ARDC

Australian Research Data Commons

Research software findability in Australia

The Australian Research Data Commons (ARDC) is conducting this survey to better understand how researchers FIND research software to use. The aims of this survey are:

1. to inform priority areas for developing relevant infrastructure
2. to guide us on how to facilitate researchers' access to software they need.

Who should complete the survey?
Researchers in Australia can complete this survey. You could be working in a university, research institution, industry, government, and so on. You could work as a researcher part time or full time.

What does the survey ask?
The survey asks questions about how you find research software, and a few specific questions if you produce research software.

How long will it take?
The survey will take approximately 10 mins to complete.

What is research software?
Research software is software created or used in research, from macros and small scale scripts to big complex suites of software and software services (source code files, algorithms, scripts, computational workflows and executables)

The Australian Research Data Commons (ARDC) views research software as a research enabler. We have established a national agenda to recognise research software as a first-class research output. This means that its value is recognised as fundamental to research. The agenda lays the groundwork for the ARDC and the research community to lift recognition of research software as a first-class output of research, through action to see, shape and sustain research software.

The survey closes on 14 August 2022.

The data will be collected and handled in accordance with the ARDC privacy policy https://ardc.edu.au/privacy-policy/. The anonymised results of this survey will be openly available for others to use and for inclusion in the final report. If you have any questions about the survey please contact us https://ardc.edu.au/contact-us/.

Code / research software findability questions

* 1. How do you go about FINDING code / research software for a particular task?

Please select all that apply.

☐ Ask peers or colleagues for recommendations

☐ Ask or search online mailing lists or discussion groups (e.g. StackOverflow, Quora, Alternative.to, etc)

☐ Look in academic literature

☐ Ask or search social media (e.g. Twitter, Facebook, LinkedIn, etc)

☐ Search the web (e.g. Google, Yahoo, Bing, etc) using general-purpose search systems

☐ Search in topical software registries / catalogues (e.g. CRAN, PyPI, ASCL.net, etc)

☐ Search on public software project repositories (e.g. SourceForge, GitHub, GitLab, BitBucket etc)

☐ Search Institutional/University Repositories (e.g. DSpace, Institutional FigShare, eSpace, RedBox, etc)

☐ Search "Research Data Australia" https://researchdata.edu.au/

☐ Search generalist repositories (e.g. CodeOcean, FigShare, Software Heritage Archive, Zenodo, etc)

☐ Look at dependencies/included in the code / software

☐ Other (please specify)

[   ]

2. How important are the following characteristics when you are searching or selecting for code / research software for a particular task?

The rows are presented in random order. If you haven't considered one of the listed attributes, please skip the row.

	Very important	Somewhat important	Unimportant
Availability of specific features / functions	○	○	○
Support for specific data standards and formats	○	○	○
Price	○	○	○
Quality of software	○	○	○
Operating software independence/ interoperability	○	○	○
Documentation availability and quality	○	○	○
How easy is to learn	○	○	○
Speed / performance of the software	○	○	○
Licence compatibility/requirements	○	○	○
Not many/ clear hardware requirements	○	○	○
Easy to install / run	○	○	○
Other people's opinions	○	○	○
Availability of source code	○	○	○
Reputation of those who built the software authors/institutions/organisations	○	○	○
Availability of support (tech support, forums, Q&A, etc.)	○	○	○
How easy is to extend the software	○	○	○
Existing community (users and contributors)	○	○	○
How secure is the software	○	○	○
Similarity to previously used software	○	○	○
Programming language(s) used in the implementation	○	○	○
Project longevity	○	○	○
Software is routinely maintained	○	○	○
Software branding professionalism	○	○	○
Open source	○	○	○

* 3. What information would you find most useful in a catalogue of code / research software to help you find it?

Please check all that apply. If you think of others, please write them in "other"

☐ Name of software

☐ Domain/subject/field of application

☐ Purpose of software

☐ Name(s) of developer(s)/ affiliation

☐ Data formats supported

☐ License terms of software

☐ Operating system(s) supported

☐ Specific running environment (GPUs, CPUs, MPI)

☐ Software libraries needed

☐ Programming language(s) software is written in

☐ How recently has the software been updated

☐ How active development appears to have been over time

☐ Availability of support or help

☐ Availability of public issue/bug tracker

☐ Availability of discussion lists/forums

☐ Whether the code includes test cases or test datasets

☐ Whether the code base is well commented

☐ Whether a programmable API is available

☐ Specific workflow environments supported

☐ Type of user interface is offered e.g. GUI

☐ Whether source code is available

☐ Whether installation uses common facilities or tools

☐ Whether a publication is associated with the software

☐ Metrics evaluating code quality (e.g. user rating, downloads, etc.)

☐ URL for software's homepage

☐ Size of user community

☐ Other (please specify)

[   ]

* 4. What factors have hindered your ability to FIND code / research software in the past?

Please check all that apply

☐ My specific requirements were too unique

☐ Lack of knowledge on how to search for source code /research software

☐ Lack of references or no availability of code mentioned in the paper

☐ No response, after requesting access to the code/ research software

☐ Not enough options in the discovery tools (e.g.search filters)

☐ Other (please specify)

☐ Lack of time to search

☐ Lack of skill in evaluating search results

☐ Concerns about intellectual property issues

☐ Lack of trust in the options found

☐ Using third-party source code / research software is prevented by policies

[   ]

* 5. What are some of the reasons why you search for code / research software?

Please check all that apply

- [ ] Existing code / research software is insufficient for my analysis
- [ ] To find more efficient ways of analysing my data
- [ ] To save effort in developing this myself
- [ ] To reuse code as-is (either in whole or in part)
- [ ] To find examples of how to implement a particular algorithm, data structure or approach
- [ ] To improve code you have already written
- [ ] To remember code syntactic details or infrequently used functionality
- [ ] To discover or learn new algorithms, data structures, models
- [ ] To replicate results (with your own data) or reproduce results (with the same data)
- [ ] Other (please specify)

[   ]

6. If you searched and found source code / research software in the past, what are some factors that may have prevented you from re-using it?

You may have searched for source code in the past but not ended up being able to use what you found. What were some of the reasons? Please check all that apply

- [ ] Incompatible licensing terms
- [ ] Incompatible implementation language
- [ ] Incompatible API
- [ ] Incompatible operating system or demanding run environment
- [ ] Inability to compile source code
- [ ] Inability to install or run the software
- [ ] Poor code quality (poor code modularity, inadequate verification/testing, etc)
- [ ] Poor documentation or lack of documentation
- [ ] Other (please specify)
- [ ] Poor software performance
- [ ] Lack of support
- [ ] Lack of needed functionality
- [ ] Unsuitable cost
- [ ] Source code too complex
- [ ] Inability to liaise with code / research software author
- [ ] Not open source

[   ]

* 7. How much freedom do you have to choose the code / research software you use?

This refers to situations where you USE research software, rather than when you write software. Please check all that apply

- [ ] No freedom to choose
- [ ] I'm limited to what my research group uses
- [ ] I'm limited to a specific programming language
- [ ] I'm limited to what's publicly available
- [ ] I'm limited to what meets a specific domain standard
- [ ] I have complete freedom to choose

* 8. How often do you search online for software source code?

Independent of the reason for searching, please select an average frequency.

- ( ) Many times a day
- ( ) Once a day
- ( ) Once a week
- ( ) Once a month
- ( ) Every few months
- ( ) Never

* 9. List up to 3 pieces of research software that you anticipate requiring long term access to.

We are interested in the software that you believe is most important to your work, long term. Please separate each item with a semicolon.

[text area]

* 10. Are you a Researcher?

○ Yes

○ No

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For Researchers

11. How important is code / research software to your research?

Not important at all	Essential	
○		[ ]

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For Coders / developers

* 12. Do you consider yourself a Research Software Engineer?

A Research Software Engineer is defined as someone who combines software engineering expertise with an intimate understanding of research. If yes, join the rse-aunz.org community

○ Yes

○ No

* 13. Do you write code / research software?

Research software is software created or used in research, from macros and small scale scripts to big complex suites of software and software services (source code files, algorithms, scripts, computational workflows and executables)

○ Yes

○ No

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For coders

* 14. As a person who codes, which applies to you?

○ I write code / research software as part of my research for my own use

○ I write code/ research software and make this available for others to re-use

○ I write code / research software, make this available, and maintain this for others to re-use

15. Which programming and/or scripting language(s) do you use the most?

Please select up to 3 languages which you have used the most

☐ C/ C++   ☐ Objective-C

☐ C#   ☐ Perl

☐ Delphi/Pascal/Object Pascal   ☐ PHP

☐ F#   ☐ Python

☐ Fortran   ☐ R

☐ Go   ☐ Ruby

☐ IDL   ☐ SAS

☐ Java   ☐ Scala

☐ JavaScript   ☐ SQL

☐ Julia   ☐ Shell scripting (Unix/Linux/Mac OS)

☐ Lisp   ☐ Visual Basic

☐ Mathematica   ☐ Windows batch file Scripting

☐ MATLAB/Octave

☐ Other (please specify)

_____

16. For how many years have you been writing code / research software?

(For the purposes of this question, please count all your lifelong software experiences, whether for your work or personal projects.)

○ <1 year

○ 1-2 years

○ 2-5 years

○ 5-10 years

○ 10-20 years

○ 20-40 years

○ >40 years

* 17. How do you go about making code / research software you have developed available for re-use by others?

Please select all that apply

☐ I don't make it available for others to re-use

☐ I don't know how to make it available for re-use

☐ I share it with collaborators

☐ I share it with others who request it

☐ I share it publicly

☐ I licence it

☐ I include descriptive metadata

☐ I include a Citation File Format (CFF) which provides citation metadata for others to correctly cite my code / research software

☐ I cite it in publications and other outputs from my research

☐ I create a unique identifier (e.g. DOI) to make it findable

☐ I record it as a research output (e.g. software repositories, registries, package manager, etc)

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Respondent details

This section helps us
(i) classify your response to compare with others, and
(ii) gives us a contact for us to come back if we need any clarification
(iii) express your interest in hearing back about the results of the survey.

* 18. What are the two-digit Fields of Research (FoR) code/s of the responding area?

Choose all that are relevant

☐ 30 AGRICULTURAL, VETERINARY AND FOOD SCIENCES

☐ 31 BIOLOGICAL SCIENCES

☐ 32 BIOMEDICAL AND CLINICAL SCIENCES

☐ 33 BUILT ENVIRONMENT AND DESIGN

☐ 34 CHEMICAL SCIENCES

☐ 35 COMMERCE, MANAGEMENT, TOURISM AND SERVICES

☐ 36 CREATIVE ARTS AND WRITING

☐ 37 EARTH SCIENCES

☐ 38 ECONOMICS

☐ 39 EDUCATION

☐ 40 ENGINEERING

☐ 41 ENVIRONMENTAL SCIENCES

☐ 42 HEALTH SCIENCES

☐ 43 HISTORY, HERITAGE AND ARCHAEOLOGY

☐ 44 HUMAN SOCIETY

☐ 45 INDIGENOUS STUDIES

☐ 46 INFORMATION AND COMPUTING SCIENCES

☐ 47 LANGUAGE, COMMUNICATION AND CULTURE

☐ 48 LAW AND LEGAL STUDIES

☐ 49 MATHEMATICAL SCIENCES

☐ 50 PHILOSOPHY AND RELIGIOUS STUDIES

☐ 51 PHYSICAL SCIENCES

☐ 52 PSYCHOLOGY

☐ Not applicable

19. What is your first name?

This information will be kept confidential

[   ]

20. What is your last name?

This information is optional and will be kept confidential

[   ]

21. What is your email address?

This information is optional and will be kept confidential and will only to be used if further clarification is needed and to let you know about the results of the survey

[   ]

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Survey Close

We thank you for your time in completing this survey! We appreciate your time to help us understand how researchers FIND code in Australia.

22. Next steps

- ☐ Let me know what the results of the survey are

- ☐ Contact me to talk about research software

- ☐ Sign me up for the ARDC newsletter to receive fortnightly emails about digital research news, events and jobs