



USGS Data Management Training Modules:

# Planning for Data Management Part II

Using the DMPTool to Create Data Management Plans

Slides and slide notes are available for download from the [Data Management website](#).

Welcome to the USGS Data Management Training Modules. This module is the second part of the Planning for Data Management module and will cover how to Use the DMPTool to Create Data Management Plans.

Slides and slide notes are available for download from the Data Management website:

<https://www2.usgs.gov/datamanagement/training/modules.php>

# Course Navigation 101

The screenshot shows a presentation slide titled "Learning Objectives" with a bulleted list. To the right is a sidebar with "Outline", "Notes", and "Search" tabs. The "Notes" tab is active, showing slide notes. At the bottom is a control bar with play, backward, forward, slide number, volume, and compress buttons. Callout boxes identify these elements.

**Presenter Window**

**Instructor's Contact Info**

**Notes Tab**

**Outline Tab**

**Search Tab**

## Learning Objectives

- By the end of this course you should know:
  - The purpose of high-quality metadata
  - Federal requirements for metadata
  - Approved metadata standards and tools
  - The basics of a good metadata record

Metadata 101 Module\_v7  
Viv Hutchison and Madison Langseth  
Science Data Managers  
Phone | E-Mail

Outline Notes Search

Slide Notes

By the end of this course, you should know the purpose of high-quality metadata; federal requirements for metadata; approved metadata standards and tools; and the basics of a good metadata record.

2 Minutes 49 Seconds Remaining

Additional Resources Glossary

Slide 3 / 37 | Stopped 00:05 / 00:05

Play Backward Forward Slide Number Volume Control Compress Nav. Bar

Navigation Side Bar

## Course Navigation 101

Each lesson starts with a title screen followed by lecture slides. The screen consists of a presentation window, navigation side-bar, and navigation base bar. The **presentation window** is used to view the slides that summarize the lecture material. The **gray navigation sidebar** is to the right of the presentation window. **At the top** you will find contact information for the course coordinators. The rest of **the sidebar is divided into three panes**:

- The **Outline** pane lists the slides in the lesson. You can use this pane to go to any slide within the lesson.
- The **Notes** pane shows the **lecture material** for each slide. **The principal content of each lesson is contained in the lecture material and should not be skipped.** However, we recommend reading the lecture material from a *downloaded file* because the scientific formatting in the downloaded version may be more accurate than in the version shown in the notes pane.
- The **Search** pane allows you to search for any word in the lesson and will show all slides containing that word.
- The **gray navigation bar** below the presentation window contains:
  - “Forward” and “Backward” buttons to advance and return to previously viewed slides.
  - The “Fast Forward” button.
  - The status bar displaying the current slide number.
  - Controls for sound and volume.
  - A toggle button (lower right) changes the view of the Navigation Side Bar to full screen or to a compressed icon.

### **YELLOW BUTTONS: Additional Resources and Glossary**

- **Additional Resources** – Provides additional references, suggested training, or other information.
- **Glossary** – Click here to find the definitions of terms used in the course.

# Learning Objectives

- **By the end of this course you should know:**
  - The difference between data management plans and project plans.
  - How to use the DMPTool to create a data management plan.
  - The basic information that should go into a data management plan.

## **Learning Objectives**

By the end of this course you should know the difference between data management plans and project plans; you should know how to use the DMPTool to create a data management plan; and you should understand the basic information that should go into a data management plan.

# Suggested Citation

- Langseth, M.L., Henkel, H.S., Hutchison, V.B., Thibodeaux, C.J., Zolly, L., 2015, USGS Data management training modules—planning for data management part II—using the DMPTool to create data management plans: U.S. Geological Survey, <http://dx.doi.org/10.5066/F7RJ4GGJ>.

## **Suggested Citation**

Langseth, M.L., Henkel, H.S., Hutchison, V.B., Thibodeaux, C.J., Zolly, L., 2015, USGS Data management training modules—planning for data management part II—using the DMPTool to create data management plans: U.S. Geological Survey, <http://dx.doi.org/10.5066/F7RJ4GGJ>.



# Acknowledgments

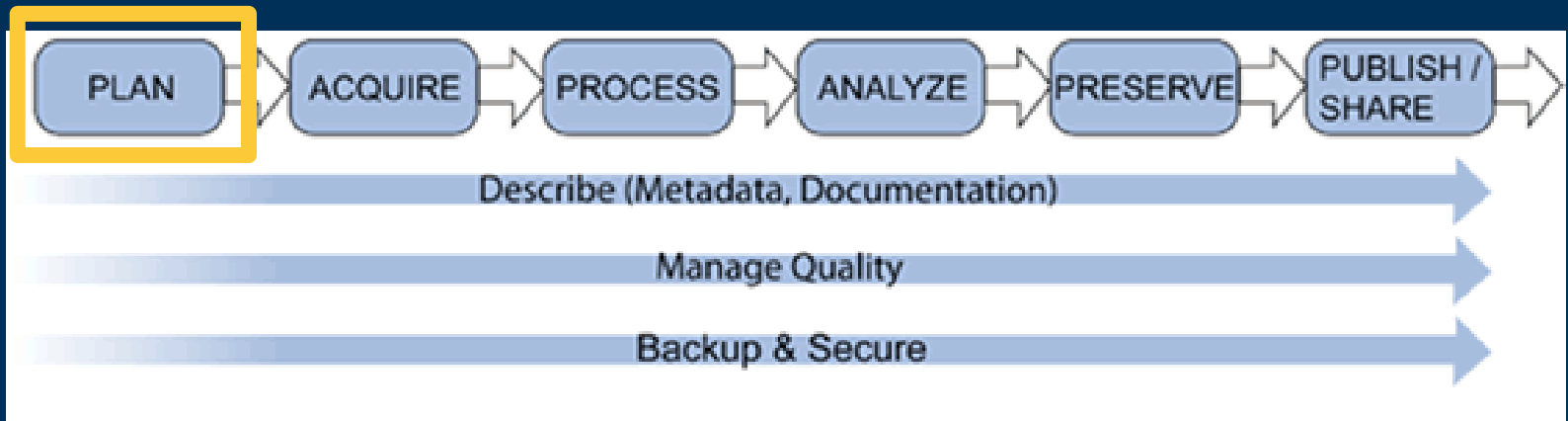
- These modules were developed with funding from the USGS Office of Organizational and Employee Development's (OED) Distance Learning Program.

## **Acknowledgments**

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# Data Lifecycle

- Reference point – This module will cover aspects of the “PLAN” stage of the data lifecycle.



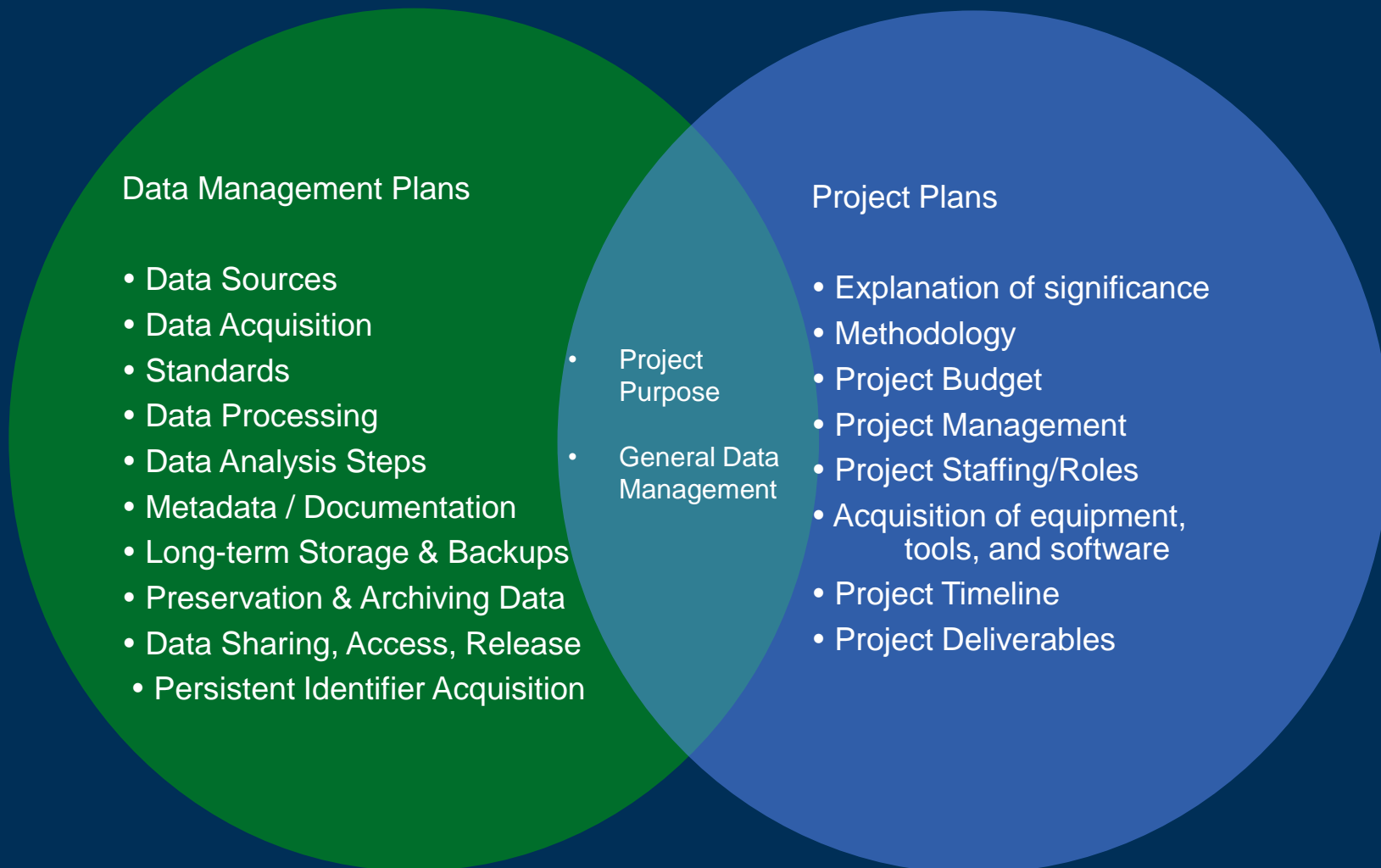
## **Data Lifecycle**

This module will cover aspects of the “Plan” stage of the data lifecycle. The planning stage involves thinking about the sequence of intended actions to identify and secure resources and gather, maintain, secure, and utilize data holdings throughout the course of a project. These actions are then documented in a Data Management Plan.

### **NOTE:**

The USGS Science Data Lifecycle model shows the stages of data management within a project (plan, acquire, process, analyze, preserve, and publish/share) and cross-cutting data management activities that take place throughout the project (describe, manage quality, backup and secure).

# Data Management Plans vs. Project Plans



## **Data Management Plans vs. Project Plans**

A data management plan is a formal document that outlines the data management considerations before work begins on a given project. The document describes where and how you will acquire data, what standards you will use and how data will be handled during and after the completion of the project. Data Management Plans are all about data. On the other hand, project plans are much broader in scope and cover all aspects of a project including project purpose, significance, methodology, budget, timelines & deliverables. Many project plans will discuss project management and potentially go into detail about data management, but not necessarily.

It is a common misconception that if project management is being done then data management is also occurring, but in reality these are two related but different activities. Both project plans and data management plans are essential to the success of scientific research projects.

# Benefits of Data Management Plans

- Saves time
- Protects your data investment
  - Ensures that you and others will be able to understand and use data in the future
- Increases research efficiency
  - Prevents duplication of effort
- Satisfies funding agency requirements
- Meets USGS Fundamental Science Practices requirements

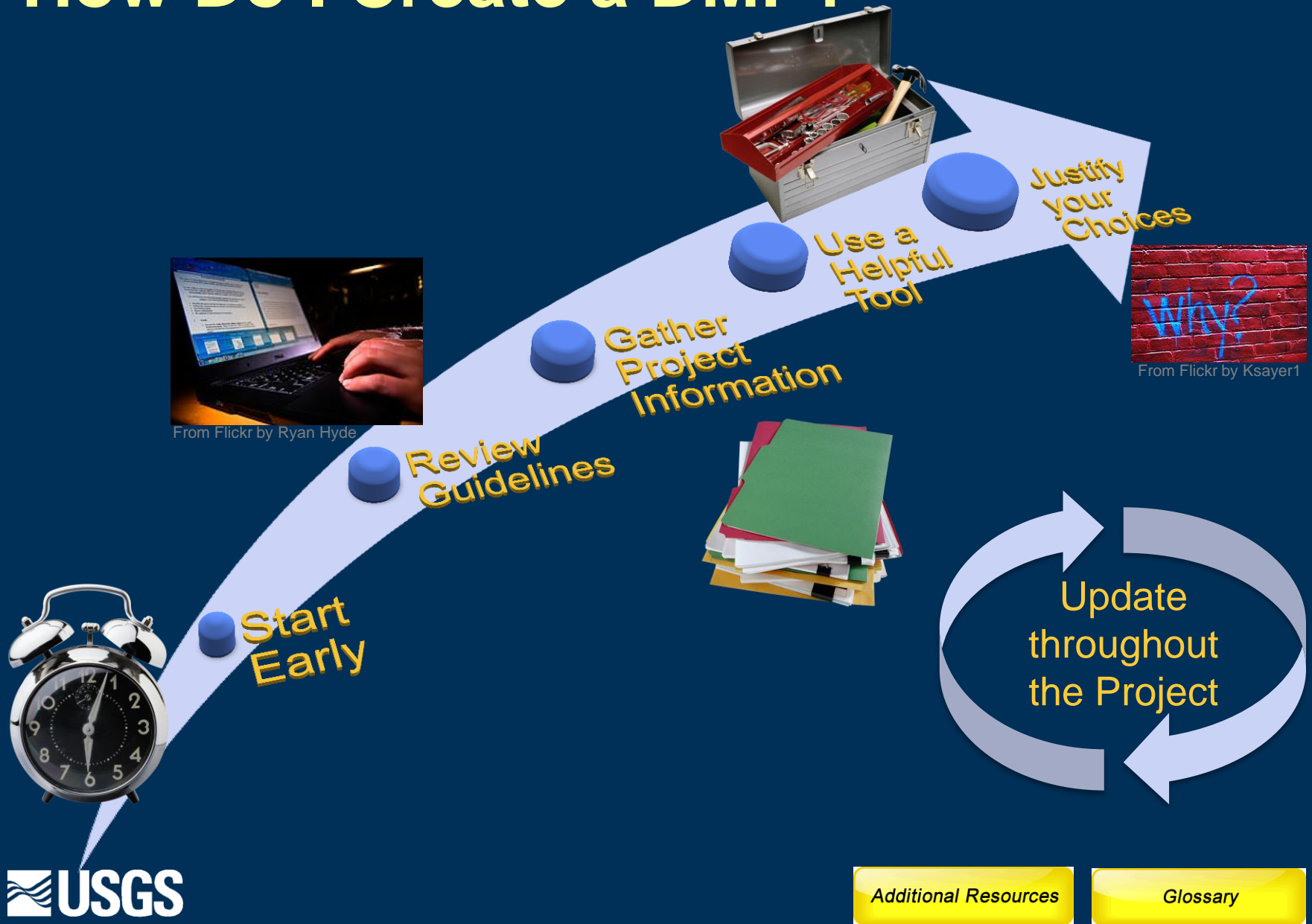
## **Benefits of Data Management Plans**

There are many benefits of Data Management Plans. First and foremost, they save time. Plan your work and then work your plan: preparing a DMP saves time in the long run! It is easier to plan how data will be acquired and managed through the project lifecycle at the outset as opposed to trying to organize or retrofit data after they have been collected or acquired.

- Secondly, collection and preparation of data is an investment of both time and money during the research process. Development of a DMP helps to support and ensure your investment will meet the needs of your research.
- A high-quality DMP also increases research efficiency. Work spanning several months or years can result in the loss of important details or information about the data if they are not well-documented. If data are well-documented over the course of a project, it helps to mitigate problems in understanding and using the data later on by both you and others.
- In addition to considering the benefits and incentives for creating DMPs, consider that many funding agencies now require they be submitted.
- USGS FSP requirements effective February 19, 2015 require data management plans for all projects initiated after that time.



# How Do I Create a DMP?



## **How Do I Create a DMP?**

In order to create a useful data management plan, it is important to start the process early. Most funding agencies require that data management plans be turned in with project proposals. Ideally, you should begin thinking about your data management along with your project plan.

Many funding agencies will provide data management and data sharing guidelines or policies. In addition, your organization may have data policies that you are expected to follow. Review all of these guidelines as you begin writing your data management plan.

Gather any existing information about your project and organization. Are there certain standard operating procedures that you will be following? Do you already have a project plan outlined? There are a number of different actors that can provide valuable information for a data management plan. These include the principle investigator, co-investigators, data collectors, data analysts, IT staff, modelers, GIS staff, and metadata experts. Leverage their knowledge and expertise to develop a practical and beneficial data management plan.

Once you have all the necessary information, use an available tool to help you work through the process of developing a data management plan.

While you are writing your plan, make sure you justify the decisions that you are making. Funding agencies and organizations will not always specify standards or formats to use. Provide explanations as to why you have chosen the specific standards, formats and procedures that you have.

Finally, the data management plan is a living document. As a project progresses, the DMP should be revisited and updated to reflect the reality of the project.

# Note:

- The next four slides contain videos for accomplishing tasks using the “Data Management Planning Tool (DMPT).” Please turn your audio on to hear the narration. The [slides and slide notes](#) contain the narration verbatim and can be downloaded from the Attachments (Paper Clip) button in the Presenter window.
- Use the Presenter window player bar at the bottom to start, pause, or rewind the video.

**Note:**

The next four slides contain videos for accomplishing tasks using the “Data Management Planning Tool (DMPT).” Please turn your audio on to hear the narration.

The slide and slide notes contain the narration verbatim and can be downloaded from the Attachments (Paper Clip) button in the Presenter window or from the Data Management Tutorial website at <https://www2.usgs.gov/datamanagement/training/modules.php>.

Use the Presenter window player bar at the bottom to start, pause, or rewind the video.

# DMPTool: Homepage & Creating Account

**DMPTool**

Home DMP Requirements Public DMPs News Help Contact Us About [Log In](#)

## Data Management Planning Tool

Create, review, and share data management plans that meet institutional and funder requirements.

[Get Started](#)

PUBLIC DMPS	DMPTOOL NEWS	DMPTOOL HELP
List of sample data management plans provided by DMPTool users. <ul style="list-style-type: none"><li>- CAREER: Parietal Cortex and the Transformation of Spatial Cognition into Action</li><li>- Biosignature Suites: Using Connections between Microbes and Minerals to understand Biogenic Carbonates</li><li>- A unified approach to preserving cultural</li></ul>	Latest information about data management and the DMPTool.  News is currently unavailable	Overview of how to use the tool, plus resources and guidance on data management. <ul style="list-style-type: none"><li>- Frequently Asked Questions</li><li>- Create a DMP</li><li>- Administer the DMPTool</li><li>- Data management guidance</li><li>- Community resources</li></ul>

## **DMPTool: Homepage & Creating Account**

The DMPTool is a great example of a helpful utility for creating Data Management Plans. This tool can be found at [dmptool.org](http://dmptool.org). From the homepage you can review a list of data management plan requirements released by funding agencies; you can browse DMPs that have been made publicly visible; you can find additional data management resources; and you can log in to the DMPTool through your institution. Let's click on the 'Log In' link to create an account and log in to begin using the DMPTool.

Select your institution from the dropdown menu and click 'Next.'

If you already have a username and password, you can enter them here and click 'Login.' If not, you will need to create an account.

Enter a new username, your first name, last name, password, and email address. Then, click 'Create Account.' This will automatically log you into your new account.

# DMPTool: My Dashboard

The screenshot shows a web browser window with the URL <https://dmptool.org/dashboard>. The page features a green header with the DMPTool logo and a welcome message for "John Doe". A navigation menu includes links for Home, My Dashboard, DMP Requirements, Public DMPs, News, Help, Contact Us, About, and Log Out. The main content area displays the user's name "U.S. Geological Survey" and a "Contact" button. Below this is a sub-navigation bar with "My Dashboard", "My DMPs", "Create New DMP", and "My Profile". The "OVERVIEW" section contains a table with the following data:

My DMPs	My DMPs under Review (where applicable)
4 plans I own	No DMPs are under review.
3 plans I co-own	

A "Create New DMP" button is located below the table. The footer includes the DMPTool logo, copyright information for the University of California, and links for Privacy Policy, Accessibility Policy, Terms of Use, Contact Us, and About, along with social media icons for Facebook, Twitter, and YouTube.

## **DMPTool: My Dashboard**

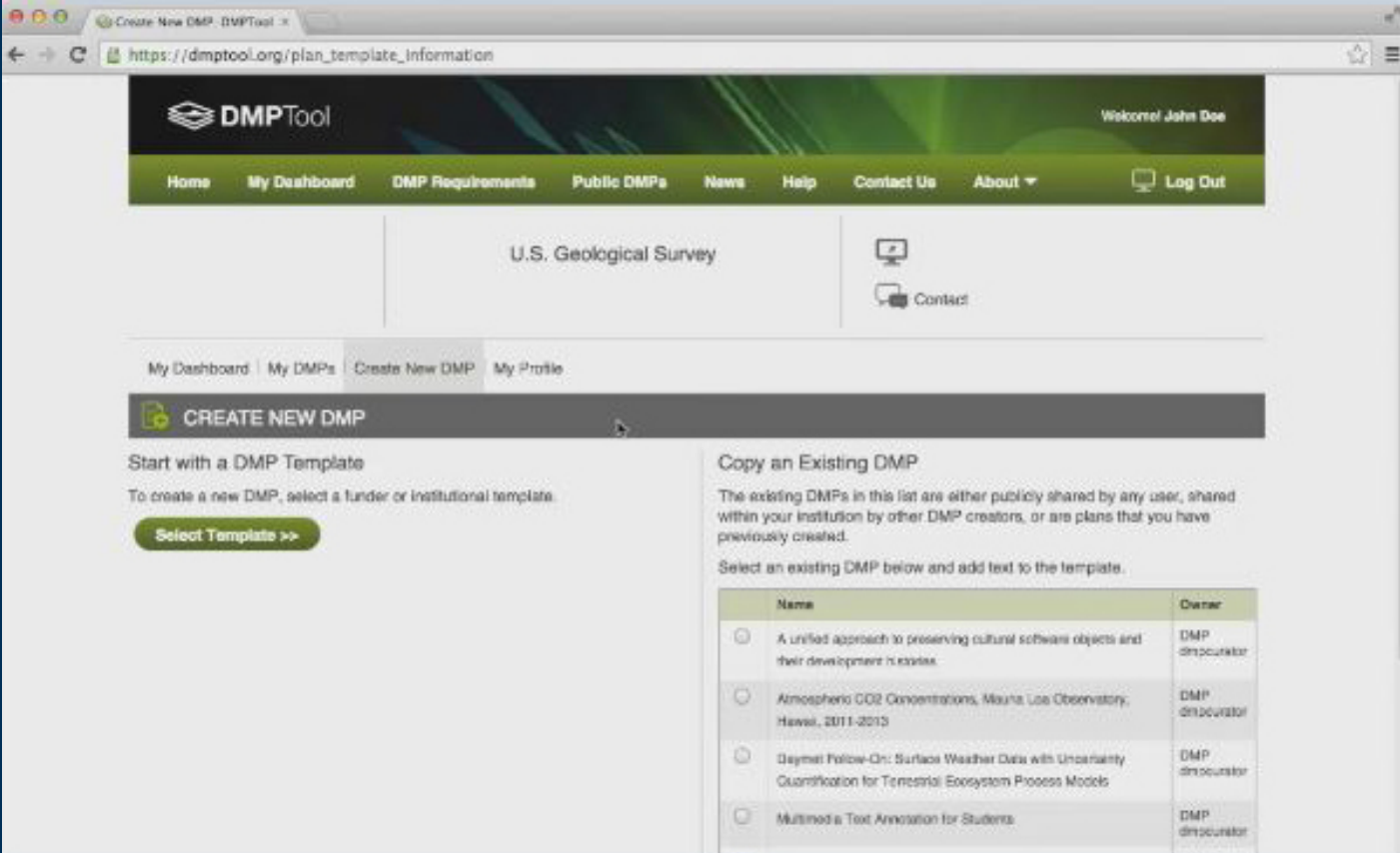
Once you have logged into the DMPTool, you will be able to see your Dashboard. From the My Dashboard page, will you be able to view the plans that you own, the plans that you co-own, and any DMPs that are currently under review.

You can begin creating a new Data Management Plan by clicking the 'Create New DMP' button either along the top menu or the green button below the dashboard.

Data Management Plans can be created using the DMPTool in one of two ways: You can either select a template from your funding agency or your institution, if available, or you can copy an existing data management plan.



# DMPTool: Creating a DMP Using a Template



The screenshot shows a web browser window with the URL [https://dmptool.org/plan\\_template\\_information](https://dmptool.org/plan_template_information). The page features a green header with the DMPTool logo and a navigation menu including Home, My Dashboard, DMP Requirements, Public DMPs, News, Help, Contact Us, About, and Log Out. A user is logged in as 'John Doe'. The main content area is titled 'U.S. Geological Survey' and includes a 'Contact' button. Below this is a navigation bar with 'My Dashboard', 'My DMPs', 'Create New DMP', and 'My Profile'. The 'CREATE NEW DMP' section is highlighted and contains two options: 'Start with a DMP Template' and 'Copy an Existing DMP'. The 'Start with a DMP Template' section includes a 'Select Template >>' button. The 'Copy an Existing DMP' section includes a table of existing DMPs.

**CREATE NEW DMP**

**Start with a DMP Template**  
To create a new DMP, select a funder or institutional template.  
[Select Template >>](#)

**Copy an Existing DMP**  
The existing DMPs in this list are either publicly shared by any user, shared within your institution by other DMP creators, or are plans that you have previously created.  
Select an existing DMP below and add text to the template.

Name	Owner
<input type="radio"/> A unified approach to preserving cultural software objects and their development histories.	DMP director
<input type="radio"/> Atmospheric CO2 Concentrations, Mauna Loa Observatory, Hawaii, 2011-2015	DMP director
<input type="radio"/> Daymet Follow-On: Surface Weather Data with Uncertainty Quantification for Terrestrial Ecosystem Process Models	DMP director
<input type="radio"/> Multimedia Text Annotation for Students	DMP director

## **DMPTool: Creating a DMP Using a Template**

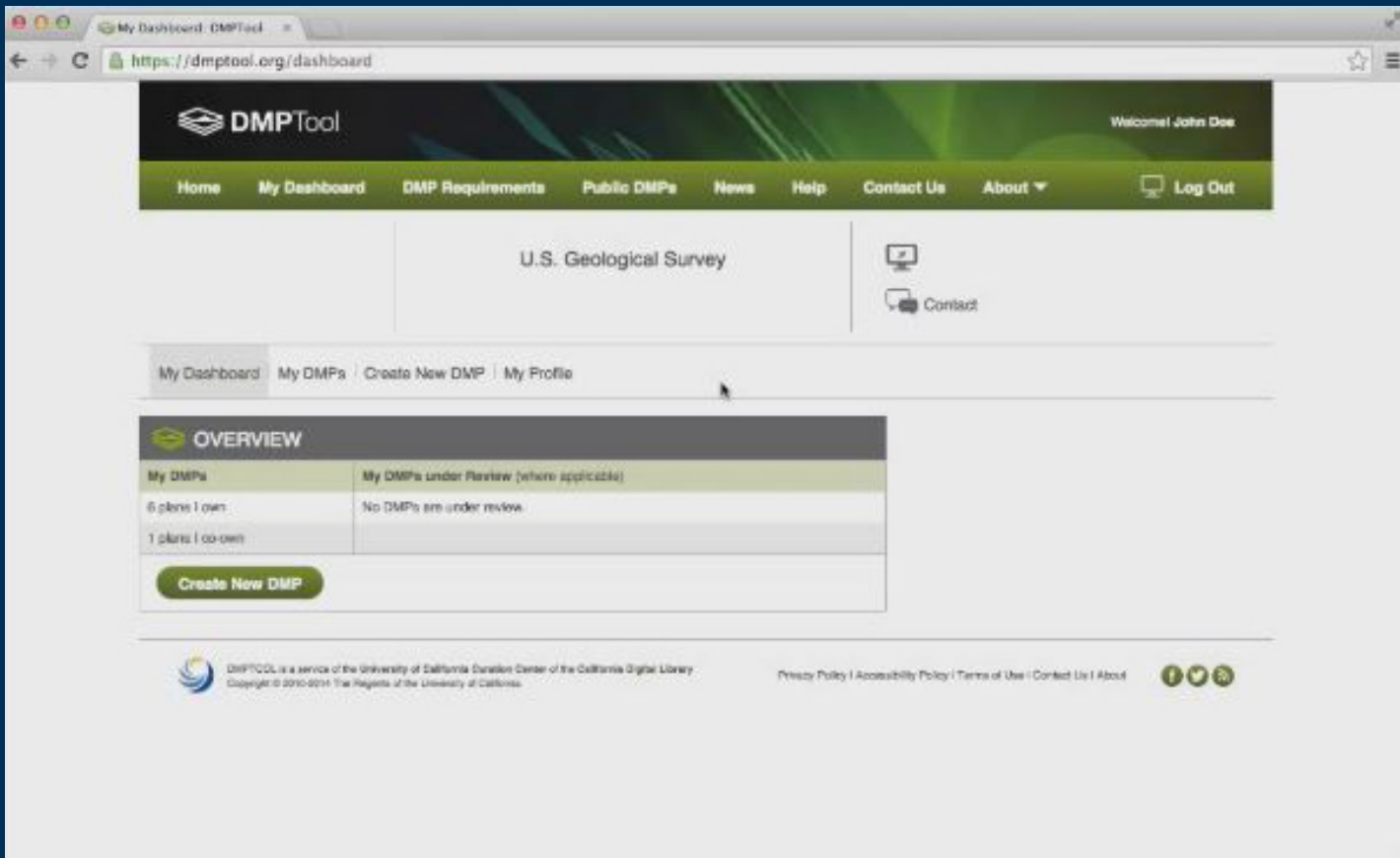
Let's start with the select template method.

The DMPTool has a number of templates available for use. There are templates for most major funding agencies. The USGS has also developed a template to help guide USGS employees through the process of developing a data management plan. Select the template that you would like to use and then click 'Next'.

On this first page of the template, you will be required to give your data management plan a title. Keep in mind that the DMPTool will save all of your data management plans, so choose a descriptive title to make it easy to find and share later. Additionally, you will have the option to enter a proposal solicitation number and a proposal submission deadline. The default visibility for all plans is private; however, you can also choose to make your plan visible to the public or to others within your institution at any point during the data management plan creation process. Even if you choose to keep your plan private, you can add co-owners to the plan to allow others to view and work on the plan as well. All co-owners are required to have a DMPTool account in order to collaborate. Simply begin typing the person's name or email address. Then, select the correct person from the list generated by the DMPTool. Once you have provided the necessary basic information on the DMP Overview page, click 'Save and Next' and you can begin creating content for your data management plan.

The DMP Details pages provide an outline of the template on the left-hand side to enable you to see where you are within the template and how much further you have to go. The outline also allows you to navigate to different sections. On the right-hand side, there are instructions for completing the template, links to external resources, and the specific guidance for completing the section. You can expand the Guidance box to view the content in its entirety. The Guidance will ask questions and provide suggestions to get you thinking about the type of content to include in your DMP. Type or copy and paste your content into the text box below the guidance. The DMPTool allows you to perform some basic text formatting and preview your data management plan throughout the process. When you are finished with one section, click 'Save and Next' and you will be taken to the next section as listed in the template outline. Once you have reached the final DMP detail section, click 'Save and Next' and you will be shown a Preview of your data management plan. You can also access this preview at any point in the DMP Details process by clicking 'DMP Preview' at the bottom of the screen. From this page you can export your data management plan in a portable document format or a rich text format. You can also print the data management plan directly. At the bottom of the preview, there is a 'Change Settings' button, which will allow you to change your sharing preferences. When you are finished with the Preview and your plan as a whole, click 'Done' to change the status of your plan to 'Completed'. That is a basic overview of how to create a new data management plan using a template.

# DMPTool: Creating a DMP by Copying an Existing Plan



The screenshot shows the DMPTool dashboard for a user named John Doe. The dashboard is titled "My Dashboard: DMPTool" and displays the URL "https://dmptool.org/dashboard". The main navigation menu includes Home, My Dashboard, DMP Requirements, Public DMPs, News, Help, Contact Us, About, and Log Out. The user's name "U.S. Geological Survey" is displayed, along with a "Contact" button. The dashboard is divided into sections: "My Dashboard", "My DMPs", "Create New DMP", and "My Profile". The "OVERVIEW" section shows a table with two columns: "My DMPs" and "My DMPs under Review (where applicable)". The "My DMPs" column shows "6 plans I own" and "1 plans I co-own". The "My DMPs under Review" column shows "No DMPs are under review". A "Create New DMP" button is visible below the table. The footer includes the DMPTool logo, copyright information, and links for Privacy Policy, Accessibility Policy, Terms of Use, Contact Us, and About.

My DMPs	My DMPs under Review (where applicable)
6 plans I own	No DMPs are under review
1 plans I co-own	

## **DMPTool: Creating a DMP by Copying an Existing Plan**

Now, let's go through the process of creating a new data management plan by copying an existing data management plan. To do this, click on 'Create New DMP.' When you are signed into the DMPTool, you will be able to see other plans that are shared publicly or shared within your institution. You will also have the option to copy plans that you have previously created. There is no need to re-invent the wheel. If a good data management plan has already been created and it fits your data management needs, you should use it. Browse the list of available plans, select the radio button for the one you want, and click 'Copy this DMP.' You can give the DMP a new title and add other basic information as you would if you were starting from scratch. The data management plan will be available for editing in the same platform as before, except it will show the guidance for whatever template was used to create the original plan. All of the content from the original plan will be available. You will need to edit the content to ensure that it suits your particular project.

This has been a brief overview of how to create a data management plan using the DMPTool. Go to [dmptool.org](https://dmptool.org) to try it for yourself.

# U.S. Geological Survey DMP Guidance

## Project and Contact Information

- What is the project name? Include any identifiers related to the project.
- What is the name of the Center/Program and Branch that oversees the project?
- Who is the main point of contact for the project and its data? If there are collaborating/funding agencies and organizations, who are they and who are the main points of contact?
- What are the project start and expected end dates?
- Project description summary and why the data are being collected. Are there any web links with more information related to the project.

## **U.S. Geological Survey DMP Guidance**

As mentioned previously, the USGS has a generic DMP template that can be used by anyone to create a data management plan. Let's go through some of the important aspects of a data management plan, using the USGS guidance template.

A data management plan should provide basic information about the project and the project's contacts. A DMP should give the project's name, any identifiers such as the project ID or funding agency ID, and the name of the center or program overseeing the project.

Include information such as name, title, email address, phone number and mailing address for the main point contact of the project and contact information for points of contact at collaborating agencies and organizations.

Provide an estimated timeline including start and end dates and a brief summary of the project including why the data are being collected. Link to any online information about the project.

# U.S. Geological Survey DMP Guidance

## Plan and Acquire

- How will the data be acquired?
- What is the estimated volume of the data collected, transformed, and/or generated? (e.g. megabyte (MB), GB, TB, or PB. )
- Will the data be static or dynamic?
- Are the appropriate hardware, software, and staff resources part of the budget for data management activities?

## **U.S. Geological Survey DMP Guidance (Cont.)**

The next section asks for more specific information about the data.

How will the data be acquired? Will they be newly collected or will you use existing datasets? If you are acquiring existing datasets, include the name, format, a persistent identifier and the source citation. You should also note if there are any restriction or agreements such as Memorandum or Understanding (MOUs) for use and storage of the data. If you are collecting new data, are there special processes or procedures for collecting the data. For example, will you need licenses and permissions? What equipment and software will you use?

Provide an estimate for the volume of the data to be collected, transformed, and/or generated. Will the data be in the range of megabytes, gigabytes, terabytes, or petabytes?

Will the data be static or is there a possibility that new data will continue to be added?

Are the appropriate hardware, software, and staff resources part of the budget for data management activities?



# U.S. Geological Survey DMP Guidance

## Describe and Manage Quality

- How many new datasets will be created?
- What are the data types and formats, in which the data will be maintained?
- Briefly describe the data processing steps or provide the scientific workflow and identify any software or technology needs where applicable.
- What procedures will be used for ensuring data quality (QA/QC)?
- How will the metadata for each dataset be created?
- Which metadata standard will be used to describe each dataset?

## **U.S. Geological Survey DMP Guidance (Cont.)**

Your DMP should also document how you plan to describe your data and manage data quality.

How many new datasets will be created? List the anticipated title of each dataset.

Describe the data types and formats that will be utilized to maintain your data.

Discuss the data processing steps that will be necessary including the software and technology that will be required.

What procedures will be used for ensuring data quality? If you will be using a known standard or protocol, include the citation source.

A lot of the information that you provide in your data management plan can be included in your data's metadata. Determine how the metadata will be created for each dataset? Who will be responsible for the metadata creation and update? When will the creation process begin and how frequently will metadata be updated?

There are a number of metadata standards available for use in describing your data. Which standard will you use and why? For example, will you use the FGDC Content Standard for Digital Geospatial Metadata, ISO 19115 series, or another standard?

# U.S. Geological Survey DMP Guidance

## Backup/Secure and Preserve

- Where will the data be stored in the short-term?
- What will be the approach for routine backup of the data?
- Describe any potential access restrictions and any practices to ensure access will be restricted.
- What will be the final format of the data product and will there be any software needs?
- Where will the data and metadata be preserved in the long-term and by which sponsoring Program? Who will be the point of contact?
- Will there be costs associated with long-term storage and how will they be funded?

## **U.S. Geological Survey DMP Guidance (Cont.)**

Your DMP should also include information about how your data will be backed-up, secured and preserved.

While you are working on your project, where will your data be stored? Will it be properly secured and environmentally controlled?

What is your approach for routine data backups? How frequently will the data be backed up. What software and media will be used? How many backup copies will you maintain? Where will the data backups be physically located? It is recommended that you maintain 3 copies of your data on different media types with one stored in an offsite location.

Describe any potential access restrictions for your data. For example, do your data contain personally identifiable information or threatened and endangered species information? You should also note any practices that will be in place to ensure that the access will be restricted.

Include information about the final format of your data product and note if there will be any specific software needs for accessing the data. Think about if the data format will be appropriate for long-term preservation. If not, discuss why a more appropriate format has not been chosen.

Where will the data and metadata be preserved into the long-term? Which Program will be responsible for the data long-term and who will be the point of contact?

Will there be costs associated with long-term storage? If so, how will the storage be funded?

# U.S. Geological Survey DMP Guidance

## Publish and Share

- How will the data itself be shared and made available to the public?  
Are there data release policies that need to be followed?
- Will there be access or use restrictions on the data? How can someone overcome these restrictions?
- Identify any anticipated publications or electronic outlets resulting from the data.
- Where will your metadata be stored to provide an access point for discovery by users and harvest by catalogs such as the USGS Science Data Catalog?
- How and where will you obtain a persistent identifier for the data?

## **U.S. Geological Survey DMP Guidance (Cont.)**

Finally, your DMP should describe how you plan to publish and share your data.

Will you make your data publicly available through a web page, a tool or application, a data portal, a data repository, the USGS Data Series, or another method? Many science centers and other organizations are developing data release policies. Does your organization or funding agency have data release policies that you need to follow?

Will there be access or use restrictions on the data? For example, will your data contain sensitive or restricted data? Will there be privacy concerns or license restrictions on required software? Provide justification for the restriction and cite any applicable policies or legal reasons. How can someone overcome these restrictions? For example, will you require fees, non-disclosure statements, special authorization, data embargoes or holds, or Memorandum of understanding?

Identify any anticipated publications or electronic outlets that will result from the data. For example, will any peer-reviewed articles, information or fact sheets, or web pages be produced? If a USGS publication will result, indicate the type, such as an Open File Report, a Provisional Release, or other type.

Describe where your metadata will be stored in order to provide an access point for discovery by users and to be harvested by catalogs such as the USGS Science Data Catalog. For example, metadata that are shared in ScienceBase will be harvested by the USGS Science Data Catalog.

Finally, it is a best practice to obtain a persistent identifier for your data and include it in your metadata. Describe how you will obtain a persistent identifier for your data. The USGS recommends using the Digital Object Identifier Creation Tool to create DOIs for your data.

# Summary/Recap

- Data Management Plans are different than Project Plans and include data-specific information on acquisition and work flow as well as metadata standards and sharing.
- The DMPTool is an easy-to-use tool that can help you create your data management plans.
- The USGS as well as other funding agencies and organizations have templates within the DMPTool to guide you through the DMP process and enable you to tailor your DMP to your project needs.

## **Summary/Recap**

This module discussed the difference between Data Management Plans and Project Plans. Data management plans include data-specific information on acquisition and work flow as well as metadata standards and sharing. Project plans are broader in scope and generally do not contain as much data-centric information. This module also introduced you to the DMPTool, which is an easy-to-use tool that can help you develop your data management plan. Within the DMPTool, there are a number of templates, including one from the USGS, that can be used to guide you through the Data management plan process. These templates enable you to tailor your Data management plan to your project needs.