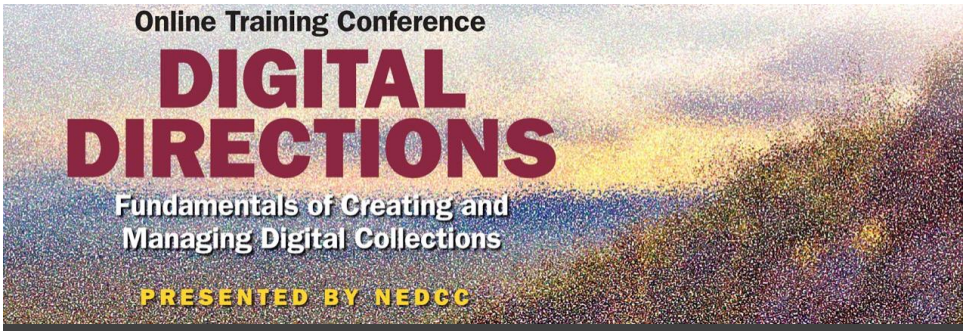


Session 1: Digital Preservation: Overview of Concepts, Standards, and Planning

Sam Meister, Archival Consultant
Columbus, OH
samalanmeister@gmail.com | @samalanmeister

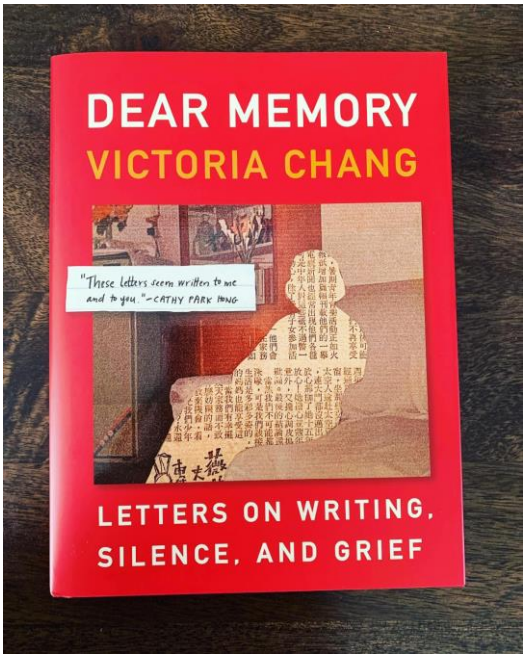
www.nedcc.org

Monday, 11/15/2021

Goals

- Provide a high level view of digital preservation
- Get you excited about doing this work!
- Point you to some resources where you can dig deeper into specific topics

Story + Thought Exercise



https://twitter.com/VChangPoet/status/1440470756576542724

https://flic.kr/p/EDWoPR

Concepts and Definitions

Digitization does not equal Digital Preservation

Digital Preservation

Digital Stewardship

Digital Archives

Digital Curation

Digital Asset Management

Digital Preservation

"the series of managed activities necessary to ensure continued access to digital materials for as long as necessary"

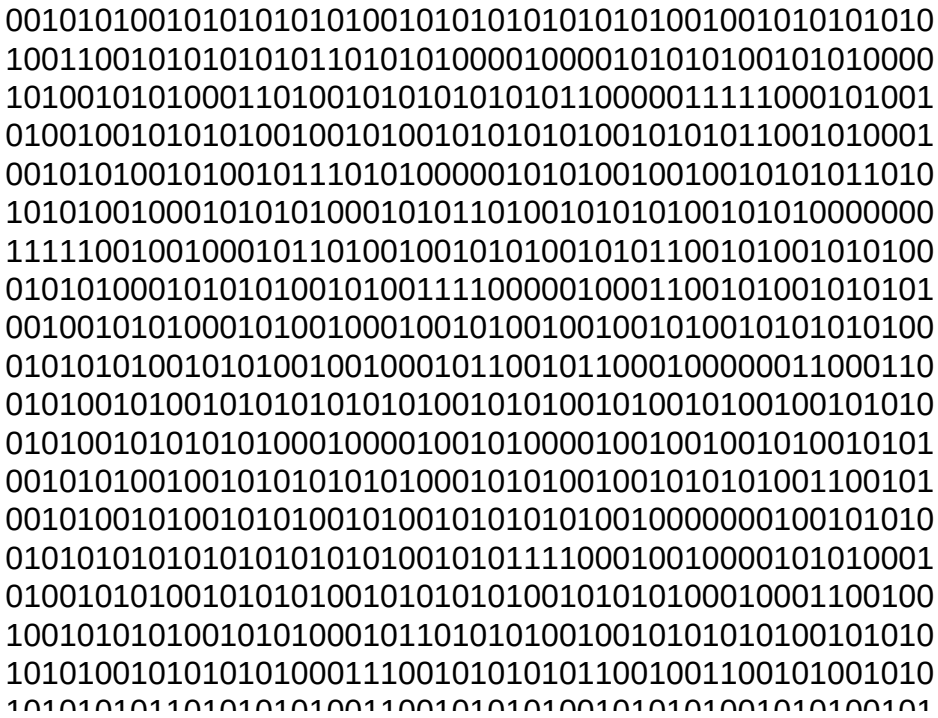
https://www.dpconline.org/digipres/what-is-digipres

Digital Objects

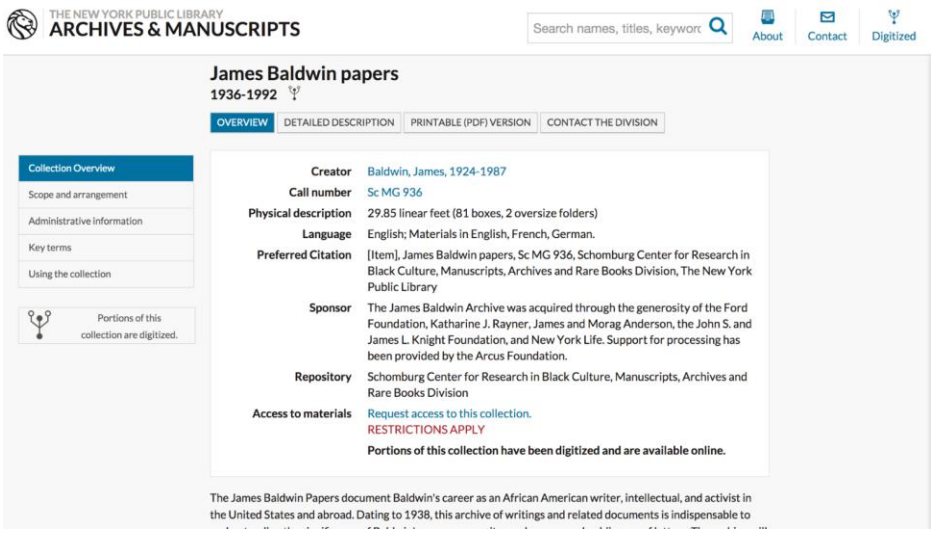
Born-digital

https://flic.kr/p/2imkkvo

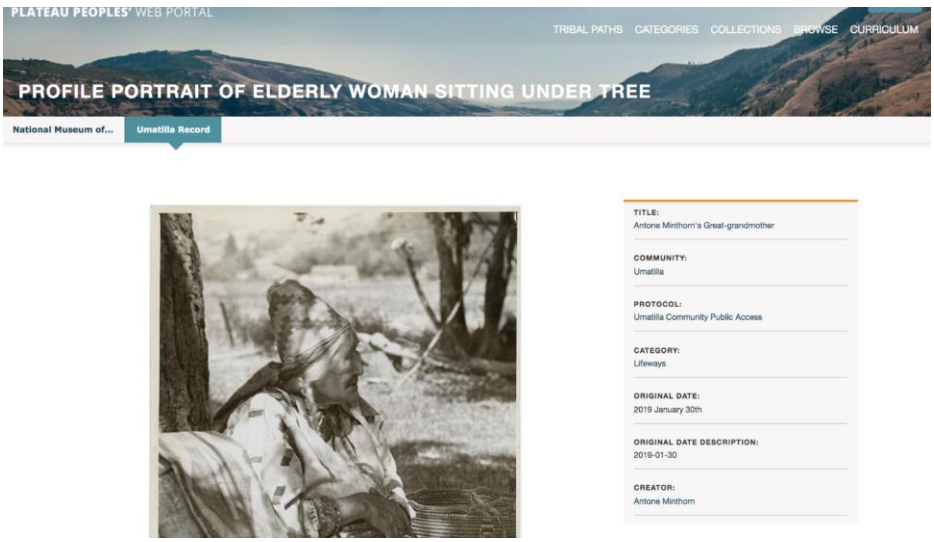
Digital Object Elements

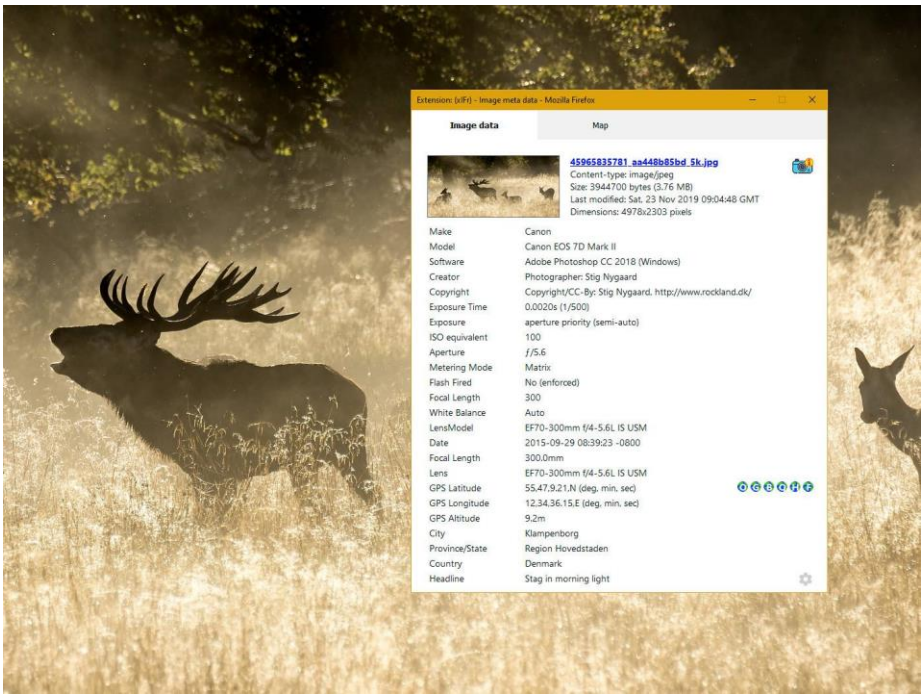


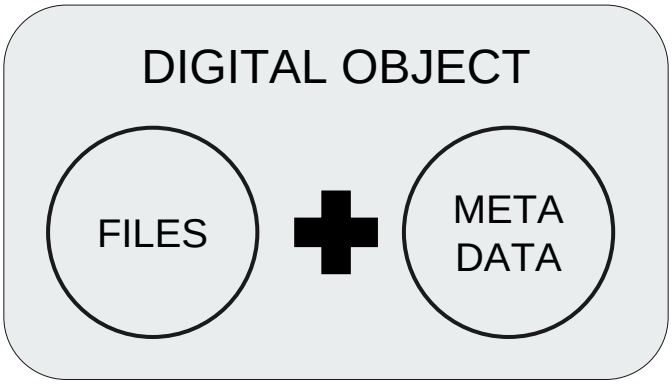
Metadata



https://archives.nypl.org/scm/24143#descriptive_identity

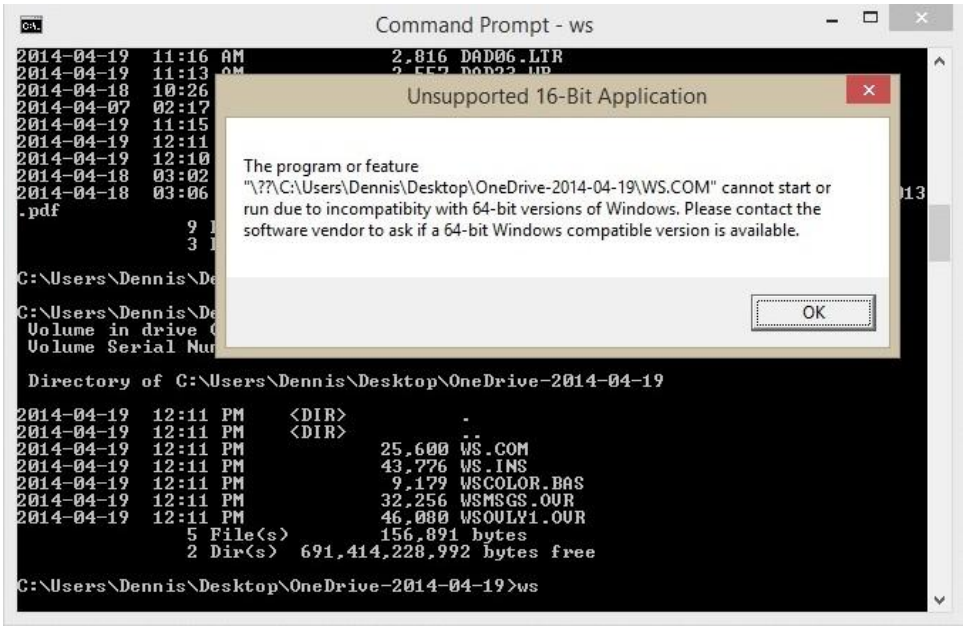



Extension: (cliFi) - Image meta data - Mozilla Firefox
Image data
Map
459658357 81_aa448b85bd_5k.jpg
Content-type: image/jpeg
Size: 3944700 bytes (3.76 MB)
Last modified: Sat, 23 Nov 2019 09:04:48 GMT
Dimensions: 4978x2303 pixels
Make Canon
Model Canon EOS 7D Mark II
Software Adobe Photoshop CC 2018 (Windows)
Creator Photographer: Stig Nygaard
Copyright Copyright/CC-By: Stig Nygaard, http://www.rockland.dk/
Exposure Time 0.0020s (1/500)
Exposure aperture priority (semi-auto)
ISO equivalent 100
Aperture ƒ/5.6
Metering Mode Matrix
Flash Fired No (enforced)
Focal Length 300
White Balance Auto
LensModel EF70-300mm f/4-5.6L IS USM
Date 2015-09-29 08:39:23 -0800
Focal Length 300.0mm
Lens EF70-300mm f/4-5.6L IS USM
GPS Latitude 55,47,9.21,N (deg, min, sec)
GPS Longitude 12,34,36.15,E (deg, min, sec)
GPS Altitude 9.2m
City Klampenborg
Province/State Region Hovedstaden
Country Denmark
Headline Stag in morning light

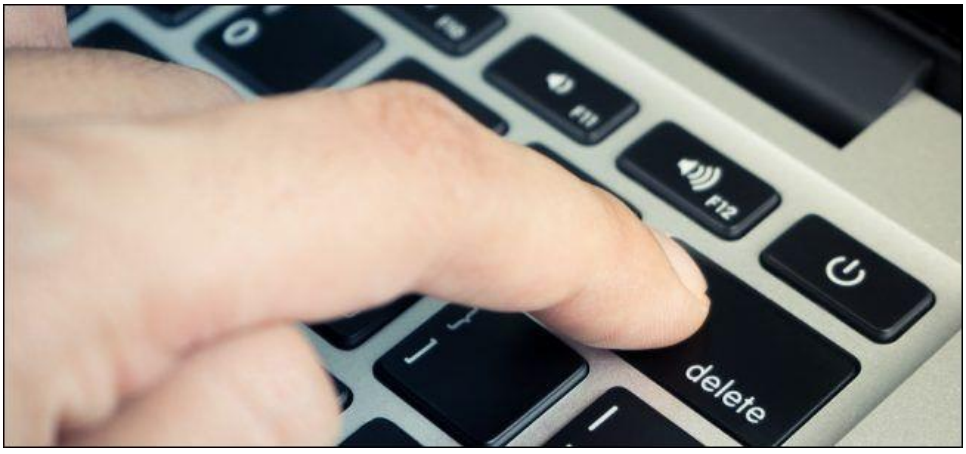

DIGITAL OBJECT
FILES
META DATA

Risks and Challenges

Mac OS X can't repair the disk "MBA64TM."
You can still open or copy files on the disk, but you can't save changes to files on the disk. Back up the disk and reformat it as soon as you can.
OK


Command Prompt - ws
Unsupported 16-Bit Application
The program or feature "\??\C:\Users\Dennis\Desktop\OneDrive-2014-04-19\WS.COM" cannot start or run due to incompatibity with 64-bit versions of Windows. Please contact the software vendor to ask if a 64-bit Windows compatible version is available.
OK
2014-04-19 11:16 AM 2,816 DAD06.LTR
.pdf
Directory of C:\Users\Dennis\Desktop\OneDrive-2014-04-19
2014-04-19 12:11 PM <DIR> .
2014-04-19 12:11 PM <DIR> ..
2014-04-19 12:11 PM 25,600 WS.COM
2014-04-19 12:11 PM 43,776 WS.INS
2014-04-19 12:11 PM 9,179 WSCOLOR.BAS
2014-04-19 12:11 PM 32,256 WSMSGS.OVR
2014-04-19 12:11 PM 46,080 WSOVLY1.OVR
5 File(s) 156,891 bytes
2 Dir(s) 691,414,228,992 bytes free
C:\Users\Dennis\Desktop\OneDrive-2014-04-19>ws

Created by sultan mohammed
from Noun Project



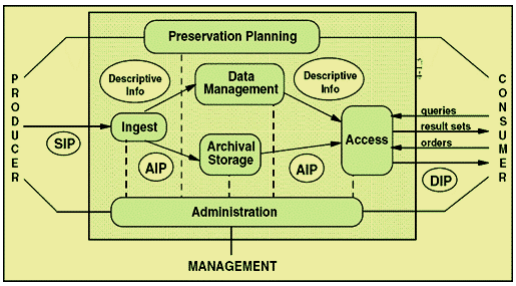
Organizational Risks

- Leadership support for preservation mandate
- Changes in strategic direction and/or funding
- Leadership changes
- Succession planning
- Lack of dedicated resources and/or budget

Standards

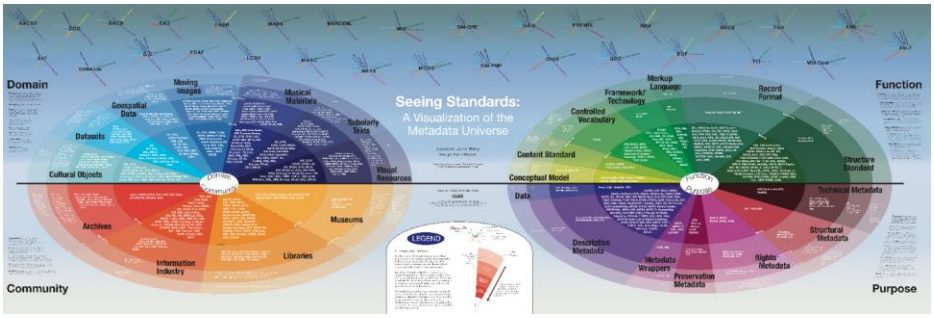
OAIS

Open Archival Information System - Reference Model



By Poppen - Own work, Public Domain, https://commons.wikimedia.org/w/index.php?curid=9882077

Metadata Standards



http://jennriley.com/metadatamap/

PREMIS

Preservation Metadata Implementation Strategies

https://www.loc.gov/standards/premis/

Standards Issues and Challenges

- Standards tend to be intimidating to read, and resource intensive to fully implement
- Technological change happens at a much faster pace than standards, which tend to develop slowly and methodically
- Not possible for standards to be fully prescriptive

Planning and Strategies

Vision

Mission

Values

Policy Framework

Policy Framework

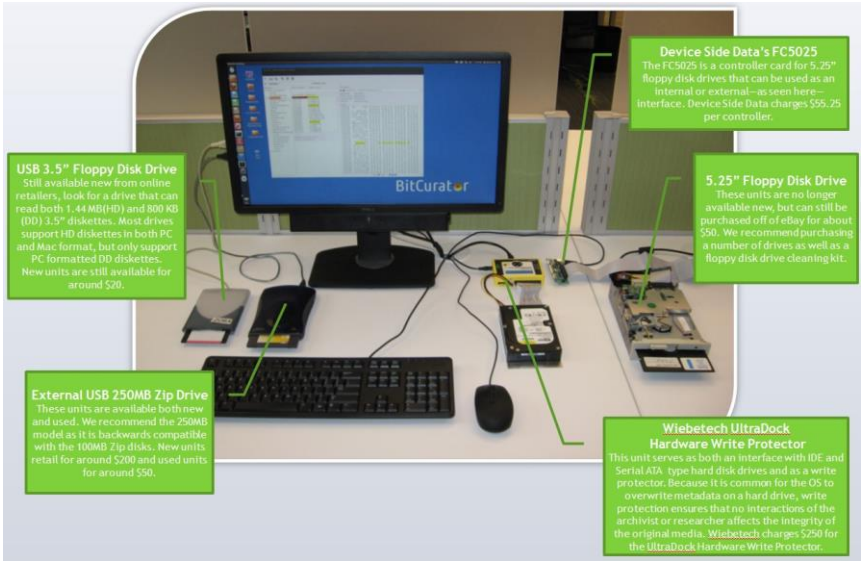
- Demonstrate accountability and transparency
- Clear, concise, actionable
- Align with existing policies

Policy Framework

- Collection Development
- Records Retention
- Preservation
- Access
- Disaster and Emergency Plans

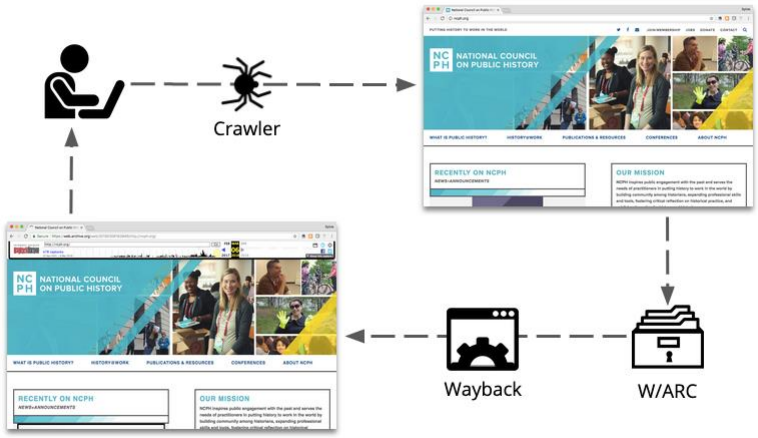
Practices

Acquisition - Digital Forensics



https://bitcurator.net/wp-content/uploads/sites/1099/2018/07/DCW-Annotated.jpg

Web Archiving



https://support.archive-it.org/hc/en-us/articles/360041674111-What-is-web-archiving-

Web Archiving

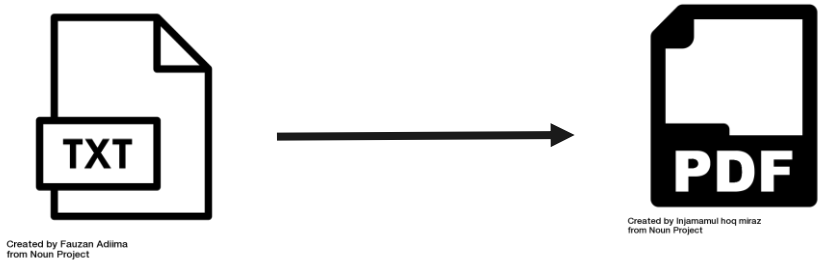
Documenting the Now

https://www.docnow.io/

National Forum on Ethics and Archiving the Web

https://eaw.rhizome.org/

Format Migration



Created by Fauzan Adiima
from Noun Project

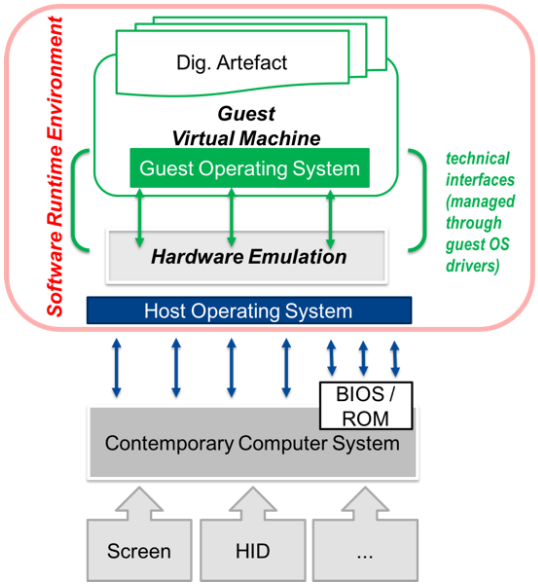
Created by Injamamul hoq miraz
from Noun Project

Format Migration

Library of Congress Recommended Formats

https://www.loc.gov/preservation/resources/rfs/TOC.html

Emulation



https://www.tate.org.uk/file/introduction-emulation-based-preservation-strategy-software-based-artworks

Emulation

What is Emulation in Libraries, Archives, and Museums?

https://www.softwarepreservationnetwork.org/what-is-emulation-in-libraries-archives-and-museums/

Metadata

Metadata Factors

- Technology
- Change
- Authenticity
- Rights management
- Future Use

Metadata

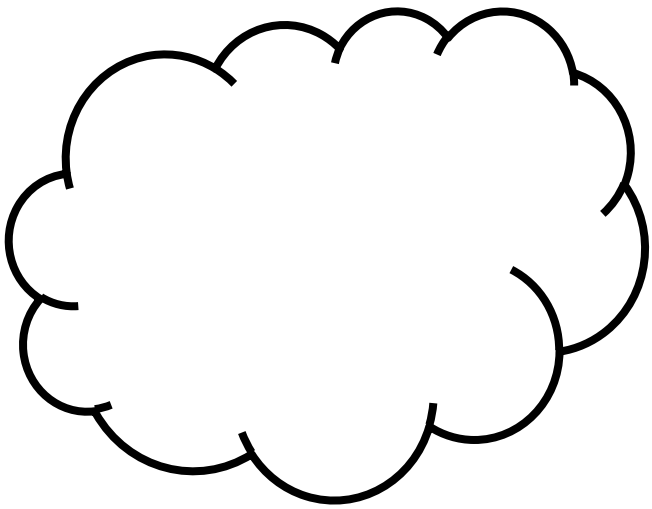
UC Guidelines for Born-Digital Archival Description

https://escholarship.org/uc/item/9cg222jc

Storage

Storage Good Practice

- Multiple independent copies
- Geographical distribution
- Use different storage technologies
- Combination of online and offline
- Actively monitored



Google Data Center, Council Bluffs Iowa
https://www.flickr.com/photos/146321178@N05/49062863796/

Storage

Digital Preservation Storage Criteria

https://osf.io/sjc6u/

Toward Environmentally Sustainable Digital Preservation

https://dash.harvard.edu/handle/1/40741399

Fixity

PRESENT

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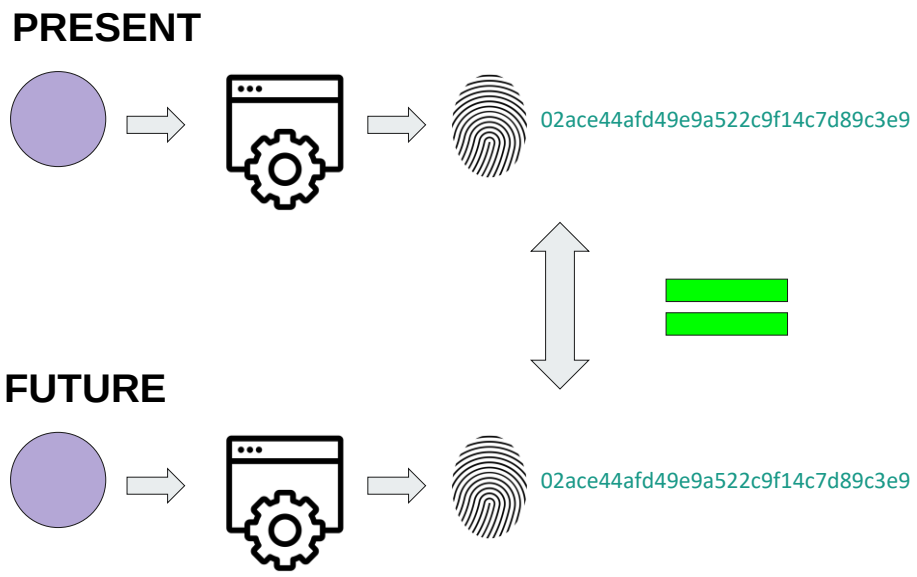
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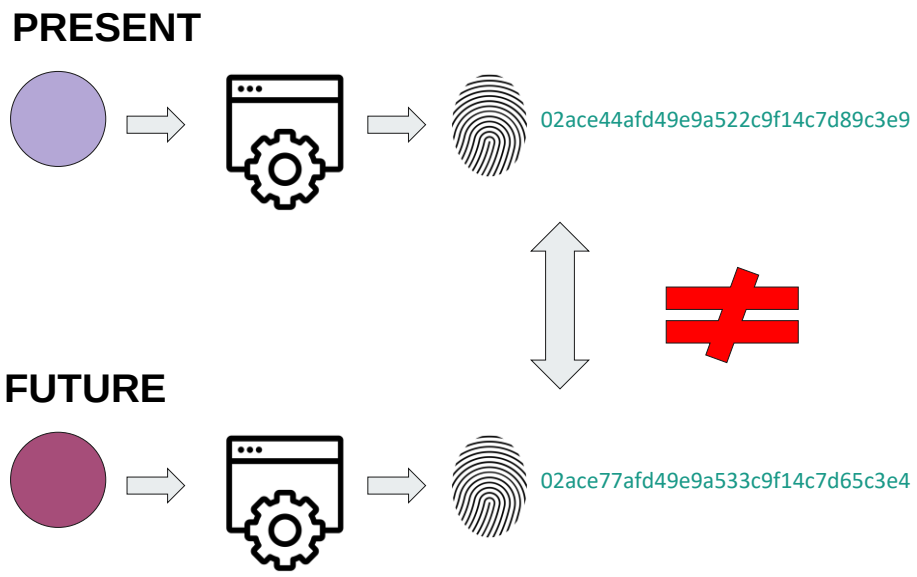
FUTURE
02ace44afd49e9a522c9f14c7d89c3e9


PRESENT
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FUTURE
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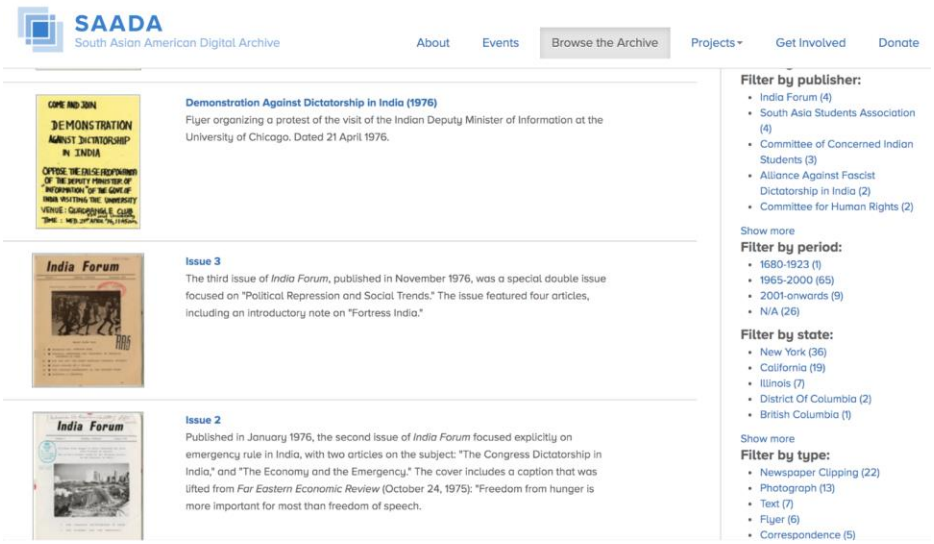
Access


SAADA
South Asian American Digital Archive
About
Events
Browse the Archive
Projects
Get Involved
Donate
COME AND JOIN
DEMONSTRATION AGAINST DICTATORSHIP IN INDIA
Demonstration Against Dictatorship in India (1976)
Flyer organizing a protest of the visit of the Indian Deputy Minister of Information at the University of Chicago. Dated 21 April 1976.
India Forum
Issue 3
The third issue of India Forum, published in November 1976, was a special double issue focused on "Political Repression and Social Trends." The issue featured four articles, including an introductory note on "Fortress India."
India Forum
Issue 2
Published in January 1976, the second issue of India Forum focused explicitly on emergency rule in India, with two articles on the subject: "The Congress Dictatorship in India," and "The Economy and the Emergency." The cover includes a caption that was lifted from Far Eastern Economic Review (October 24, 1975): "Freedom from hunger is more important for most than freedom of speech.
Filter by publisher:
India Forum (4)
South Asia Students Association (4)
Committee of Concerned Indian Students (3)
Alliance Against Fascist Dictatorship in India (2)
Committee for Human Rights (2)
Show more
Filter by period:
1680-1923 (1)
1965-2000 (65)
2001-onwards (9)
N/A (26)
Filter by state:
New York (36)
California (19)
Illinois (7)
District Of Columbia (2)
British Columbia (1)
Show more
Filter by type:
Newspaper Clipping (22)
Photograph (13)
Text (7)
Flyer (6)
Correspondence (5)

Access

Levels of Born-Digital Access

https://osf.io/r5f78/

Digital Curation at Work: Modeling Workflows for Digital Archival Materials

http://libres.uncg.edu/IR/listing.aspx?id=32805

Staffing

Make digital preservation a core activity

Support ongoing Training

https://digitalpowrr.niu.edu/

Support ongoing Training

Sustainable Heritage Network

https://sustainableheritagenetwork.org/digital-stewardship-curriculum-page

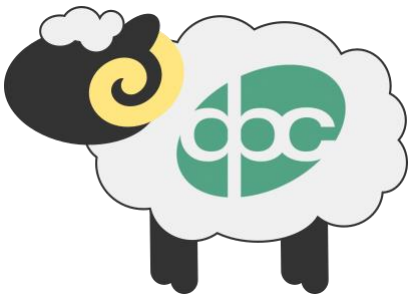
Assessment

NDSA Levels of Preservation

Functional Area	Level			
	Level 1 (Know your content)	**Level 2 (Protect your content)**	**Level 3 (Monitor your content)**	**Level 4 (Sustain your content)**
Storage	Have two complete copies in separate locations Document all storage media where content is stored Put content into stable storage	Have three complete copies with at least one copy in a separate geographic location Document storage and storage media indicating the resources and dependencies they require to function	Have at least one copy in a geographic location with a different disaster threat than the other copies Have at least one copy on a different storage media type Track the obsolescence of storage and media	Have at least three copies in geographic locations, each with a different disaster threat Maximize storage diversification to avoid single points of failure Have a plan and execute actions to address obsolescence of storage hardware, software, and media
Integrity	Verify integrity information if it has been provided with the content Generate integrity information if not provided with the content Virus check all content; isolate content for quarantine as needed	Verify integrity information when moving or copying content Use write-blockers when working with original media Back up integrity information and store copy in a separate location from the content	Verify integrity information of content at fixed intervals Document integrity information verification processes and outcomes Perform audit of integrity information on demand	Verify integrity information in response to specific events or activities Replace or repair corrupted content as necessary
Control	Determine the human and software agents that should be authorized to read, write, move, and delete content	Document the human and software agents authorized to read, write, move, and delete content and apply these	Maintain logs and identify the human and software agents that performed actions on content	Perform periodic review of actions/access logs
Metadata	Create inventory of content, also documenting current storage locations Backup inventory and store at least one copy separately from content	Store enough metadata to know what the content is (this might include some combination of administrative, technical, descriptive, preservation, and structural)	Determine what metadata standards to apply Find and fill gaps in your metadata to meet those standards	Record preservation actions associated with content and when those actions occur Implement metadata standards chosen
Content	Document file formats and other essential content characteristics including how and when these were identified	Verify file formats and other essential content characteristics Build relationships with content creators to encourage sustainable file choices	Monitor for obsolescence, and changes in technologies on which content is dependent	Perform migrations, normalizations, emulation, and similar activities that ensure content can be accessed

https://osf.io/2mkwx/

DPC Rapid Assessment Model



https://www.dpconline.org/digipres/dpc-ram

Digital Preservation Peer Assessment

https://www.nedcc.org/preservation-training/digital-preservation-assessment-training

Trusted Digital Repositories

Approaches

Weave digital preservation in

Invest in people

Embrace collaboration

Resources

Resources

Digital Preservation Handbook
https://www.dpconline.org/handbook

National Digital Stewardship Alliance
https://ndsa.org/

DLF Born-Digital Access Working Group
https://www.diglib.org/groups/born-digital-access-group/

Resources

BitCurator Consortium

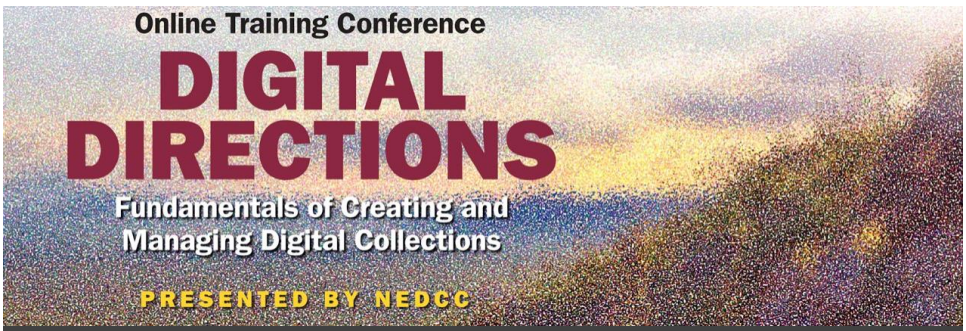
https://bitcuratorconsortium.org/

OSSArcFlow Project

https://educopia.org/ossarcflow/

A Framework of Guidance for Building Good Digital Collections

http://framework.niso.org/



Thank you!

Please complete the online evaluation form.
A link was sent to your email address.
You can edit your responses until you click submit.