surrounding events, help the user understand the collection
- Things to note about the actual physical materials - does the user need playback equipment, are they fragile?
- Subjects that users will be looking for - "I want everything on the 1964 flood" - make sure it relates back (access points)
- Other related collections - things that tie into the collection
- Admin info - who worked on the collection, appraisal and accession paperwork

## Further Expanding

- Find information outside of your department/staff knowledge
- Adding community information to records
  - Identification
  - Context
  - Related stories, songs, memories

- There may be information within your community, who can you reach out to?
- Think about this for collections in your department, AND information and collections that may exist elsewhere (federal repositories, State institutions, religious organizations, universities, city/county, etc.) and can be brought back through physical and legal transfer or digital sharing and expanded and narrated by your own community

## Questions for your department

- What you are gathering or creating?
- What tools are you using?
- How do you keep consistent?
- Do you make a plan for adding description ahead of time?
- Who else are you involving?

- Start evaluating some of these questions...
  - What do you currently create or gather? Make a list
  - What tools do you use? Are they useful? Do they have drawbacks?
  - Do you have a standard list of information you gather, or is it whatever you can get?
  - Do you have plans in place for description?

## Description and Metadata goals

- Understand purposes of description
- Learn different options for description and metadata
- Research examples of what other similar departments/institutions are doing
- Understand schemes and standards
- Create a plan for your collections and materials

- If you are new to description and metadata, here are some goals to consider as you learn

## Further resources: Standards, Schemas, Guidelines

- **Indigenous Knowledge Organization**
  - Research guide from the University of British Columbia Xwi7xwa Library
  - Subject headings and controlled vocabularies from Indigenous perspectives
- **Protocols for Native American Archival Materials**
  - Working with outside institutions
- **Other schema**
  - Encoded Archival Description
  - Describing Archives: A Content Standard
  - Dublin Core
  - MARC

- Indigenous Knowledge Organization  
<https://guides.library.ubc.ca/c.php?g=307208&p=2049510>
- Find information on description and metadata from professional organizations for Libraries, Archives, Museums
  - ATALM
  - SAA
  - ALA
  - NDSA
  - AAM
  - NAMSI
- Adapt guidelines and schemas to what works best for you. Consider:
  - Relevance to your community
  - Internal organization
  - Interoperability



# A closer look at metadata

- The last series of slides will show some types of metadata in greater detail



# Types of Metadata

- Descriptive
- Structural
- Administrative
- Technical
- Preservation

- More information/definitions  
<https://dictionary.archivists.org/entry/metadata.html>
- About the content - who, what, where, when
- About how the material is structured or arranged - chapters in a book, tracks in a album
- Who created the metadata, when something was digitized, what equipment was used
- Technical (hardware and software information), preservation (information that will help you save and care for the content in the long term)
  - Technical metadata is used by computers and software to interact with files.
  - This often makes it pretty easy to access.
- Preservation metadata is information used to protect an item from harm, injury, deterioration, or destruction.

# Example - iTunes

Summary Info Video Sorting Options Lyrics Artwork

DANCE IN THE DARK (4:49)  
LADY GAGA  
THE FAME MONSTER  
(p) 2009 Interscope

DESCRIPTIVE  
STRUCTURAL  
ADMINISTRATIVE

---

**Kind:** Purchased AAC audio file  
**Size:** 9.6 MB  
**Bit Rate:** 256 kbps  
**Sample Rate:** 44.100 kHz

**Profile:** Low Complexity  
**Channels:** Stereo  
**Purchased by:** Kathryn Greenbrook  
**Purchase Date:** 23/04/2010 7:32 p.m.

---

**Where:** C:\Users\Kathryn\Music\iTunes\iTunes Media\Music\Lady GaGa\The Fame Monster\05 Dance In the Dark.m4a

- Descriptive: title, artist, album, publisher
- Structural or technical: audio-specific, format, explains how it is categorized (Kind, size, profile)
- Admin: Who owns it, when it was acquired, where it is located on the computer
- [blog.optimalbi.com](http://blog.optimalbi.com), [slideshare.net](http://slideshare.net)

The screenshot displays the ARTSTOR interface for a record titled 'David' by Michelangelo. It is divided into two main sections: 'Information' and 'File properties'.

**Descriptive metadata (Information tab):**

Field	Data
Creator	Michelangelo
Title	David frontal view
Date	1501-1504
Material	marble
Measurements	height 13 feet 5 inches
Repository	Galleria dell'Accademia (Florence, Italy)
ARTstor Collection	Art, Archaeology and Architecture (Erich Lessing Archives)
ID Number	40-07-04/11

**Technical metadata (File properties tab):**

Field	Data
Image Id	LESSING_ART_1039490336
Download Size	1024,1024
Collection	ARTstor Collections
Accessibility	Public
Format	fpix
File Name	lessing_40070411_srgb.fpx
Width	4327
Height	6000
Image URL	http://library.artstor.org/libproxy.lib.unc.edu/library/secure/ViewImages?c=%2FThWpC8hlywOPyqxfTx5TnQkvvnoeA%3D%3D&userid=gDNHeDw%3D&zoomparams=

**Rights metadata:**

Image and original data provided by Erich Lessing Culture and Fine Arts SOURCE, N.Y.  
<http://www.artsources.com/cf/hdm/Home.aspx>  
<http://www.artsources.com/cf/hdm/FreePLight.aspx?ID=LES>

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**Structural metadata:** The interface allows navigating between the 'Information' and 'File properties' tabs, which is highlighted as structural metadata.

- Example Artstor record
- Descriptive: creator, title, date, material, and measurements (information about the real statue)
- Technical: Format, file name, width and height (information about the digital surrogate)
- Rights metadata (administrative) - photo credit
- Structural metadata - going back and forth between the two tabs of information and file properties. The tabs form the containers for the information, which is all organized by the code underlying the display of the information.
  - Another example of structural metadata would be a table of contents in a book of essays

## Delegation anecdote\_Felix Aripa2009

Download

### DESCRIPTION:

Stanislas Aripa was an interpreter for the Tribal Leaders who couldn't speak English. Felix Aripa, tells an anecdote of his father's (Stanislas Aripa) trip to Washington D.C.

### CULTURAL NARRATIVE:

FA: I have a picture, my mother and my dad had taken in Spokane city, they always called it Spokane city. And that was taken in 1906 before he went to delegation, and... My dad says that when they, when the delegation to Washington... when they got over there, oh (santmet khwe... khwe schintelymikhumet (they lost their Superintendent), he took off and gee we didn't know where, where to go. And that's when my dad asked, I guess, I don't know, somewhere in Washington, asked about Senator Heyburn. And so they gave him directions to go to Senator Heyburn.

They, I don't know, got a cab, got to his residence, hoy ch ntsu'wtsu'wipm (then we knocked on the door), said they opened the door and there was Senator Heyburn. He looked and said ah Pier (hello Peter)! You know Chief Mochelme called him Pier, (laughs) And that's when my Dad told him, you know, that uh...their Superintendent, you know, that came with them, when we got here, he took off and we didn't know where.

So that's when they said they got into Senator Heyburn's, they all sat down, and I guess he had a peace pipe. So he had, I don't know which one of them to light it, you know, and they passed it around. He said he (Senator Heyburn) had an idea of what the Tribe wanted. [He] Said they were talking, and, while they were talking, you know, and then all at once, somebody went and answered the door and here it was the Superintendent (laugh). Charles O. Worley, [he] said he come in, [The Superintendent was] asking "who is that?" [He] said we ignored him (laugh) MIL: They had no time for him. FA: He ignored them when they got there, and he was trying to make himself be introduced to Senator Heyburn. [they told Senator Heyburn] uh-h-h he's the Superintendent (laughing).

----- Audio was recorded during an Elders Meeting at hñqwa'qwe'elñ (Language Center) on 1-15-09. Elders in attendance: Marie Irene Lowley (MI), Felix Aripa (FA). Other staff in attendance: Kim Matheson (KM) and Raymond Brinkman (RB). Audio transcription in English by Luke Sonder, a volunteer, and Coeur d'Alene Language portions by Kim Matheson.

### RELATED ITEMS:

#### Portrait (Front) of Louis Walking Antelope FEB 1908

Community: Plateau Peoples' Web Portal  
Category: Delegation, Government to Government Relations, Indian Names, Language



### COMMUNITY:

Coeur d'Alene

### PROTOCOL:

Open

### CATEGORY:

Delegation

### KEYWORDS:

Delegation, D.C., Government to Government Relations

### ORIGINAL DATE:

2009-01-15

### CREATOR:

Coeur d'Alene Tribe's Language Center

### LANGUAGE:

English and Coeur d'Alene

### RIGHTS:

Coeur d'Alene Tribe

### TRADITIONAL KNOWLEDGE LABELS:



TK Attribution Label (TK A) 1.0

### LICENSING OPTIONS:

Attribution-NonCommercial-NoDerivatives 4.0 International (CC BY-NC-ND 4.0)

### SOURCE:

01-15-09 Elder's Meeting

### PUBLISHER:

Kim Matheson

### TYPE:

audio file

### FORMAT:

.mp3

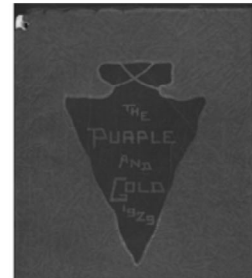
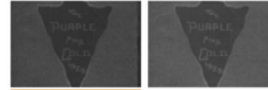
### AUTHOR:

alexnm

## PURPLE AND GOLD FRONTCOVER



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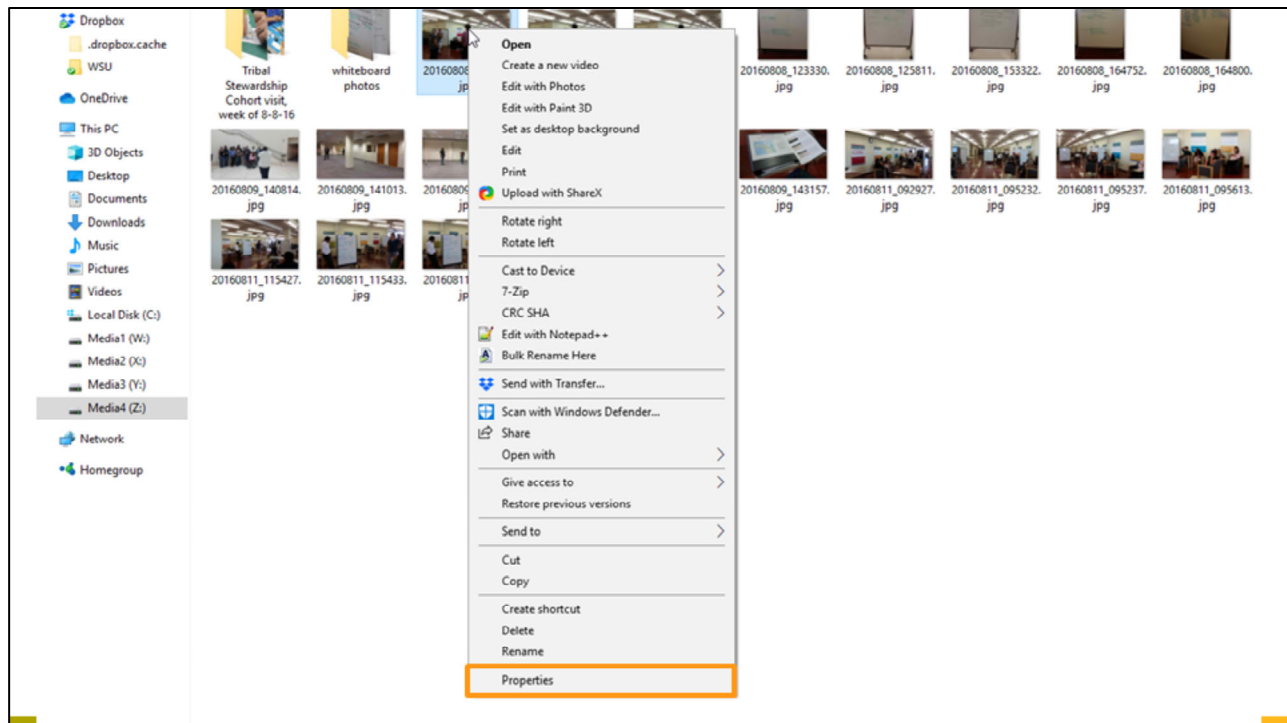
Community
Original
Category
Keywords
Original Date
Creator
Language
Rights
Traditional Knowledge Labels
Licensing Options
Source
Publisher
Type
Format
Author

- Examples Plateau Peoples' Web Portal
- Descriptive: info in description and cultural narrative, title, category/keywords, and other fields
- Technical: Type, format
- Rights metadata (administrative) - Rights, TK labels, licensing options
- Structural metadata - the item to the right shows a multi-page yearbook - the pages and table of contents listed in the record are structural

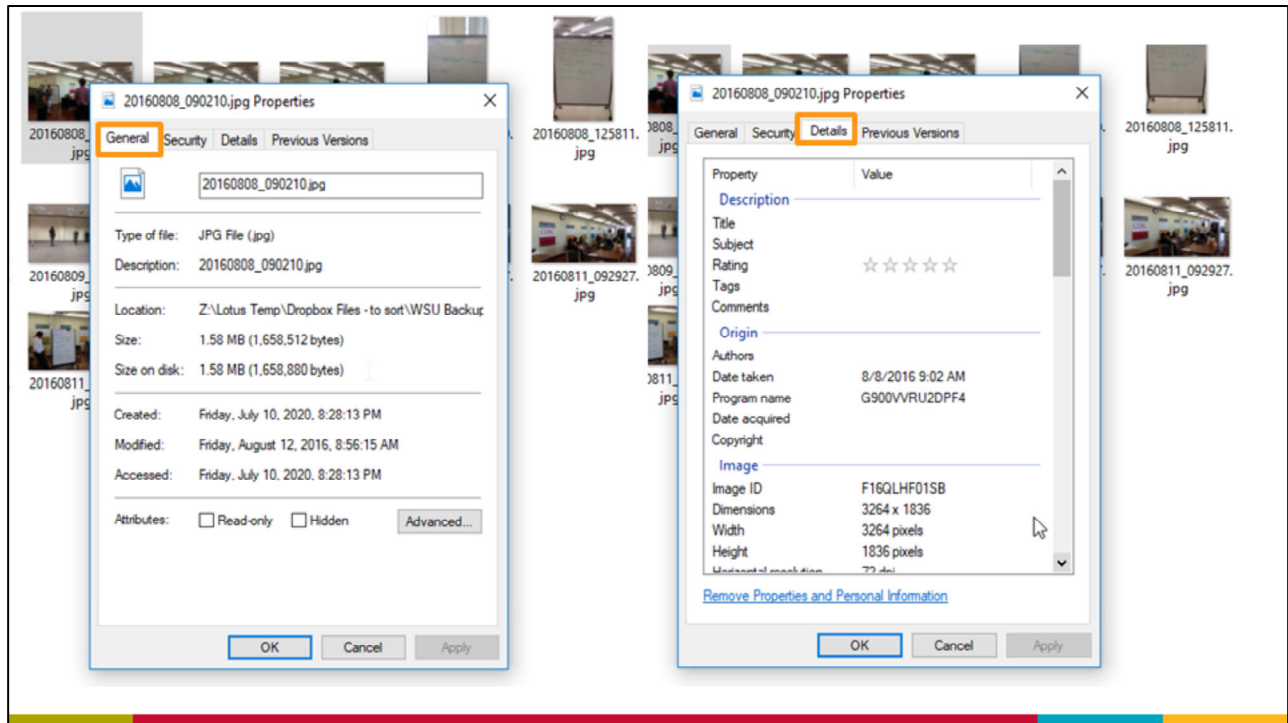
# Embedded Metadata

- Stored within file or alongside
  - Travels with file
- Different types of embedded metadata for different formats
  - Images: Exif, IPTC
  - Audio: BWF
- Use embedded metadata alongside your other description and documentation

- Together, all this information that can be found through Properties on a file is referred to as embedded metadata
- Embedded metadata is stored within the file itself
- It can either be embedded right in the file, or in an attached, “sidecar” file - depending on exactly what it is.
  - It always stays WITH THE FILE it describes.
- Embedded metadata makes the file self-describing,
- It travels with the file - however, when uploading to certain websites, such as social media platforms be aware that these sites often *remove* embedded metadata
- Embedded metadata is different for different types of files
- Specifications for embedded metadata exist for file types
  - Such as EXIF and IPTC metadata for images, such as the one I am using in my example
  - An audio file can have Broadcast WAVE format metadata
- We recommend using embedded metadata in ways that support and extend your existing descriptive, management, and preservation practices
  - Some this embedded metadata is essential for digital preservation metadata
- While descriptive and administrative metadata are usually created manually, technical metadata is often automatically recorded by your system.



- **How to view embedded metadata in Windows File Explorer**
  - Right click on a file
  - Open with is a good option, which would be another choice besides double clicking to open the file
    - This would be handy if you want to open with an image editor rather than your default viewer
  - Properties is an extremely important view to understand
    - This is all the information about the particular file, which is embedded within it
- If on Mac - right click and Get Info.



- The details tab in the properties window has many fields of information which may be useful to you
- Some fields can actually be edited through the Properties Window, while other fields will need to be edited by an external program.
- Description
  - Title, subject, rating, tags, and comments
- Origin
  - Authors, date taken, program name, date acquired, and copyright
- Other categories are Image, Camera, Advanced Photo and File

## Tools for Embedded Metadata

- Consider functions needed
  - View
  - Edit
  - Extract
- The DAM Directory (DAM Tools)  
<https://damdirectory.libguides.com/damtools>
  - Metadata editing/extraction tools
- POWRR Tool Grid  
<https://www.digipres.org/tools/>



## Software for working with Embedded Metadata

- Adobe Products (Bridge, Photoshop, Lightroom)
- EXIFtoolGUI
- IrfanView
- Metadata-extractor
- iTunes
- Metadata-Extraction Tool
- BWF MetaEdit
- Audacity
- Metadata Quality Control (MDQC)
- AVI MetaEdit

- There are programs you can use to efficiently work with embedded metadata,
  - Use Adobe Bridge, Photoshop, or Lightroom to edit the embedded metadata of multiple image files at once
  - IrfanView is a free program to edit embedded metadata
  - You can edit audio metadata in iTunes
  - BWF metaedit is a free tool that lets you embed, validate, and export metadata in Broadcast Wave Format Audio Files
- Using Windows File Explorer to examine your files is a great window into more possibilities for your file information and management

# Credits

- Images
  - Slide 18: [blog.optimalbi.com](http://blog.optimalbi.com), [slideshare.net](http://slideshare.net)
  - Slide 20: Plateau Peoples' Web Portal
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- [Minicons](#) by Webalys
- *This template is free to use under [Creative Commons Attribution license](#).*
- These slides contain changes to color scheme and content.

## Using this Resource

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