Weaving Together Preservation and Active Research

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How Can We Address this Question for Repositories?

“How Can I start archiving my work while I am working?”

- ND College of Science Deans and Chairs, Fall 2014

If the answer is no...

- How do we get in front of the research data lifecycle early enough where we are not rushing/begging to get metadata created?

- How do we deal with the large volume and frenetic pace of data creation in computational analysis?
OSF for Institutions at Notre Dame

GENERATE & STORE

COLLABORATE & PROCESS

PRESERVE & SHARE

amazon web services

box

Dropbox

CRC

CENTER FOR RESEARCH COMPUTING
https://crc.nd.edu

EXECUTE

ARCHIVE

REUSE

CurateND

http://www.nationaldataservice.org
OSF for Institutions at Notre Dame
Getting Closer to Researchers

- Aligns IDR with existing research workflows
- Researchers choose working storage provider
- Simple, user-driven archival process
- Data flow between computational and preservation environments
- Reuse preserved data in other projects
- Archive data into Fedora 3 or Fedora 4
- Reference data model for preserving research data
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OSF & Fedora

Workflow management, integration, and preservation
Incentives for individual success are focused on getting it published, not getting it right.

Nosek, Spies, & Motyl, 2012
We could . . . demonstrate that it makes research more efficient, of higher quality, and more accessible.
Better, we could . . . demonstrate that researchers will get published more often.
Even better, we could . . . make it easy.
Best, we could . . . make it automatic.
Preservation must be integrated rather than appended to research workflow.
Simplified scientific collaboration
Powerful end-to-end support for your research.

http://osf.io
Collaboration

Documentation

Archiving
Study 3: Gupta et al. 2010, Nature

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Category: Project

Wiki

This project contains all information pertaining to the replication of key experiments from this paper. It includes the detailed protocols, including reagents and author clarifications. We also include any comments from other contributors, researchers from the Science Exchange network, and further information with the original authors that we have learned since the beginning of the project. When experimental studies begin all data collected will also be deposited here, including data analysis...

Citation

osf.io/4bokd

Components

Coded Paper

Errington, Iorns, Gunn & 2 more

8 contributions

Recent Activity

All times displayed at -0700 UTC offset.

2015-01-20 06:16 PM Tim Errington added Nicole Perlito as contributor(s) to the project.
Version Control
### Revisions

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Other Features

• Granular privacy/sharing
• Granular permissions
• Analytics dashboards
• Persistent, citable identifiers
• Persistent content
• Project snapshotting (i.e., registration)
• Licensing
• Forking
Connects Services Researchers Use
Fedora...

Stores, preserves, and provides access to digital objects

Supports flexible and complex content models for objects

Supports complex semantic relationships between objects inside and outside the repository using RDF

Supports millions of objects, both large and small

Interoperates with other applications and services
OSF Application Framework

- Workflow
- Authentication
- Permissions
- File Storage
- File Rendering
- Meta-database
- Persistence
- Integrations
- Search
- SHARE
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osf.io

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journals

grants management

university systems

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Data Conservancy
The Data Conservancy (DC) was launched through a grant from the National Science Foundation’s DataNet program, which built upon prior experience with managing data from the Sloan Digital Sky Survey. The grant provided the DC team an opportunity to broaden its data infrastructure development and gain better understanding of the challenges in collecting, preserving and curating different types of research data. Since the DataNet funding, the Data Conservancy has redesigned and refactored its core infrastructure to leverage existing software and technologies and to build deeper connections with both research and technology communities. Most notably, we have embraced approach of data representation by the Linked Data Platform (LDP) by building our data archive with the Fedora 4 repository platform and leading the development of the RMap Services with funding from the Sloan Foundation.

Packaging Specification
- Based on popular BagIt specification
- Domain model agnostic
- Adds semantic information about content
- May be used with any RDF-based domain model

Packaging Tools
- Produces DC-specification compliant packages
- Supports multiple domain models
- Allows semantic enrichment

Package Ingest Service
- Deposits package content into an archive
- Exposes content as linked data
- Fedora 4 is the current reference implementation of a DC archive

RMap Services
- Protocol for Linked Data representations
- Developed through the RMap project
- Captures relationships between publication and underlying data
- Distributed Scholarly Compound Object (DiSCO) protocol for resource aggregation
- OAI-ORE based
- REST APIs are available

Fedora API-X
- Extends core functionalities of a Fedora 4 repository
- Facilitate:
  - Mapping between domain specific data models and Fedora data model
  - Support for commonly used web-service standards
  - Domain specific federated discovery and access
  - Support advance data curation capabilities
Resources

OSF

Fedora
- http://fedorarepository.org
- https://wiki.duraspace.org/display/FF

Notre Dame
- http://curate.nd.edu
- http://osf.nd.edu

Johns Hopkins
- http://dataconservancy.org/
- http://rmap-project.info/rmap/
Acknowledgements

COS
- cos.io/about_sponsors
- cos.io/about_team

Fedora
- http://fedorarepository.org/membership

Notre Dame
- Data and Software Preservation for Open Science, http://daspos.org
- Ian Taylor, Center for Research Computing, University of Notre Dame

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- Aaron Birkland, Karen Hanson, Elliot Metsger, Mark Patton, Hanh Vu (and others on Data Conservancy team)
Questions?