

# DATA MANAGEMENT PLAN (DMP) guide

Data Management Planning, especially the considerations, conversations and documentation involved, can help researchers to manage their research project - identify needs, adopt best practices, access services and communicate with others.

This *DMP guide* (<https://dx.doi.org/10.17608/k6.auckland.7268729>) and the associated *DMP template* (<https://dx.doi.org/10.17608/k6.auckland.7268720>) have been designed to support researchers.

Please visit the Research Hub (<https://research-hub.auckland.ac.nz>) for further information and contact [researchdata@auckland.ac.nz](mailto:researchdata@auckland.ac.nz) if you have any questions.

## Plan & Design

Section	Theme	Guidance
B1	Field of research (FOR) codes <a href="#">FOR code calculator</a>	FOR codes support discovery of published research data. According to the Australian and New Zealand Standard Research Classification (ANZSRC) FOR classification, R&D activity is categorised according to the field of research. Categories include major fields and related sub-fields of research and emerging areas of study investigated by businesses, universities and other tertiary institutions, national research institutions and other organisations.
B2	ORCID (Open Researcher and Contributor ID)	ORCID is a persistent digital identifier that distinguishes you from every other researcher. It is a 16-digit unique identifier. Funders, publishers and databases are integrating and requiring ORCID IDs into their workflows to support automated linkages. <ul style="list-style-type: none"> <li>• Already registered? Copy and paste your ORCID (in this format: <a href="http://orcid.org/0000-0003-2292-2420">http://orcid.org/0000-0003-2292-2420</a>) under your details in the "project contributors" section of the DMP</li> <li>• To sign up, visit <a href="#">this page</a>.</li> <li>• You can find your project contributors' IDs in the staff directory or via the <a href="#">ORCID website</a></li> </ul>
B2	Project contributors	Consider acknowledging Iwi/Māori contributors to your research project in order to facilitate Māori data sovereignty. For more information and guidance, visit <a href="#">Māori data sovereignty network website</a>

B3	Project Funding	Your project may have single or multiple sources of funding. Make a note of the names of all the different funding agencies and the funding IDs/grant numbers that may apply to your project. In some cases, funding agencies have their own guidelines regarding data management. In such cases, it is good to make a note of these requirements and incorporate them into your data management plan. Your funding contract(s) may be a good place to start.
B4	How will you manage ethics issues?	<p>Ethical issues affect how you store data, who can see/use it, how it can be used and how long it is kept. Managing ethical concerns may include anonymisation of data, referral to departmental or institutional ethics committees, formal consent agreements, etc. Consider any measures that would enable you or others to reuse it in the future. e.g. ensure that consent is requested to allow data to be shared and reused in as broad terms as possible. For more information on how to manage sensitive data visit the ANDS webpage on <a href="#">Sensitive data</a></p> <p>If your research involves Māori subjects, methodology or includes indigenous knowledge, consider aspects of Māori data sovereignty and issues around Māori governance. If you would like more information, visit <a href="#">Māori data sovereignty network website</a></p>
B4	Consider other privacy and security requirements	<p>Consider any data privacy/ security measures that need to be implemented including de-identification (data cleansing), encryption on disk, encrypted communication links, disconnection from the internet (air gapping), secure physical storage, no copies permitted.</p> <p>For further information and options, visit <a href="#">De-identifying your data</a></p>
B5	Policies	<p>Be aware of the University <a href="#">researcher code of conduct</a>, specifically “4.5 Research Findings: Researchers should share data and findings openly and as promptly as possible, as soon as they have had an opportunity to establish priority and ownership claims and subject to any intellectual property requirements and contractual obligations”. Links to the University’s researcher code of conduct and other related policies can be found below.</p> <ul style="list-style-type: none"> <li>• <a href="#">Researcher code of conduct</a></li> <li>• <a href="#">Policy Hub</a></li> <li>• Look up specific funder policies and make note of any action points that are relevant to you or your research project.</li> </ul>

B6	Who will be responsible for data management	In many cases, this is likely to be the principal investigator of the project. However, if your project ownership is complicated and has several contributors, consider: Who is responsible for implementing, reviewing and revising the DMP? For each research activity (e.g., data capture, metadata, data quality, storage, backup, data archiving and sharing) outline the roles and responsibilities, naming individuals where possible.
B6	Consider the resources, support and skills you may require to deliver your plan	Consider contacting the <a href="#">Centre for eResearch</a> for any additional resources needed to deliver the plan. Make a note of any dedicated resources you may need.

## Create & Collect

C1	What data will you create/collect?	Do your chosen formats and software enable sharing and long-term access to the data? Data format and volumes also have implications for storage and backup.
C1	How will the data be collected/created?	What standards or methodologies will you use? What quality assurance processes will you adopt? How will the data be collected/created? Are there disciplinary or community <a href="#">data standards</a> you can adopt?
C1	What non-digital data/physical assets will you create/collect? Where and how will you store these?	Where will the non-digital data/assets be stored? Is there scope to convert non-digital data/assets (original surveys, interviews etc.) into digital forms or recordings (photographing, transcribing etc.)? If so, make a note of how you will achieve this.
C1	How will the data be stored and backed up?	The use of robust, <a href="#">managed storage</a> provided by the University is preferable. Consider using automatic backup services. Before choosing any third-party data services, ensure that it complies with any funder, institutional, departmental or group policies. Common backup tools include rsync (Mac/Linux) or Delta Copy (windows). For more information, visit the Research Hub page on <a href="#">backing up your research data</a>
C2	Do you have sensitive data?	Some examples of sensitive data include data involving human subjects/participants, ecological data regarding vulnerable species, commercial data etc. For more information visit the ANDS webpage on <a href="#">Sensitive data</a>

C2	How will you manage or control access and security?	If data is confidential (e.g., personal data not already in the public domain, confidential information or has IP issues), you should outline appropriate security measures and note formal standards that you will comply with. For instance, ISO 27001 (information security standard). Consider the need for a <a href="#">Data Sharing Agreement</a>
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## Discover & Reuse

D1	Metadata and documentation	<p>Metadata is information about an object or resource that describes characteristics such as content, quality, format, location and contact information. It can be used to describe physical items as well as digital items (documents, audio-visual files, images, datasets, etc.). In your DMP, describe the types of documentation that will accompany the data to help others to find, understand and reuse it. Include basic details like the title, who created or contributed to the data, date of creation and the conditions for access. Metadata may also include the methodologies, analytical and procedural information, definitions of variables, vocabularies, measurement units, assumptions, and the format &amp; file types. For guidance and information on international metadata standards and disciplinary metadata standards, <a href="http://fairsharing.org">fairsharing.org</a> is a good place to start. Where possible, it is good to include links to your metadata files (example, <a href="#">README.txt</a>, geospatial information such as .kml files etc.). This can be later published as an accompanying package when you publish your data.</p>
D1	Spatial and temporal data	<p>Any data that is created or captured with an associated geographic component is known as geospatial or spatial data. This information can be represented as numerical values in a geographic co-ordinates system.</p> <p>Temporal data is simply data that represents a state in time. Temporal data is collected to analyse weather patterns and other environmental variables, monitor traffic conditions, study demographic trends, and so on.</p> <p>If spatial or temporal information is relevant to your project, it is a good idea to make a note of it in your DMP to facilitate discovery. For example, <a href="#">this study</a> on variation in surface phytoplankton chlorophyll specifies the spatial co-ordinates as well as the start and stop dates of data collection.</p>

## Publish & Report

E2	Outline how data will be prepared and where it will be published.	<p>Methods used to share data will depend on a number of factors such as the type, size, complexity and sensitivity of data. Consider the following:</p> <ul style="list-style-type: none"> <li>• How will potential users discover your data?</li> <li>• With whom will you share the data and when? Under what conditions?</li> <li>• Do you want a persistent identifier (e.g., <a href="#">DOI</a>)*?</li> <li>• Will you share data via the <a href="#">University Data Publishing and Discovery Service</a> or a <a href="#">disciplinary data repository</a> ?</li> <li>• Will you publish a metadata only file with the institutional repository?</li> <li>• Will you handle requests directly or use another mechanism?</li> </ul> <p>*Persistent Identifier (PID) – A persistent identifier is a label that is able to name something uniquely and is guaranteed to be managed and kept up to date over a defined time period.</p> <p>*Digital object identifier (DOI) –DOI identifiers are a managed identifier system maintained by the DOI foundation. A DOI can be assigned to any object that is a form of intellectual property. It is an example of a PID.</p>
E2	Licencing	<p>If data is not explicitly licensed, no one else can reuse it. One simple way to ensure that your data can be reused is to assign it a <a href="#">Creative Commons</a> licence. The less restrictive the licence, the more that can be done with the data.</p>

### Additional resources: (checked 31/10/2018)

- Classification Codes, Australian Research Council <https://www.arc.gov.au/grants/grant-application/classification-codes-rfcd-seo-and-anzsic-codes>
- Research Hub, University of Auckland <https://research-hub.auckland.ac.nz/#/content/56>
- Australian National Data Service
  - Metadata <https://www.ands.org.au/working-with-data/metadata>
  - Geospatial data <https://www.ands.org.au/working-with-data/metadata/geospatial-data-and-metadata>
  - Licensing for reuse <https://www.ands.org.au/working-with-data/publishing-and-reusing-data/licensing-for-reuse>
- Digital Curation Centre, UK <http://www.dcc.ac.uk>