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Aims and Scope

The Dagstuhl Artifacts Series (DARTS) publishes evaluated research data and artifacts in all areas of computer science. An artifact can be any kind of content related to computer science research, e.g., experimental data, source code, virtual machines containing a complete setup, test suites, or tools.

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■ Preface

The goal of the *Artifact Evaluation* (AE) is to foster the reproducibility of results by providing authors the possibility to submit an artifact for accepted papers. For ECOOP 2020, artifacts include, but are not limited to, software artifacts, data sets, and proofs. An *Artifact Evaluation Committee* (AEC) reviews these artifacts and decides upon their acceptance. The accepted artifacts are archived in the *Dagstuhl Artifacts Series* (DARTS) published on the *Dagstuhl Research Online Publication Server* (DROPS). Each artifact is assigned a *Digital Object Identifier* (DOI) that can be used in future citations.

The AE process for 2020 was a continuation of the AE process of previous ECOOP editions. In particular, the process was based on the artifact evaluation guidelines by Shriram Krishnamurthi, Matthias Hauswirth, Steve Blackburn, and Jan Vitek published on the Artifact Evaluation site.¹

In addition, the authors and reviewers were provided with guidelines for creating and reviewing software artifacts, in particular guidelines from the Artifact Evaluation site², the *HOWTO for AEC Submitters* by Dan Barowy, Charlie Curtsinger, Emma Tosch, and John Vilk³, Marianna Rapoport's *Proof Artifacts – Guidelines for Submission and Reviewing*⁴, and Erin Dahlgren's study on the OOPSLA 2019 artifact evaluation process.

The AEC evaluated 21 artifacts out of 29 papers accepted at the conference's research track. This corresponds to a participation rate of 72%, in comparison to the 57% in 2019. 20 of those artifacts were accepted, marking a 95% acceptance rate.

In total 70% of the research papers published at ECOOP 2020 have successfully passed the AE process, indicated by an artifact-evaluation badge on the paper. This is an improvement over the previous ECOOP editions: from 2017 to 2019, respectively 59%, 38%, and 50% of the research papers were accompanied by accepted artifacts.

We would like to commend the efforts of all 23 members of this year's AEC, who, in spite of the global crisis, donated their valuable time and effort to make the AE process possible. We thank Martin Kavalar and Philipp Markovics from Nextjournal for their efforts in enabling Nextjournal as an option for authors to submit and host their artifacts. We thank Jan Vitek for bringing forward the proposal to use Nextjournal as an option in the AE, and establishing contact between Nextjournal and us. We would also like to thank Michael Wagner and the DARTS team for their efforts enabling the publication of the artifacts volume, as well as ECOOP 2020's General Chair Christian Hammer, and the Program Chair Robert Hirschfeld for helping us coordinate the AE with the paper review process.

Lisa Nguyen Quang Do and Manuel Rigger
(Artifact Evaluation Co-Chairs)

¹ <http://www.artifact-eval.org>

² <http://www.artifact-eval.org/guidelines.html>

³ <http://bit.ly/HOWTO-AEC>

⁴ <https://proofartifacts.github.io/guidelines/>

■ Artifact Evaluation Process

The AE process approximately followed the process of previous ECOOP AE editions. In addition, the AE adopted four new initiatives: a self-nomination process to recruit a part of the AEC, the nomination of *lightning reviewers* that can quickly step in when a review is urgently needed, a longer interactive review period between the authors and the reviewers, and a collaboration with Nextjournal⁵ to uniformize artifacts and promote reproducibility.

The AEC was composed of experienced junior researchers invited by the co-chairs, as well as of additional junior researchers recruited by a self-nomination process. The self-nomination process was introduced in 2020 to recruit a diverse range of motivated junior researchers, including also students early in their scientific career. From the self-nominated candidates, 10 researchers were selected out of the 34 that applied to serve on the AEC. In addition, 20 researchers were invited by the co-chairs to join the AEC – 10 selected by each co-chair – and 13 accepted. We believe that both groups of researchers provided high-quality reviews. Together with the high interest in the AE, this suggests the possibility that future versions of the ECOOP AE could solely rely on a self-nomination process.

Two volunteer reviewers among the AEC were *lightning reviewers*. They initially received fewer submissions to review, with the condition of being able to quickly review other submissions later if needed. The lightning reviewers proved useful as two of the reviewers were unable to provide their reviews. One reviewer dropped out at the start of the reviewing period, while the other one went unresponsive. Their artifacts were transferred to the lightning reviewers.

After the research track’s notifications, the authors of all accepted ECOOP 2020 papers were given the opportunity to submit an artifact with their paper, irrespective of the paper category (i.e., Research, Tool Insights, Reproduction Study, Experience Report, Pearl, and Brave New Idea). As an attempt to uniformize the artifacts and promote reproducibility, the AE co-chairs together with Jan Vitek initiated a collaboration with the platform Nextjournal. Nextjournal provides an infrastructure to build and host artifacts in notebooks that support various environments. Nextjournal created a document to describe their platform specifically for the ECOOP 2020 AE, and offered increased support during the AE period. In addition, Nextjournal was advertised as an option for the AE. Despite this, all artifact authors produced their artifacts without using Nextjournal.

Each artifact was evaluated by three AEC members, which corresponded to a reviewer load of two to three artifacts. The reviewing process consisted of three phases:

- In the *kick-the-tires* phase, reviewers briefly verified the basic integrity of the artifacts to discover any issues that could prevent the evaluation of the artifact (e.g., a corrupted virtual machine image) and to assign a grade for the getting-started guide.
- In case of any issues, reviewers could, during the *interactive reviewing period*, indicate issues and ask clarifying questions to the authors. Authors, in turn, could respond to the reviewers’ feedback, and update their artifacts to answer questions and address issues that the reviewers could then also respond to. During that phase, reviewers started a more comprehensive evaluation of their assigned artifacts. They were asked to assess the consistency of the artifact with respect to the paper, the artifact’s completeness, documentation, and reusability for future research and to decide on an overall grade.

⁵ <https://nextjournal.com/>

- In the *final reviewing period*, the submission system was closed to the authors. Each reviewer had a week to finish the evaluation of their assigned artifacts.

The review phase was then followed by a discussion phase, in which artifacts were discussed to converge on either the artifacts' acceptance or rejection.

Authors that received an acceptance notification were given one week of time to incorporate reviewers' feedback and submit the camera-ready version of their artifacts.

Table 1 summarizes the process and illustrates the timeline. The global pandemic and its consequences on the timeline of the conference posed challenges to the AE process. The late date for the author notification of the research track resulted in a tight schedule for the AE process. To alleviate this, it was planned to send out early author notifications in the research track, giving enough time for the authors to prepare their artifacts. However, due to the above-mentioned challenge, this was not possible, and resulted in the postponement of the AE schedule. For future chairs, we suggest to coordinate the date for the author notification of the research track with the AE, to ensure sufficient time for the AE process.

■ **Table 1** Timeline of the AE proces.

AE Phase	Date
Reviewer self-nomination deadline	Fri 10 Jan
Reviewer self-nomination notification	Wed 15 Jan
Research track author notification	Wed 08 April
Submission of the artifacts	Tue 21 April
Artifact bidding period	Wed 22 April - Thu 23 April
Kick-the-tires period	Fri 24 April - Wed 29 April
Kick-the-tires response period	Thu April 25 - Tue May 05
Interactive reviewing period	Wed May 06 - Fri May 15
Final reviewing period	Sat May 16 - Sun May 23
Discussion period	Mon May 25 - Wed May 27
Notification	Thu May 28
Camera-ready version	Fri Jun 05

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