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Research Data Management
Quick Start Series

Introduction to Research Data Management

Tip 1: Ensure Your Data, Software, and Hardware follow the FAIR Principles.

Findable: Searchable by Others

Accessible: A System Exists to Grant Access

Interoperable: Can be Integrated with Other Resources

Reusable: Licenses are Assigned to Clarify Rights

Tip 2: Plan Data Management for Each Stage of the Research Life Cycle

The Research Life Cycle

What Steps You can Take

Plan: Communicate with the univie research data management (RDM) team early and often. Draft a data management plan (DMP).

Collect and Prep: Make sure your data is safely stored. Establish a data collection pipeline and use tools like electronic lab notebooks.

Analyze: Keep clear records of your analyses and write well annotated code. Make good use of versioning tools.

Archive and Publish: Place your data, software, and hardware outputs in an appropriate repository.

Reuse: Ensure you outputs are all assigned a license that establishes clear expectations for data re-use. If you can, try to reuse data from others, while respecting ownership rights.

RDM Homepage

How to Reach the RDM Team

Anyone at univie can reach-out to the RDM team for help. You can reach us at rdm@univie.ac.at or find our webpage at rdm.univie.ac.at.

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Project Planning

Tip 1: Contact the Research Data Management (RDM) Team Early

Develop a Preliminary Management Strategy

Estimate Cost of Data Storage and Archiving

Assess Project for Unique Infrastructure Needs

Tip 2: Consider a Data Management Plan

What is a DMP?

What: A DMP is a living document that includes information about data collection, processing, analysis, archiving, publishing, and reuse. Essentially, it is a road map that describes how your project will handle data throughout the research cycle. It can also detail the rights and responsibilities of project members and can address any ethical or legal considerations.

Why: DMPs help researchers stay organized and provide record of goals, plans, and responsibilities. Having this knowledge in one document helps prevent data loss and the improper use of data. It also facilitates data reuse and minimizes the risk of conflict between stakeholders.

How: DMPs be challenging to write, but the univie RDM team is here for you!

What to Include in a DMP

1. How will you store data during your project? Opt for automated back-up and storage options whenever possible.

2. Decide how you will document your data, what file formats you will use long-term.

3. Indicate what licenses you will assign to your outputs, like data, software, and hardware.

4. Consider long-term preservation. what repositories and archives would be a good home per for your data, software, hardware, and publications.

5. Indicate who is responsible for ensuring the DMP is followed. Duties can be divided.

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Data Organization

Tip 1: Develop Conventions for each Project

Develop a System for Naming Files

Establish a Folder Structure

Document your Organizational Plan

Tip 2: Follow Best Practices for Organizing Digital Materials

File Naming

1. Include critical information in file names like sample numbers, dates, or experiment info.

2. Avoid names that are so long that they become cumbersome.

2. Use underscores to separate information.

3. Do not use special characters or spaces.

4. Use the YYYYMMDD for recording dates.

5. Use ascending version numbers that compliment how computers order files.

6. Do not alter or remove file extensions.

Folder Structure

1. Develop a structure that aligns with your project's design, objectives, and data types.

2. Classify folders according to raw, processed, and analyzed data.

3. Use the same folder structure in different storage locations if you use multiple computers or have multiple team members.

4. Use a maximum of 4 nested folder levels to increase usability and reduce confusion.

Other Recommendations

Adapt your organization when needed and document your plan. Your practices should help you, not hinder.

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Data Storage

Tip 1: Follow the 3-2-1 Principle

3 Digital Copies

2 Storage Mediums

1 Off-Site Location

Tip 2: Use University Storage Solutions

Service	Storage Space	Collaborative Features	Cost	Availability
Personal Online Storage Space (Z: Drive)	10 GB; expandable with justification	None	Free	Immediate
u:cloud	50 GB	Between employees and students; Outside users can upload and download	Free	Immediate
u:cloud pro	250 GB; expandable with justification	Between employees and students; Outside users can upload and download	EUR 0.03 per GB/year	Request Required
Share	Unlimited	Between employees and students; u:account available for guests	EUR 0.03 per GB/year	Request Required
One Drive by Microsoft	50 GB	Internal and external sharing; Non-university users can edit files	Free	Immediate
Gitlab	Unlimited; code and documentation only	Permissions and licensing options available	Free	Request Required

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Documentating Data

Tip 1: Select Tools that Help Manage Data and Metadata

Consider an Eletronic Lab Notebook

Follow Established Metadata Standards

Supplement Datasets with Explanatory Documentation

Tip 2: README Files are for more than Programming

What is a README File?

What: A README file is the first thing users of your data, software, or hardware will read. It is a text file that contains important information about your output and explains how users can navigate your other files. You can think of it as a roadmap you leave for others, or even a future version of yourself!

Why: If data cannot be understood, it cannot be reused! README files solve this problem by providing critical information about data creation and organization. README files help other, but they can help you remember important details too!

How: The RDM Team can help you draft your README files. We also recommend using the Cornell Univeristy README Template!

What to Include in a README

1. Basic information about the project and contact informatio for the project leads.

2. Description of the resource, it's file structure, and any information needed to interpret the materials, such as variable name explanations.

3. Briefly describe the methods that were used to generate the data. You can also include links to relevant outside resources.

4. What licenses you have assigned to your outputs. Be clear and use common license options whenever possible.

5. Links to other outputs that are related to the resource you are sharing. These can be links to other datasets or DOIs for related publications.

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Repositories and Archiving

Tip 1: Investigate Different Types of Repositories

First Choice: A Trusted Discipline Specific Repository

Second Choice: An Institutional Repository

Third Choice: A General Non-Institutional Repository

Tip 2: Know some Repository Basics.

Why use an Repository?

Using an archives ensures that your research outputs are safely stored long-term, are findable by other researchers, and are reusable.

How to Find an Repository

You can use tools like re3data.org to search for discipline specific repository. Look for options that are certified or that are frequently used in your field of study. You can also review the published literature to view how others mange their data.

PHAIDRA: The University's Repository

If you cannot find suitable discipline specific repositories for all your data, the univie repository, PHAIDRA, is always here for you!

Preparing Data for Archiving

1. Review the repository's submission process and guidelines early.

2. Be aware of any costs associated with upload. Not all repositories are free to use.

3. Learn about the repository's metadata standards. If no discipline specific guidelines are provided, decide what metadata you will include.

4. Be prepared to select licenses for your outputs. Always assign a license and ensure your selection is appropriate for the type of object you have produced.

5. Do not be afraid to contact the repository to ask questions or request assistance.

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