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Automated Software Publication and Metadata Collection with HERMES for Improved Discoverability

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Software as an important method and output of research should follow the RDA "FAIR for Research Software Principles". In practice, this means that research software, whether open, inner or closed source, should be published with rich metadata to enable FAIR4RS.

For research software practitioners, this currently often means to follow an arduous and mostly manual process of software publication. HERMES (https://software-metadata.pub), a project funded by the Helmholtz Metadata Collaboration, aims to alleviate this situation. We develop configurable, executable workflows for the publication of rich metadata for research software, alongside the software itself.

These workflows follow a push-based approach: they use existing continuous integration solutions, integrated in common code platforms such as GitHub or GitLab, to harvest, unify and collate software metadata from source code repositories and code platform APIs. These workflows include curation processes for the unified metadata, and deposit them on publication platforms. The deposits are based on deposition requirements and curation steps defined by a targeted publication platform, the author's institution, or a software management plan.

In addition, the HERMES project works to make the widely-used publication platforms InvenioRDM and Dataverse "research software-ready", i.e. able to ingest software publications with rich metadata, and represent software publications and metadata in a way that supports findability, accessibility, and assessability of the published software versions. Subsequent to their publication, an additional step in the HERMES workflow registers software releases in software catalogues such as the Research Software Directory (RSD), or disciplin and project specific variants. In the future, the Helmholtz RSD will provide data for comprehensive knowledge graphs such as HMC unHIDE and thus increase the visibility of the software significantly.

In summary, the project improves the publication and curation process as well as the discoverability of software publications by providing configurable tools that interact with common services.

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