

Publishing Research Software

JHU Open Source Programs Office

Explainer



Research software is the collection of tools, code, or libraries that allow a researcher to generate new data or analyze and make meaning of existing data.

Research software can also include platforms, services, workflows / pipelines, and executable notebooks.

Many federal funders require research **publications** and **data** to be openly available.

Some public access policies, such as NASA's, also require that **software** used to generate results be publicly accessible.

There are many ways to make your research software available as you move along your research, analysis, and publishing workflows.

Research & Analysis: Share your code early

- During the research and analysis phases, use a public version control system such as GitHub or GitLab to share your code - repositories in GitHub/GitLab can be kept private or shared only with partners, funders, or collaborators until ready for open collaboration or publication
- Allows others to view and collaborate on your code
- Provide a citable location for your code during analysis

Publication: Write a software paper

- Consider writing a software paper distinct from a publication about your results, documenting the purpose, functionality, and implementation details of your work
- Papers provide a formal publication record and persistent identifier
- It's most common to publish the research paper and code paper simultaneously (each referencing the other)

Publication: Write a software paper cont.

- Software papers can be published in software-specific publications such as JOSS, JORS, and SoftwareX
- Domain-specific journals may also accept software papers for publication. The Software Sustainability Institute maintains a non-exhaustive list of journals that accept software papers:

<https://www.software.ac.uk/top-tip/which-journals-should-i-publish-my-software>

Post-publication: Deposit and reference

- After publication, your finalized code, or the version of your code required to reproduce your analysis, can be deposited to a generalized digital repository such as the Johns Hopkins Research Data Repository, Zenodo, or Software Heritage, or a domain-specific digital repository, such as ASCL (astronomy), CIG (geodynamics), swMath, etc.
- If you did not publish a software paper, depositing code into a digital repository is another way to get a persistent identifier and citation

Post-publication: Deposit and reference, funder-specific

- Some funders may require that you deposit code into a specific repository; in addition, you can deposit into the general repositories noted earlier
- Be mindful of requirements from your funder, and include the locations where you will deposit your code in your data and/or software management plans

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Questions? Ask the JHU Open Source Programs Office

ospo@jhu.edu

<https://ospo.library.jhu.edu>