HELIPORT HELmholtz ScIentific Project W ORkflow PlaTform — An Integrated Research Data Lifecycle

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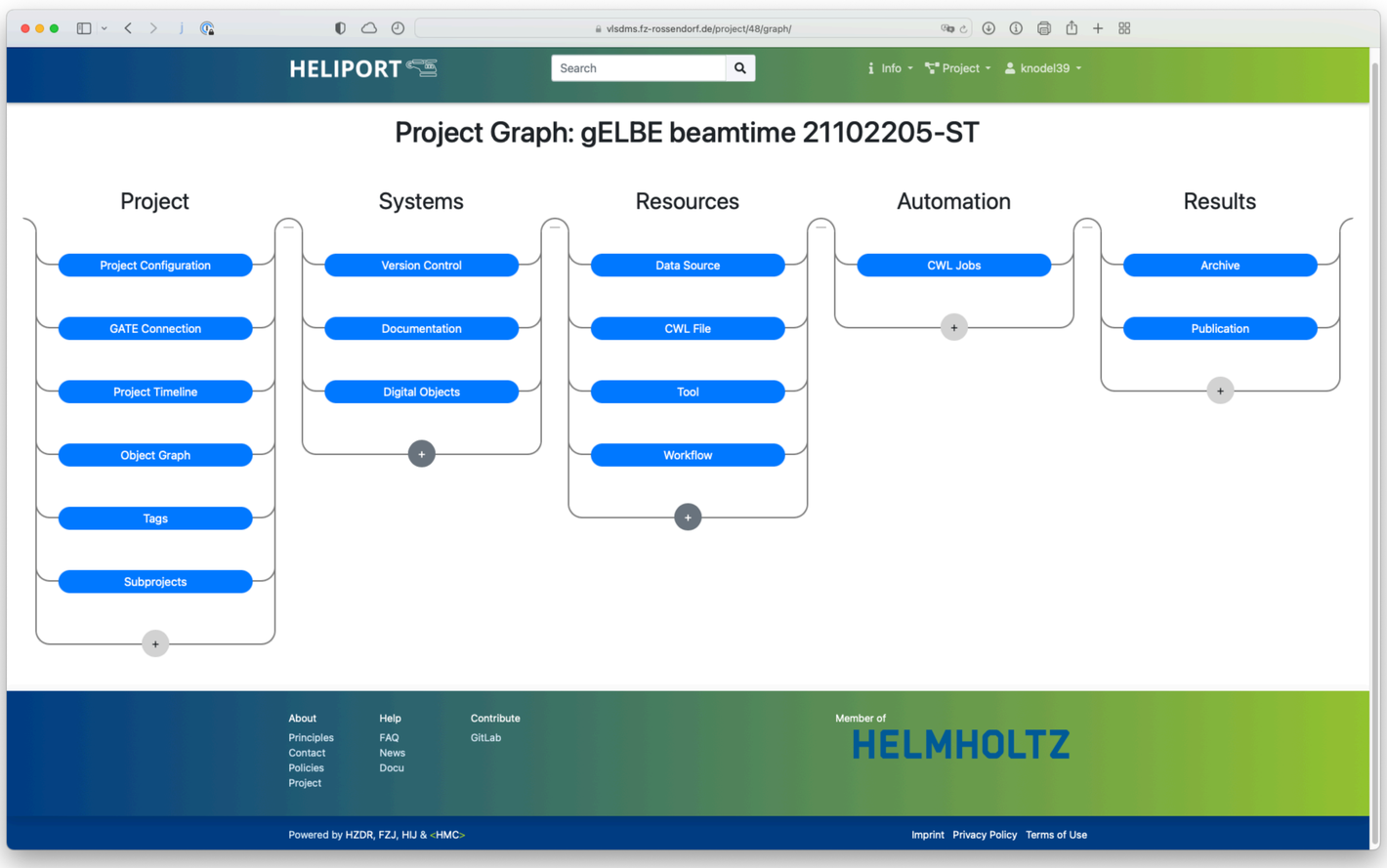
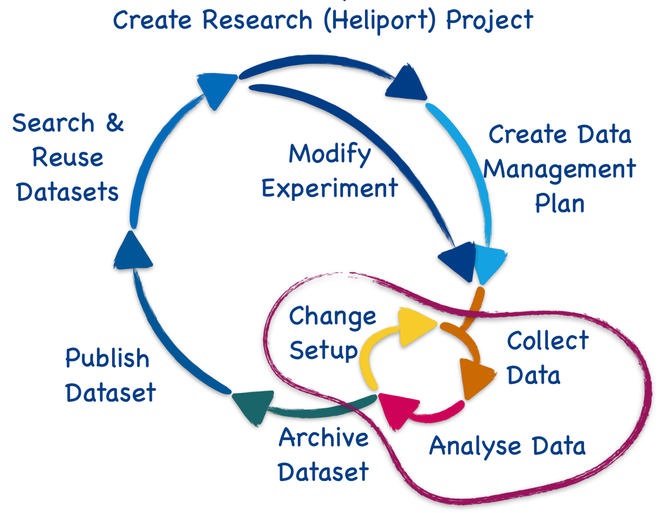
> The HELIPORT project aims at developing a platform which accommodates the **complete life cycle** of a scientific project and links all corresponding programs, systems and workflows to create a more Findable Accessible Interoperable Reusable and comprehensible project description.

Overview Guides Scientists through Project Phases

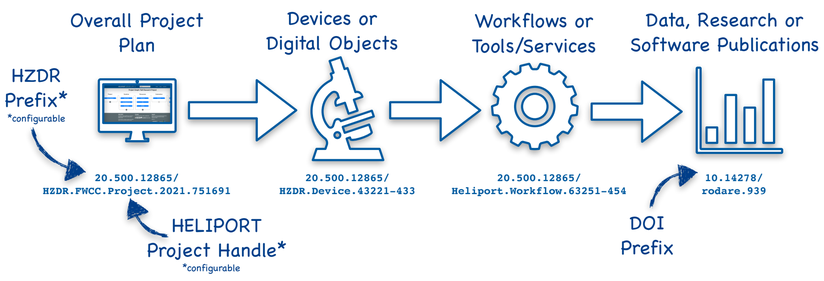


Full Lifecycle Management

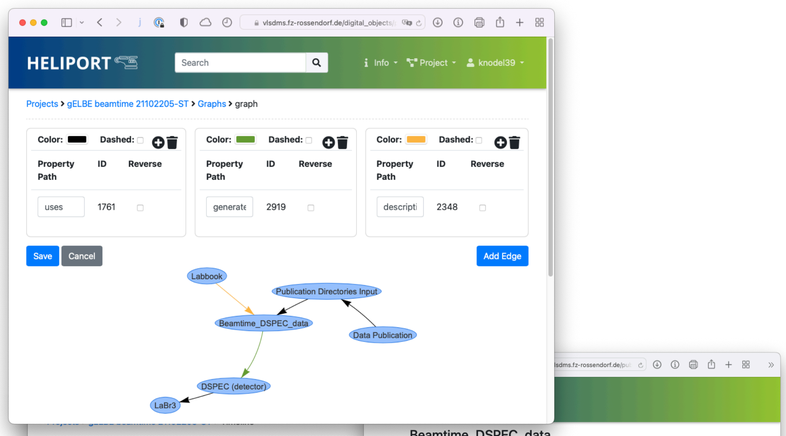


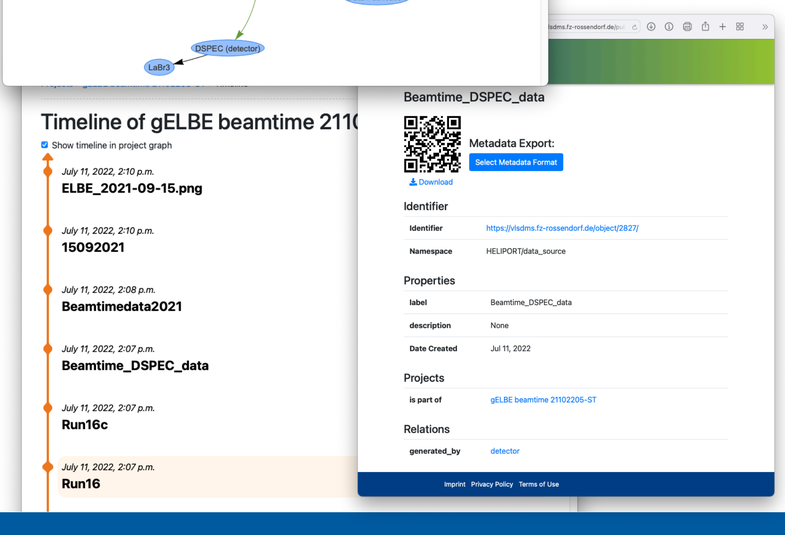
- In modern scientific experiments, a wide variety of appropriate software tools is used:
  - electronic lab books,
  - interactive analysis,
  - publication repositories for code and data,
  - scientific workflow management,
  - varius databases and storages,
  - and many more.
- Uniform and smooth access to and between all services and systems in the IT ecosystem is necessary to ensure:
  - comprehensibility,
  - machine-actionability and
  - collaborative teamwork.
- HELIPORT is designed to be configurable and adaptable for the IT infrastructure of a research center to offer a holistic view of an experiment.

Digital Object and Handles



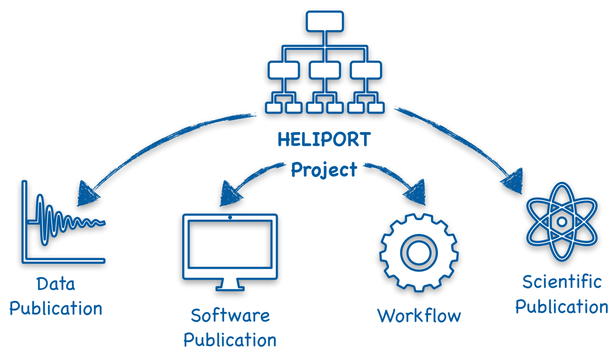
- HELIPORT interfaces with local handle.net instances (e.g. handle.hzdr.de) to enable sustainability.
- Automated generation of uniform, globally unique PIDs for digital objects of all systems, jobs, services, ...
- With digital objects, object relations and landing pages, HELIPORT improves **Provenance** and **Comprehensibility**.





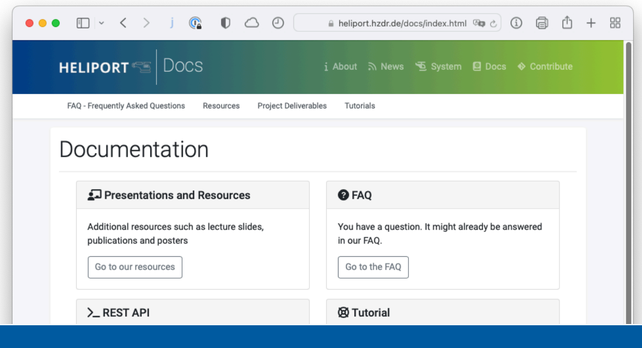
Project Metadata

- In all stages of an experiment, HELIPORT combines information about involved services with PIDs.
- Metadata (stored *near* the PID) is used to transfer information between different systems.
- Metadata export in standardized formats and schemas (DataCite JSON/XML, RDF, JSON-LD, Turtle, ...).
- The project metadata is distributed over all relevant linked systems:



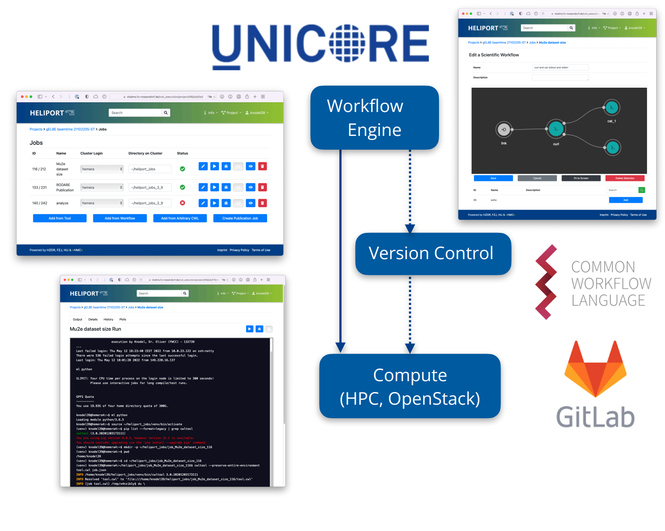
Project Resources

- Public available documents at heliport.hzdr.de including tutorials and presentations.
- Deployment guide of the HELIPORT prototype with UNICORE integration and first system plugins.
- Software and data publications of prototype and project metadata for an example project.



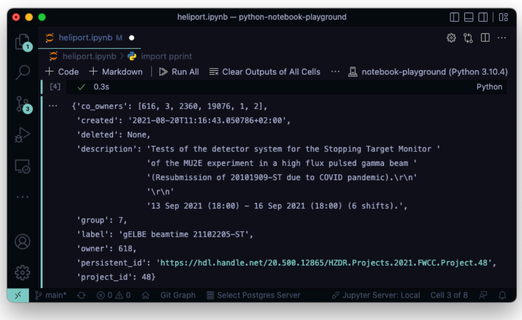
CWL Execution and Monitoring

- HELIPORT's encapsulation of individual steps in a computational workflow follows the FAIR principles and enables reusability
- Analysis and pre-/post-processing steps can be documented and reproduced



Programatic Access via API

- The HELIPORT API provides full access to the underlying HELIPORT infrastructure and third-party systems or services.
- An API is essential to use and integrate the HELIPORT infrastructure in experiments:



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