Lightning Talk: Software Citation: Process, Principles, and Implementation
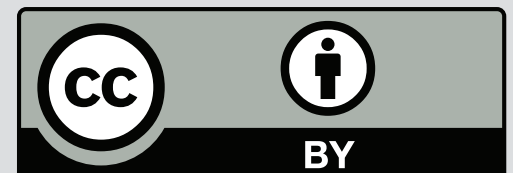
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WSSSPE4
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Process

- April 2015: FORCE11 started Software Citation Working Group

- October 2015: WSSSPE3 software credit group joined

- October 2015–April 2016: reviewed 47 documents describing existing community practices, and developed set of 16 use cases for SW citation

- April 2016: FORCE2016 one-day workshop & public presentation

- > April 2016: updated document published on FORCE11 website for public comments via Hypothesis

- June 2016: submitted paper to *PeerJ CS*, made draft available via *PeerJ Preprints*

- August 2016: software citation principles paper accepted

Principles

1. **Importance:** software as important as other research products

2. **Credit & attribution:** citations should facilitate scholarly credit and attribution to all contributors

3. **Unique identification:** citation should include machine actionable, globally unique, interoperable, and recognized identification method

4. **Persistence:** Unique identifiers and metadata should persist

5. **Accessibility:** Citations should facilitate access to software and associated metadata

6. **Specificity:** Citations should facilitate identification of, and access to, specific version of software used

Use Cases

Use case	Basic requirements											Example stakeholder(s)
	Unique identifier	Software name	Author(s)	Contributor role	Version number	Release date	Location/ repository	Indexed citations	Software license	Description	Keywords	
1. Use software for a paper	●	●	●		●	●	●		+	+		Researcher
2. Use software in/with new software	●	●	●		●	●	●		+	+		Researcher, software engineer
3. Contribute to software	●	●	●	+	●	●	●		+	+		Researcher, software engineer
4. Determine use/ citations of software	●	●						●				Researcher, software engineer
5. Get credit for software development	●	●	●	+		●	●	+				Researcher, software engineer
6. "Reproduce" analysis	●	●			●	●	●		+	+		Researcher
7. Find software to implement task	●	●	●				●	●	+	+	+	Researcher, software engineer
8. Publish software paper	●	●	●		●	●	●					Publisher
9. Publish papers that cite software	●	●	●		●	●	●	●				Publisher
10. Build catalog of software	●	●	●		●	●	●	●	+	+	+	Indexer
11. Build software catalog/registry	●	●	●				●			+	+	Domain group, library, archive
12. Show scientific impact of holdings	●	●						●				Repository
13. Show how funded software has been used	●	●						●				Funder, policy maker
14. Evaluate contributions of researcher	●		●	+		●		●				Evaluator, funder
15. Store software entry	●	●	●		●	●	●			+	+	Citation manager
16. Publish mixed data/software packages	●	●	●		●	●	●		+	+	+	Repository, library, archive

SC Principles paper

Software citation principles

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Next Steps

- WSSSPE4 Track 1 discussions: future for software credit, reproducibility, & sustainability

- Paper on examples of software citation: https://github.com/force11/force11-scwg

- Infographic on principles

- Sunset of SCWG, spinup of follow-on Software Citation Implementation Working Group

Thank you! Questions?

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https://www.force11.org/software-citation-working-group

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