20 Things for Research Software Engineers

An overview of practical, free, online resources and tools that you can begin using today to incorporate research data management into your support practices.

Contents

Learning Resources
Software Reference & Outreach
Software Management Plans
Metadata
Citing Software
Software Licensing
Software Repositories & Registries
Community of Practice
… to help research software engineers engage in research data management!

Learning Resources

Research software developers may participate in different courses to have awareness of research data management topics.

1. Basic programming skills can be learned by following Software Carpentry lessons,
   edu.nl/jk6at

2. Advanced programming topics and good practices of software engineering are covered by Code Refinery lessons,
   edu.nl/j97qg

3. Learn how to run an open source software project with the 4OSS lesson,
   edu.nl/erxwf

4. The Top 10 Things for Research Software is the list of things one can do to improve the FAIRness of software
   edu.nl/739ju & edu.nl/u4yvj

5. Read insightful posts about research software engineers practices on Software Sustainability website,
   edu.nl/tbdmq

6. Become a member, or follow, the Research Software Engineers Association; or find an equivalent group in your country,
   edu.nl/xqcy7 & edu.nl/qpd44

Software Reference & Outreach

Contributing to different forums and research helps to exchange knowledge between different communities and learning about each other's developments.

7. Facilitate a community of researchers who are interested in communicating to the larger audience, by organising or participating in study groups, hacky hours or coding clubs and open science communities,
edu.nl/np38b & edu.nl/k4vmh & edu.nl/p4tg4 & edu.nl/wmurk

Software Management Plans

Getting to know how to manage the software to maintain its quality over time is crucial to keep a large project alive.

8. Use one of the existing management plans or software quality checklist, such as the ones from the Core Infrastructures Initiative, the DLR, the Software Sustainability Institute, CLARIAH or EURISE,
edu.nl/4raky & edu.nl/v6nw8 & edu.nl/qqjkt & edu.nl/8694h & edu.nl/k37yk

Metadata

Choose the right way to describe the features of your software.

9. Use a metadata standard when describing your software in machine readable way, such as CODEMETA or other package-specific method (e.g. for R),
edu.nl/hg6k4 & edu.nl/djm4k

10. If you are building a repository or database, be aware of the generic standards, such as schema.og to make the web content discoverable by search engines, and be also aware of domain-specific standard for identifying, citing, representing and sharing data and metadata; the RDA adopted FAIRsharing can help you find the standards relevant to your content/data type,
edu.nl/egc6f

Citing Software

Making your software available to the community also means to have the right way to create references to it.

11. Learn about the software citation principles by FORCE11 Software Citation Group,
edu.nl/8hdbu

12. Understand how to make your software citable,
edu.nl/garrn

13. Know how to cite your software using the Citation File Format,
edu.nl/m39bw

Software Licensing

A license is essential to determine how your software may be used and distributed.

14. Use Choosealicense or TLDRLegal to decide which license is best for you,
    edu.nl/6bn3d & edu.nl/9x6t7

Software Repositories & Registries

Making software accessible and interoperable implies choosing the right place for its storage and referencing. Check with local institute requirements before archiving.

15. Archive your software in Zenodo or Software Heritage,
    edu.nl/raa3a & edu.nl/rcg8k

16. Publish software in an online repository, such as GitHub, GitLab or Bitbucket,
    edu.nl/u7pk6 & edu.nl/7uyjf & edu.nl/3c7hw

17. Register your software in a community-approved registry or in the Research Software Directory,
    edu.nl/tndq6 & edu.nl/9htum

Community of Practice

Research software engineers are connecting with each other and the larger community of stakeholders to develop solutions and share best practices for research software.

18. Join the Carpentries community,
    edu.nl/9g877

19. Follow the research software engineers community locally and worldwide,
    edu.nl/39gnn & edu.nl/gwbuq & edu.nl/4rfpp

20. Engage with the (local) data stewards group to keep up to date on topics and developments, and join forces on organising training and workshops,
    edu.nl/rf9c6

Contact Information

This document is an audience-specific version (for research software engineers) of the 23 Things for/by the Dutch community, created by the LCRDM task group RDA 23 Things (lcrdm.nl). The original 23 Things can be found at edu.nl/w7e34, the LCRDM adaption for the Dutch community can be found at doi.org/10.5281/zenodo.3465895. If you have any relevant resources for the 23 Things, please contact the LCRDM coordinator.

For the links in this resource: retrieval date April 17, 2020.