

Software Citation Implementation: Action Plan Development

Summary

Software is foundationally important to the future of scholarly research and human cultural heritage, but software citation implementation challenges currently make identifying software and connecting it to people difficult. These barriers require action from throughout the scholarly communication ecosystem and digital preservation landscape, presenting an opportunity to leverage intersections between digital challenges in libraries and the work of experts in information science and other fields to advance theory and practice. The Smithsonian Astrophysical Observatory therefore requests \$75,226.70 from the IMLS to bring together stakeholders representing the many forms of labor and expertise needed to ensure that software citations support software authors, preservationists, and software users alike. Funding from the IMLS will ensure that this diverse community of people are given the opportunity to work together to develop a specific plan of action to address software citation implementation on all fronts.

Statement of National Need

Software has been a crucial contributor to scientific and social progress for decades, but practices that enable machine-actionable citations have not been consistently applied to software. Unless software citation practices are fully implemented, people who write software will not be acknowledged for their contributions, preservationists will be unable to identify and curate software, and people who use software will be unable to find or access software. Recognizing the critical need for software citation, a FORCE11 working group developed the Software Citation Principles.¹ These principles established core values and motivations for software citations stating, “software should be considered a legitimate and citable product of research” and citations should “enable credit and normative, legal attribution to all contributors to the software.” Further, the principles laid out the need for persistent, unique software identification to ensure access to specific software and its associated metadata. The Software Citation Principles are general though, and their implementation brings about challenges. The FORCE11 Software Citation Implementation working group, an international, interdisciplinary set of stakeholders, has assessed and documented these challenges² and now needs the opportunity to develop a specific action plan for how to proceed. It is clear in this context though that libraries and archives are strategically situated to help address these challenges and lead efforts to ensure software citations benefit everyone.

The potential for libraries and archives to support software citation implementation is difficult to overstate. Major challenges to software citation implementation primarily revolve around software identification, and metadata, particularly metadata availability, storage, and conversion. Community-specific practices also need to be developed “within the context of existing scholarly communication and software development norms.”³ As facilitators, resource providers, and stewards, librarians and archivists can help guide how digital preservation platforms address software citation metadata, and bridge divides between

¹ <https://doi.org/10.7717/peerj-cs.86>

² <https://arxiv.org/abs/1905.08674>

³ <https://arxiv.org/abs/1807.08149>

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their communities and other key collaborators. In short, if librarians and archivists are given the opportunity to work with scholars investigating software citation, publishers enacting software citation policies, and indexers exposing software citation metadata, the challenges presented by software citation implementation can be addressed.

Project Design

We propose to host a two-day in-person workshop to develop an action plan for addressing and piloting solutions to challenges outlined by the FORCE11 Software Citation Implementation Working Group. The workshop will gather key contributors and leaders in the area of software citation and will not be limited to domestic participants or people with direct appointments within libraries and archives. Collaboration between international parties (e.g. the British Library) with differing perspectives on the software citation problem space is imperative to developing an achievable set of tasks to respond to known obstacles and anticipate emerging needs. The workshop will result in a published action plan in the form of a white paper with a timeline and anticipated outcomes for deliverables associated with the plan. The plan could potentially frame a future IMLS proposal and clarify where funding is needed. The workshop will be evaluated through attendee feedback on satisfaction with the workshop design, as well as the resulting action plan.

Diversity Plan

By offering to fund attendee travel and lodging, our goal is to make participation more easily achievable for attendees with varying levels of financial support from their employers. We will also incorporate equity and inclusion into our considerations when inviting participants and planning any presentations associated with the workshop. A code of conduct will also be enforced throughout the workshop's planning and execution.

National Impact

Developing an action plan to directly confront challenges to software citation implementation will result in changes to systems and norms that impact the international community. By taking an interdisciplinary approach to software citation implementation we will be able to amplify the impact of work already being done by workshop participants and establish new collaborations between libraries, archives, and previously disparate groups.

Budget Summary

Domestic Airfare (estimate)	\$ 12,500.00	25 domestic travelers; \$500 per attendee
Foreign Airfare (estimate)	\$ 15,000.00	15 foreign travelers; \$1000 per attendee
Catering (estimate)	\$ 3,000.00	Lunch and coffee for 40 people; 2 days
Lodging Per Diem	\$ 273.00	Domestic travelers (2 nights); foreign travelers (3 nights)
Lodging total	\$ 25,935.00	40 attendees
Meals & Incidentals total	\$ 8,165.00	40 attendees; meals & incidentals per diem (\$71)
Direct Cost Total	\$ 64,600.00	
Overhead/IDC Total (16.45%)	\$ 10,626.70	
Total Cost	\$ 75,226.70	