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Software Quality Assurance as a Service (SQAaaS) platform

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The EOSC-Synergy project is developing a toolset to bring over mainstream practices close to researchers throughout the development life cycle of the EOSC software and services. The objective is twofold: on the one hand streamlining the adoption of such practices in the scope of the EOSC, and on the other hand, providing a software-quality assessment tool to promote, measure and reward quality.

The Software Quality Assurance as a Service (SQAaaS[1]) platform tackles both objectives. The web-based interface ensures that no previous expertise is required for composing the fundamental building blocks, the pipelines supported by JePL library, which define the workflow that drives the validation and verification of the software and services.

The JePL library facilitates the creation of Jenkins pipelines by using a YAML description to define the several stages that compose a CI/CD pipeline. The actions in the YAML configuration file are aligned with the criteria compiled in the software and service quality baselines [2][3], and support popular deployment tools to orchestrate the required set of services needed during the quality assessment process. A minimal (single-stage) Jenkins CI/CD pipeline definition (Jenkinsfile) is required to dynamically compose the required set of stages defined as actions in the YAML description.

Each step in a SQAaaS pipeline generated using JePL, addresses a well-defined quality criterion according to the baseline criteria the EOSC-Synergy project has adhered (and contributed to) [2][3]. The Pipeline as a Service module allows the researcher to compose ad hoc pipelines that can be readily used when added to code repositories. As a complement, the Quality Assessment & Awarding module conducts a comprehensive analysis of the quality attributes of a given software release and recognizes its achievements by issuing digital badges. The badges'metadata, compliant with the Open Badges specification [4], contain all the pointers and associated data that have resulted from the quality assessment process.

SQAaaS platform has been already used by multiple use cases [5], and the first prototype, featuring the Pipeline as Code module, was closed on May 2022. As a proof of concept, this new release will already provide support for issuing digital badges. The validation of each incremental release is actively performed by the thematic services that take part in the EOSC-Synergy project. The ultimate version, which will include the full coverage of the two aforementioned modules, will be available at the end of the project.

[1] https://digital.csic.es/handle/10261/296555
[2] http://dx.doi.org/10.20350/digitalCSIC/12543
[3] http://dx.doi.org/10.20350/digitalCSIC/12533
[4] https://www.imsglobal.org/spec/ob/v2p1/
[5] https://sqaaas.eosc-synergy.eu

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