

Tips for Managing and Organizing Your Research Materials

Andrew Creamer
Data Management & Sharing Specialist
Brown University Library

Presented 2021-07-12 at the Summer 2021 Digital Humanities
Digital Scholarship (DHDS) Workshop sponsored by Brown
University Library Center for Digital Scholarship (CDS)

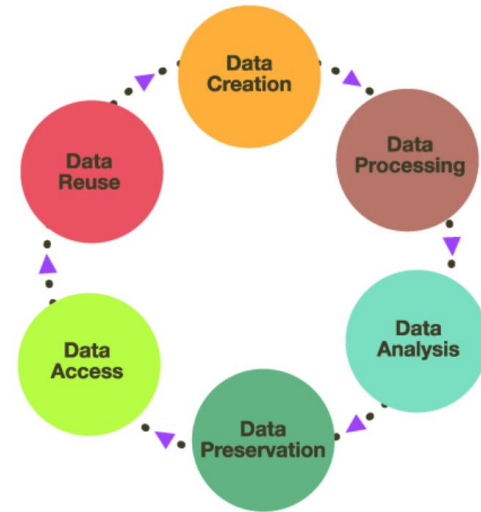


DOI: <https://doi.org/10.26300/zh76-hk23>

Data Stewardship Topics

- File naming
- Folder structure
- File formats
- Metadata for discovery & reuse
- Storage and backup
- Dissemination/sharing
- Rights and permissions
- Long-term preservation

Research data lifecycle





“Living” Data Management Plan (DMP)

Geographic



Maps, GIS, coordinates, locations, landmarks, etc.

Visual

Photographs, postcards, artwork, PNG, JPEG, GIF, glossy photos, print & digital photos, etc.

Audio

CDs, MP3s, WAV, recordings, broadcasts, songs, compositions, scores, etc.



Statistical

Datasets, surveys, census info., demographic, etc.

Video

Film, DVDs, YouTube, Vine, reel-to-reel, 8mm, etc.

Human Subjects

Demographics, ethnography, interviews, journals, etc.



Textual & Hypertextual

Citations, documentation of analog materials, digital scans, OCR text files, documents, spreadsheets, ephemera, publications, appendices, indices, archive of web pages, e.g., html

Authors of primers include archivists and data librarians who attended the 2018-2020 Specialized Data Curation Workshops presented by the Data Curation Network (IMLS RE-85-18-0040-18).

Acrobat PDF Primer

Creators: Peace Ossom-Williamson, Nicole Contaxis, Margaret Lam and Adam Kriesberg
Mentor: Jake Carlson

ATLAS.ti Primer

Creator: Margarita Corral
Affiliated contributor: Hannah Hadley
Mentor: Dave Fearon

Confocal Microscopy Image Primer

Creators: Susan Ivey, Amy Koshoffer, Gretchen Sneff and Huajin Wang
Mentor: Lisa Johnston

Consent Forms Primer

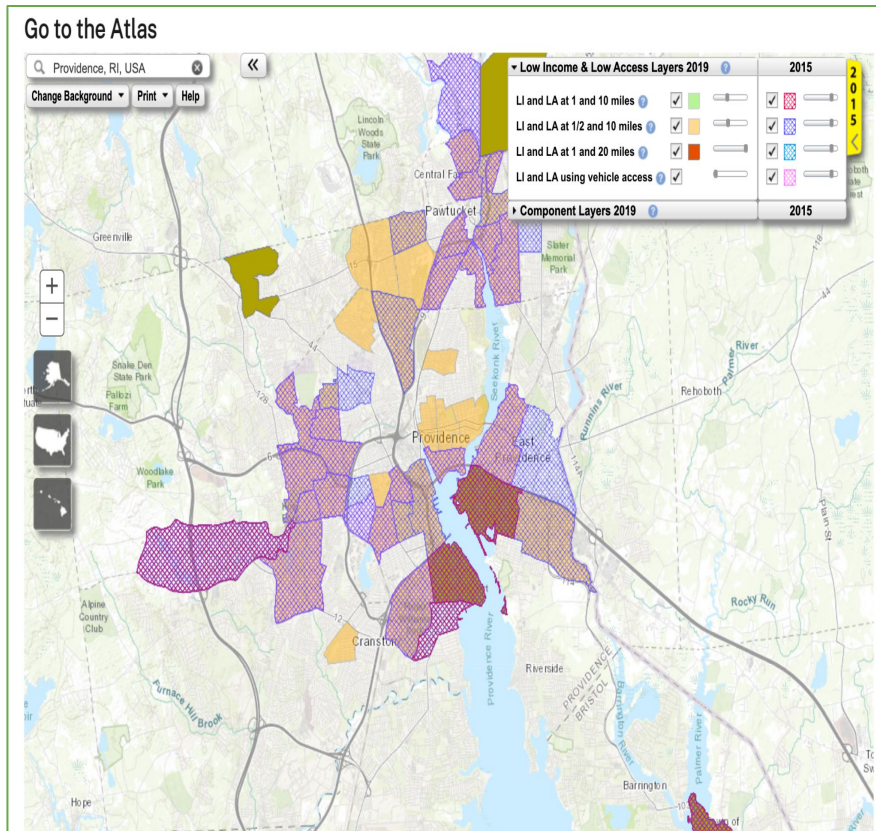
Creators: Shanda Hunt, Alicia Hofelich Mohr and Rachel Woodbrook

Databases Primer

Creator: Xuying Xin
Mentor: Dave Fearon

Geodatabase Primer

Creators: Andrew Battista, Tom Brittnacher, Zenobie Garrett, Jennifer Moore and Carrie Pirmann
Mentor: Mara Blake



Monica is researching food deserts - how certain low-income neighborhoods have less access to buy fresh foods.

Example Case Study Food Desert Map

Monica's Current File Names

Before meeting with the GIS specialist Monica wants to update her files' names to come up with a consistent way of naming them and adding context that can help others to navigate through her data:

- Streets.shp
- Streets(1).shp
- groceries\$.xlsx
- neighborhoods.shp
- census data.shp
- map-final.pdf
- map-final-final-final.pdf

Recommended Practices

- Date in YYYYMMDD format
- Include a version #
- Remove spaces and special characters other than - or _
- Creating a sequence? Add sequence # to file, e.g., if 100s of files start with 001 up to 999. 1000s? Then start with 0001-9999, etc.





Create a file name convention

- 20210629-pvd-ri-2020-street-map-v01.shp
- 20210629-pvd-ri-2020-grocery-geocodes-v02.xlsx
- 20210629-pvd-ri-2020-census-tracts-map.shp
- 20210629-pvd-ri-2020-food-desert-map-v12.pdf

Folder Structure

My Drive > PVD-Food-Deserts-Summer-Research-Project-2021 > Summer-Research-Project-Files-2021 ▾



Name	Owner	Last modified	↑	File size
 2020-PVD-Grocery-Store-Data	me	1:22 PM me		—
 2020-PVD-Census-Tract-Data	me	1:24 PM me		—
 2020-PVD-Food-Desert-Map-Layers	me	1:25 PM me		—
 2020-PVD-Food-Desert-Map-Images	me	1:25 PM me		—

Subfolder: 2020-PVD-Grocery-Store-Data

- File of grocery store addresses
- File of the geocodes (latitude/longitude coordinates) corresponding to the addresses
- Map layer for grocery locations

Subfolder: 2020-PVD-Food-Desert-Map-Layers

Need to keep all the map layers (the files that together comprise the map and need to be kept together):

- File of grocery store locations
- File of Providence city and neighborhood boundaries
- File of Providence streets
- File of census tracts of low income neighborhoods in PVD, RI

Subfolder Title: Versions/Attic

20210621-pvd-ri-2020-food-desert-map-v01

20210621-pvd-ri-2020-food-desert-map-v02

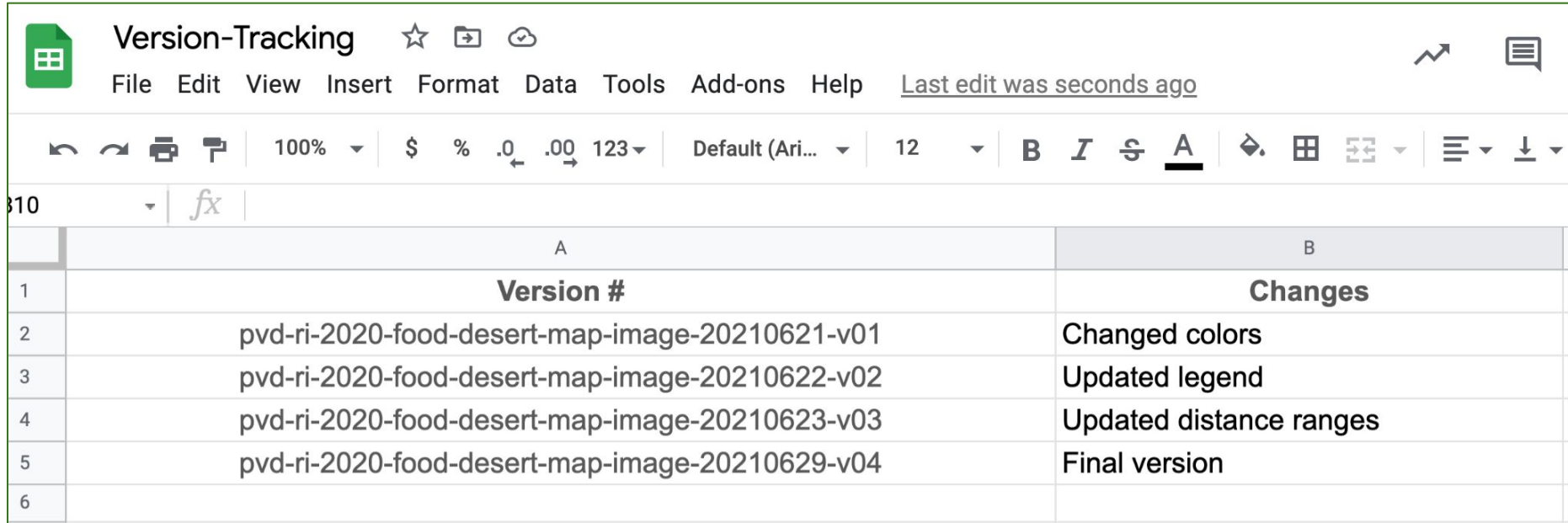
20210621-pvd-ri-2020-food-desert-map-v03

20210621-pvd-ri-2020-food-desert-map-v04

My Drive > PVD-Food-Deserts-Summer-Research-... > Summer-Research-Project-... > 2020-PVD-Food-Desert-Map-Ima... ▾  

Name	Owner	Last modified	↑	File size
 Versions	me	1:26 PM	me	–
 Final	me	1:26 PM		–

Add a "Readme" in a folder file directory



The screenshot shows a Google Sheets spreadsheet titled "Version-Tracking". The interface includes a menu bar (File, Edit, View, Insert, Format, Data, Tools, Add-ons, Help), a toolbar with various icons, and a formula bar containing "fx". The spreadsheet has two columns: "Version #" and "Changes". The data is as follows:

	A	B
	Version #	Changes
1		
2	pvd-ri-2020-food-desert-map-image-20210621-v01	Changed colors
3	pvd-ri-2020-food-desert-map-image-20210622-v02	Updated legend
4	pvd-ri-2020-food-desert-map-image-20210623-v03	Updated distance ranges
5	pvd-ri-2020-food-desert-map-image-20210629-v04	Final version
6		

Quantitative Surveys

Violet is researching attitudes and perceptions of climate change and has created a quantitative survey and would like to analyze the demographics of respondents and their response data..

- Files of the drafts and final version of **survey protocol and instrument**
- Files of the **spreadsheet of survey participant demographics and responses**
- File of **protocol and code used for the analysis** of responses (e.g., SPSS/R)
- Files of draft and final versions of the **aggregate results** (results of analysis)
- Files of **draft and final versions of graph/figures** reporting the results (images of the results)

Qualitative Interviews

Violet is also researching attitudes and perceptions of climate change and has interviewed residents of a coastal town and would like to analyze the major themes.

- Files of drafts and final versions of **structured interview protocol questions**
- Files of the **audio recordings and transcripts** of participant responses
- File of the **codes used for thematic analysis** of responses (nVivo/Atlas.ti)



Archives File Naming Conventions

001_manhattan_project_bx07_fol012_fieldnote_20170401.txt

thesis_chapter_01_20170401_v2.pdf

Sequence

archive

Box

Folder

Content

Date

Project

Date

Version

Unpacking FAIR: Machine-readable/actionable

“The intent is that these [principles] may act as a guideline for those wishing to enhance the reusability of their data holdings. Distinct from peer initiatives that focus on the human scholar, the FAIR Principles *put specific emphasis on enhancing the ability of machines to automatically find and use the data, in addition to supporting its reuse by individuals.*

Wilkinson, MD et al. The FAIR Guiding Principles for scientific data management and stewardship. Sci Data. 2016 Mar 15;3:160018. doi: 10.1038/sdata.2016.18

Unpacking FAIR: Versatility - from systems and platforms to projects and datasets

“The FAIR Guiding Principles describe distinct considerations for contemporary data publishing environments with respect to supporting both manual and automated deposition, exploration, sharing, and reuse. While there have been a number of recent, often domain-focused publications advocating for specific improvements in practices relating to data management and archival, **FAIR differs in that it describes concise, domain-independent, high-level principles that can be applied to a wide range of scholarly outputs.**”

Wilkinson, MD et al. The FAIR Guiding Principles for scientific data management and stewardship. Sci Data. 2016 Mar 15;3:160018. doi: 10.1038/sdata.2016.18

Unpacking FAIR: Centers metadata and their role in discovery, use, provenance, and attribution

“Throughout the Principles, we use the phrase ‘(meta)data’ in cases where the Principle should be applied to both metadata and data.”

Wilkinson, MD et al. The FAIR Guiding Principles for scientific data management and stewardship. *Sci Data*. 2016 Mar 15;3:160018. doi: 10.1038/sdata.2016.18

URI: "A Uniform Resource Identifier (URI) is a unique sequence of characters that identifies a resource used by web technologies"

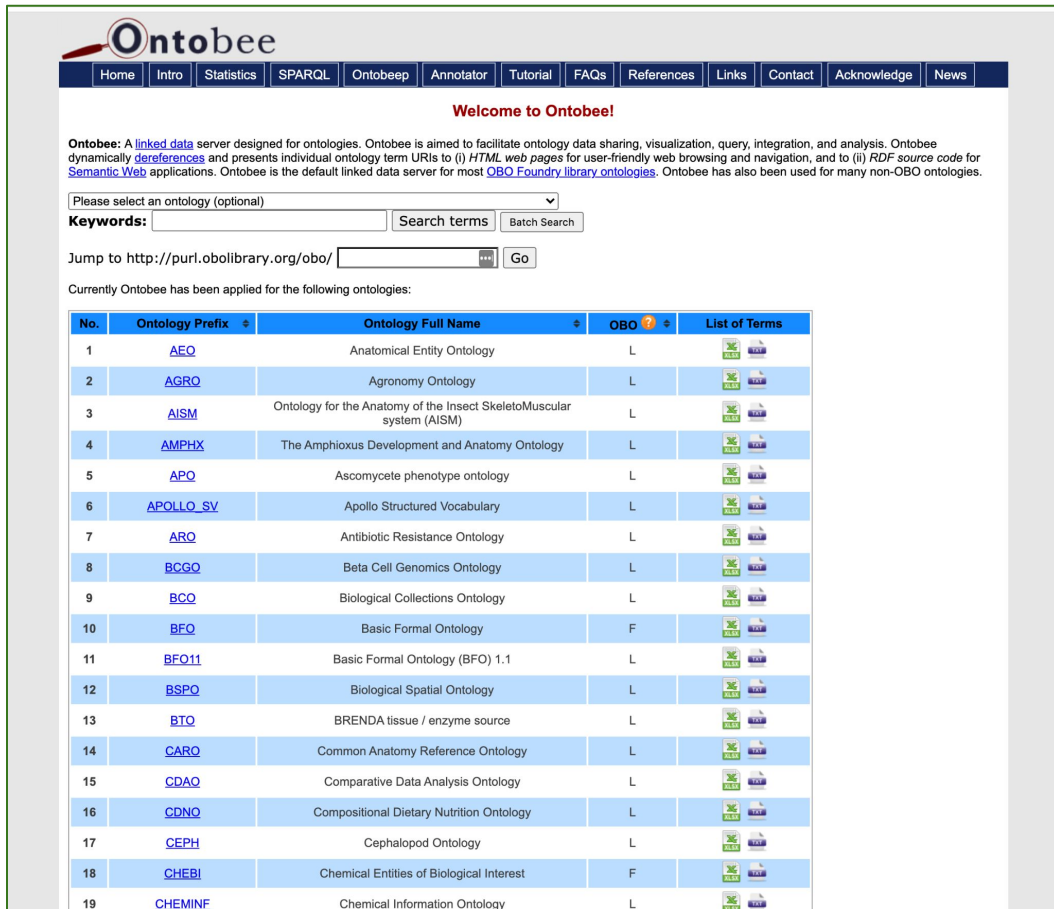
Vocabulary: "a computer-readable file that captures terms, their URIs, and descriptions"

Ontology: "a vocabulary with hierarchies, meaningful relations among concepts"







































Semantic Model: "meaning of entities and relations in the dataset" -- model in which the ontology and vocabulary class and URIs are embedded and made machine readable

-- GO Fair.n.d. Fairification Process

<https://www.go-fair.org/fair-principles/fairification-process/>



The screenshot shows the Ontobee website interface. At the top is the Ontobee logo and a navigation menu with links: Home, Intro, Statistics, SPARQL, Ontobee, Annotator, Tutorial, FAQs, References, Links, Contact, Acknowledge, News. Below the menu is a red banner that says "Welcome to Ontobee!". The main content area contains a search section with a text input field for "Please select an ontology (optional)", a "Keywords:" field, a "Search terms" button, and a "Batch Search" button. Below this is a "Jump to http://purl.obolibrary.org/obo/" field with a "Go" button. A message states "Currently Ontobee has been applied for the following ontologies:". Below this is a table listing 19 ontologies.

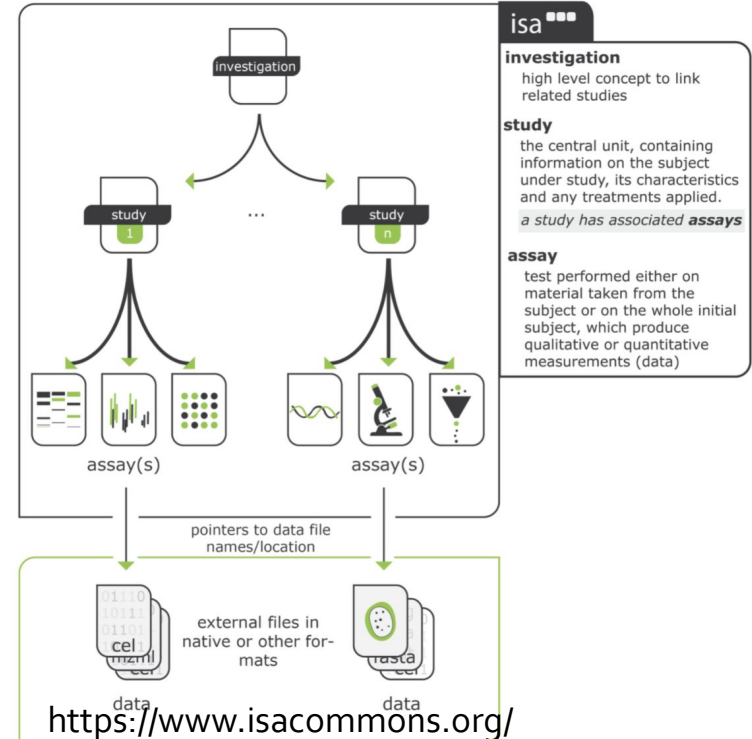
No.	Ontology Prefix	Ontology Full Name	OBO	List of Terms
1	AEO	Anatomical Entity Ontology	L	 
2	AGRO	Agronomy Ontology	L	 
3	AISM	Ontology for the Anatomy of the Insect SkeletoMuscular system (AISM)	L	 
4	AMPHX	The Amphioxus Development and Anatomy Ontology	L	 
5	APO	Ascomycete phenotype ontology	L	 
6	APOLLO_SV	Apollo Structured Vocabulary	L	 
7	ARO	Antibiotic Resistance Ontology	L	 
8	BCGO	Beta Cell Genomics Ontology	L	 
9	BCO	Biological Collections Ontology	L	 
10	BFO	Basic Formal Ontology	F	 
11	BFO11	Basic Formal Ontology (BFO) 1.1	L	 
12	BSP0	Biological Spatial Ontology	L	 
13	BTO	BRENDA tissue / enzyme source	L	 
14	CARO	Common Anatomy Reference Ontology	L	 
15	CDAO	Comparative Data Analysis Ontology	L	 
16	CDNO	Compositional Dietary Nutrition Ontology	L	 
17	CEPH	Cephalopod Ontology	L	 
18	CHEBI	Chemical Entities of Biological Interest	F	 
19	CHEMINF	Chemical Information Ontology	L	 

Example Using ISA-TAB

“The FAIR and Linked Data Principles specify that all “entities” (i.e., things that are not textual or numerical values) must be named using a resolvable URI. Semantic models often contain multiple terms from existing ontologies and vocabularies.”

-- Rodríguez-Iglesias A, Rodríguez-González A, Irvine AG, Sesma A, Urban M, Hammond-Kosack KE, Wilkinson MD. Publishing FAIR Data: An Exemplar Methodology Utilizing PHI-Base. Front Plant Sci. 2016 May 12;7:641. doi: 10.3389/fpls.2016.00641.

ISA Overview



Example Linked ISA-TAB Entity Ontologies

ONTOLOGY SOURCE REFERENCE

Term Source Name	"CHEBI"	"CHMO"	"NCIT"	"OBI"	"NCBITAXON"	"BTO"	"EFO"	"UO"	
Term Source File	"https://www.ebi.ac.uk/metabolights/"	"http://data.bioontology.org/ontologies/CHEBI"	"http://data.bioontology.org/ontologies/CHMO"	"http://data.bioontology.org/ontologies/NCIT"	"http://data.bioontology.org/ontologies/OBI"	"http://data.bioontology.org/ontologies/NCBITAXON"	"http://data.bioontology.org/ontologies/BTO"	"http://data.bioontology.org/ontologies/EFO"	
Term Source Version	"1"	"86"	"12"	"34"	"23"	"4"	"26"	"119"	"43"
Term Source Description	"Metabolights Ontology"	"Chemical Entities of Biological Interest Ontology"	"Chemical Methods Ontology"	"National Cancer Institute Thesaurus"	"Ontology for Biomedical Investigations"	"National Center for Biotechnology Information (NCBI) Organismal Classification"	"BRENDA Tissue and Enzyme Source Ontology"	"Experimental Factor Ontology"	"Units of Measurement Ontology"

Defined entities URIs

Study Assay Measurement
Type Term
Accession Number

"http://purl.obolibrary.org/obo/OBI_0000366"

Class: metabolite profiling assay

Term IRI: http://purl.obolibrary.org/obo/OBI_0000366

Definition: An assay that detects and identifies chemical entities resulting from biochemical and cellular metabolism

Annotations

- **definition editor:** Philippe Rocca-Serra
- **alternative term:** metabolomic assay; metabolite assay
- **definition source:** OBI
- **example of usage:** Metabolite profiling of human colon carcinoma - deregulation of TCA cycle and amino acid turnover. Mol Cancer. 2008 Sep 18;7(1):72. PMID: 18799019
- **has curation status:** metadata complete

Class Hierarchy

- Thing
 - + [entity](#)
 - + [occurrent](#)
 - + [process](#)
 - + [planned process](#)
 - + [assay](#)
 - [Bernoulli trial](#)
 - + [imaging assay](#)
 - [radioactivity detection](#)
 - [protein-protein interaction detection assay](#)
 - + [transcription profiling assay](#)
 - [DNA sequence feature detection assay](#)
 - [DNA sequence variation detection assay](#)
 - + [analyte assay](#)
 - [mass measurement assay](#)
 - + [intra-cellular electrophysiology recording assay](#)
 - + [extracellular electrophysiology recording assay](#)
 - + [mass spectrometry assay](#)
 - [copy number variation profiling assay](#)
 - + [protein expression profiling assay](#)
 - [NMR spectroscopy assay](#)
 - [hematology assay](#)
 - [survival assessment assay](#)
 - [glucose tolerance test](#)
 - + [single-nucleotide-resolution nucleic acid structure mapping assay](#)
 - + [handedness assay](#)
 - + [binding assay](#)
 - + [efficacy of epitope intervention experiment](#)
 - [more...](#)
 - [metabolite profiling assay](#)

Defined vocabulary attribute and value URI

Study Design Descriptor

Benzoxazine

"http://purl.obolibrary.org/obo/CHEBI_46969"

The screenshot displays the ChEBI (Chemical Entities of Biological Interest) web interface. At the top, there is a navigation bar with links for Services, Research, Training, and About us. Below this is the ChEBI logo and a search bar with a search button and an advanced search link. The main navigation bar includes links for Home, Advanced Search, Browse, Documentation, Download, Tools, and About ChEBI, along with Contact us and Submit buttons. The page content shows the entry for CHEBI:46969 - benzoxazine. It features a tabbed interface with 'Main' selected. The main content area displays the ChEBI Name as 'benzoxazine', the ChEBI ID as 'CHEBI:46969', and a 'Stars' section with three stars and the text 'This entity has been manually annotated by the ChEBI Team.' Below this, there is a section for 'ChEBI Ontology' with an information icon. The ontology section lists three outgoing relationships: benzoxazine (CHEBI:46969) is a organic heterocyclic compound (CHEBI:27171), benzoxazine (CHEBI:46969) is a organonitrogen heterocyclic compound (CHEBI:38101), and benzoxazine (CHEBI:46969) is a oxacycle (CHEBI:38104).

EMBL-EBI

Services Research Training About us

ChEBI

Search

Examples: iron, InChI=1S/CH4O/c1-2/h2H,1H3, caffeine

Home Advanced Search Browse Documentation Download Tools About ChEBI Contact us Submit

ChEBI > Main

CHEBI:46969 - benzoxazine

Main ChEBI Ontology Automatic Xrefs Reactions Pathways Models

ChEBI Name **benzoxazine**

ChEBI ID **CHEBI:46969**

Stars ★★ This entity has been manually annotated by the ChEBI Team.

ChEBI Ontology

Outgoing

benzoxazine (CHEBI:46969) is a organic heterocyclic compound (CHEBI:27171)

benzoxazine (CHEBI:46969) is a organonitrogen heterocyclic compound (CHEBI:38101)

benzoxazine (CHEBI:46969) is a oxacycle (CHEBI:38104)

Findable: Enabling Discovery

- F1. (Meta)data are assigned a *globally unique and persistent identifier*
- F2. Data are described with **rich metadata**
- F3. Metadata clearly and explicitly *include the identifier of the data* they describe
- F4. (Meta)data are registered or indexed in a *searchable resource*

Accessible

A1. (Meta)data are retrievable by their identifier using a standardised communications protocol

A1.1 The protocol is open, free, and universally implementable

A1.2 The protocol allows for an authentication and authorisation procedure, where necessary

A2. Metadata are accessible, even when the data are no longer available

Interoperable

I1. (Meta)data use a formal, accessible, shared, and broadly applicable language for knowledge representation.

I2. (Meta)data use vocabularies that follow FAIR principles

I3. (Meta)data include qualified references to other (meta)data

Reusable

R1. (Meta)data are richly described with a plurality of accurate and relevant attributes

R1.1. (Meta)data are released with a clear and accessible data usage license

R1.2. (Meta)data are associated with detailed provenance

R1.3. (Meta)data meet domain-relevant community standards

Example Case study metadata

- Use a standard (if one exists) - (e.g., ISO 19115)
- Ontology/vocabularies used
- Details on provenance -e.g., census data used
- Income ranges used USD/per capita or per household
- Year of data represented
- Date map created
- Distance measurement (miles/km)
- Coordinate standard used for longitude and latitude/geocodes
- Geonames for controlled list of names of cities, states
- ISO codes for location (country codes)
- Creator ORCID
- Rights and license information
- Subject headings
- Grant ID
- Digital Object Identifier (DOI)

Help with data discovery and attribution

Dataset Persistent ID ?	doi:10.7910/DVN/QHKPAI
Publication Date ?	2020-08-03
Title ?	San Diego business location data, 1958, from Polk's San Diego City Directory
Author ?	Marlow, Thomas (Brown University) - ORCID: 0000-0003-3989-6775 Frickel, Scott (Brown University) - ORCID: 0000-0002-7368-885X
Contact ?	Use email button above to contact. Brown Library Research Data Management Services (Brown University)
Description ?	This dataset contains parsed, extracted, and geocoded historical business and manufacturing data from Polk's San Diego City Directory using the open source directoreadr software. Images used for data extraction can be found at https://www.sandiego.gov/digitalarchives/collections/specialcollections/citydirectories . (2020-06-01)
Subject ?	Earth and Environmental Sciences
Keyword ?	Environmental health (MeSH) https://id.nlm.nih.gov/mesh/D004782.html Cities (MeSH) https://id.nlm.nih.gov/mesh/D002947.html Industry (MeSH) https://id.nlm.nih.gov/mesh/D007221.html Manufacturing industry (MeSH) http://id.nlm.nih.gov/mesh/D066192 California--San Diego (FAST) http://id.worldcat.org/fast/1205232 California--San Diego County (FAST) http://id.worldcat.org/fast/1204290
Related Publication ?	Polk's San Diego (San Diego County, Calif.) City Directory 1958 Including La Jolla .R. L. POLK & COo, Publishers 120 East 8th Street, Los Angeles 14, Calif. purl: 1136988096 http://www.worldcat.org/oclc/1136988096
Language ?	English
Grant Information ?	Institute of Environmental Health Sciences (NIEHS) of the National Institutes of Health (NIH): P42 ES013660-14S1

“Metadata and data should be easy to find for both humans and computers”

```
{"@context":"http://schema.org","@type":"Dataset","@id":"https://doi.org/10.7910/DVN/QHKPAI","identifier":"https://doi.org/10.7910/DVN/QHKPAI","name":"San Diego business location data, 1958, from Polk's San Diego City Directory","creator":[{"name":"Marlow, Thomas","affiliation":"Brown University","@id":"https://orcid.org/0000-0003-3989-6775","identifier":"https://orcid.org/0000-0003-3989-6775"},{"name":"Frickel, Scott","affiliation":"Brown University","@id":"https://orcid.org/0000-0002-7368-885X","identifier":"https://orcid.org/0000-0002-7368-885X"}],"author":[{"name":"Marlow, Thomas","affiliation":"Brown University","@id":"https://orcid.org/0000-0003-3989-6775","identifier":"https://orcid.org/0000-0003-3989-6775"},{"name":"Frickel, Scott","affiliation":"Brown University","@id":"https://orcid.org/0000-0002-7368-885X","identifier":"https://orcid.org/0000-0002-7368-885X"}],"datePublished":"2020-08-03","dateModified":"2020-08-14","version":"1","description":["This dataset contains parsed, extracted, and geocoded historical business and manufacturing data from Polk's San Diego City Directory using the open source directoreadr software. Images used for data extraction can be found at https://www.sandiego.gov/digitalarchives/collections/specialcollections/citydirectories."],"keywords":["Earth and Environmental Sciences","Environmental health","Cities","Industry","Manufacturing industry","California--San Diego","California--San Diego County"],"citation":[{"@type":"CreativeWork","text":"Polk's San Diego (San Diego County, Calif.) City Directory 1958 Including La Jolla .R. L. POLK & CO, Publishers 120 East 8th Street, Los Angeles 14, Calif.", "@id":"http://www.worldcat.org/oclc/1136988096","identifier":"http://www.worldcat.org/oclc/1136988096"}],"license":{"@type":"Dataset","text":"CC0","url":"https://creativecommons.org/publicdomain/zero/1.0/"},"includedInDataCatalog":{"@type":"DataCatalog","name":"Harvard Dataverse","url":"https://dataverse.harvard.edu"},"publisher":{"@type":"Organization","name":"Harvard Dataverse"},"provider":{"@type":"Organization","name":"Harvard Dataverse"},"funder":{"@type":"Organization","name":"Institute of Environmental Health Sciences (NIEHS) of the National Institutes of Health (NIH)"}, "distribution":{"@type":"DataDownload","name":"FOutput_geocoded.tab","fileFormat":"text/tab-separated-values","contentSize":2790348,"@id":"https://doi.org/10.7910/DVN/QHKPAI/MMLJOM","identifier":"https://doi.org/10.7910/DVN/QHKPAI/MMLJOM","contentUrl":"https://dataverse.harvard.edu/api/access/datafile/4002447"}]}
```

Weaponizing FAIR

"The FAIR Principles are aspirational, in that they do not strictly define how to achieve a state of "FAIRness"; rather they describe a continuum of features, attributes, and behaviors that move a digital resource closer to that goal. Despite their rapid community uptake, the question of how the FAIR Principles should be implemented has been prone to diverse interpretation. Some resource providers claim to be "already FAIR" or "to enable FAIRness" – statements that currently cannot be objectively evaluated. These manifold interpretations of the FAIR Principles are counterproductive, posing a risk of fragmentation and confusion in a manner antithetical to their intended purpose (or worse, being ignored entirely due to a lack of formal clarity). This state of affairs is somewhat ironic in that, because FAIR speaks to machine-actionable operations, FAIR digital objects should therefore be amenable to unambiguous and indeed, completely automated forms of validation and evaluation."

Wilkinson, M.D., Dumontier, M., Sansone, SA. et al. Evaluating FAIR maturity through a scalable, automated, community-governed framework. *Sci Data* 6, 174 (2019). <https://doi.org/10.1038/s41597-019-0184-5>

FAIR Metrics

FAIRsharing.org

FAIR Metrics - Identifier Uniqueness

Abbreviation: FM-F1A

General Information


The FM-F1A Metric provides a measurement of whether or not there is a scheme to uniquely identify the digital resource. An identifier scheme is valid if and only if it is described in a repository that can register and present such identifier schemes (e.g. fairsharing.org). Information about the identifier scheme must be presented with a machine-readable document containing the FM1 attribute with the URL to where the scheme is described. see specification for implementation. This metric applies to part F1 of the FAIR Principles.

Homepage https://purl.org/fair-metrics/FM_F1A

Countries that developed this resource [Netherlands](#), [Spain](#), [United Kingdom](#)

Created in 2017

Taxonomic range

 Not applicable


Knowledge Domains

 Centrally Registered Identifier  Data Identity And Mapping  Digital Curation  FAIR

User-defined Tags

 General Purpose

How to cite this record FAIRsharing.org: FM-F1A; FAIR Metrics - Identifier Uniqueness; DOI: <https://doi.org/10.25504/FAIRsharing.r49beq>; Last edited: Sept. 20, 2019, 11:51 a.m.; Last accessed: Jul 10 2021 2:14 p.m.

This record is maintained by [Mark Wilkinson](#) 

FAIR Maturity Indicators

<https://fairsharing.github.io/FAIR-Evaluator-FrontEnd/>

Search tests and collec SEARCH

FAIR Evaluation Services

Resources and guidelines to assess the FAIRness of digital resources.

We are back online ! Thank you for your patience ! If you notice any unexpected failures in the tests, please report them to mark.wilkinson@upm.es



Import MI Tests

Import Maturity Indicators Tests as YAML [smartAPI](#) interface annotation

Get started



Create collections

Assemble Maturity Indicators Tests into community centered collections

Get started



Evaluate resources

Evaluate resources FAIRness against Collections of Maturity Indicator Tests

Get started

Philosophy of FAIR testing

Evaluating FAIRness is a controversial issue! We (the Maturity Indicator Authoring Group) feel that these concerns can be eased through bringing more clarity regarding the "philosophy" behind FAIRness testing.

FAIR Cookbook and Recipes

<https://fairplus.github.io/the-fair-cookbook/>

The screenshot displays the FAIR Cookbook interface. On the left is a sidebar with a search bar and a list of recipes under the 'Interoperability' category. The main content area features a recipe card for 'File format validation, FASTQ example' with details on reading time, difficulty, and audience. Below the card are sections for '12.1. Main Objectives' and '12.2. Graphical Overview', which includes a flowchart showing 'Data Acquisition' leading to 'Raw Data'. A right-hand navigation menu lists the page's contents.

FAIR cookbook

Q Search this book...

RECIPES

Findability

Accessibility

Interoperability

1. Interlinking data from different sources
2. Identifier mapping with BridgeDb
3. Introduction to terminologies and ontologies
4. Selecting terminologies and ontologies
5. Requesting new terms
6. Ontology-related tools and services
7. Building an application ontology with ROBOT
8. Creating a data/variable dictionary
9. Creating a metadata profile
10. Converting from proprietary to open format
11. An inventory of tools for converting your data to RDF
- 12. File format validation, FASTQ example**
13. Extraction, transformation, and loading process

Powered by **Jupyter Book**

12. File format validation, FASTQ example

Recipe Overview

File format validation, FASTQ example

Reading Time
15 minutes

Executable Code
Yes

Difficulty

Recipe Type
Hands-on

Audience
Principal Investigator, Data Manager, Data Scientist

Cite me with FCB030

12.1. Main Objectives

The main purpose of this recipe is to:

- provide a FASTQ file validation solution
- propose a general file validation workflow.

12.2. Graphical Overview

```
graph TD; A[Data Acquisition] --> B[Raw Data]; B --> C[ ];
```

12.1. Main Objectives

12.2. Graphical Overview

12.1. Main Objectives

12.2. Graphical Overview

12.3. User Stories

12.4. Capability & Maturity Table

12.5. FAIRification Objectives, Inputs and Outputs

12.6. Table of Data Standards

12.7. Conclusion

12.8. References

12.9. Authors

12.10. License

Repository Finder

Find a repository to upload your data.

Repository Finder, a pilot project of the [Enabling FAIR Data Project](#) led by the American Geophysical Union (AGU) in partnership with DataCite and the Earth, space and environment sciences community, can help you find an appropriate repository to deposit your research data. The tool is hosted by DataCite and queries the re3data registry of research data repositories.

As part of the [FAIRsFAIR project](#), which aims to supply practical solutions for the use of the FAIR data principles throughout the research data life cycle, the Repository Finder is extended to query for repositories relevant to FAIRsFAIR Project.

Search [re3data](#) for a repository to upload your data

Search

or

[See the repositories](#) in re3data that meet the criteria of the Enabling FAIR Data Project.

[See the repositories](#) in re3data that meet the criteria of the FAIRsFAIR Project.



<https://fairshake.cloud/>

FAIRshake

A System to Evaluate the FAIRness of Digital Objects

Search

Featured Project & Rubric



NIH Common Fund Data Ecosystem (CFDE) FAIR Assessments
FAIR Assessments for the NIH CFDE Project

nihcommonfund



FAIR metrics by fairmetrics.org

A set of metrics to assess the FAIRness of digital resources. Based on work published in <https://www...>

fair metrics universal core metrics all digital objects

Please acknowledge FAIRshake in your publications by citing the following references:

Clarke et al. FAIRshake: Toolkit to Evaluate the FAIRness of Research Digital Resources, Cell Systems (2019), <https://doi.org/10.1016/j.cels.2019.09.011>

Spreadsheet tips

- Have all column headers in a single row across the top
- One data point/variable per column and per cell (e.g., you wouldn't mix celsius and fahrenheit data or mix column headers "temperature and humidity" ...)
- Avoid empty cells or use a consistent fixed code for defining any missing values or null values
- Consider using data validation to prevent data entry errors common with free text
- Create another column field if you need to add notes/annotations- do not mix data and annotations in the cells
- Use NA for empty cells
- Beware Excel and dates...

Metadata for Use

Details about the data in the project and methods used to collect and analyze data in the project

- Protocols
- Readme
- Codebook and data dictionary

Codebook and Data Dictionary

* ranges indicated are range for total sample					Total sample (N=2228)			Main analytical sample (complete dyads) (N=1872)			Note (info on recoding decision rules and/or version changes 1.3 and 1.4) Comments regarding version changes in red.
Section	Variable Name	Variable Label	Value	Value description	N	Percent	Cum N	N	Percent	Cum N	
Logistics	cpait_CaseNo	Household Identifier	String	Range from 99100100 to 99115281	2228	100.00%	2228	1872	100.00%	1872	
	cpait_AlzId	Alzheimer ID patient	String	Range from 100100 to 115281	2228	100.00%	2228	1872	100.00%	1872	
	cpait_RESULTCATEGORY	Resultcategory (complete or missing)	String	Complete	2228	100.00%	2228	1872	100.00%	1872	
	REC_cpait_partnerint	Recode: patient has corresponding care partner interview	0	No care partner interview	356	15.98%	356	0	0.00%	0	Indicates whether there is a matcing care partner interview for the patient record.
			1	Care partner interview available	1872	84.02%	2228	1872	100.00%	1872	
	cpait_rmpnd_date	End date of relationship mapping variable	continuous	range: 21017-21273	2228	100.00%	2228	1872	100.00%	1872	
	cpait_resultcode_date	Date of most recent/last interview outcome	continuous	range: 21017-21274	2228	100.00%	2228	1872	100.00%	1872	
	REC_cpait_Qversion	Recode: indicates which questionnaire version was administered	1	Old (1.3, before 10/08)	1013	45.47%	1013	869	46.42%	869	REC_cpait_Qversion indicates whether the participant received the old questionnaire, the new questionnaire or both. It's coded as follows: 1 (old/1.3) if the END date was before 10/08 (interview finished before the change date) coded 2 (new/1.4) if the START date was on or after 10/08 (interview started on or after the change date) coded 3 (restart) if none of the above applied (interview did not finish before 10/08 AND did not start after, so interview has started before 10/08 but finished after 10/08). cpait_rmpnd_date is used for the start date (date that relationship mapping section was finished) and cpait_resultcode_date is used for the end date (date of most recent/last interview outcome). REC_cpait_Qversion_specific uses the first variable as a basis but specifies (as much as possible) for all the restarts where in the questionnaire they restarted, these restart points were determined by looking at missing data patterns. It will be helpful to use these variables to see which questionnaire was administered to patients, specifically when you look at variables which are present both in 1.3 and 1.4 but for which the wording or prompts changed (which may influence how participants answered the question).
			2	New (1.4, on/after 10/08)	1186	53.23%	2199	979	52.30%	1848	
			3	Both: restart that spans 10/08	29	1.30%	2228	24	1.28%	1872	
			1	Old (1.3, before 10/08)	1013	45.47%	1013	869	46.42%	869	
			2	New (1.4, on/after 10/08)	1186	53.23%	2199	979	52.30%	1848	
			3	Restart: start of qualitative story	18	0.81%	2217	15	0.80%	1863	
			4	Restart: during qualitative story	2	0.09%	2219	0	0.00%	1863	
		5	Restart: start/during planning for the future	3	0.13%	2222	3	0.16%	1866		
		6	Restart: before ECOG, after planning for the future	1	0.04%	2223	1	0.05%	1867		
		7	Restart: during ECOG	1	0.04%	2224	1	0.05%	1868		
		8	Restart: start of hypothetical risky treatment	2	0.09%	2226	2	0.11%	1870		
		9	Restart: during hypothetical risky treatment	1	0.04%	2227	1	0.05%	1871		
		10	Restart: after hypothetical risky treatment, means no different from 1.4	1	0.04%	2228	1	0.05%	1872		
Relationship mapping	cpait_Relationship	Relationship to care partner	1	Husband	623	27.96%	623	545	29.11%	545	
			2	Wife	1165	52.29%	1788	1058	56.52%	1603	
			3	Significant other, partner	57	2.56%	1845	44	2.35%	1647	
			4	Father	0	0.00%	1845	0	0.00%	1647	
			5	Mother	0	0.00%	1845	0	0.00%	1647	
			6	Grandfather	0	0.00%	1845	0	0.00%	1647	
			7	Grandmother	0	0.00%	1845	0	0.00%	1647	
			8	Aunt	0	0.00%	1845	0	0.00%	1647	
			9	Uncle	1	0.04%	1846	0	0.00%	1647	
			10	Brother	6	0.27%	1852	2	0.11%	1649	
			11	Sister	17	0.76%	1869	11	0.59%	1660	
			12	Son	64	2.87%	1933	34	1.82%	1694	
			13	Daughter	203	9.11%	2136	126	6.73%	1820	
			14	Son-in-law	0	0.00%	2136	0	0.00%	1820	
			15	Daughter-in-law	12	0.54%	2148	7	0.37%	1827	
			16	Father-in-law	0	0.00%	2148	0	0.00%	1827	
			17	Mother-in-law	0	0.00%	2148	0	0.00%	1827	
	18	Friend	40	1.80%	2188	25	1.34%	1852			
.97	Other	38	1.71%	2226	19	1.01%	1871				
.d	DK	1	0.04%	2227	0	0.00%	1871				
.r	Refused	1	0.04%	2228	1	0.05%	1872				
cpait_RelationshipOS	Relationship to care partner, other specify	NULL	MISSING	2190	98.29%	2190	1853	98.99%	1853		
		String	Range from Caregiver to stepfather	38	1.71%	2228	19	1.01%	1872		
		1	Spouse / significant other	1850	83.03%	1850	1651	88.19%	1651		
		2	Children (incl in-law & step)	281	12.61%	2131	168	8.97%	1819		

Analysis Code

Brown Digital Repository

Feedback

Discover...

I Want to...

Login

Code for "Trends in Non-Invasive and Invasive Mechanical Ventilation among Medicare Beneficiaries at the End of Life"

Overview

Full Metadata

Year:

2020

Contributor:

Sullivan, Donald S. (Author)
Kim, Hyosin (Author)
Gozalo, Pedro (Author)
Bunker, Jennifer (Author)
Teno, Joan M. (Author)

Subject:

non-invasive mechanical ventilation
NIMV
Invasive Mechanical Ventilation
IMV
DOI
<https://doi.org/10.26300/pxh2-3790>

Files

MODS



ZIP



Views

Archive Contents



Archive Default



Description

Abstract:

The objective of this study was to assess document the trends use of IMV and NIMV among persons with hospitalizations in the last 30 days of life. A secondary goal is to examine how it differs among persons with dementia, Cancer, COPD, and CHF.

Notes:

This research was funded by the National Institute on Aging of the National Institutes of Health under award number R56AG063748, 2P01AG027296-11

Content

Views | Files

Code for "Trends in Non-Invasive and Invasive Mechanical Ventilation among Medicare Beneficiaries at the End of Life"

Links

Download

Contents

- code/Code_Sharing_JAMA_Sullivan_Et_Al_2020.docx
- code/Code_Sharing_JAMA_Sullivan_Et_Al_2020.pdf

Original Statistical Analysis:

Notes:

Stata code used for analyses of file created by programmer.

* set up variables / analytic files

```
* create outcome variables, 2000-2017 / mv_noninv & mv_inv: no data b/t 2000 and 2009
d mvnoninv_30 mvinv_30 mv_noninv mv_inv
tab hkyear mvnoninv_30, m
tab hkyear mvinv_30, m
tab mvnoninv_30 mvinv_30, m
```

* create a "vent" variable

```
gen vent = 0
```

```
replace vent = 1 if mvnoninv_30==1 & mvinv_30==0
```

```
replace vent = 2 if mvnoninv_30==1 & mvinv_30==1
```

```
replace vent = 3 if mvnoninv_30==0 & mvinv_30==1
```

```
label define ventstat 0 "No MV" 1 "NIMV" 2 "Both" 3 "IMV"
```

```
label values vent ventstat
```

Example Data Dictionary

	A	B	
1	Count	Senate Ballot File Variable Name	Senate Ballot Variable Description
2		1 YEAR	The year in which the state legislature voted on the Senate election
3		2 CHAMBER	State legislatures were bicameral with two chambers; House stands for the state House of Representatives
4		3 SEAT	Senate terms are six years in length and for this time period started on March 4th and ended six years later
5		4 ELECTTYPE	Senate elections for expiring terms are labeled general (g) and elections held to fill unexpected vacancies
6		5 SEPARATE/JOINT	joint indicates the vote was taken joint session. Voters in joint session were typically but not always
7		6 JOINTBALLOT#	For this data, ballot numbering begins with the first joint session ballot labeled 1.
8		7 SENCANDIDATE	Name of candidate for U.S. Senate that state legislator cast a ballot for; NV, absent, not voting, etc.
9		8 ST LEGISLATURE VOTER	Member of state legislature recorded in state or house journal as voting or absent.
10		9 PARTY	Populist
11		10 DISTRICT	Specific district of state legislator; state legislatures apportioned differently across states either by population or geography
12		11 COUNTY	Specific district of state legislator; state legislatures apportioned differently across states either by population or geography
13			
14			
15			
16		State Completed	Notes
17		California	no county data
18		Delaware	no district data

Data Storage and Backup Best Practice



3-2-1 Rule

- Local copy of data files
- 2nd local copy on *separate* drive
- Remote/cloud copy of data

*Check data risk classification levels for human subjects data

<https://ithelp.brown.edu/kb/articles/decide-how-to-store-and-share-files#comparison>

Decide How to Store and Share Files

Subscribe  Download PDF 

2019-07-01 |  0 Comments | in Campus File Storage

Several services at Brown allow you to share and store files. This guide will let you compare the options and decide which one(s) are right for you.

Table of Content

- [Easy to Use](#)
 - Google Drive
 - Dropbox
 - BrownBox
- [Especially for Research](#)
 - Campus File Storage / Research
 - Research Data Storage (RData)
 - Stronghold
- [General File Storage](#)
 - Campus File Storage / Department File Services
 - Campus File Storage / Home Folder
- [Comparison table](#)

Rights and Permissions

- Raw data not generally considered eligible for copyright
- Creative compilations of data are considered eligible for copyright (databases, visualizations, figures)
- Creator owns/share rights with co-creators (up and until one were to ever sign rights away)
- Creators can thus assign a license (spelling out set of permissions) for users so that users do not need to contact the creator for those permissions (e.g., especially helpful for uses that one generally may consider falling under Fair Use Doctrine like reproducing a work or disseminating copies) or reusing/repurposing data to create a derivative work

Licensing
your
work for
access
and use
by others

CREATIVE COMMONS LICENSES



COPY
& PUBLISH



ATTRIBUTION
REQUIRED



COMMERCIAL
USE



MODIFY
& ADAPT



CHANGE
LICENSE



PUBLIC DOMAIN



CC BY



CC BY-SA



CC BY-ND



CC BY-NC



CC BY-NC-SA



CC BY-NC-ND



You can redistribute
(copy, publish, display,
communicate, etc.)



You have to attribute
the original work



You can use the work
commercially



You can modify and
adapt the original work



You can choose license
type for your adaptations
of the work.

URIs for rights and permissions

```
<mods:accessCondition xmlns:xlink="http://www.w3.org/1999/xlink" type="rights statement"
xlink:href="http://rightsstatements.org/vocab/InC/1.0/">In Copyright</mods:accessCondition>
```

```
<mods:accessCondition xmlns:xlink="http://www.w3.org/1999/xlink" type="use and reproduction"
xlink:href="http://www.gnu.org/licenses/gpl-3.0.en.html">GNU General Public License
3.0</mods:accessCondition>
```

```
<mods:accessCondition type="rightsstatement"
xlink:href="https://rightsstatements.org/page/NoC-US/1.0/?language=en">No Copyright
</mods:accessCondition>
```

```
<mods:accessCondition xmlns:xlink="http://www.w3.org/1999/xlink" type="use and reproduction"
xlink:href="https://creativecommons.org/publicdomain/zero/1.0/">CC0 Public
Domain</mods:accessCondition>
```



Featured collections...



Discover...

▶ Uploaded Content

Content added by scholars through self-service upload

▶ Theses & Dissertations

Brown University dissertations since 2008

▶ Deposited Collections

Scholar-created research collections, research data, posters, proceedings, and

I want to...

▶ Upload something

Uploaded items can be kept private, shared at Brown, or shared with the public.

▶ Digitize something

Digital Production Services can assist with digitization of materials in support of scholarship, research, and teaching.

▶ Use an API

The BDR offers a complete set of Application Programming Interfaces (APIs) for using content in your own applications.

▶ Assign a DOI

Digital Object Identifiers (DOIs) help publishers and scholars cite content stored in the BDR.

▶ Consult on a project

The Center for Digital Scholarship works with scholars on digital projects across disciplines.

▶ Read FAQ

Frequently Asked Questions may already answer your BDR-related question.

repository.library.brown.edu

Longitudinal Manufacturing Database for Rhode Island Establishments, 1953 - 2016

Overview

[Full Metadata](#)

Title

Longitudinal Manufacturing Database for Rhode Island Establishments, 1953 - 2016

Contributors

Marlow, Thomas (Creator)

Frickel, Scott (Creator)

Doi

[10.26300/wfpn-k614](https://doi.org/10.26300/wfpn-k614)

Date Created

2018

Abstract

This file contains the location of manufacturing facilities in Rhode Island between the years 1953 and 2012. This data was collected from digitized manufacturing directories using the open source software Georeg. For details of this data collection process see the Berenbaum et al. (bdr:841108 and bdr:841109). Berenbaum, D., D. Deighan, T. Marlow, A. Lee, S. Frickel, and M. Howison. "Mining Spatio-Temporal Data on Industrialization from Historical Registries." *Journal of Environmental Informatics*. DOI: 10.3808/jei.201700381

Content

[Views](#) | [Files](#)

Longitudinal Manufacturing Database for Rhode Island Establishments, 1953 - 2016

Links

[Download](#)

README

TITLE: Longitudinal Manufacturing Database for Rhode Island Establishments, 1953 - 2016

DESCRIPTION:

This file contains the location of manufacturing facilities in Rhode Island between the years 1953 and 2012. This data was collected from digitized manufacturing directories using the open source software Georeg. For details of this data collection process see the Berenbaum et al. (bdr:841108 and bdr:841109). Berenbaum, D., D. Deighan, T. Marlow, A. Lee, S. Frickel, and M. Howison. In Press. "Mining Spatio-Temporal Data on Industrialization from Historical Registries." *Journal of Environmental Informatics*. DOI: 10.3808/jei.201700381

FILENAME: "RI_mfgs-full_data.csv"

Significant cleaning of the data occurred with the software R and Python after data collection. Most significant cleaning was done to remove duplicate entries and to standardize the data.

FIELDS:

"id" - Integer; Unique identifier for establishments. IDs were generated for every row in the data.

"combined_id" - Integer; Identifier for unique combinations of company name and street name. IDs were created using the "dedupe" library in R.

"street_id" - Integer; Identifier for unique street names. IDs were created using the "dedupe" library in R.

"coname_id" - Integer; Identifier for unique company names. IDs were created using the "dedupe" library in R.

"year" - Integer; Year data on a facility was collected.

"coname" - Character; String containing the name of the company.

"street" - Character; String containing the collected street address. This is NOT necessarily the exact address.

"city" - Character; String containing the city location of the manufacturing facility.

"SIC" - Integer; Two digit standard industrial classification (SIC) code. The field "sic_name" translates the SIC code to a human-readable name.

Selection and Appraisal

What data will be shared?

What data needs to be preserved and for how long?

Who will have access?

When will they have access?

Where will the data be accessible?

How will they access the data?

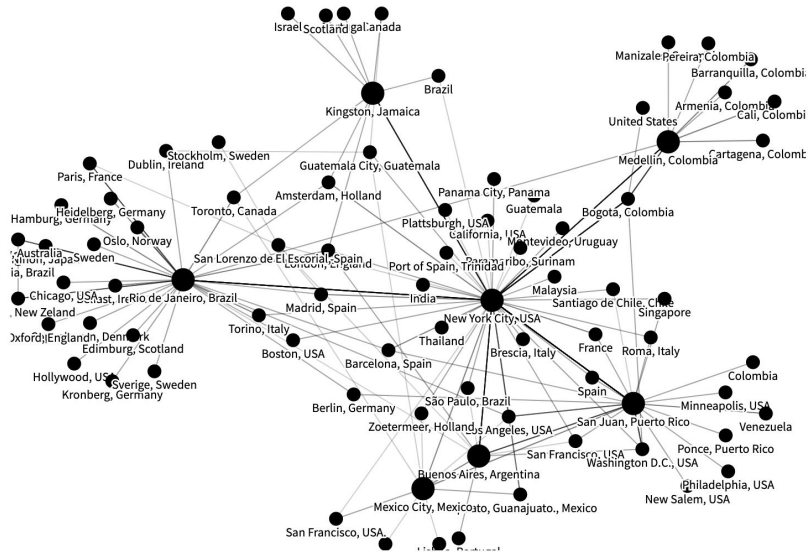
Any restrictions?

Preserving Project

Santiago. Joaquín Insausti y Fernández Galeano, Javier (2020). Archivos Digitales Queer: Cartografías Digitales de las Redes Transnacionales LGBTQ en Latinoamérica a través del Archivo de Robert Roth. *Moléculas Malucas*.

<https://www.moleculasmalucas.com/post/archivos-digitales-queer>

Redes Transnacionales LGBTQ en Latinoamérica

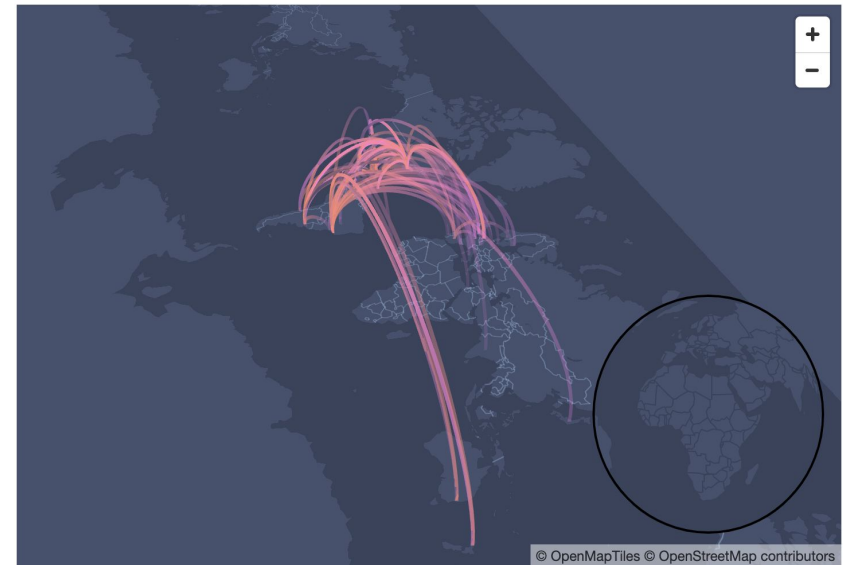


Source: Elaboración propia en base a la Robert Roth collection at Cornell University Library.

A Flourish network chart

Redes transnacionales queer en Latinoamérica.

Cartas obrantes en el archivo Roth, según destinatario y remitente.



© OpenMapTiles © OpenStreetMap contributors

Source: Robert Roth Collection at Cornell University Library.

Thank you

Contact Me

Andrew Creamer

andrew_creamer@brown.edu