



U.S. DEPARTMENT OF
ENERGY

Office of
Science

DOE Data Management Plan Requirements

MPS Open Data Workshop Series:
Gauging the Impact of Requirements for Public Access to Data
November 19, 2015

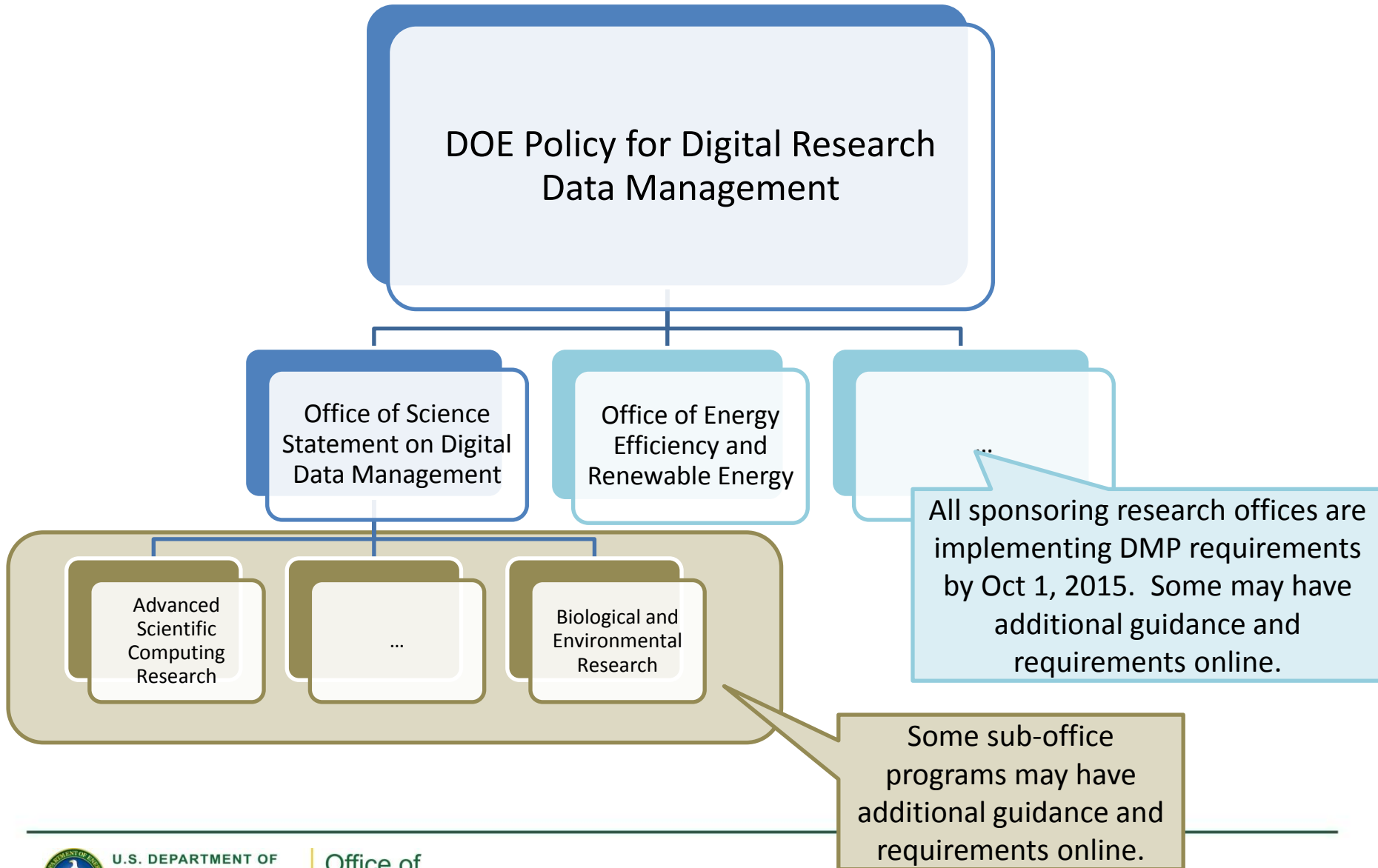
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Brief History – Data

- **COMPETES 2010 “Interagency Public Access Committee”**
- Office of Science Working Group on Digital Data
- Office of Science FACA Reports (2011)
- OSTP Request for Information (2012)
- Office of Science User Facility Input (2013)
- **OSTP Memo “Increasing Access to the Results of Federally Funded Scientific Research” (Feb., 2013)**
- **DOE Public Access Plan and Office of Science Statement on Digital Data Management (July, 2014)**
- **DOE Policy for Digital Research Data Management (Sept, 2015)**



DOE-wide *tiered* policy



DOE Policy for Digital Research Data Management

<http://www.energy.gov/datamanagement/>



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DOE POLICY FOR DIGITAL RESEARCH DATA MANAGEMENT

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The Department of Energy (DOE) is responsible for advancing the energy, environmental, and nuclear security of the United States; promoting scientific and technological innovation in support of that mission; sponsoring basic research in the physical sciences; and ensuring the environmental cleanup of the nation's nuclear weapons complex¹.

This policy is part of the implementation of the Department's [Public Access Plan](#) and has been developed with input from a variety of stakeholders in its research mission.

Here, data management involves all stages of the digital data lifecycle including capture, analysis, sharing, and preservation. The focus of this statement is [Data Sharing](#) and [Data Preservation of Digital Research Data](#).

This policy applies to [Unclassified and Otherwise Unrestricted Digital Research Data](#) produced in whole or in part by Department of Energy federal employees, National Laboratory and other Management and Operating (M&O) contractor employees, financial assistance awardees, other grantees, and other contractor entities where the data are produced with complete or partial DOE funding, unless otherwise prohibited by law, regulation, agreement terms and conditions, or policy.

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DOE Policy for Digital Research Data Management

Principles

- Effective data management has the potential to increase the pace of scientific discovery and promote more efficient and effective use of government funding and resources. Data management planning should be an integral part of research planning.
- Sharing and preserving data are central to protecting the integrity of science by facilitating validation of results and to advancing science by broadening the value of research data to disciplines other than the originating one and to society at large. To the greatest extent and with the fewest constraints possible, and consistent with the requirements and other principles of this Statement, data sharing should make digital research data available to and useful for the scientific community, industry, and the public.
- Not all data need to be shared or preserved. The costs and benefits of doing so should be considered in data management planning.

DOE Policy for Digital Research Data Management

- Requirements apply to proposals for research funding
- Requirements apply to proposals submitted for new, renewal, and some supplemental research funding
- Requirements apply to proposals regardless of the PI's institution
- Requirements do *not* apply to applications to use DOE scientific user facilities.
- DOE sponsored research activities at the DOE National Laboratories for which a DOE-approved DMP does not already exist will be required to develop a DMP. In most cases, the DMP will be requested as part of the next peer review organized by the DOE sponsoring research office.

Requirements

1. DMPs should describe whether and how data generated in the course of the proposed research will be shared and preserved and, at a minimum, describe how data sharing and preservation will enable validation of results, or how results could be validated if data are not shared or preserved.



DOE Policy for Digital Research Data Management

2. DMPs should provide a plan for making all research data displayed in publications resulting from the proposed research open, machine-readable, and digitally accessible to the public at the time of publication. This includes data that are displayed in charts, figures, images, etc. In addition, the underlying digital research data used to generate the displayed data should be made as accessible as possible to the public in accordance with the Principles stated above. The published article should indicate how these data can be accessed.



DOE Policy for Digital Research Data Management

3. DMPs should consult and reference available information about data management resources to be used in the course of the proposed research. In particular, DMPs that explicitly or implicitly commit data management resources at a facility beyond what is conventionally made available to approved users should be accompanied by written approval from that facility. In determining the resources available for data management at DOE Scientific User Facilities, researchers should consult the [published description of data management resources](#) and practices at that facility and reference it in the DMP.



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OFFICE OF SCIENCE

ADVANCED SCIENTIFIC COMPUTING RESEARCH (ASCR)

FACILITY	HOST INSTITUTION	DATA MANAGEMENT RESOURCES
National Energy Research Scientific Computing Center (NERSC)	LBNL	Link
Argonne Leadership Computing Facility (ALCF)	ANL	Link
Oak Ridge Leadership Computing Facility (OLCF)	ORNL	Link
Energy Sciences Network (ESnet)	LBNL	Link

BASIC ENERGY SCIENCES (BES)

FACILITY	TYPE	HOST INSTITUTION	DATA MANAGEMENT RESOURCES
Advanced Light Source (ALS)	Light Source	LBNL	Link
Advanced Photon Source (APS)	Light Source	ANL	Link
Linac Coherent Light Source (LCLS)	Light Source	SLAC	Link
National Synchrotron Light Source II (NSLS-II)	Light Source	BNL	Link
Stanford Synchrotron Radiation Light Source (SSRL)	Light Source	SLAC	Link
High Flux Isotope Reactor (HFIR)	Neutron Source	ORNL	Link
Spallation Neutron Source (SNS)	Neutron Source	ORNL	Link
Center for Functional Nanomaterials	Nanoscale Science Research Center	BNL	Link

DOE Policy for Digital Research Data Management

4. DMPs must protect confidentiality, personal privacy, Personally Identifiable Information, and U.S. national, homeland, and economic security; recognize proprietary interests, business confidential information, and intellectual property rights; avoid significant negative impact on innovation and U.S. competitiveness; and otherwise be consistent with all applicable laws, regulations, agreement terms and conditions, and DOE orders and policies.

Additional requirements and review criteria for the DMP may be identified by the sponsoring research office, program, sub-program, or in the solicitation.

Suggested Elements for a Data Management Plan



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The Principal Investigator or other appropriate research lead should determine which data should be the subject of the Data Management Plan (DMP) and, in the DMP, propose which data should be shared and/or preserved in accordance with the [Requirements](#) of this policy.

The following list of elements for a DMP provides suggestions regarding the data management planning process and the structure of the DMP:

- **Data Types and Sources.** A brief, high-level description of the data to be generated or used through the course of the proposed research and which of these are considered [Digital Research Data](#) necessary to [Validate](#) the research findings.
- **Content and Format.** A statement of plans for data and metadata content and documentation plans, annotation of relevant software, and the rationale for the community standards should be used where possible. Where community standards alternate strategies that facilitate sharing, and should advise the sponsoring principal investigator.
- **Data Sharing and Data Preservation.** A description of the plans for data sharing and preservation, including:
 - the anticipated means for sharing and the rationale for any restrictions on reuse;
 - a timeline for sharing and preservation that addresses both the minimum level of delay to data access after research findings are published;
 - any special requirements for data sharing, for example, proprietary software licenses, provisions, and licenses for re-use and re-distribution, and for the production of derivatives, including guidance for how data and data products should be cited;
 - any resources and capabilities (equipment, connections, systems, software, expertise, etc.) requested in the research proposal that are needed to meet the stated goals for sharing and preservation. (This could reference the relevant section of the associated research proposal and budget request);
 - cost/benefit considerations to support whether/where the data will be preserved after direct project funding ends and any plans for the transfer of responsibilities for sharing and preservation;

- Data Types and Sources
- Content and Format
- Sharing and Preservation
- Protection
- Rationale

Definitions

Digital Research Data:

The term *digital data* encompasses a wide variety of information stored in digital form including: experimental, observational, and simulation data; codes, software and algorithms; text; numeric information; images; video; audio; and associated metadata. It also encompasses information in a variety of different forms including raw, processed, and analyzed data, published and archived data.

This statement focuses on *digital research data*, which are *research data* that can be stored digitally and accessed electronically. OMB Circular A110 defines *research data* as follows:

“Research data is defined as the recorded factual material commonly accepted in the scientific community as necessary to validate research findings, but not any of the following: preliminary analyses, drafts of scientific papers, plans for future research, peer reviews, or communications with colleagues. This 'recorded' material excludes physical objects (e.g., laboratory samples). Research data also do not include:

- (A) Trade secrets, commercial information, materials necessary to be held confidential by a researcher until they are published, or similar information which is protected under law; and
- (B) Personnel and medical information and similar information the disclosure of which would constitute a clearly unwarranted invasion of personal privacy, such as information that could be used to identify a particular person in a research study.”

DMP Requirements

DOE Policy for Digital Research Data Management	SC Statement on Digital Data Management
DMPs may be required as part of research proposal or later in the award process	DMPs required as part of research proposals
DMP requirements come into effect Oct 1, 2015	DMP requirements came into effect Oct 1, 2014
Common principles and requirements for DMPs for all DOE offices	
Common “Suggested Elements” for DMPs for all DOE offices	
Common definitions for all DOE offices	

Data ID Service

<https://www.osti.gov/elink/aboutDataIDService.jsp>



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United States Department of Energy Energy Link System (E-Link) *DOE STI Management System*

About OSTI's Data ID Service

Go to: [AN 241.6](#) - [Instructions for AN 241.6](#) - [Other helpful links](#) - [E-Link Home](#) - [OSTI Home](#)

The Office of Scientific and Technical Information (OSTI) became a member of, and a registering agency for, [DataCite](#) in 2011 and now assigns permanent identifiers, known as Digital Object Identifiers (DOIs), to publicly available scientific research datasets. These datasets (datastreams, data files, etc.) support the technical reports and published literature resulting from DOE's research. They are also recognized as valuable information entities in their own right that, now and in the future, need to be available for citation, discovery, retrieval, and reuse. The assignment and registration of a DOI for every dataset submitted is a free service for DOE researchers that is provided by OSTI to enhance DOE's management of this important resource.

Provided through DOE's Office of Scientific and Technical Information ([OSTI](#))

Questions?

