

Open data/software: The journal perspective

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Open data standards and journal responsibility

FAIR principles

Findability, Accessibility, Interoperability, Reusability

TOP guidelines

Transparency and Openness Promotion

MIBBI guidelines

Minimum Information for Biological and Biomedical Investigations

And more!

“Transparency, openness, and reproducibility are readily recognized as vital features of science”

More on TOP guidelines

Summary of the eight standards and three levels of the TOP guidelines

Levels 1 to 3 are increasingly stringent for each standard. Level 0 offers a comparison that does not meet the standard.

	LEVEL 0	LEVEL 1	LEVEL 2	LEVEL 3
Citation standards	Journal encourages citation of data, code, and materials—or says nothing.	Journal describes citation of data in guidelines to authors with clear rules and examples.	Article provides appropriate citation for data and materials used, consistent with journal's author guidelines.	Article is not published until appropriate citation for data and materials is provided that follows journal's author guidelines.
Data transparency	Journal encourages data sharing—or says nothing.	Article states whether data are available and, if so, where to access them.	Data must be posted to a trusted repository. Exceptions must be identified at article submission.	Data must be posted to a trusted repository, and reported analyses will be reproduced independently before publication.
Analytic methods (code) transparency	Journal encourages code sharing—or says nothing.	Article states whether code is available and, if so, where to access them.	Code must be posted to a trusted repository. Exceptions must be identified at article submission.	Code must be posted to a trusted repository, and reported analyses will be reproduced independently before publication.
Research materials transparency	Journal encourages materials sharing—or says nothing.	Article states whether materials are available and, if so, where to access them.	Materials must be posted to a trusted repository. Exceptions must be identified at article submission.	Materials must be posted to a trusted repository, and reported analyses will be reproduced independently before publication.

Not all repositories are created equal

Percentage of papers that used particular repositories



Kelly Franklin/Science

Content

Many are field-specific or otherwise specialized, but what if a dataset spans multiple disciplines?

Policy

What about retention policies and their effect on reproducibility?

Uncertainty

How do authors discern which is the best fit?

Benefits to collaboration

- Quality control
- Machine readability
- Metadata richness and consistency
- Permanent access
- Attribution
- Facilitating peer review



Action within the *Science* family

Policy

Data and code must be publicly available and cited with a persistent identifier

Partnership

New collaboration with Dryad



Integration

Authors may deposit data at Dryad directly from the submission site of any *Science* family journal

Action within the *Science* family

Added value

Seamless, private access for editors and reviewers;
data curation

Enhanced equity

No cost to authors of accepted papers

Other benefits

Simplify process for authors; promote reproducibility;
encourage collaboration

“Ensuring the accuracy
of the scientific record is
a community process”

Moving from principles to daily practice

Author-provided citation

5. DOI: 10.12345/ABC000999

Full citation after copyediting

5. A. Author, B. Author, C. Author, Example software title, version 2, Example Repository Name (2022); DOI: 10.12345/ABC000999.

Citation in XML

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Moving from principles to daily practice

Better citations → more credit → reuse!



A working group devoted to optimizing the reusability of scholarly content by developing best-practice recommendations for tagging in JATS XML

Data citations

Status: Published

Version: 2.0

License: this recommendation document is licensed under [CC BY-ND 2.0 UK](#)

DOI: <https://doi.org/10.3789/niso-rp-36-2020>

Software citations

Status: Published

Version: 1

License: this recommendation document is licensed under [CC BY-ND 4.0](#)

DOI: <https://doi.org/10.3789/niso-rp-40-2021>

Thank you!

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