



Introduction to Using the Harvard Dataverse Repository & the NIH DMP Harvard Dataverse Guidance Document











Agenda



- The Harvard Dataverse Repository for Data Sharing and Use:
 - The Dataverse Project-Overview
 - The Dataverse Project and FAIR
 - Getting Started with The Harvard Dataverse Repository Overview and Detailed
 - Collections
 - Datasets
 - Files/Sensitive Data
 - Search and Browse
 - Data Re-Use
 - NIH-GREI related improvements-forthcoming
- Overview of NIH DMP Guidance Document for Harvard Dataverse Repository
- Questions and Conversations

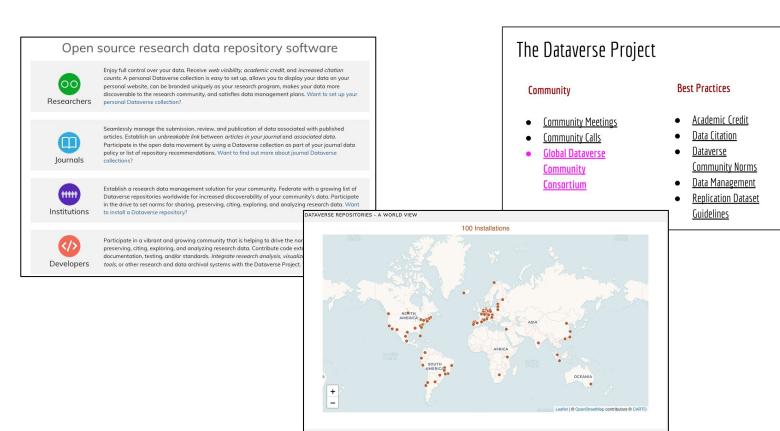


The Dataverse Project - Overview



Dataverse

The Dataverse Project



Software

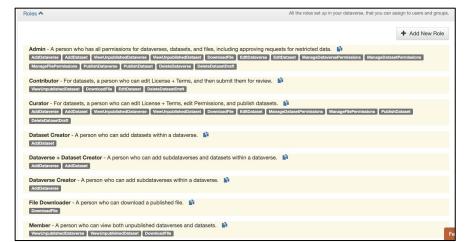
- <u>Goals, Roadmap, and</u> <u>Releases</u>
- Collaborations
- Integrations
- <u>Features</u>
- Source Code
- Guides

Dataverse for Data Management and Sharing



- Ease of data deposits
- Data citation
- Data access control
- Metadata standards
- Data sharing policies
- Data discovery





Dataverse Repository Features



- Support for FAIR Data Principles
- Data citation for datasets and files
- OAI-PMH (Harvesting)
- APIs for interoperability and custom integrations
- API client libraries
- DataCite integration
- Login via Shibboleth
- Login via ORCID, Google, GitHub, or Microsoft
- Login via OpenID Connect (OIDC)
- Internationalization
- Versioning
- Restricted files
- Embargo
- Custom licenses
- Custom terms of use
- Publishing workflow support
- File hierarchy

- File previews
- Preview and analysis of tabular files
- Usage statistics and metrics
- Guestbook
- Fixity checks for files
- File download in R and TSV format
- Faceted search
- Customization of collections
- Private URL
- Widgets
- Notifications
- Schema.org JSON-LD
- External tools
- External vocabulary
- Dropbox integration
- GitHub integration
- Integration with Jupyter notebooks

- User management
- Curation status labels
- Branding
- Backend storage on S3 or Swift
- Direct upload and download for S3
- Export data in Baglt format
- Post-publication automation (workflows)
- Pull header metadata from Astronomy (FITS) files
- Provenance
- Support for rsync
- Auxiliary files for data files

https://dataverse.org/software-features

Data, Tools, Discoverability and Preservation



Getting Data Into a Dataverse Repository

- GitHub
- Dropbox
- OSF
- RSpace
- OJS
- Renku
- Amnesia
- SampleDB

Analysis and Computation

- Data Explorer
- Compute Button
- Whole Tale
- Binder
- Renku
- Avgidea Data Search

Discoverability

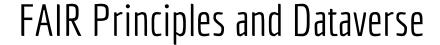
- OAI-PMH (Harvesting)
- SHARE
- Geodisy

Preservation

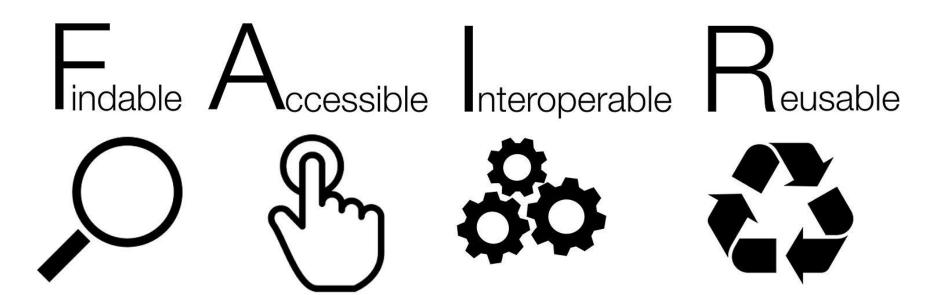
- Archivematica
- RDA BagIt Archiving
- Future Integrations*



The Dataverse Project and FAIR







https://en.wikipedia.org/wiki/File:FAIR_data_principles.jpg

How Dataverse Supports FAIR



- FINDABLE: Persistent Identifiers (DOIs, Handles) for datasets (and files), and enabling metadata indexing by search engines
- ACCESSIBLE: Open access to (metada)data and ensures data can be downloaded in machine-readable formats
- INTEROPERABLE: Provides standardised metadata schemas and enabling the integration of of data with research tools and platforms
- REUSABLE: Licenses that clearly state how data can be used and ensuring that data are well
 documented and preserved for long term use





Getting started with the Harvard Dataverse Repository - Overview

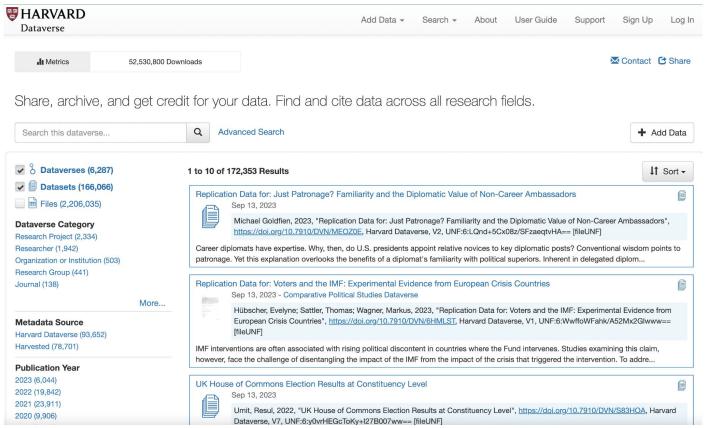
The Purpose of a Data Repository

The **purpose of a data repository** is to keep a certain population of data so that it can be mined for greater insight or business intelligence or to be used for a specific reporting need. https://en.wikipedia.org/wiki/Information_repository

The **Registry of Research Data Repositories** (**re3data.org**) is an Open Science tool that offers researchers, funding organizations, libraries and publishers an overview of existing international repositories for research data.

Data should be submitted to discipline-specific, community-recognized repositories where possible. Where a suitable discipline-specific resource does not exist, data should be submitted to a generalist repository.





Visit the Harvard Repository Policy page before getting started: https://support.dataverse.harvard.edu/policies

Prepare Your Data for Sharing in The Harvard Repository



GATHER AND VERIFY

Determine what will be shared and ensure the metadata describes what is being shared: raw data, output data, documentation, readme, codebook, etc...

Can you share the data openly? Copyright?
Deidentification? (human subjects,
vulnerable/endangered species); Access
restrictions needed (restrict. embargo)

What metadata standards are required to describe your data properly?

*Sensitive data support is not yet available in Harvard Dataverse Repository. All data must be deidentified!

CHOOSE AND ORGANIZE

Nonproprietary file formats for easy access, interoperability, preservation, plain text, same file but in open format version...

Organize the data by check all files for corruption, detailed file names, and usefulness. Folders should be clearly labeled and organized within zip files.

Know the file size limitations in HDV (Total project size varies 1TB to 2.5TB free, file size 2.5GB)

Tabular data get additional functionality in HDV

Know the **tools** available for use in HDV

SHARE YOUR DATA

Determine the repository (Domain specific should always be the first choice)

Share in one repository for one DOI (different components can be shared between domain specific and generalists but avoid sharing the same component in multiple repos)

Documentation such as README files should describe the data thoroughly and completely. Test your readme file instructions for reproducibility to ensure they are correct.

Share your citation and collection space URL

*all deposits must contain reusable data





Create a Collection, Deposit Datasets, and Upload Files



Collection-level



Current Features



Dataverse Collections

- Own administration
- Own branding (and can be embedded anywhere)

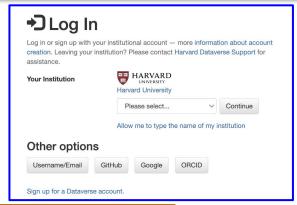
Datasets

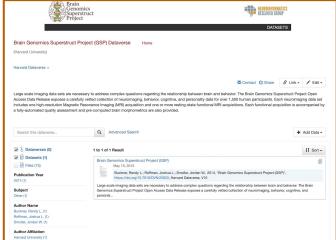
- Citation
- Metadata
- Versioning
- Private URL
- Custom Terms/Multiple License/Permissions
- Guestbooks
- Publishing Workflows



Files

- Citation
- Ingest
- Preview/Explore
- Metadata
- Versioning
- Permissions/Embargo/Re strictions





8	Brain Genomics Superstruct Project (GSP) Dataverse (Harvard University) GSP
General Information	
Theme + Widgets	
Permissions	
Groups	
Dataset Templates	
Dataset Guestbooks	
Featured Dataverses	



Dataset-level



Current Features



Dataverse Collections

- Own administration
- Own branding (and can be embedded anywhere)



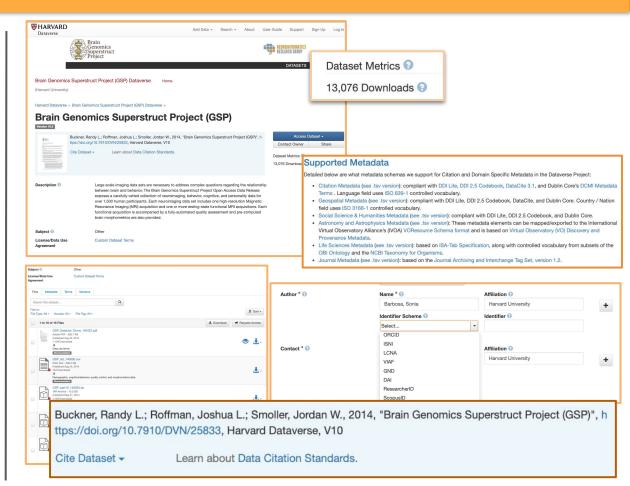
Datasets

- Citation
- Metadata
- Versioning
- Private URL
- Custom Terms/Multiple License/Permissions
- Guestbooks
- Publishing Workflows



Files

- Citation
- Ingest
- Preview/Explore
- Metadata
- Versioning
- Permissions/Embargo/Re strictions





File-level



Current Features



Dataverse Collections

- Own administration
- Own branding (and can be embedded anywhere)

Datasets

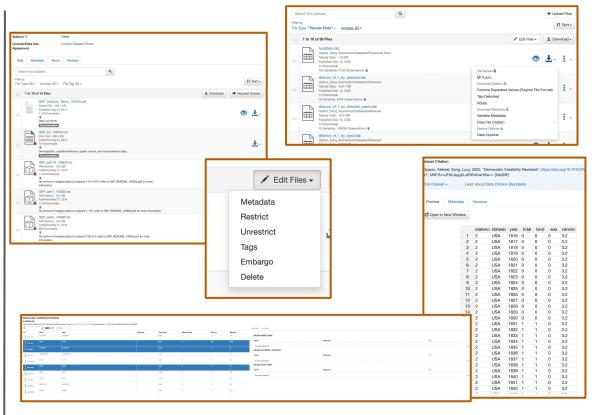


- Citation
- Metadata
- Versioning
- Private URL/*Anonymous Peer Review
- Custom Terms/*Multiple Licenses/Permissions
- Guestbooks
- Publishing Workflows



Files

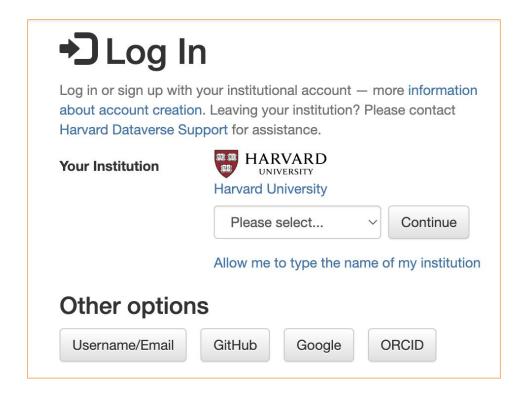
- Citation
- Ingest
- Preview/Explore
- Metadata/Provenance
- Versioning
- Permissions/Embargo/Re strictions





Get Started on the Harvard Dataverse Repository - Detailed

Account Creation



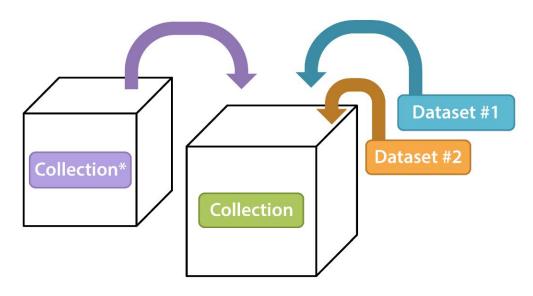
Create a Dataverse

"Collection"

- Edit Dataverse Collection
 - General Information
 - Theme
 - Widgets
 - Dataverse Collection Search Box Widget
 - Dataverse Collection Listing Widget
 - Adding Widgets to an OpenScholar Website
 - o Roles & Permissions
 - Setting Access Configurations
 - Assigning Roles to Users and Groups
 - Dataset Templates
 - Dataset Guestbooks
 - Featured Dataverse Collection
- Dataset Linking
- Dataverse Collection Linking
- Publish Your Dataverse Collection

A Dataverse collection is a container for datasets (research data, code, documentation, and metadata) and other Dataverse collections, which can be setup for individual researchers, departments, journals and organizations.

Schematic Diagram of a **Collection** in Dataverse Software 5.0



Container for your **Datasets** and/or **Collections***

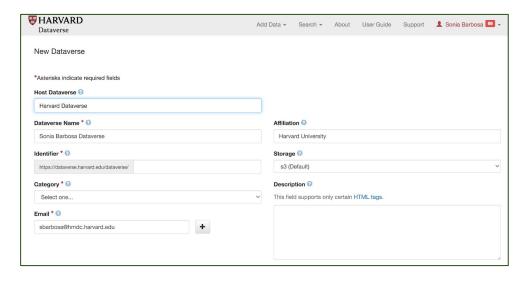
* Collections can contain other Collections

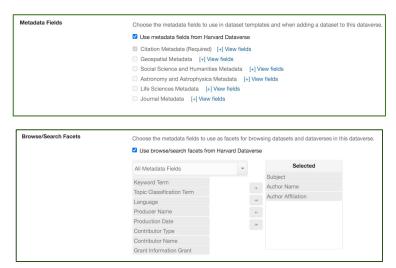
*contact <u>support@dataverse.harvard.edu</u> and request the creation of a collection

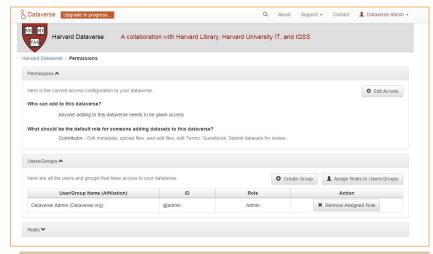
- Metadata
- Searchable facets
- Holds datasets

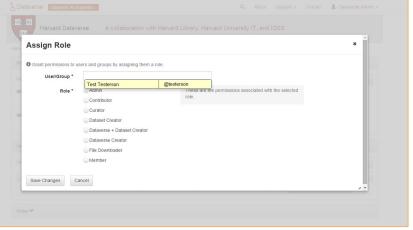


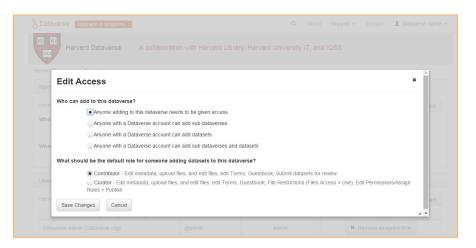
Customizable with descriptions, logos, collection space URLs, affiliation, contact emails, permissions, metadata and searchable facets. **Dataverse collections hold datasets.**

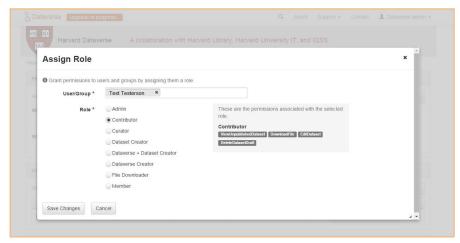


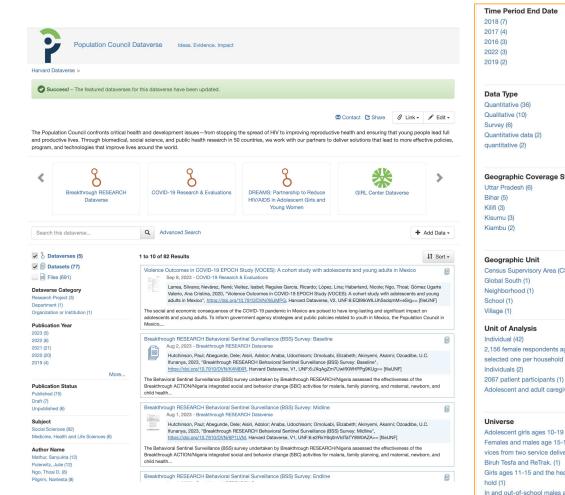












https://dataverse.harvard.edu/dataverse/popcouncil/

Language **Publication Year** English (20) 2023 (5) 2022 (6) Arabic (2) 2021 (21) Somali (1) 2020 (20) Swahili (1) 2019 (4) **Producer Name** More... Population Council (9) More... Arthur Davison Children's Hospital (1) **Publication Status** Center for Tuberculosis Research, Johns Published (75) Hopkins University School of Medicine (1) Draft (7) Unpublished (6) Department of Internal Medicine, Klerksdorp/Tshepong Hospital Complex, Subject North West Province Department of Health (1) Social Sciences (82) Elizabeth Glaser Pediatric AIDS Foundation (1) Medicine, Health and Life Sciences (6) More... Author Name **Production Date** More... Mathur, Sanyukta (12) 2021 (1) Pulerwitz, Julie (12) Geographic Coverage State / Province Ngo, Thoai D. (8) **Funding Information Agency** Pilgrim, Nanlesta (8) Bill and Melinda Gates Foundation (17) Gottert, Ann (7) Bill & Melinda Gates Foundation (11) More... United States Agency for International Development (10) Keyword Term U.S. Agency for International Development (3) COVID-19 (13) 3ie: International Initiative for Impact HIV (10) More... Implementation science (7) Evaluation (2) family planning (7) More... Gender Inequitable Attitudes/Beliefs (6) **Funding Information Identifier** Census Supervisory Area (CSA) (1) More... AID-OAA-140060 (2) Geographic Coverage Country / Nation AID-OAA-A-14-00060 (2) Kenya (14) AID-OAA-A-17-00018 (1) India (9) OPP1136778 (1) Malawi (7) OPP1150068 (1) Nigeria (7) Zambia (7) More... More... **Deposit Date** 2,156 female respondents aged 18-49 years 2023 (4) Geographic Coverage City 2022 (7) selected one per household (2) Nairobi (3) 2021 (16) Addis Ababa (1) 2020 (25) Assiut (1) 2019 (4) Bar Elias (1) Adolescent and adult caregiver dyads (1) Bogura (1) More... More... More... Time Period Start Date **Author Affiliation** 2017 (8) 2018 (4) Population Council (65) Adolescent girls ages 10-19 (1) Centre for Research, Evaluation Resources 2016 (3) Females and males age 15-18 receiving serand Development (CRERD) (3) 2020 (3) vices from two service delivery organizations: Tulane University (3) 2012 (2) CSK Research Solutions (2) More... Columbia University, Mailman School of Girls ages 11-15 and the head of their house-Public Health (2) Time Period End Date 2018 (7) More... In and out-of-school males and females ages 2017 (4) Topic Classification Term 2016 (3) Asian American (1) Married girls younger than 20 years of age (1) 2022 (3) HIV and AIDS (1) 2019 (2) concept testing (1) More...

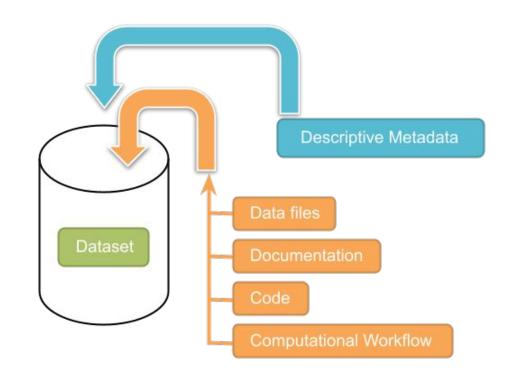
More

14-17 at baseline (1)

Deposit a Dataset

- Supported Metadata
- Adding a New Dataset
- File Upload
- File Handling
- Restricted Files
- Edit Files
- Replace Files
- Terms
- Roles & Permissions
- Data Provenance
- Thumbnails + Widgets
- Publish Dataset
- Submit for Review
- Private URL to Review Unpublished Dataset
- Embargoes
- Dataset Versions
 - Version Details
- Dataset Metrics and Make Data Count
- Cloud Storage + Computing
 - Cloud Computing
 - Cloud Storage Access
- Dataset Deaccession

Schematic Diagram of a **Dataset** in Dataverse 4.0



Container for your data, documentation, code, and computational workflow.

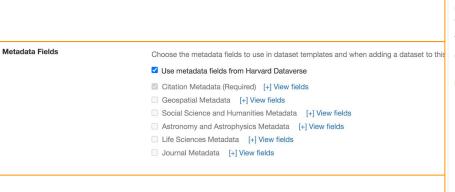
Datasets - Metadata

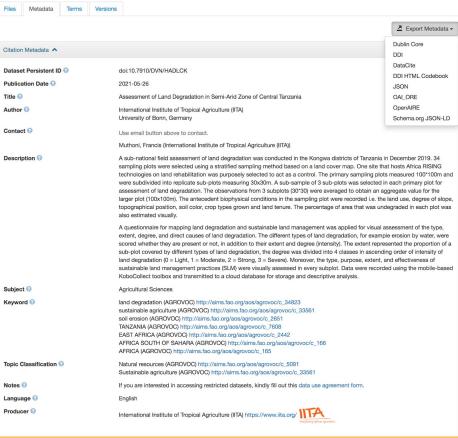
Detailed below are what metadata schemas we support for Citation and Domain Specific Metadata in the Dataverse Project:

- Citation Metadata: compliant with DDI Lite, DDI 2.5 Codebook, DataCite 3.1, and Dublin Core's DCMI Metadata Terms (see .tsv version). Language field uses ISO 639-1 controlled vocabulary.
- Geospatial Metadata: compliant with DDI Lite, DDI 2.5 Codebook, DataCite, and Dublin Core (see .tsv version). Country / Nation field uses ISO 3166-1 controlled vocabulary.
- Social Science & Humanities Metadata: compliant with DDI Lite, DDI 2.5 Codebook, and Dublin Core (see .tsv version).
- Astronomy and Astrophysics Metadata: These metadata elements can be mapped/exported to the International Virtual
 Observatory Alliance's (IVOA) VOResource Schema format and is based on Virtual Observatory (VO) Discovery and Provenance
 Metadata (see .tsv version).
- Life Sciences Metadata: based on ISA-Tab Specification, along with controlled vocabulary from subsets of the OBI Ontology and the NCBI Taxonomy for Organisms (see .tsv version).
- Journal Metadata: based on the Journal Archiving and Interchange Tag Set, version 1.2 (see .tsv version).

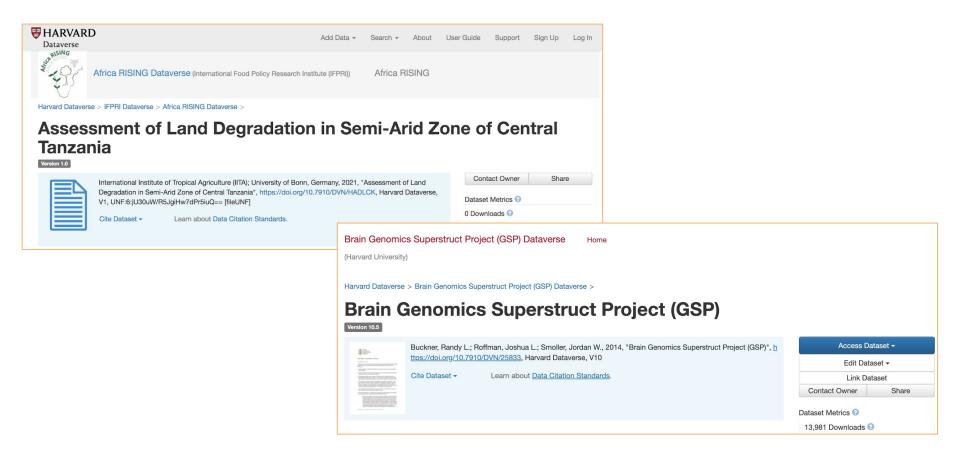
See also the Dataverse Software 4.0 Metadata Crosswalk: DDI, DataCite, DC, DCTerms, VO, ISA-Tab document and the Metadata Customization section of the Admin Guide.

Datasets - Metadata





Datasets - Citations



Data - Citations

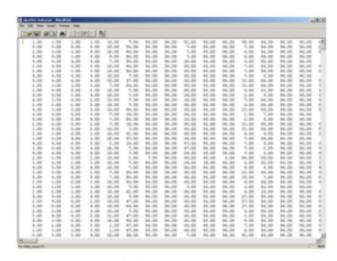
Your Publication



Formal Data Citation



Your Data



Principle 2
- Credit and Attribution:

Such as authors, repositories or other distributors and contributors.

Author(s), Year, Dataset Title,
Global Persistent Identifier,

Data Repository or Archive,
Version

Principle 7 - Specificity and verification:
Such as the specific version used. Versioning or timeslice information should be supplied with any updated or dynamic dataset.

Principles 4, 5, 6
- Unique Identification,
Access, Persistence:
A unique, persistent
identifier, such as a DOI
or Handle, that provides
access to metadata.

Fig. 1 Example of a data citation based on the <u>Joint Declaration of Data Citation Principles</u> (2014).

Data - Citations

Related Material @

Examples of prior publications of GSP data with partial data description:

Yeo, B.T., Krienen, F.M., Sepulcre, J., Sabuncu, M.R, Lashkari, D., Hollinshead, M., Roffman, J.L., Smoller, J.W., Zollei, L., Polimeni, J.R., Fischl, B., Liu, H., Buckner, R.L. (2011) The organization of the human cerebral cortex estimated by intrinsic functional connectivity. Journal of Neurophysiology, 106(3): 1125-1165: Link to article

Buckner, R.L., Krienen, F.M., Castellanos, A., Diaz, J.C., Ye o, B.T. (2011) The organization of the human cerebellum estimated by intrinsic functional connectivity. Journal of Neurophysiology, 106(5): 2322-2345: Link to article

Choi, E.Y., Yeo, B.T.T., Buckner, R.L. (2012) The organization of the human striatum estimated by intrinsic functional connectivity. Journal of Neurophysiology, 108(8): 2242-2263: Link text

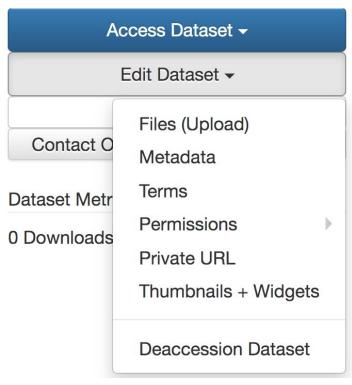
Van Dijk, K.R., Sabuncu, M.R., Buckner, R.L. (2012) The influence of head motion on intrinsic connectivity MRI. NeuroImage, 59(1): 431-438: Link to article

Holmes, A.J., Lee, P.H., Hollinshead, M., Bakst, L., Roffman, J.L., Smoller, J.W., Buckner, R.L. (2012) Individual differences in amygdala-prefrontal anatomy link negative affect, impaired social functioning, and polygenetic depression risk. Journal of Neuroscience, 32(50): 18087-18100: Link to article

Related Publication

Furnas, Alexander, and Timothy LaPira. [date]. "The People Think What I Think: False Consensus and Unelected Elite Misperception of Public Opinion." *American Journal of Political Science* Forthcoming. http://ajps.org/

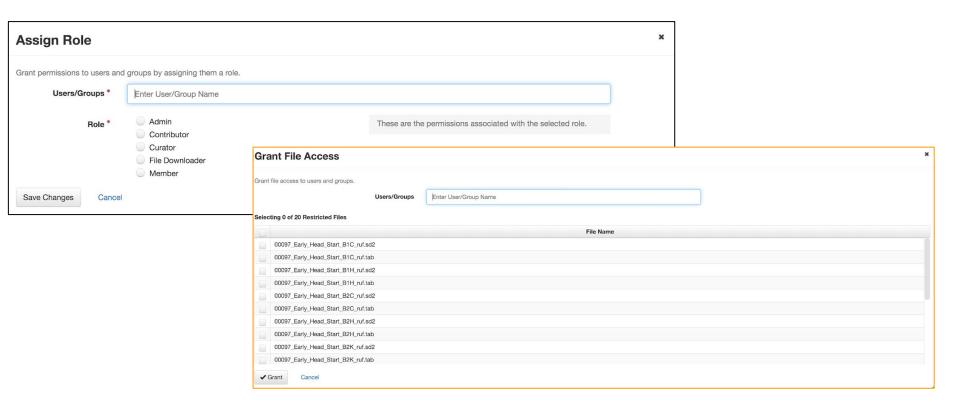
Datasets - Editing Options



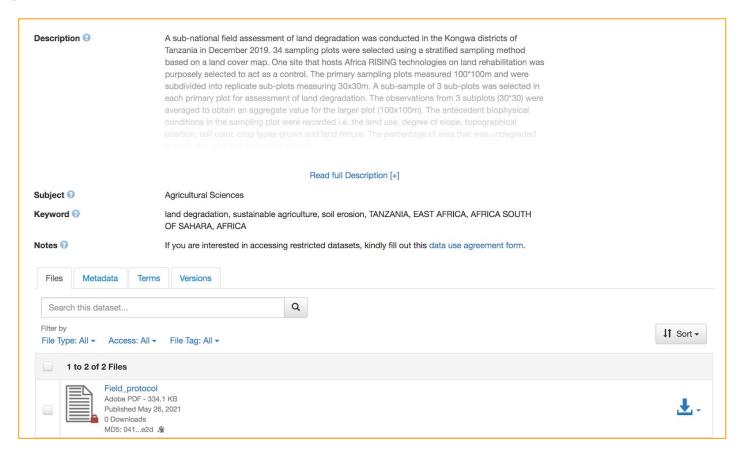
- Datasets can be edited with the options seen here, and versioning is available for dataset and files.
- A Private URL can be generated for DRAFT datasets to share a dataset with a coauthor or journal, before publishing.
- Deaccession is the only option to "remove"

 a dataset once it has been published and
 this leave the TOMBSTONE page of the
 citation.

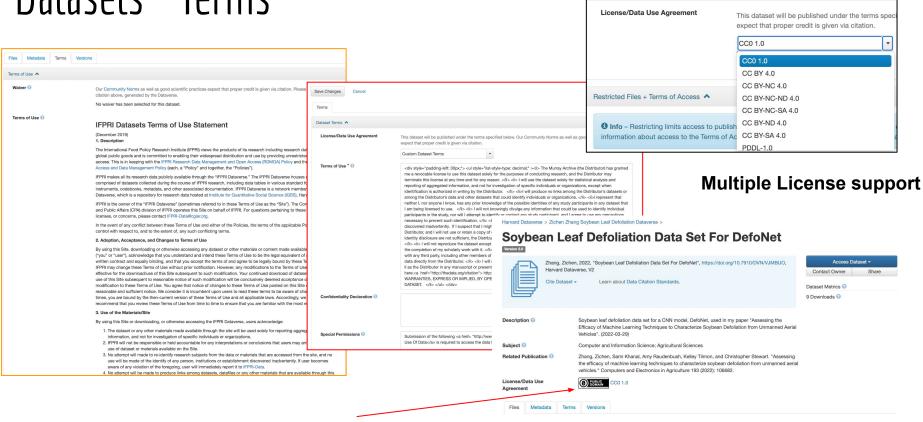
Datasets: Permissions, Workflows and Roles



Datasets

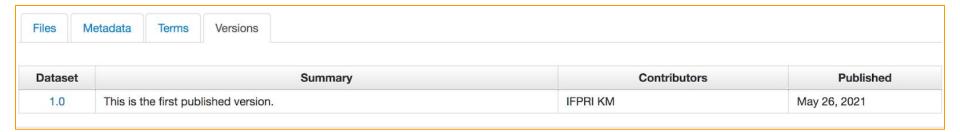


Datasets - Terms



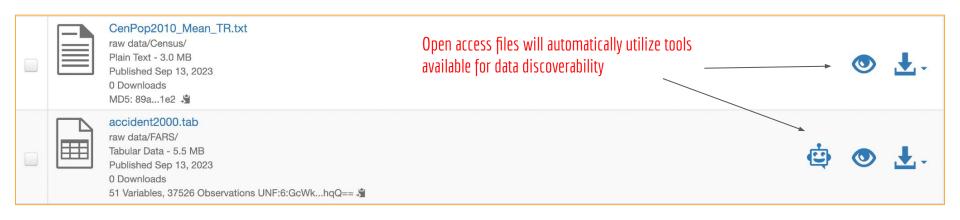
Dataset Terms ^

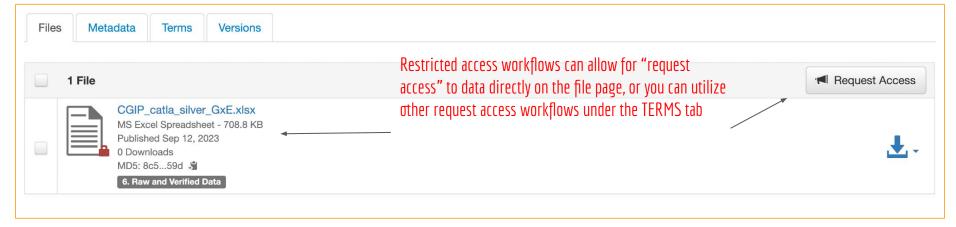
Datasets - Versions



https://dataverse.org/files/dataverseorg/files/metadataprovenance-mercecrosas.pdf

Datasets - Files





Datasets - Tabular Files

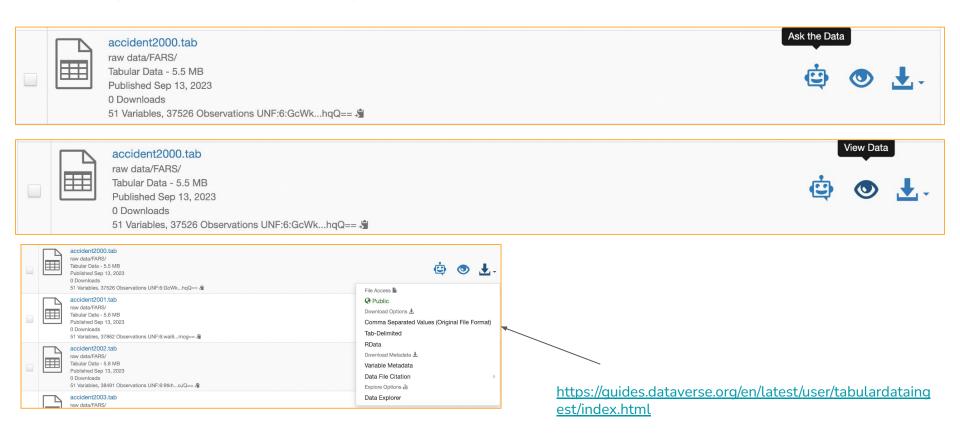
Supported File Formats

Tabular Data ingest supports the following file formats:

File format	Versions supported				
SPSS (POR and SAV formats)	7 to 22				
STATA	4 to 15				
R	up to 3				
Excel	XLSX only (XLS is NOT supported)				
CSV (comma-separated values)	(limited support)				

See the subsections in the left sidebar for more information on each of these supported formats.

Datasets - Tabular Files



Datasets - Ask the Data

Tell me what you want to know

What is this data about?

Answer please

This data is about traffic accidents in the US.

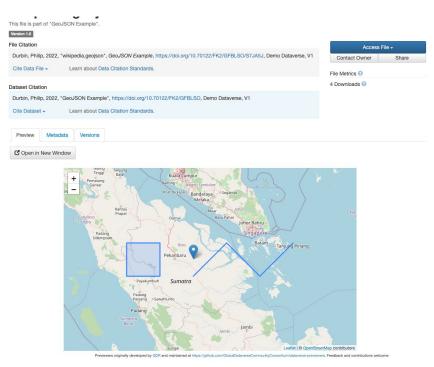
1 97	97					VL_I OINNS	PERSONS	PED3	INU2	ROAD_FNC	KOUTE	3P_JUK	HAKIVI_EV	WAN_COLL	REL_JUNC
		1	26	15	30	2	2	0	0	6	4	0	12	2	1
1 10	101	2	1	23	55	1	1	0	1	2	2	0	42	0	1
1 81	31	2	2	5	10	1	1	0	0	6	4	0	42	0	1
1 10	101	1	18	22	14	1	2	1	1	12	2	0	8	0	1
1 10	101	1	20	13	5	1	1	0	1	11	1	0	34	0	1
1 73	73	1	31	2	40	2	3	0	1	11	1	0	25	0	1
1 73	73	1	14	19	0	1	2	0	1	11	1	0	34	0	1
1 73	73	1	24	19	45	2	3	1	0	6	6	0	8	0	2
1 97	97	1	23	19	34	2	3	0	0	13	2	0	12	5	2
1 97	97	1	31	23	33	1	2	0	0	4	3	0	30	0	1

Viewing rows 1 through 10 of 38444

Datasets - File Previewer

Preview	Metadata	Versions										
Explore	on View Data											
		householdid	memname	age	reltohhh	otherreltohh	gender	educivi	othereducivi	priactvty16	othpriactvty16	priactvty18
	5	2060154		25	3		1	1		14		14
	6	2060154		18	3		2	5		14		14
	7	2060156		61	1		1	4		6		1
	8	2060156		17	3		2	6		14		13
	9	2060156		15	3		1	6		14		16
	10	2060156		32	2		2	8		18		18
	11	2060157		52	1		1	4		5		5
	12	2060157		37	2		2	4		5		5
	13	2060157		32	3		1	6		5		5
	14	2060157		32	3		2	4		8		8
	15	2060158		48	1		1	6		5		5
	16	2060158		25	2		2	4		8		8
	17	2060158		17	3		1	5		14		14
	18	2060158		16	3		1	5		5		14
	19	2060159		48	1		2	4		7		5
	20	2060159		21	3		1	5		6		14
	21	2060159		17	3		2	5		6		14
	22	2060159		15	3		2	4		2		13
	23	2060160		80	1		1	3		3		4
	24	2060160		50	2		2	4		6		4
	25	2060160		30	3		1	5		8		16
	26	2060160		25	3		2	4		5		16
	27	2060161		70	1		1	4		8		8
	28	2060161		50	2		2	1		8		5
	29	2060161		30	3		1	6		5		8
	30	2060152		27	3		1	6		5		14
	31	2060153		48	1		2	4		1		8

Datasets - GeoJSON Previewer



https://github.com/GlobalDataverseCommunityConsortium/dataverse-previewers

Datasets - Tabular Files/Data Explorer

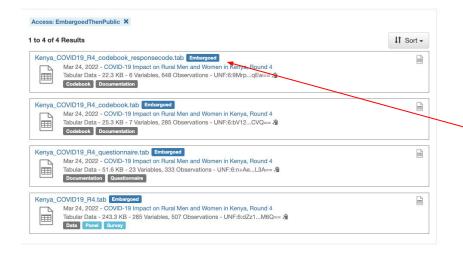
Third National Fadama Development Financing II Impact Study Household Survey in Bauchi 004_SectionA1_HHD15yrsandabove.tab

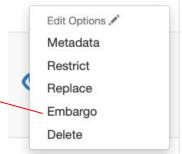


https://guides.dataverse.org/en/latest/user/tabulardataingest/index.html https://github.com/scholarsportal/dataverse-data-explorer-v2

	Table View					
ariable/	educivi: Highes	st Level of education				
Values		Categories				
8		Koranic education				
5		Some secondary education (Incl. Junior secondary school)				
2		Adult literacy training				
1		No formal education				
99		Others				
7		Post-secondary education				
6		Completed secondary education				
3		Some primary education				
4	Completed primary education					
	othpriactvty16	Other primary activity(specify)in 2016				
ariable		Other primary activity(specify)in 2016				
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Datasets - File Level Embargo

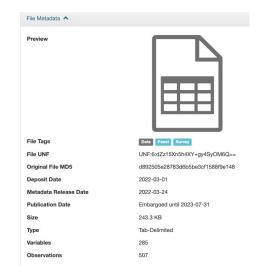




Harvard Dataverse > IFPRI Dataverse >

COVID-19 Impact on Rural Men and Women in Kenya, Round 4





Datasets - Deaccession

Replication Data for: Democratic Subversion: Elite Cooptation and Opposition Fragmentation Deaccessioned





Jun 8, 2021

Arriola, Leonardo R.; DeVaro, Jed; Meng, Anne, 2021, "Replication Data for: Democratic Subversion: Elite Cooptation and Opposition Fragmentation", https://doi.org/10.7910/DVN/GHDKSY, Harvard Dataverse, V1, DEACCESSIONED VERSION,

UNF:6:Nk/xhGPVreurGI55KFcKrQ== [fileUNF]

The dataset has been transferred to another repository

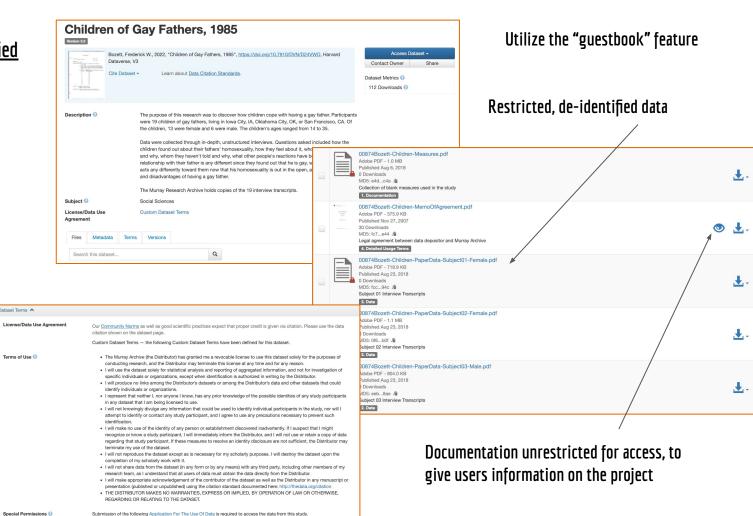
Considerations in Sharing Sensitive Data in Harvard Dataverse

Repository

Example of <u>de-identified</u> human subjects data shared in Harvard Dataverse

Terms of use and application form for data requests

*Sensitive data support is not yet available in Harvard Dataverse Repository. All data must be deidentified!

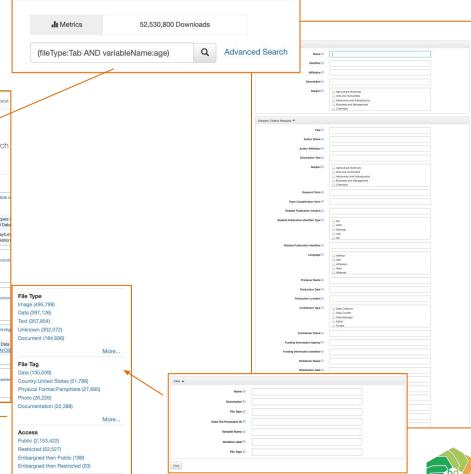


Search and Browse Functionality

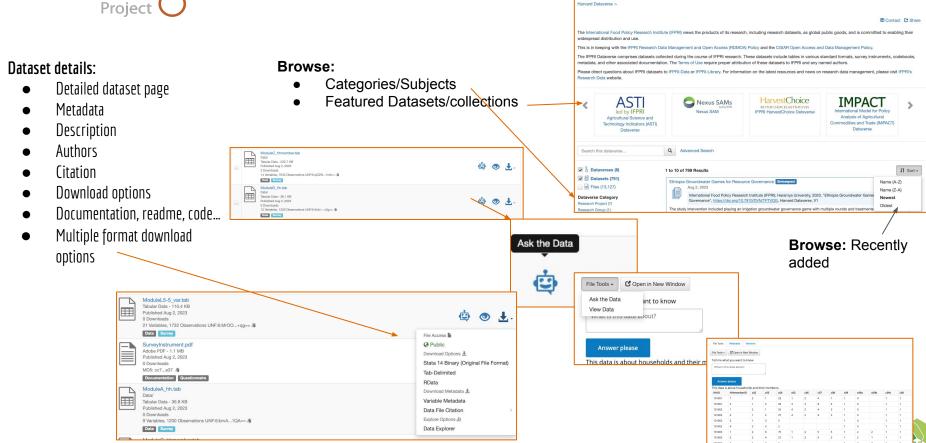


HARVARD Search: Add Data + Search + Abou Dataverse Keyword search 52.530.800 Downloads .It Metrics Advanced search Share, archive, and get credit for your data. Find and cite data across all research Funding agency Q Advanced Search Search this dataverse... Faceted search Dataverses (6,286) 1 to 10 of 2,378,479 Results Sorting Datasets (166,036) Enhancing Learning Through Facilitating Techniques and Environments: The Role Files (2,206,157) Performance Cross repository Dataverse Category Oio, Rianne Ola B. 2023, "Enhancing Learning Through Facilitating Techniques Research Project (2,335) and Current Performance*, https://doi.org/10.7910/DVN/4TUAJQ, Harvard Data Researcher (1.942) integration As well as evaluating and assessing students, teachers perceptions of humour and playfuln Organization or Institution (503) classroom environment: particularly as facilitating tools for easing stress, improving relation Beensteh Group (430) Journal (138) Appendix_Reference Data.pdf More... Sep 11, 2023 - Enhancing Learning Through Facilitating Techniques and Enviro Current Performance Metadata Source Adobe PDF - 273.6 KB - MD5: 454...bed . Harvard Dataverse (1.596.184) Foundational _Reference data Harvested (782,295) Publication Year Sep 11, 2023 - Enhancing Learning Through Facilitating Techniques and Envir 2023 (329,099) 2022 (340,452) Adobe PDF - 279.8 KB - MD5: 202...d60 .a Investigating Impacts of Socio Economic and Psychological Factors 2021 (324,873) Keyword Term 2020 (163,100) 2019 (89.593) Replication Data for: Defining and conceptualizing patient-centered family planning AFRICA (328) More... AFRICA SOUTH OF SAHARA (309) Meekers, Dominique; Elkins, Aaron; Obozekhai, Vivian, 2023, "Replication Data family planning counseling: A scoping review*, https://doi.org/10.7910/DVN/CI Subject EAST AFRICA (162) Social Sciences (62,565) This data file includes the extracted/charted data for the scoping review. Arts and Humanities (36,507) ASIA (148) Sep 11, 2023 - Replication Data for: Defining and conceptualizing patient-cen health (145) **Funding Information Agency** Adobe PDF - 80.8 KB - MD5: b16...452 .9 ma-ScR flow diagram United States Agency for International Development (USAID) (247) Bill and Melinda Gates Foundation (BMGF) (77)Bill and Melinda Gates Foundation (31) World Bank (24) Bill & Melinda Gates Foundation (BMGF) (23)

More...







IFPRI Dataverse

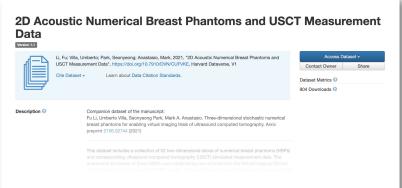
(International Food Policy Research Institute

Home

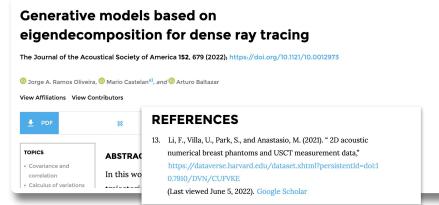
Data Re-Use



Re-use of Datasets













Journal of Asian Economics

Volume 84, February 2023, 101578



The Arab Spring, a setback for gender equality? Evidence from the Gallup World Poll

Robert Rudolf a ☑. Sh Show more V

+ Add to Mendele

References

Boschee et al., 2015 Boschee, E., Lautenschlager, J., O'Brien, S., Shelln (2015). ICEWS coded event data. Harvard Dataverse, V28. UNF:6:NOSHB7wvt0SQ8sMg7+w38w== [fileUNF]. Retrieved fro (https://doi.org/10.7910/DVN/28075),. Google Scholar



NIH GREI









NIH GREI



Current Features



Installations



Collections



Datasets



Files

NIH OTA Adds...



Datasets

- New Workflows for Large Data Support (Globus, demo)
- Remote Data Support (TRSA)
- Flexible Biomedical Metadata Support through External Vocabularies and Data Dictionaries (UMLS, CEDAR, MeSH)



Files

- Additional Metadata for Code files (<u>Codemeta</u>)
- Support for Replication Packages through Workflows and Containers
- Sensitive Data Support through Differential Privacy (OpenDP, DataTags, PSIprivacy)
- Encryption
- Usage Metrics
- UX/UI Enhancements
- New APIs
- Interoperability

- Metadata Harvesting
- Curation Services
- Training and Outreach

Summary

- **The Dataverse Project** facilitates the creation of digital repositories to ensure that the data are high quality, properly documented, organized, and accessible.
- **The Harvard Dataverse Repository** is open to the world wide research community for data sharing (free up to 1 terabyte of data, and 2.5 GB per file limitation). See our <u>policies page</u>
- Metadata is an essential component of the Dataverse Project
- Best Practices in a Dataverse repository: Collection creation and customization, dataset creation and file uploads, publishing workflows, and QA to ensure FAIR

NIH Data Management and Sharing Policy: Harvard Dataverse

Data Sharing in Context

"NIH is aware that not just technological advancement, but behavioral change is also necessary to advance data science goals"





Science, Digital; Goodey, Gregory; Hahnel, Mark; Zhou, Yuanchun; Jiang, Lulu; Chandramouliswaran, Ishwar; et al. (2022): The State of Open Data 2022. Digital Science. Report. https://doi.org/10.6084/m9.figshare.21276984.v5

NIH Data Management and Sharing Policy

Submission of a Data Management and Sharing Plan (DMSP)

Proposed repository to be used consistent with NIH guidance



Compliance with the awardee's plan as approved by NIH ICO

Elements of a Data Management & Sharing Plan

- 1. Data Types: Data to be preserved and shared
- 2. Related Tools, Software, Code: Tools and software needed to access and manipulate data
- 3. Common Data Standards: Standards to be applied to scientific data & metadata
- **4. Data Preservation, Access, Timelines**: Repository to be used, persistent unique identifiers, and when/how long data will be available
- **5.** Access, Distribution, Reuse Considerations: Factors affecting data access, distribution, or reuse related to informed consent or privacy & confidentiality protections
- **6. Oversight of Data Management**: How Plan compliance will be monitored & managed and by whom

NIH Data Repository Desired Characteristics

NIH promotes the use of established data repositories because deposit in a quality data repository generally improves the FAIRness (Findable, Accessible, Interoperable, and Re-usable) of the data.

- Supplemental Information to the NIH Policy for Data Management and Sharing: Selecting a Repository for Data Resulting from NIH-Supported Research: https://grants.nih.gov/grants/guide/notice-files/NOT-OD-21-016.html
- Open Domain-Specific Data Sharing Repositories:
 https://www.nlm.nih.gov/NIHbmic/domain-specific repositories.html
- Generalist Repositories:
 https://www.nlm.nih.gov/NIHbmic/generalist-repositories.html

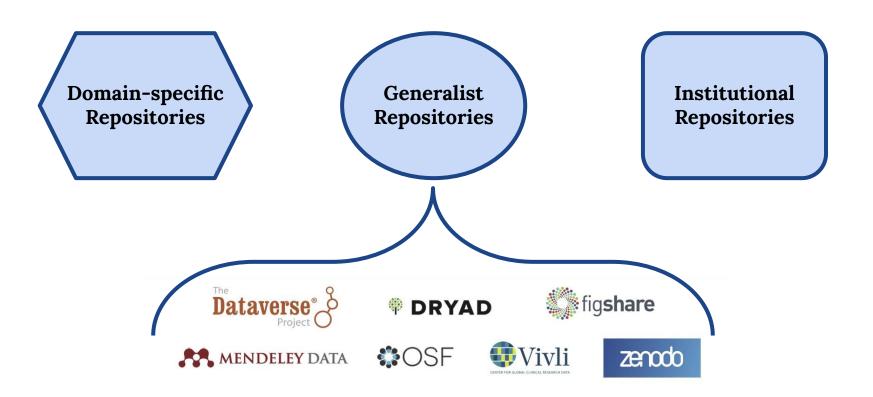
NIH Generalist Repository Ecosystem Initiative

Domain-specific Repositories

Generalist Repositories Institutional Repositories

LARGER RESEARCH DATA SHARING ECOSYSTEM

NIH Generalist Repository Ecosystem Initiative



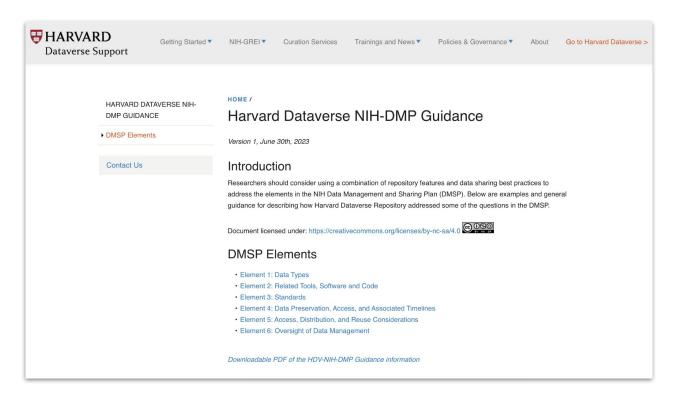






Harvard Dataverse NIH-DMP Guidance

https://support.dataverse.harvard.edu/harvard-dataverse-nih-dmp-guidance



Element 1: Data Types

Harvard Dataverse Supports:

- All data types
 - Any data format regardless of file extension
 - Data formats for preservation:
 https://www.openaire.eu/data-formats-preservation-guide
- Tabular data
 - For SPSS, Stata, RData, and CSV files, the ingest process extracts the data content from the user's files and archives it in an application-neutral, easily-readable format.
 - Note: enhanced ingest for Excel files is not available.

Sample DMP Text: For tabular data: PI will ensure that tabular data files are ingested properly by the Dataverse software. To best support archival preservation, Harvard Dataverse stores the raw data content extracted from successfully ingested tabular data files in plain text, TAB-delimited files. The metadata information that describes this content is stored separately, in a relational database, so that it can be accessed efficiently by the application. For the purposes of archival preservation it can be exported, in plain text XML files, using a standardized, open DDI Codebook format.

Element 2: Related Tools, Software and Code

Harvard Dataverse Recommends:

- Publish analysis code
 - Dest practice guidelines encourage the publication of analysis code, configuration, and execution files to be published with data and other input files used to generate or compute research results. This is especially important for replication datasets.
- Use Harvard Dataverse tools
 - Github connector; GeoJSON; Data Explorer; Supported File Previewers; Binder
- Follow best practices for research code
 - Code files such as Stata, R, MATLAB, or Python files or scripts - have become a frequent addition to the research data deposited in Dataverse repositories.
- Publish research & scientific software
 - Generalized or multi-purpose software that can be used across different datasets may be published as a separate research object

Sample Text: To support data access and reuse all code files generated as a product of this research will be published in Harvard Dataverse as part of the replication dataset that contains data and documentation files.

Original software developed to analyze imaging data (e.g.) will be published in Harvard Dataverse.

Element 3: Standards

Harvard Dataverse Recommends:

- Apply relevant metadata
 - Choose metadata fields from <u>Harvard Dataverse</u>
 <u>Supported Metadata Blocks</u>
- Apply additional NIH project metadata
 - Life Sciences Metadata
 - CodeMeta (forthcoming)
- Establish bidirectional link between dataset and related publications
 - Cite related publication/s using related publication field
 - Cite dataset DOI in your publications and reference lists

Sample Text: Harvard Dataverse is committed to using standard-compliant metadata to ensure that metadata can be mapped easily to standard metadata schemas and be exported into JSON format (XML for tabular file metadata) for preservation and interoperability.

The Life Sciences metadata block will be applied to all datasets resulting from this research.

Metadata, configurations, and parameters related specifically to software applications that cannot be described in Dataverse will be recorded in documentation files and will be published along with data.

Element 4: Data Preservation, Access, and Associated Timelines

Harvard Dataverse Policies:

- Repository hosting, backups, and preservation
 - Harvard Library Technical Services (LTS), in collaboration with Harvard University Information Technology (HUIT) and the Institute for Quantitative Social Science (IQSS), hosts the Harvard's Dataverse repository using Amazon Web Services and S3, and maintains a full backup of all data and directories using Amazon Glacier.
 - FAS Research Computing at Harvard University keeps a backup of all Harvard Dataverse data and directories. This means that there are always full, recent copies of the Harvard Dataverse repository at multiple locations.

Data files access

 Access to data files is open by default but can be mediated through a variety of features including: Embargos; Restricted file access; Guestbooks; and User permissions.

Metadata access

 HDV policy is that published dataset and file level metadata are always openly accessible. **Sample Text**: Scientific data from the research/study/project will be published in Harvard Dataverse, a nonprofit, generalist data repository built with the open source Dataverse Project software and affiliated with Harvard University's Institute for Quantitative Social Science and Harvard Library. The Harvard Dataverse Repository is a free data repository open to all researchers from any discipline, both inside and outside of the Harvard community, to share, archive, cite, access, and explore research data. Data published in Harvard Dataverse are described according to standard metadata schemas, exposed to the web via OAI-PMH and schema.org, assigned DOIs automatically, and backed up regularly to Amazon Glacier and Harvard's Faculty of Arts and Sciences Research Computing servers. Data published in Harvard Dataverse will be accessible to the research community for the long-term.

Element 5: Access, Distribution, and Reuse Considerations

Harvard Dataverse Policies:

- Harvard Dataverse does not support sensitive and personal identifiable data deposits
 - The depositor is responsible for removing all sensitive and personal identifiers for all files uploaded to Harvard repository.
 - Harvard Policy on sensitive data:
 https://support.dataverse.harvard.edu/harvard-dataverse-general-terms-use
- Access and embargo features, custom terms of access and use available
 - Support includes: file restricted access control via the "request access" feature;
 file level embargo; depositor-defined terms of use and access
 - Depositor defined access control (example): <u>Early Head Start Research and Evaluation Project</u>, 1996 2001: <u>Childcare/Teacher Data</u>

Sample Text: Data will be published openly under a CC-0 public domain waiver.

Restricted files will be accessible via the "request access" workflow

Additional restricted content in Harvard Dataverse may be accessible via custom terms of access and reuse.

Additional, sensitive data, not published in Harvard Dataverse may be accessible via a formal Data Use Agreement negotiated between research institutions.

Data will be embargoed for 50 years to protect survey participants from potential reidentification.

Element 6: Oversight of Data Management

Harvard Dataverse Policies:

- Role of Harvard Dataverse
 - Harvard Dataverse is not a responsible party that may be named in a Data Management and Sharing Plan. Users retain ownership and control of all deposited data.
- Apply relevant metadata
 - Include depositor information in dataset metadata in "Depositor" field.
- Curation Services can be included in proposed budget
 - The Harvard Dataverse Repository provides fee-based curation services to researchers around the world who are depositing data into The Harvard Dataverse Repository. Research data replication datasets, data for related publications, and all file types and domains are welcomed in the Harvard Dataverse Repository. Our curation services will ensure that your datasets are discoverable, accessible, interoperable, and reusable (FAIR).

Sample Text: FirstName LastName, Job Title, will be responsible for depositing all scientific data resulting from this project in a Harvard Dataverse collection.

We will utilize custom curation services, outlined in our budget justification, to expertly curate datasets to ensure that they are discoverable, accessible, interoperable, and reusable (FAIR).

Budgeting for Harvard Dataverse

- **Curating data**, such as engaging a generalist repository for curation support services
- **Developing supporting documentation**, such as research personnel effort needed to create and retain appropriate documentation beyond the effort needed to simply generate or collect the data
- **Formatting data according to accepted community standards**, or for transmission to and storage at a selected repository for long-term preservation and access, such as support services that may be offered by the repository or engaging a service center for support with data deposits
- **De-identifying data**, such as research personnel effort to systematically remove all identifiers from a data set prior to sharing or engaging a third-party vendor to certify that a data set has been fully de-identified
- **Preparing metadata** to foster discoverability, interpretation, and reuse, such as research personnel effort needed to document appropriate metadata beyond the effort needed to simply generate or collect the data
- Unique, project-specific information resources necessary to provide local management and preservation, such as charges from an external vendor for cloud storage prior to deposit into an established repository or costs to use a third-party electronic lab notebook
- **Preserving and sharing data through established repositories**, such as data deposit fees
- Large data support requires additional charge for storage/downloads.

Harvard Dataverse Curation Services

https://support.dataverse.harvard.edu/curation-services

Service Name	Description	Costs		
Data Curation Services	Harvard	Non-Harvard		
Free consultation and assessment	Triage level + Office hours Follow-up with recipients of support letters and consultation clients	Demonstrations of software Consult on projects size and scope and fit for Harvard Dataverse	Up to 3 hours	Up to 2 hours
Extended consultation services		Demonstrations of software Deidentification consult Dataverse organization consult File organization consult Replication verification consult	\$100/hour	\$200/hour
Dataverse set-up services and dataset and data file ingest	Establish data curation infrastructure and organization enabling data owners to self-curate their data.	Extended Consultation Dataverse creation and customization Dataset creation Data file ingest Metadata enrichment of dataset and data files Documentation for use of final product	\$2000 per "collection" plus \$100 minimum per dataset	\$4000 per "collection" plus \$200 minimum per dataset
Ongoing dataverse administration and curation services	Ongoing maintenance of Dataverse and datasets Continuous updates of dataverse and datasets as needed to reflect software upgrades and sharing standards	Extended consultation services Dataverse set-up services and dataset and data file ingest Maintenance of dataverses and datasets within Harvard Dataverse	\$10,000/year plus \$100 minimum per dataset	\$20,000/year plus \$200 minimum per datasets
Custom services for existing dataverse	One time curation services This includes: • file-upload • metadata enhancement (bi-directional linking), • linking affiliated datasets • Documentation • Digitization of audio/paper/content for sharing purposes		\$100/hour	\$200/hour

Thank You!

The Dataverse Project https://dataverse.org/

The Harvard Dataverse repository https://dataverse.harvard.edu/

Integrating Dataverse and DSpace https://osf.io/72w4m

The Dataverse Guide https://guides.dataverse.org/en/latest/

Dataverse on Github https://github.com/IOSS/dataverse

Dataverse google community https://groups.google.com/g/dataverse-community







