Contribution ID: **32** Type: **Poster**

User-Oriented, Reusable Components and Tools for the Integration of FDOs into the Daily Research Routine

Tuesday 10 October 2023 14:30 (15 minutes)

In the last two years, the endeavor of realizing FAIR Digital Objects (FDOs) took a huge leap on the international as well as on the national level in Germany and in particular within HMC. By finding consensus on a common Helmholtz Kernel Information Profile (1) defining basic kernel metadata attributes each FDO must provide to serve as top-level commonality across all research fields, the way was paved to bring FDOs into practice. The initial focus was on technical aspects on how to create and manage FDOs, which resulted in documents (2), infrastructure components (3), and tools (4) addressing these aspects.

Early adoptions were carried out in different contexts, e.g., in NFDI-MatWerk to create a set of reference datasets for different participant projects (5) (6), in collaboration with the Helmholtz incubator platform on AI to represent a complex dataset of annotated images (7), and in different HMC Hubs and projects.

It quickly became apparent that a growing number of FDOs also has an impact on their design and handling. A better understanding of common practices of creating FDOs in different domains also increased their complexity, which brought up a strong demand on additional tooling to fill existing gaps with regard to the creation, management, retrieval, and representation of FDOs.

On this poster we present our results on addressing the creation, retrieval, and representation of FDOs. For the creation of FDOs the FDO Creator was implemented to ease the manual creation of small to mid-size FDO graphs. Realized on top of the Typed PID Maker, the FDO Creator simplifies the creation of validated FDOs and their linking to each other. Once created, the retrieval of FDOs becomes relevant for scientific users. With this in mind, the FDO Search (8) is taking the first steps to implement a user-friendly search for FDOs. Based on PID Records indexed by the Typed PID Maker in an Elastic instance, full text as well as faceted search are offered to the user. Single results can then be visualized either in FAIR-DOscope or by one of the new reusable Web Components for visualizing FDOs as graphs or rendered as text components, offering multiple ways for further interaction.

The strong focus on the reusability aspect of the created Web Components will ease the integration of FDOs into existing software, as well as increase their acceptance by making them tangible for scientific users. Allowing FDOs to be visualized in basically every Research Software Environment will improve their visibility and will foster a natural interaction as part of a researcher's daily business, hiding technical details of a FDO' s implementation.

This research has been supported by the Helmholtz Metadata Collaboration (HMC) Platform, the German National Research Data Infrastructure (NFDI) and the German Research Foundation (DFG).

Please assign your contribution to one of the following topics

Technological solutions for findable and machine-readable metadata

Please specify "other" (stakeholder)

In addition please add keywords.

FAIR Digital Objects, Web Components

Please assign yourself (presenting author) to one of the stakeholders.

Scientists and technicians who maintain and operate research infrastructure for data generation

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Session Classification: Poster session

Track Classification: Poster session