

Code Sharing

The Basics (Part 1)

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Why Share Code?

- Transparency
- Improvement and verification — see CodeCheck
- Sustainability (re-use of costly products)

**Who Has Shared Their
Code? And how? What
worked? What did not?**

How to Share Code - the Basics

TEN YEARS REPRODUCIBILITY CHALLENGE

RESCIENCE SPECIAL ISSUE
FREE TO READ - FREE TO PUBLISH

<https://rescience.github.io>

TECHNOLOGY FEATURE · 24 AUGUST 2020

Challenge to scientists: does your ten-year-old code still run?
Missing documentation and obsolete environments force participants in the Ten Years Reproducibility Challenge to get creative.

Workshop
June 22, 2020
BORDEAUX



How to Share Code - the Basics

Code Workflows based on point-and-click interfaces, such as Excel, are not reproducible. Enshrine your computations and data manipulation in code.

Document Use comments, computational notebooks and README files to explain how your code works, and to define the expected parameters and the computational environment required.

Record Make a note of key parameters, such as the 'seed' values used to start a random-number generator. Such records allow you to reproduce runs, track down bugs and follow up on unexpected results.

Test Create a suite of test functions. Use positive and negative control data sets to ensure you get the expected results, and run those tests throughout development to squash bugs as they arise.

Guide Create a master script (for example, a 'run.sh' file) that downloads required data sets and variables, executes your workflow and provides an obvious entry point to the code.

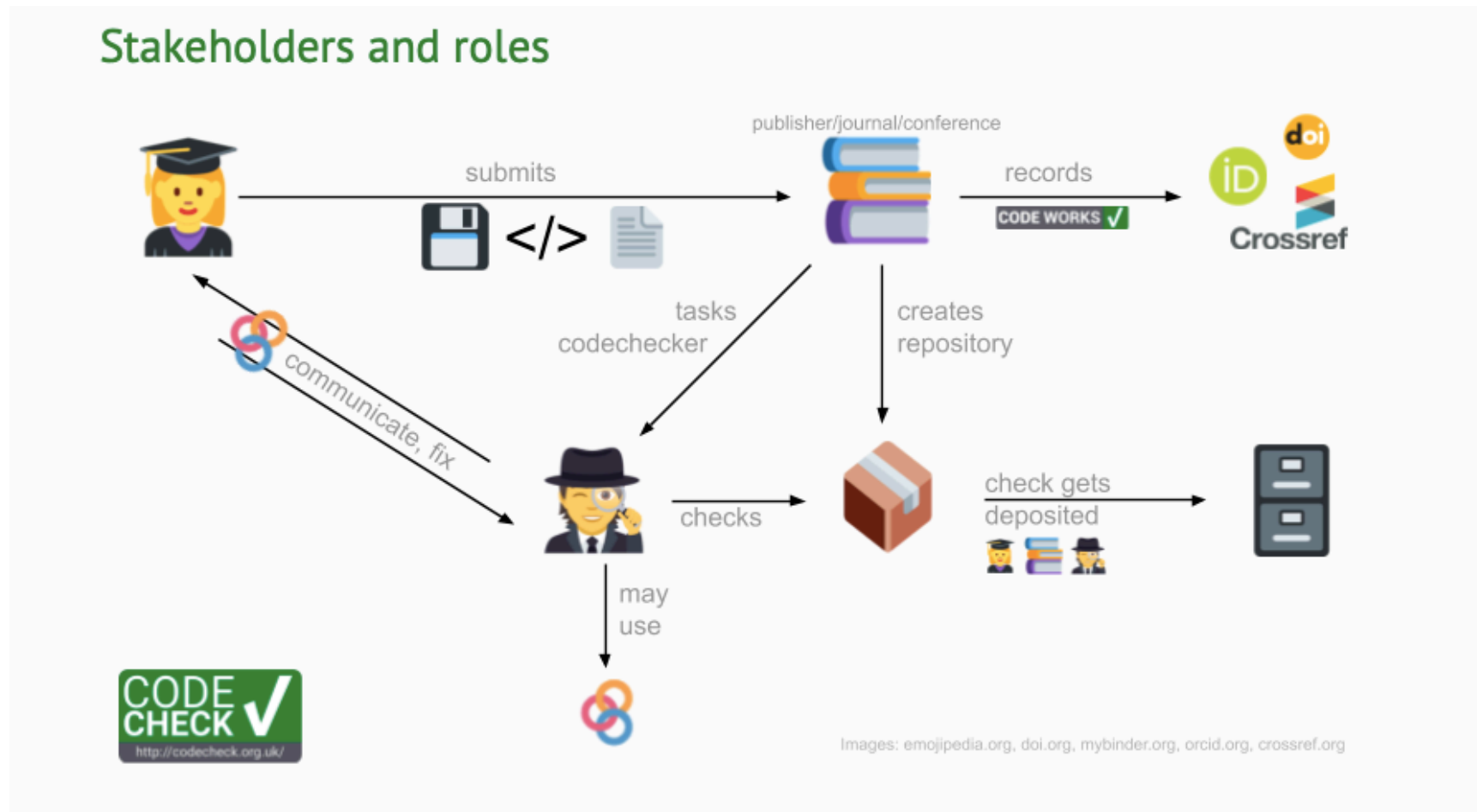
Archive GitHub is a popular but impermanent online repository. Archiving services such as Zenodo, Figshare and Software Heritage promise long-term stability.

Track Use version-control tools such as Git to record your project's history. Note which version you used to create each result.

Simplify Avoid niche or hard-to-install third-party code libraries that can complicate reuse.

Verify Check your code's portability by running it in a range of computing environments.

Check Before You Share



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“There are different ways for you to get involved, for example (a) submit a manuscript to a journal conducting CODECHECKs, (b) suggest a CODECHECK as part of your cover letter, or (c) submit your workflow to the [community review process](#) right away if you have published a preprint or submit to a journal with an open review.”