

Tools and Resources for Data Curation

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UC Curation Center / California Digital Library

Summer Institute

June 2014



Berkeley Initiative for Transparency in the Social Sciences

Agenda

- Who we are
- Data curation, publication, and sharing
- Tools to help you
 - DMPTool 
 - DataUp 
 - Dash 
 - WAS 
- Summary
- Discussion

Who we are



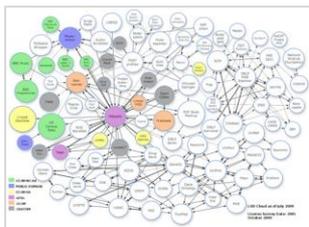
“To support the University of California community’s pursuit of scholarship and ... public service mission”

Research & Scholarship Lifecycle



Data curation, publication, and sharing

- Increasingly, a requirement for funding and publication
- Transparency ↔ trust
- Reduce needless duplication of effort
- Leverage prior investments
- Expand the reach of your research, and get credit for it
- Good for science, good for scientists



www.flickr.com/photos/_after8_/4052028795



berkeley.edu/teach



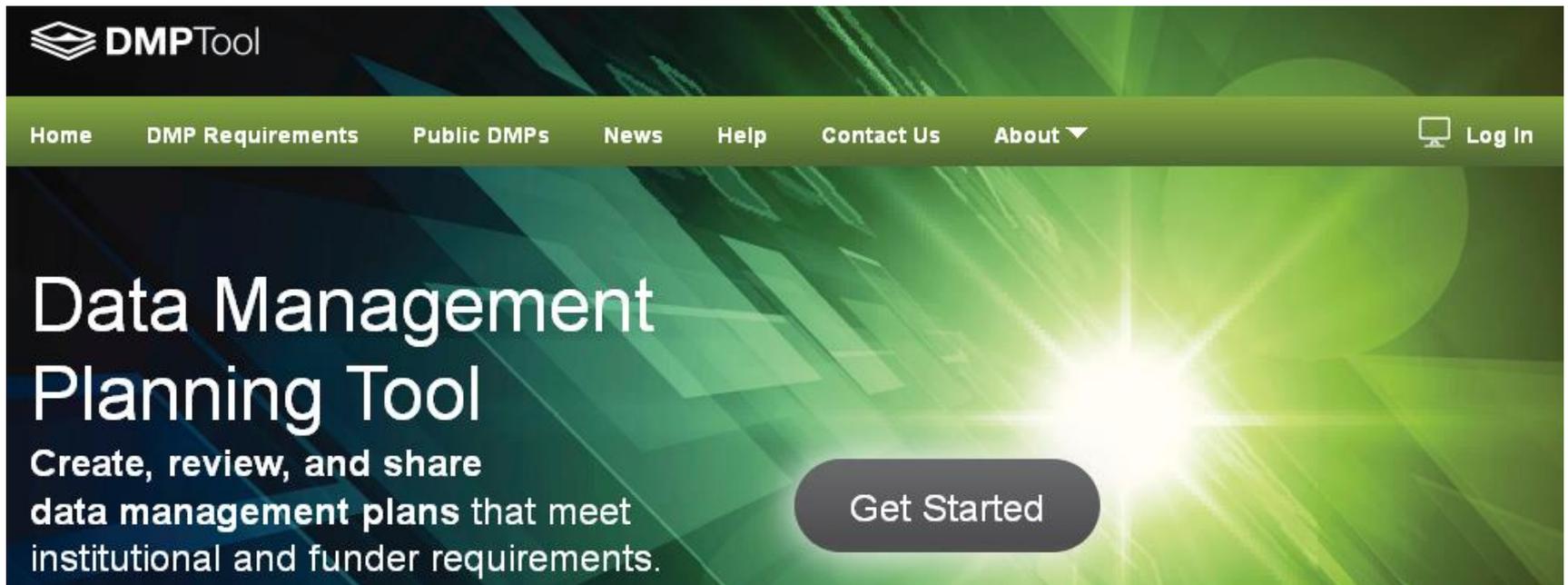
www.flickr.com/photos/infocux/8450190120

Data curation, publication, and sharing

- Create/acquire a dataset in a form that is inherently preservable and (re)usable
- Describe the dataset in scientifically-meaningful ways
- Give the dataset a unique identifier for persistent citation
- License the dataset under CC0  or CC-BY 
- Deposit the dataset in a (non-commercial) repository where it will receive pro-active curation management
- Expose the dataset for harvesting by abstracting/indexing services and search engines

DMPTool

- “*Fulfill institutional and funder mandates*”



Build your Data Management Plan

June 2014

dmptool.org

blog.dmptool.org

github.com/CDLUC3/dmptool/wiki

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DMPTool

- Free and open for all
- Hosted by CDL, with code released as open source
- Supports data management requirements for NSF, NIH, NEH, NOAA, IMLS, and other federal agencies and private funders
- New version released on May 29
- Developed by a partnership of universities, museums, and researchers, with support from Sloan Foundation and IMLS



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github.com/CDLUC3/dmptool/wiki

DMPTool

- In addition to fulfilling external requirements, the DMPTool provides:
 - Framework to plan for management of research data
 - Comprehensive list of issues involved with data management best practices
 - Information about local resources and services: repositories, workshops, consultation services, etc.
 - Community of stakeholders: researchers, lab managers, IT specialists, archivists, grant administrators, funding agencies



Build your Data Management Plan

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DataUp

- “Curation for tabular datasets”

The screenshot shows the DataUp website homepage. At the top left is the DataUp logo with the tagline "Describe, manage & share your data". To the right of the logo is a descriptive sentence: "An open source tool that helps researchers document, manage, and archive their tabular data." Below this is a navigation bar with four links: "DataUp Features", "Start Using DataUp", "Customize DataUp", and "Contact Us". The main content area features a large image of a hand typing on a keyboard. Overlaid on the left side of this image is a box titled "What DataUp can do for you" with a list of features: "Check for Best Practices", "Create Metadata", "Get Credit", and "Archive & Share". A "SEE MORE" link is at the bottom of this list. To the right of the image is a section titled "Check for Best Practices" with the text: "Find out if characteristics of your dataset will prevent its future use." On the far right, there is a "Why DataUp?" section with a paragraph explaining the benefits of good data management practices. At the bottom of the page, there are three columns: "About the Project:" (linking to funders, partners, history, and evolution), "Resources:" (linking to CDL resources, data management help, and presentations), and "Discover UC3:" (linking to UC Curation Center's services). On the right side of the bottom row, there is an email subscription form titled "Add your email to the DataUp listserv for updates" with an "Email Address" input field and a "Submit" button.



dataup.org
dataup.cdlib.org

DataUp

- Excel is often the database of choice for research

The screenshot shows the DataUp web interface. At the top, there is a navigation bar with the DataUp logo and a user greeting: "Welcome, Stephen Abrams | Sign Out". Below this is a "My Files" section with a "View All" dropdown and "File Name" dropdown. There are three icons: "Post", "Download", and "Delete".

Below the navigation bar, there is a file upload area with a dashed box containing "Add a New File" and "OR Drag & Drop Files Here". To the right of this area are two file cards. The first card is orange and labeled "AllFTLD_IDs.csv.xlsx" with "Test Repository" below it and a checkmark. The second card is grey and labeled "Temp_samples.xlsx" with "Test Repository" below it and a checkmark.

Below the file cards is a detailed view for the "AllFTLD_IDs.csv" file. The details are as follows:

File Name	Repository Name
AllFTLD_IDs.csv	Test Repository
File Extension	Identifier
xlsx	ark:/99999/fk4xs86qw
File Size	Citation
14.72 KB	Abrams, Stephen(2014): AllFTLD_IDs.csv. . Abrams, Stephen. ark:/99999/fk4xs86qw
Published Date	Status
3/5/2014 22:20:2	Posted



dataup.org

dataup.cdlib.org

DataUp

- Drag-and-drop data upload
- Opportunity to add descriptive metadata
- Assignment of persistent identifier / generation of persistent citation
- Best practices check
- Packaging and submission to ONEShare repository

Performed automatically

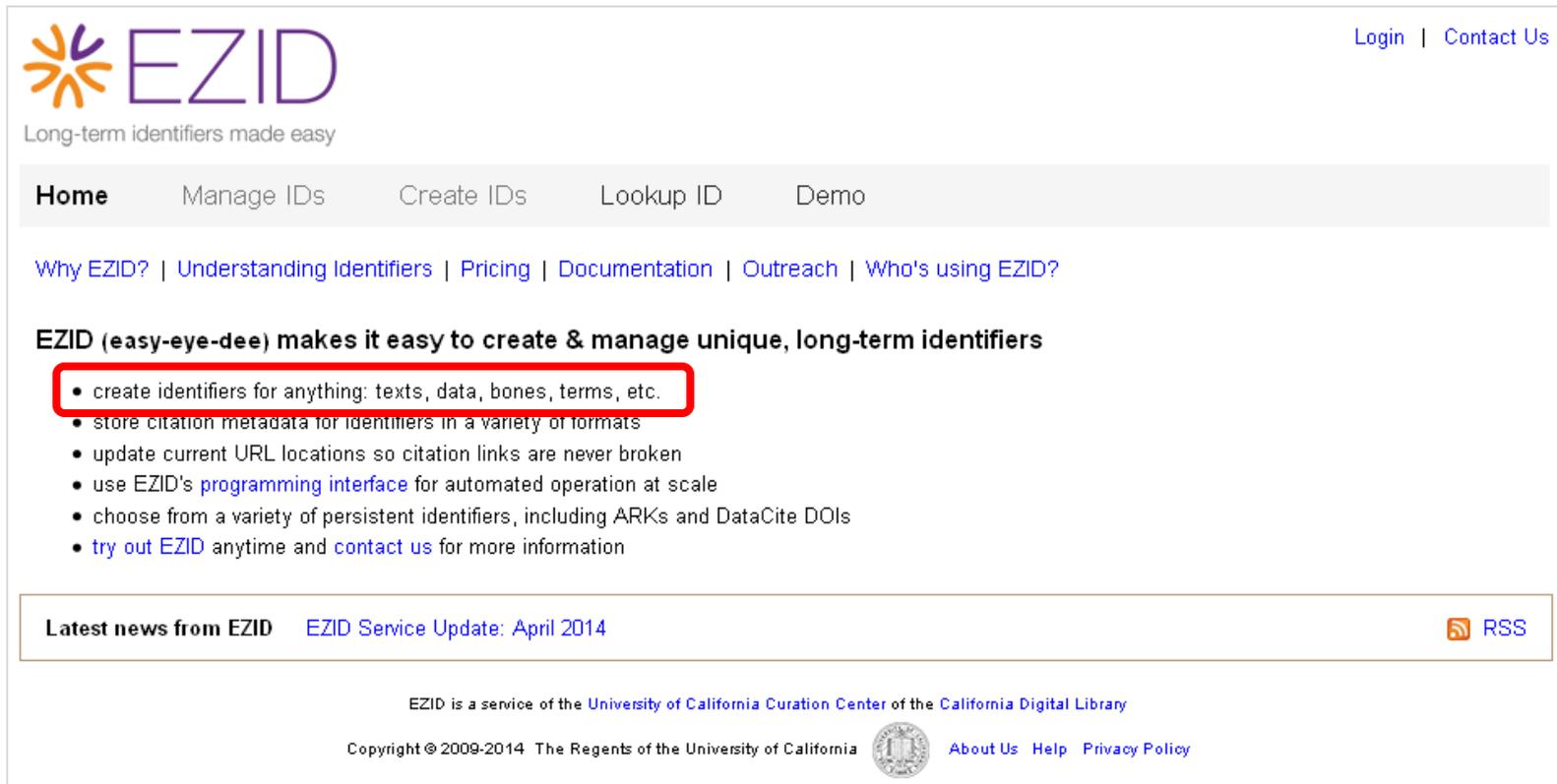


dataup.org

dataup.cdlib.org

EZID

- “*Long-term identifiers made easy*”



The screenshot shows the EZID website homepage. At the top left is the EZID logo, a stylized orange starburst followed by the text 'EZID' in purple. Below the logo is the tagline 'Long-term identifiers made easy'. In the top right corner, there are links for 'Login' and 'Contact Us'. A navigation bar contains links for 'Home', 'Manage IDs', 'Create IDs', 'Lookup ID', and 'Demo'. Below the navigation bar, there are links for 'Why EZID?', 'Understanding Identifiers', 'Pricing', 'Documentation', 'Outreach', and 'Who's using EZID?'. The main content area features a heading: 'EZID (easy-eye-dee) makes it easy to create & manage unique, long-term identifiers'. Below this heading is a list of bullet points, with the first one, '• create identifiers for anything: texts, data, bones, terms, etc.', highlighted by a red rectangular box. The other bullet points are: '• store citation metadata for identifiers in a variety of formats', '• update current URL locations so citation links are never broken', '• use EZID's programming interface for automated operation at scale', '• choose from a variety of persistent identifiers, including ARKs and DataCite DOIs', and '• try out EZID anytime and contact us for more information'. At the bottom of the main content area, there is a section for 'Latest news from EZID' with a link to 'EZID Service Update: April 2014' and an RSS icon. The footer contains the text 'EZID is a service of the University of California Curation Center of the California Digital Library', the copyright notice 'Copyright © 2009-2014 The Regents of the University of California', a small circular logo, and links for 'About Us', 'Help', and 'Privacy Policy'.



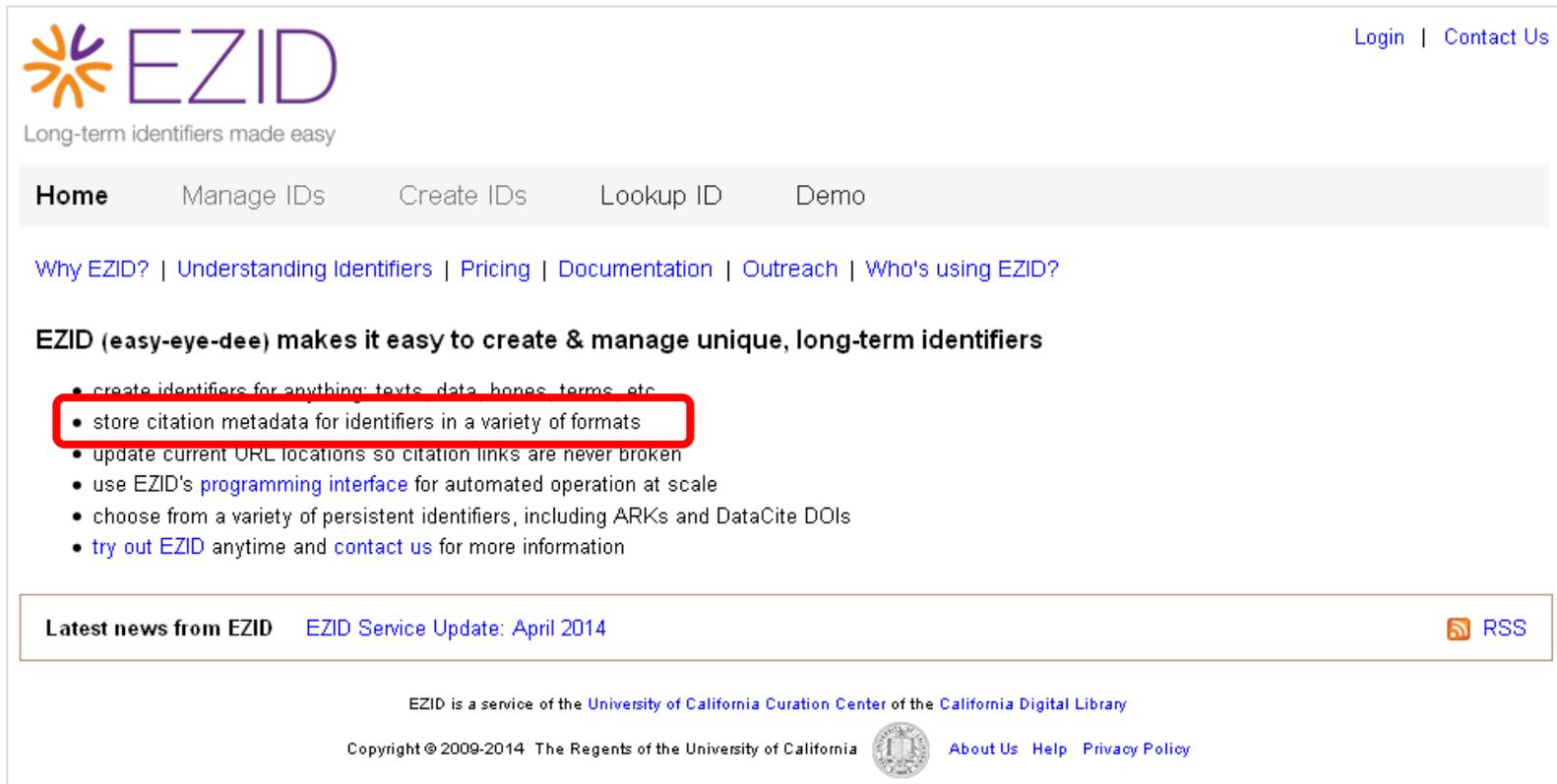
June 2014

ezid.cdlib.org

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EZID (easy-eye-dee) makes it easy to create & manage unique, long-term identifiers

- create identifiers for anything: texts, data, bones, terms, etc.
- store citation metadata for identifiers in a variety of formats
- update current URL locations so citation links are never broken
- use EZID's [programming interface](#) for automated operation at scale
- choose from a variety of persistent identifiers, including ARKs and DataCite DOIs
- [try out EZID](#) anytime and [contact us](#) for more information

Latest news from EZID [EZID Service Update: April 2014](#)  [RSS](#)

EZID is a service of the [University of California Curation Center](#) of the [California Digital Library](#)

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EZID

- “*Long-term identifiers made easy*”

The screenshot shows the EZID website homepage. At the top left is the EZID logo with the tagline "Long-term identifiers made easy". On the top right are links for "Login" and "Contact Us". A navigation bar contains "Home", "Manage IDs", "Create IDs", "Lookup ID", and "Demo". Below the navigation bar are links for "Why EZID?", "Understanding Identifiers", "Pricing", and "Documentation". A callout bubble with the text "No more 404 errors!" points to a list of features. The second feature, "update current URL locations so citation links are never broken", is highlighted with a red box. Below the list is a "Latest news from EZID" section with a link to "EZID Service Update: April 2014" and an RSS icon. At the bottom, it states "EZID is a service of the University of California Curation Center of the California Digital Library" and includes a copyright notice for 2009-2014, the University of California logo, and links for "About Us", "Help", and "Privacy Policy".

Home Manage IDs Create IDs Lookup ID Demo

Why EZID? | Understanding Identifiers | Pricing | Documentation

EZID (easy-eye-dee) makes it easy to create & manage

- create identifiers for anything: texts, data, bones, terms, etc.
- store citation metadata for identifiers in a variety of formats
- **update current URL locations so citation links are never broken**
- use EZID's [programming interface](#) for automated operation at scale
- choose from a variety of persistent identifiers, including ARKs and DataCite DOIs
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EZID

- “Long-term identifiers made easy”

EZID
Long-term identifiers made easy

Home Manage IDs Create IDs Lookup ID Demo

Why EZID? | Understanding

EZID (easy-eye-dee) metadata

- create identifiers for any
- store citation metadata
- update current URL location
- use EZID's programming
- choose from a variety of
- try out EZID anytime at

Latest news from EZID

OLAC Record
oai:cla.berkeley.edu:Bloomfield.003

Metadata

Title:	[Eastern Ojibwa notebook #14]
Contributor (researcher):	Bloomfield, Leonard
Date:	[undated]
Description:	Digital images of index to McGregor field notebook #14. Original dated 1940 or 1941 according to Nicholson (McGregor index #14)
Format:	56 digital images
Identifier:	Bloomfield.003.001
Identifier (URI):	http://cla.berkeley.edu/items/147
Is Format Of (URI):	http://dx.doi.org/doi:10.7297/X2BV7DJ2
Rights:	Items catalogued in the California Language Archive are the physical property of their respective physical repositories. Intellectual rights, including copyright, belong to item creators or their legal heirs and assigns.
Rights Holder:	Survey of California and Other Indian Languages
Subject:	Eastern Ojibwa language
Subject (ISO639):	ojg
Type (DCMI):	Text

DOI for persistent citation and bi-directional linking between publications and underlying data



Long-term identifiers made easy

June 2014

ezid.cdlib.org

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EZID

- “Long-term identifiers made easy”

The screenshot displays the EZID website interface. At the top left is the EZID logo with the tagline "Long-term identifiers made easy". Navigation links include "Home", "Manage IDs", "Create IDs", "Lookup ID", and "Demo". A "Login | Contact Us" link is in the top right. A sidebar on the left contains "Why EZID? | Understanding EZID" and a list of features: "EZID (easy-eye-dee) makes it easy to: create identifiers for any object; store citation metadata; update current URL location; use EZID's programming interface; choose from a variety of object types; try out EZID anytime anywhere." Below this is a "Latest news from EZID" section.

The main content area shows a collection page for "Merritt" (UC Berkeley Linguistics Dept California Language Archive). The object being viewed is "Bloomfield, Leonard. [Eastern Ojibwa notebook #14] (undated)" with the permanent link <http://n2t.net/ark:/b7297/x2bv7dj2>. Metadata includes: primary identifier: ark:/b7297/x2bv7dj2; title: [Eastern Ojibwa notebook #14]; creator: Bloomfield, Leonard; date: undated; local id: Bloomfield.003.001; last modified: 2013-06-29 06:25 PM UTC; created: 2013-06-29 06:21 PM UTC; total size (all versions): 3.1 GB; total versions: 2. A "Download object" button is at the bottom.

On the right, there is an "Object Lookup" search box and a "Current Version" section listing four files: Bloomfield.003.001.0001.tif, Bloomfield.003.001.0002.tif, Bloomfield.003.001.0003.tif, and Bloomfield.003.001.0004.tif. A "53 more files" link is also present. A "Prior Versions" section at the bottom right shows "Version 1: 2013-06-29 06:21 PM UTC".

Merritt

- “*Preservation and access*”



Merritt is a new cost-effective repository service from the University of California Curation Center. The UC community manage, archive, and share its valuable digital content. Use Merritt to provide preservation of digital assets, share your research with others or meet the data sharing and requirements of a grant-funded project.

Merritt is built upon a Micro-Services approach to digital curation based on devolving curation of independent, but interoperable, services that embody curation values and strategies. Since services are small and self-contained, they are collectively easier to develop, deploy, maintain. This design approach is detailed in the UC3 Curation Foundations paper.

Learn more about Merritt:

- [Handout: Merritt Uses and FAQ](#)
- [Merritt User Guide](#)

Need a Merritt Account?
Fill out the [Contact UC3 form](#) or email uc3@ucop.edu.

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[Privacy policy](#) | [Image credits](#)

- *No prescriptive requirements on content genre, type, format, structure, or metadata*
- *Strong versioning maintains complete change history*
- *Restricted or public access – under your control*
- *Enforceable data use agreements (DUAs)*
- *Storage replication to UCLA and UCSD, with ongoing auditing*
- *Integration with EZID and DataONE*
- *Proactive preservation analysis, planning, and intervention*



merritt.cdlib.org

DataONE

- “Data observation network for Earth”

DataONE
Data Observation Network for Earth

Connect
YouTube LinkedIn Facebook RSS

About Participate Resources Education Data

ONEmercury A DataONE Search Tool for Scientific Data

Search For: Results Page: 10 [SEARCH]
Hint: boolean operators and phrases are allowed, ex: precipitation or (rain and "moisture content")
 Only results with data.

Show/Hide Advanced Options Clear All Help

Fielded Search

Full Text OR
Full Text OR
Full Text

Help | clear

Date Search

Collection Date during thru
 Publication Date thru
 Either thru

Help | clear

Geographic Search

List Areas in:
USA WORLD
Select from list:
Search Area:
 overlaps encloses
North
West East
South

Help | clear

- Cyberinfrastructure
 - Distributed grid of member and coordinating nodes
 - Aggregated discovery
 - Investigator’s toolkit

- Community



Dash

- “Data sharing made easy”

The screenshot shows the Berkeley Library Dash website. At the top left is the logo for Berkeley Library, University of California, and the Dash logo with the tagline "DATA SHARING MADE EASY". A navigation bar contains four tabs: "About", "Search Data", "Share Data", and "My Datasets". Below the navigation bar is a decorative banner with a green and blue geometric pattern. The main content area is split into two columns. The left column features a search icon, the heading "Search for Data", a search input field with a "Go" button, the word "or", and a "Browse all data" button. The right column features a share icon, the heading "Share Data", a list of four benefits with checkmarks: "Make your data count", "Get credit for your data", "Ensure reproducibility", and "Promote reuse", followed by a "Meet funder requirements" item. A "Learn more" button is at the bottom of this column. At the very bottom of the page is a footer with links for "Terms of Use", "FAQ", and "Contact Us".



datashare.ucsf.edu

Dash

- Preservation repositories are complex systems
- Far too often, their interfaces are complicated and meant only for IT professionals and archivists
- Dash provides a set of user-friendly screens to step through the process:
 - *Select/upload files associated with a dataset*
 - *Augment with descriptive metadata*
 - *Review that the dataset meets requirements and is ready*
 - *Submit to the Merritt preservation repository with optionally replication to DataONE*



datashare.ucsf.edu

Dash

- Upload dataset files

The screenshot shows the Dash web interface. At the top left is the University of California logo and the Dash logo with the tagline "DATA SHARING MADE EASY". On the top right, it says "Logged in as Perry.Willett-ucop.edu@ucop.edu" with a "Logout" button. Below the header is a navigation bar with "About", "Search Data", "Share Data", and "My Datasets". A progress bar below the navigation bar shows four steps: "STEP ONE: Prepare", "STEP TWO: Describe", "STEP THREE: Upload" (which is highlighted), and "STEP FOUR: Review & Submit". The main content area is titled "Upload your datasets to Dash". It features a large dashed box with the text "Drag & [Excel icon]s here" and a green "+ Add files..." button below it. To the right of this area is an "Upload FAQ" section with a list of instructions: "Be sure you have read the terms of the Dash Data Use Agreement", "Ensure that all data relating to human subjects has been properly de-identified", "Ensure data files are the most up-to-date and complete versions", "Dash accepts all file formats.", and "Generally speaking, the data files you upload into Dash should fall into one of the following types: text, spreadsheet (csv, tab-...".

Dash

- Add descriptive information

The screenshot shows the Dash web interface. At the top left is the University of California logo and the Dash logo with the tagline 'DATA SHARING MADE EASY'. At the top right, it says 'Logged in as Perry.Willett-ucop.edu@ucop.edu' with a 'Logout' button. Below the header is a navigation bar with 'About', 'Search Data', 'Share Data', and 'My Datasets'. A progress bar below the navigation bar shows four steps: 'STEP ONE: Prepare', 'STEP TWO: Describe' (which is highlighted), 'STEP THREE: Upload', and 'STEP FOUR: Review & Submit'. The main content area is titled 'Describe your dataset' and includes a legend for '* Required Field'. The form contains several fields: '* Dataset Title' with the value 'Wind in Cuerda del Pozo. February 2012'; '* Institution' with a dropdown menu showing 'UC Berkeley'; '* Data Type' with a dropdown menu showing 'Presentation'; '* Data Creator(s)' with a text input 'Lastname, Firstname', a '+ Additional Creator' button, and a list of creators 'Aguilar, Fernando delete'; and 'Keywords' with a text input 'Keyword' and a '+ Additional Keyword' button.

Dash

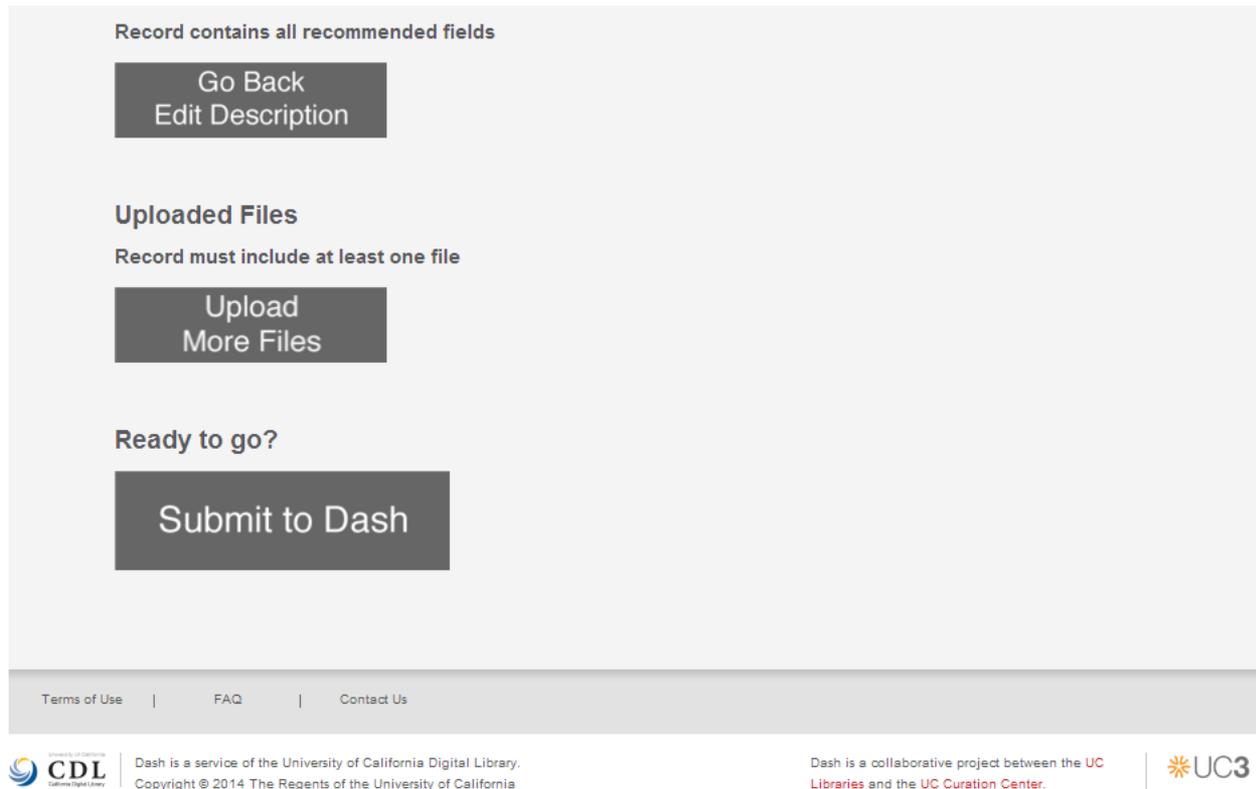
- Review the dataset

The screenshot shows the DASH interface for a user logged in as Perry.Willett-ucop.edu@ucop.edu. The navigation bar includes 'About', 'Search Data', 'Share Data', and 'My Datasets'. The workflow progress bar shows four steps: 'STEP ONE: Prepare', 'STEP TWO: Describe', 'STEP THREE: Upload', and 'STEP FOUR: Review & Submit', with the fourth step being the active one. The main content area is titled 'Review before submitting to Dash' and contains a 'Metadata' section with the following information:

Dataset Title:	Wind in Cuerda del Pozo. February 2012
Institution:	University of California, Berkeley
Publication Year:	2014
Data Type:	Presentation
Data Creator:	Aguilar, Fernando
Keywords:	Spain Wind
Citation(s):	Show Citations
Abstract:	Show Abstract
Methods:	Show Methods

Dash

- Submit to a repository



Record contains all recommended fields

Go Back
Edit Description

Uploaded Files

Record must include at least one file

Upload
More Files

Ready to go?

Submit to Dash

Terms of Use | FAQ | Contact Us

University of California
CDL
Center for Digital Library

Dash is a service of the University of California Digital Library.
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Dash is a collaborative project between the UC
Libraries and the UC Curation Center.

 UC3



datashare.ucsf.edu

Dash

- Search/browse and discovery

UNIVERSITY OF CALIFORNIA  dash
DATA SHARING MADE EASY

About Search Data Share Data My Datasets

Select a Dataset...

Search datasets... Clear search

Sorted by:

Phylogenomic inference of protein molecular function: supplementary data
by Solander, Kimmen
at UC Berkeley
> Show abstract

DMPTool usage
by Willett, Perry | Willett, Perry
at UC Berkeley
> Show abstract

Approximating a wavefunction as an unconstrained sum of Slater determinants: dataset
by Beylkin, Gregory | Mohlenkamp, Martin J. | Pérez, Fernando
at UC Berkeley

Campus

- UC Berkeley (8)
- UC Los Angeles (2)
- UC San Francisco (2)

Author

- Willett, Perry (2)
- Aguilar, Fernando (1)
- Banerjee, Utpal (1)
- Beylkin, Gregory (1)
- Bloom, Joshua S. (1)
- Butler, Nathaniel R. (1)

more

Keyword

- Amino acid sensing (1)



datashare.ucsf.edu

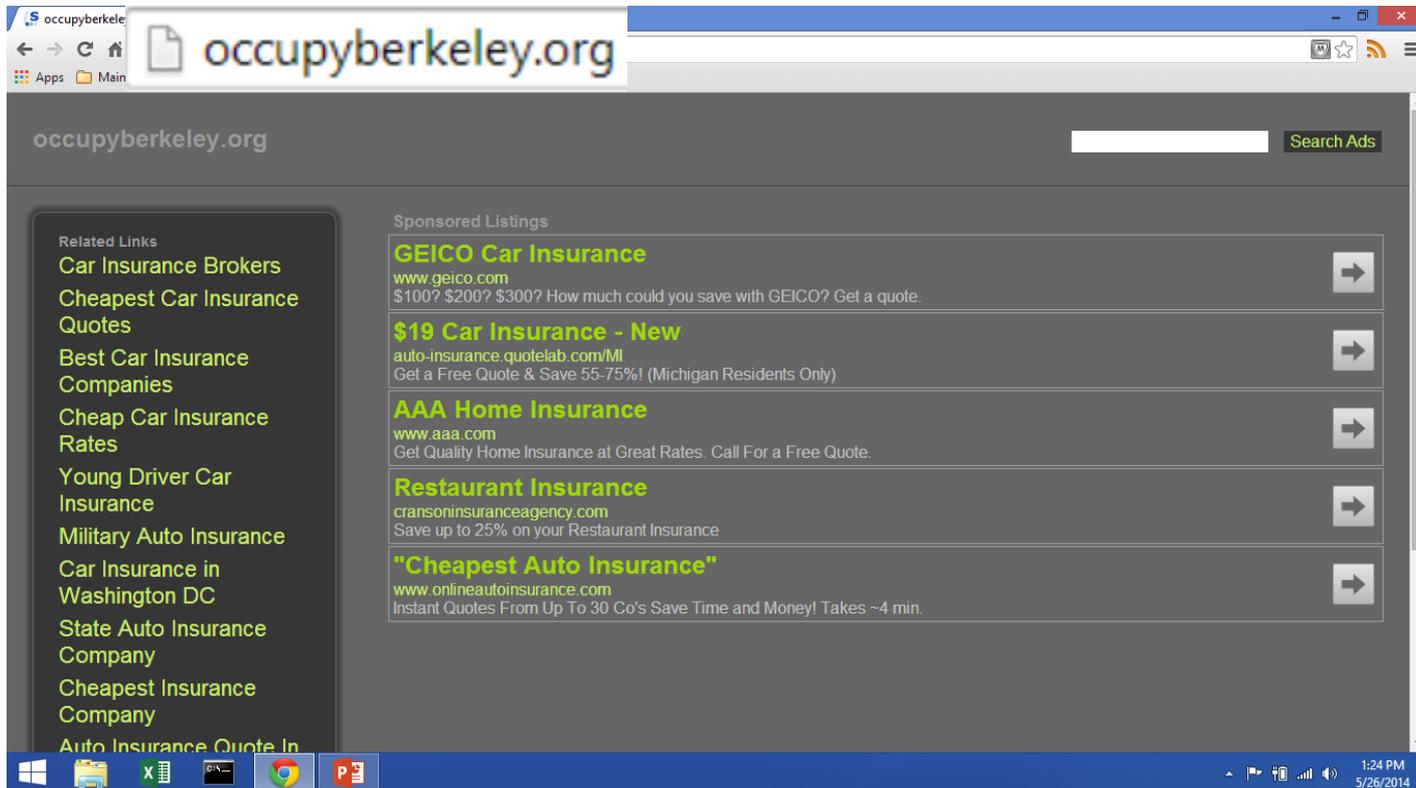
WAS

- “Capture and preserve the web”

The screenshot shows the homepage of the Web Archiving Service (WAS). At the top left is the WAS logo, a stylized sunburst, followed by the text "Web Archiving Service" and the tagline "Collect, manage & preserve websites". To the right are links for "CONTACT US" and "LOGIN". Below this is a navigation menu with tabs for "About", "Learning Center", "FAQ", "Features", "Institutions", and "Archives". The main content area features a large banner with the text "Why Use Web Archiving Service?" and "Preserve your institution's websites and publications." Below this are several call-to-action buttons: "Archive your institution's website", "Learn more", "Build new collections", "Capture political & social events", and "Save at-risk websites". To the right of the banner is a sign-up form titled "SIGN UP NOW FOR A FREE TRIAL" with fields for "Name", "Organization", and "Email Address", and a "SUBMIT" button. Below the sign-up form is a section titled "WHAT OUR USERS ARE SAYING" featuring a video thumbnail of a man speaking. At the bottom, there is a section for "Explore Recent Archives" with thumbnails for "MAYOR OF LOS ANGELES", "UNIVERSITY OF MICHIGAN", "CALIFORNIA COASTAL COMMISSION", and "NYU LIBRARIES". To the right of this section is a "Recent News & Events" section with news items: "WAS Service Update: March 2014" and "WAS Service Update: January – February 2014", and a "SEE MORE NEWS" link.

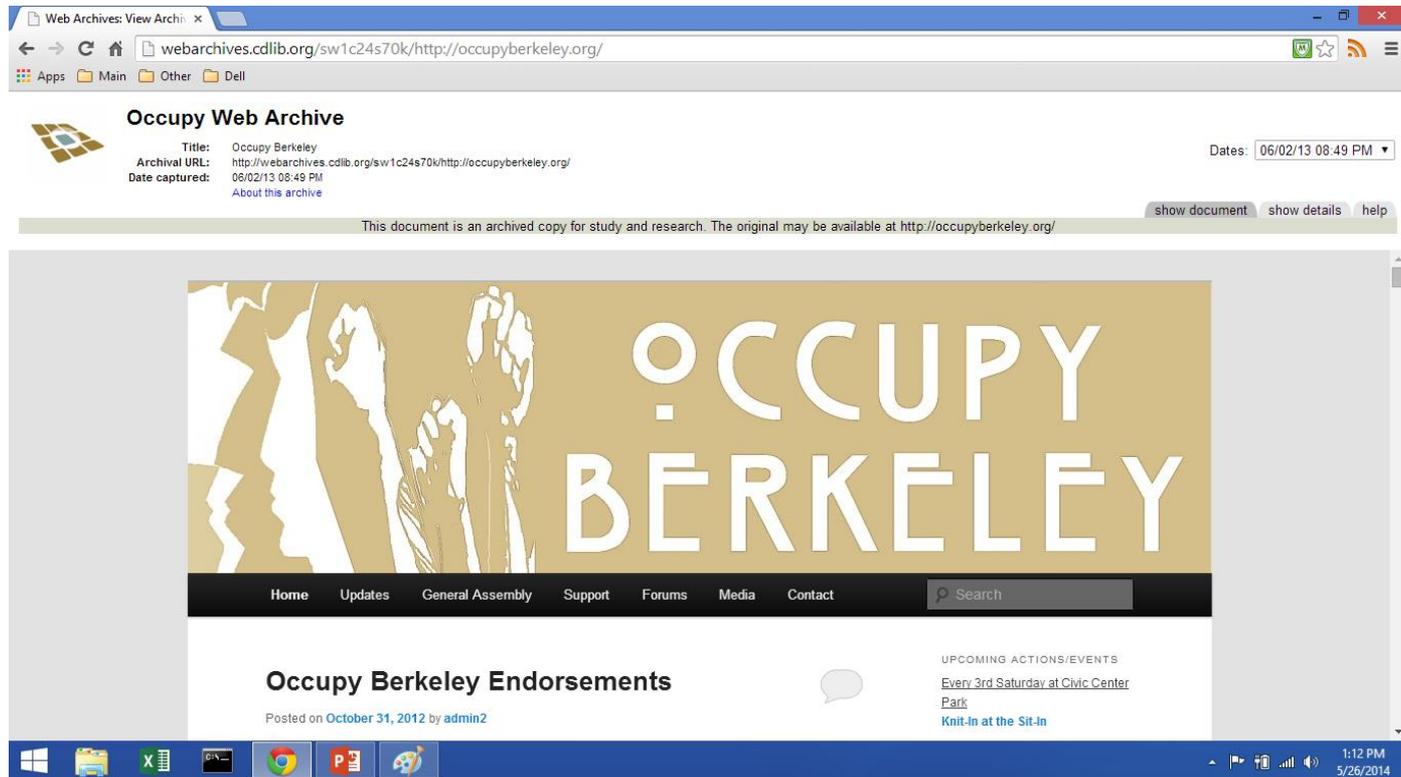
WAS

- The web is a volatile environment



WAS

- WAS captures and preserves important web content



WAS

- WAS captures the web over time

The screenshot shows a web browser window displaying the Occupancy Web Archive site. The address bar shows the URL `webarchives.cdlib.org/site/sw1dj59k3r`. The page content includes the site logo, navigation links, and a list of capture dates and times. A white box highlights the 'Captured' section of the list.

Captured

- 04/29/12 08:16 AM
- 05/02/12 11:32 AM
- 05/07/12 02:33 PM
- 05/13/12 06:59 PM
- 05/20/12 08:09 AM
- 06/04/12 06:04 AM
- 07/02/12 06:42 PM
- 08/02/12 06:41 PM
- 10/04/12 04:58 PM
- 11/02/12 06:32 PM
- 12/05/12 04:00 AM
- 01/02/13 06:33 PM
- 02/02/13 06:35 PM
- 03/02/13 06:32 PM
- 04/02/13 06:32 PM
- 05/02/13 06:33 PM
- 06/02/13 09:10 PM

WAS

- WAS provides curators with tools to capture the free web:
 - Schedule web crawls on regular or customized basis
 - Focus on website itself or include linked sites
 - Brief 1-hour or full 36-hour crawls
 - Analyze results with a range of reports
 - Search across captured websites
 - Keep archive restricted, or provide public access
 - Fee-based service

WAS

- WAS includes archives based on events:
 - 2003 California recall election
 - 2007 Southern California wildfires
- Thematic archives:
 - Grateful Dead archives
 - US Labor unions and organizations
 - California political blogs
- Comprehensive archives of web-domains:
 - Emory University
 - University of Michigan

Service takeaways

- DMPTool *Create data management plans required by funders or journals using campus resources*
- DataUp *Curation services tailored for tabular datasets*
- Dash *Simplified interfaces for repository submission and discovery*
- EZID / Merritt *Core infrastructural services generally hidden beneath simple intuitive interfaces*
- WAS *Curation services tailored for web-published content and data*



Summary

- Good data management practice is critical to the success of the academic enterprise and scholarly advancement
- Management solutions should be integrated into existing research systems and workflows
- The UC Libraries are a natural partner for data management advice and solutions
- UC3 offers a comprehensive roster of innovative and intuitive curation services applicable across the data and scholarly lifecycle



For more information

- UC Curation Center www.cdlib.org/uc3
datapub.cdlib.org
uc3@ucop.edu

- DMPTool dmptool.org

- DataUp/ONEShare dataup.org

- Dash datashare.ucsf.edu

- EZID ezid.cdlib.org

- Merritt merritt.cdlib.org

- DataONE dataone.org

- WAS was.cdlib.org
