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Guidelines for authors submitting code & software

At Submission

If the custom algorithm or software is central to the paper and has not been reported previously in a published research paper, authors will be asked to fill out a Code and Software <u>Submission Checklist</u>[1] and to provide all the required materials as listed below prior to peer-review.

Required documentation for peer review and editorial assessment of the software, web tool or code:

→ Compiled standalone software and/or source code including version details and a readme file listing all the documentation provided as detailed below. Please submit as a compiled zip file or provide a link where all the necessary materials can be accessed.

→ Installation guide that includes information on the operating system, programing language, software dependencies and non-standard hardware or resources needed to run the program and details of typical install time on a current computer.

→ Demo that runs the code/software in example data and typical run time.

→ Provide a link to the code in an open source repository and a digital object identifier (DOI); when available.

→ License of use; we recommend using a <u>license</u> approved by the open source initiative. **Please note that an open license for code published in association with a Nature journal paper is compatible with the terms laid out in the Nature journal License to Publish.**

→ We strongly recommend that you ask colleagues that are not familiar with the tool to test it prior to submission.

Information that should be included in the main text or methods section of the paper:

1 **Describe the key operations performed by the software or code.**
Describe the fundamental task/s which the software or code accomplishes and the general approach used by the software or code to address the problem it intends to solve.

2 **Describe key characteristics of the software or code.**
These can include: details of the algorithms used by the software, instructions for installation and use and description of software dependencies. Please also comment on whether the source code has been submitted to community commenting and input and provide links to the commenting site.

3 **Describe the test dataset.**
The test dataset/s or example data must enable complete demonstration of the capabilities of the software. The results of running the software on the test data should be reproducible, and any external dependencies must be specified.

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[1] Please note: because of advanced features used in these forms, you must first download the file to your computer and then use <u>Adobe Reader</u> to open the document.

At Acceptance

Please refer to our general policies on software and custom code sharing upon publication.

The following materials will be required for publication:

1 Supplementary file (zip file) containing the software or code version used in the paper, associated test data, parameters and documentation as required in the Software Submission checklist[1]. All this documentation and the version of the software referenced in the manuscript can also be provided via a link to an established software version control repository, such as GitHub, as long as the version of code associated with the paper is maintained and assigned a DOI or other unique identifier.

As a condition of publication, it is expected that access to the version of code associated with the paper is appropriately maintained by the authors. For subsequent source code revisions and upgrades, we strongly encourage authors to deposit and manage their source code revisions in an established software version control repository, such as GitHub, and use a DOI-minting repository like their institutional library, figshare or Zenodo.

If the custom software or code is not central to the paper or required to support the main results being reported in the manuscript, in consultation with the editors the authors may make the code available upon request, but this should be clearly stated in the Code Availability statement, as required by policy.

2 License of use

We recommend using a license approved by the open source initiative. The license of use and any restrictions must be described in the Code Availability statement.

If the author's institution requires a user to accept a license agreement or if the author has other reasonable grounds for not providing the source code or software as Supplementary Software, it may be acceptable for the author to host them on an institutional server and require that users fill out an online form and agree to a license before downloading the software. The software must have version numbering and a link to the version used in the work must be provided in the manuscript and maintained by the authors.

3 For web-based tools, the tool should be freely accessible with any modern web browser an author should supply written confirmation that they will keep the website and tool operating and freely accessible for the foreseeable future.

4 The following information must be provided in a Code Availability statement for all papers reporting custom code that is deemed central to the conclusions

- whether and how the code is available (ie., Supplementary file, DOI, accession code, URL, repository information),

- restrictions on code availability should be described in detail

- license of use and any restrictions must be described in detail

- if there are restrictions on code or software availability, provisions made for controlled access of code or software for replication or verification purposes should be clearly described (see example wording here: http://www.nature.com/nbt/journal/v33/n8/abs/nbt.3300.html;)

- for freely accessible web-based tools, authors should confirm availability for foreseeable future in the Code Availability statement

Final acceptable forms of release of the algorithm, software and code will be determined by the editor after consultation with referees.