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NFDIxCS: Guarantee Levels of the Research Data Management Container (RDMC)

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Effective management of research data and software is essential for promoting open and trustworthy research. Structured methods are needed to ensure that research artifacts remain accessible and easy to locate, in line with the FAIR principles of making research data and software findable, accessible, interoperable, and reusable [1, 2]. However, fully implementing these principles remains challenging.

Several research data management initiatives, such as the National Research Data Infrastructure (NFDI) and the European Open Science Cloud (EOSC), aim to support a cultural shift towards openness. The NFDIxCS consortium [3], part of the NFDI, has a core mission to develop infrastructure that supports operational services across the diverse Computer Science (CS) field and implement FAIR principles. A central concept of this project is the Research Data Management Container (RDMC) [4], which encapsulates research data, software, and contextual information into a 'time capsule' for long-term archiving and future use. After creating an RDMC, this container will be connected to a Reusable Execution Environment (REE), allowing the time capsule to be unpacked and executed within a predefined environment.

Creating an RDMC requires a workflow to encapsulate research data, software, its external components, the context, and other related materials into a single container. Based on several personas [5], we have developed a workflow and designed a wizard to facilitate this process. This workflow enables the underlying management platform to create badges that indicate the expected quality of the content. Currently, these badges are referred to as guarantee levels, providing information on aspects such as metadata quality, long-term achievability and sustainability, and privacy of research artifacts.

In this presentation, we give an introduction into the workflow for creating an RDMC, outline the concept of RDMC guarantee levels, and engage the community in discussing potential shortcomings and challenges in developing these guarantee levels.

References

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