Data management plans 2.0: Helping you manage your data

Stephanie Simms | California Digital Library | stephanie.simms@ucop.edu
Sarah Jones | Digital Curation Centre | sarah.jones@glasgow.ac.uk
Daniel Mietchen | University of Virginia | daniel.mietchen@virginia.edu
Tomasz Miksa | Technical University of Vienna | tmiksa@sba-research.org

CC BY 4.0
Overview

Machine-actionable DMPs

DMPRoadmap project

[https://github.com/DMPRoadmap/roadmap](https://github.com/DMPRoadmap/roadmap)

New DMPTool!
Planning & administration
Create, analyze, manage data
Publishing & reuse

- DMP on periphery
- Often done at grant stage and not looked at again
- Opportunities to (re)use information being missed
- Disconnected & unlinked
• DMP on periphery
• Often done at grant stage and not looked at again
• Opportunities to (re)use information being missed
• Disconnected & unlinked
Defining machine-actionable DMPs

This term refers to information that is structured in a consistent way so that machines, or computers, can be programmed against the structure.

Data Documentation Initiative
Stakeholders

- Researcher
- Funder
- Ethics review
- Legal expert
- Publisher
- Infrastructure provider
- Repository operator
- Research support staff
- Institutional administrator
What do we want machine-actionable DMPs to do?

- Find similar projects, DMPs, data
- Select repository
- Set embargo
- Set license

Machine-actionable DMP

- Get user data
- Get costs
- Get DOIs
- Issue DOIs
- Provide costs

Researcher
Funder
Repository operator
The vision:

Machine-actionable DMPs will **make it easier** to manage your data.

Parts of the DMP will be automatically generated and shared, thereby **alleviating administrative burdens** and improving the quality of information.
Our traveling roadshow for machine-actionable DMPs
Assign a DOI to DMP of record. Use this to get award details back into a DMP.

Leverage other PIDs to populate DMP over time:
- Researcher IDs ([ORCID iDs](https://orcid.org))
- Funder IDs ([Crossref Funder Registry](https://crossref.org/registries/funders))
- Grant IDs
- Org IDs ([working group](https://example.org))
- Research Resource IDs ([RRIDs](https://rrid.org))
  - antibodies, organisms, cell lines, tools

Also enables compliance monitoring
IDCC17 workshop

47 participants from 16 countries
- Funders
- Developers
- Librarians
- Service providers
- Researchers

Understand research workflows
Develop use cases
Set priorities for future work
Interoperability with research systems
Leveraging PIDs
Institutional perspective
Repository use cases
Data discovery & reuse
Evaluation & monitoring
Disciplinary tailoring
Publishing DMPs

>> Common standards
RDA P9
DMP Common Standards WG
Exposing DMPs WG
Domain/infrastructure specialty WG
Funder liaison WG
Software management plans WG
RDA P10

Active DMPs & Domain Repos joint session
- Bio/FAIRsharing.org
- Data Management Records at UQ
- …
Force2017

FAIR DMPs working group
10 Simple Rules
#activeDMPs

*A place where all DMP ideas meet*

Find Out More

IDCC18

DMPRoadmap demo
actedmp.org
RDA P11

Common Standards WG
Exposing DMPs WG
Next steps: machine-actionable DMP pilots
DMPRoadmap project

Build a single DMP system to:

1. Harness community development efforts
2. Create next-generation, machine-actionable DMPs

https://github.com/DMPRoadmap/roadmap
Bigger team, bigger voice
DMPRoadmap themes

Used to tag questions with guidance

Mapping to other vocabularies

Text mining
## Funder Requirements

Templates for data management plans are based on the specific requirements listed in funder policy documents. The DMP Tool maintains these templates, however, researchers should always consult the program officers and policy documents directly for authoritative guidance. Sample plans are provided by a funder or another trusted party.

<table>
<thead>
<tr>
<th>Template</th>
<th>Download</th>
<th>Funder</th>
<th>Last edited</th>
<th>Funder links</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCC-DMO NSF OCE: Biological and Chemical Oceanography</td>
<td>DOCX, PDF</td>
<td>National Science Foundation (NSF)</td>
<td>02-28-2018</td>
<td>NSF OCE Sample and Data Policy, NSF GEO Directorate Guidance</td>
</tr>
<tr>
<td>NSF-AGS: Atmospheric and Geospace Sciences</td>
<td>DOCX, PDF</td>
<td>National Science Foundation (NSF)</td>
<td>02-28-2018</td>
<td>NSF Grant Proposal Guide (PAPPG), NSF-AGS Advice to PIs on DMPs</td>
</tr>
<tr>
<td>NSF-AST: Astronomical Sciences</td>
<td>DOCX, PDF</td>
<td>National Science Foundation (NSF)</td>
<td>02-13-2018</td>
<td>NSF Grant Proposal Guide (PAPPG), NSF-AST Advice to PIs on DMPs</td>
</tr>
<tr>
<td>NSF-BIO: Biological Sciences</td>
<td>DOCX, PDF</td>
<td>National Science Foundation (NSF)</td>
<td>03-02-2018</td>
<td>NSF Grant Proposal Guide (PAPPG), NSF-BIO Guidance on DMPs</td>
</tr>
<tr>
<td>NSF-CHE: Chemistry Division</td>
<td>DOCX, PDF</td>
<td>National Science Foundation (NSF)</td>
<td>02-13-2018</td>
<td>NSF Grant Proposal Guide (PAPPG), NSF-CHE Advice to PIs on DMPs</td>
</tr>
<tr>
<td>NSF-CISE: Computer and Information Science and Engineering</td>
<td>DOCX, PDF</td>
<td>National Science Foundation (NSF)</td>
<td>02-13-2018</td>
<td>NSF Grant Proposal Guide (PAPPG), NSF-CISE Data Management Guidance</td>
</tr>
<tr>
<td>NSF-DMR: Materials Research</td>
<td>DOCX, PDF</td>
<td>National Science Foundation (NSF)</td>
<td>02-13-2018</td>
<td>NSF Grant Proposal Guide (PAPPG), NSF-DMR Advice to PIs on DMPs</td>
</tr>
</tbody>
</table>
## Public plans

Public plans are plans created using the DMPTool and shared publicly by their owners. They are not vetted for quality, completeness, or adherence to funder guidelines.

<table>
<thead>
<tr>
<th>Project title</th>
<th>Template</th>
<th>Organization</th>
<th>Owner</th>
<th>Download</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pawan Takhar UIUC DMP</td>
<td>USDA - NIFA: National Institute of Food and Agriculture</td>
<td>University of Illinois at Urbana-Champaign (UIUC)</td>
<td>Pawan Takhar</td>
<td>PDF</td>
</tr>
<tr>
<td>Data Management Plan_Cong Liu</td>
<td>USDA - NIFA: National Institute of Food and Agriculture</td>
<td>University of Connecticut (UConn)</td>
<td>Cong Liu</td>
<td>PDF</td>
</tr>
<tr>
<td>Integrating heat stress metabolome with tissue function in swine, implication for growth and carcass quality</td>
<td>USDA - NIFA: National Institute of Food and Agriculture</td>
<td>Purdue University</td>
<td>Kolapo Ajuwon</td>
<td>PDF</td>
</tr>
<tr>
<td>Data Management Plan</td>
<td>USDA - NIFA: National Institute of Food and Agriculture</td>
<td>Oklahoma State University</td>
<td>Babajide Ojo</td>
<td>PDF</td>
</tr>
<tr>
<td>Seedling establishment and woody-plant encroachment in Southwest Rangelands</td>
<td>USDA - NIFA: National Institute of Food and Agriculture</td>
<td>Arizona State University (ASU)</td>
<td>Luis Weber-Grunlon</td>
<td>PDF</td>
</tr>
<tr>
<td>Investigating the Genetic Diversity of Pantoea ananatis strains endemic to Georgia</td>
<td>USDA - NIFA: National Institute of Food and Agriculture</td>
<td>University of Georgia (UGA)</td>
<td>Spencer Stumpf</td>
<td>PDF</td>
</tr>
<tr>
<td>Testing of the non-target effects of RNAi, siRNA, and miRNA: Unintended molecular impacts and life-history consequences</td>
<td>USDA - NIFA: National Institute of Food and Agriculture</td>
<td>Michigan State University (MSU)</td>
<td>Susan L. Balfe</td>
<td>PDF</td>
</tr>
<tr>
<td>Title</td>
<td>Authors</td>
<td>Publication Date</td>
<td>Unique Views</td>
<td>Total Views</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>----------------------------------------------</td>
<td>------------------</td>
<td>-------------</td>
<td>-------------</td>
</tr>
<tr>
<td>Machine-actionable data management plans (maDMPs)</td>
<td>Stephanie Simms, Sarah Jones, Daniel Mietchen, Tomasz Miksa</td>
<td>05-04-2017</td>
<td>1021</td>
<td>1831</td>
</tr>
<tr>
<td>Data Management Plan for Moore Investigator in Data Driven Discovery Grant</td>
<td>Ethan White</td>
<td>04-10-2016</td>
<td>799</td>
<td>1288</td>
</tr>
<tr>
<td>Migration of legacy data to new media formats for long-time storage and maximum visibility: Modern pollen data from the Canadian Arctic (1972/1973)</td>
<td>Harvey Nichols, Susann Stoize</td>
<td>25-08-2016</td>
<td>633</td>
<td>1093</td>
</tr>
</tbody>
</table>
Participating institutions

Participating institutions/organizations can configure the tool to point to their resources and services, provide customized help, and provide suggested answers to the questions asked by funding agencies. DMPTool users affiliated with participating institutions can log in with their own institutional accounts. For more information visit the About page.

<table>
<thead>
<tr>
<th>Institution</th>
<th>Institutional sign-in enabled</th>
</tr>
</thead>
<tbody>
<tr>
<td>American University (AU)</td>
<td>✓</td>
</tr>
<tr>
<td>American University of Beirut (AUB)</td>
<td>✓</td>
</tr>
<tr>
<td>Appalachian State University</td>
<td>✓</td>
</tr>
<tr>
<td>Arizona State University (ASU)</td>
<td>✓</td>
</tr>
<tr>
<td>Augusta University</td>
<td>✓</td>
</tr>
<tr>
<td>Auraria Library (UCD, MSU Denver, CCD)</td>
<td>✓</td>
</tr>
<tr>
<td>Baylor University</td>
<td>✓</td>
</tr>
<tr>
<td>Binghamton University</td>
<td>✓</td>
</tr>
<tr>
<td>Boise State University</td>
<td>✓</td>
</tr>
<tr>
<td>Boston College (BC)</td>
<td>✓</td>
</tr>
<tr>
<td>Boston University (BU)</td>
<td>✓</td>
</tr>
<tr>
<td>Brandeis University</td>
<td>✓</td>
</tr>
<tr>
<td>Brown University</td>
<td>✓</td>
</tr>
<tr>
<td>California Institute of Technology</td>
<td>✓</td>
</tr>
<tr>
<td>California Polytechnic State University-San Luis Obispo (CalPolySLO)</td>
<td>✓</td>
</tr>
<tr>
<td>California State University, Chico (CSU Chico)</td>
<td>✓</td>
</tr>
<tr>
<td>California State University, Fresno (CSU Fresno)</td>
<td>✓</td>
</tr>
<tr>
<td>California State University, Fullerton (CSU Fullerton)</td>
<td>✓</td>
</tr>
</tbody>
</table>
### My dashboard

The table below lists the plans that you have created and that have been shared with you by others. You can edit, share, download, make a copy, or remove these plans at any time.

<table>
<thead>
<tr>
<th>Project title</th>
<th>Template</th>
<th>Last edited</th>
<th>Permissions</th>
<th>Test</th>
<th>Visibility</th>
<th>Shared</th>
</tr>
</thead>
<tbody>
<tr>
<td>data revise new dmptool bco-dmo</td>
<td>BCO-DMO NSF OCE: Biological and Chemical Oceanography</td>
<td>02-12-2018</td>
<td>Owner</td>
<td></td>
<td>N/A</td>
<td>No</td>
</tr>
<tr>
<td>UCSF test plan</td>
<td>NIH-GDS: Genomic Data Sharing</td>
<td>06-08-2017</td>
<td>Owner</td>
<td></td>
<td>N/A</td>
<td>No</td>
</tr>
<tr>
<td>My First DOT DMP</td>
<td>U.S. Department of Transportation Public Access Guidance v1</td>
<td>11-02-2016</td>
<td>Owner</td>
<td></td>
<td>N/A</td>
<td>No</td>
</tr>
<tr>
<td>NOAA template 28 Oct test</td>
<td>NOAA Data Sharing Template</td>
<td>10-23-2016</td>
<td>Owner</td>
<td></td>
<td>N/A</td>
<td>No</td>
</tr>
<tr>
<td>Experiments on atmospheric concentrations of CO2 (NSF-AGS)</td>
<td>NSF-AGS: Atmospheric and Geospace Sciences</td>
<td>09-27-2016</td>
<td>Owner</td>
<td></td>
<td>Private</td>
<td>No</td>
</tr>
</tbody>
</table>

### University of California, Office of the President (UCOP) Plans

The table below lists the plans that users at your organization have created and shared within your organization. This allows you to download a PDF and view their plans as samples or to discover new research data.

<table>
<thead>
<tr>
<th>Project title</th>
<th>Template</th>
<th>Owner</th>
<th>Last edited</th>
<th>Download</th>
</tr>
</thead>
<tbody>
<tr>
<td>A unified approach to preserving cultural ...</td>
<td>NEH-ODH: Office of Digital Humanities</td>
<td><a href="mailto:dmpcurator@gmail.com">dmpcurator@gmail.com</a></td>
<td>06-05-2014</td>
<td>PDF</td>
</tr>
<tr>
<td>Peer Power</td>
<td>NSF-CISE: Computer and Information Science and Engineering</td>
<td><a href="mailto:dmpcurator@gmail.com">dmpcurator@gmail.com</a></td>
<td>05-30-2014</td>
<td>PDF</td>
</tr>
<tr>
<td>Arthropod responses to grassland nutrient ...</td>
<td>NSF-GEN: Generic</td>
<td><a href="mailto:dmpcurator@gmail.com">dmpcurator@gmail.com</a></td>
<td>05-30-2014</td>
<td>PDF</td>
</tr>
<tr>
<td>Atmospheric CO2 Concentrations, Mauna Lo ...</td>
<td>NSF-AGS: Atmospheric and Geospace Sciences</td>
<td><a href="mailto:dmpcurator@gmail.com">dmpcurator@gmail.com</a></td>
<td>05-30-2014</td>
<td>PDF</td>
</tr>
</tbody>
</table>
Please note that your email address is also your username. If you change this remember to use your new email address on sign in. If your account is created with your institutional credentials you must contact us to change your email or organization.

Email
stephanie.simms@ucop.edu

First name
Stephanie

Last name
Simms

Organization
University of California, Office of the President (UCOP)

My privileges
Super Admin

ORCID
https://orcid.org/0000-0001-9129-3790

Save
Create a new plan

Before you get started, we need some information about your research project to set you up with the appropriate template.

What research project are you planning?
DataONE webinar plan
- Mock project for testing, practice, or educational purposes

Select the primary research organization
University of California, Office of the President (UCOP)
- or -
- My research organisation is not on the list or no research organisation is associated with this plan

Select the primary funding organization
National Science Foundation (NSF)
- or -
- No funder associated with this plan

Which template would you like to use?
NSF-EAR: Earth Sciences
We found multiple templates corresponding to your funder.

Create plan  Cancel
DataONE webinar plan

Project title
DataONE webinar plan

mock project for testing, practice, or educational purposes

Funder
National Science Foundation (NSF)

Grant number (optional)

Project abstract

Principal Investigator

Name
Stephanie Simms

ORCID iD
0000-0001-9129-3790

Email
stephanie.simms@uccp.edu
+ Types of data (0 / 1)
+ Data and metadata standards (0 / 1)
+ Policies for access and sharing (0 / 1)
+ Policies and provisions for re-use, re-distribution (0 / 1)
+ Plans for archiving and preservation of access (0 / 1)
DataONE webinar plan

Types of data (0 / 1)

The Division of Earth Sciences requires that full data sets, derived data products (e.g. model results, output, and workflows), software, and physical collections must be made publicly accessible within two (2) years of final collection.

Data collection

- How will you share the data, e.g., deposit in a data repository, use a secure data service, handle data requests directly, or use another mechanism? The method used will depend on a number of factors such as the type, size, complexity, and sensitivity of the data.
- When will you make the data available? Research funders expect timely release. They typically allow embargoes but not prolonged exclusive use.

Save

Guidance

Comments

NSF

DMPTool

expand all | collapse all

0/5 answered
Redefining success

Not just creating DMPs that respond to funder requirements

But achieving goals of those requirements

Alleviating burden and making DMPs a useful exercise for everyone
Summary

Think of DMPs as key elements of a networked data management ecosystem:
• connected via a shared vocabulary
• actionable by humans and software
• versioned
• public
References


DMPRoadmap GitHub [https://github.com/DMPRoadmap/roadmap]

DMPTool GitHub [https://github.com/CDLUC3/dmptool]

RDA Active DMPs Interest Group [https://www.rd-alliance.org/groups/active-data-management-plans.html]

Common Standards for DMPs Working Group [https://www.rd-alliance.org/groups/dmp-common-standards-wg]

Exposing DMPs Working Group [https://www.rd-alliance.org/groups/exposing-data-management-plans-wg]

activedmps.org