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Developing an all-in-one ELN and RDM tool for university scale facilities

Research data management (RDM) on the scale of university facilities in contrast to largescale facilities has different requirements and challenges. First and foremost are the need to catalogue data from a large variety of different techniques and instruments as well as reliably document the work of frequently changing researchers and projects. For this reason, the ICSP@FAU group within use case 10 works towards an automated, generic and FAIR data workflow, handling data from various sources. This workflow is inherently connected to an electronic lab notebook (ELN) system via the use of a local NOMAD Oasis1.
We are actively developing a Nomad Oasis plugin package that enables the automatic processing of instruments located at our chair2 as well as generic measurement files. For the data pipelines, we are utilizing the NeXus3 standard wherever possible, since NeXus aims to already achieve the A (accessibility) I (interoperability) and R (reusability) principles of FAIR data. This enables us to work in close cooperation with the developers of FAIRmat developing the python converter package pynxtools4.
To meet the need of a stable system that is available without the need of constant maintenance by faculty personnel we are working together with the FAU Competence Center for Research Data and Information (CDI). Every time a stable release of a Nomad Oasis environment is achieved by our work, it will be included in the Nomad instances hosted by the CDI. On this basis, the CDI will install a Nomad Oasis environment enabling other institutes of the FAU to easily request their own instances. The Nomad Oasis ecosystem will be maintained and kept up-to-date by the CDI.
The poster will present how we utilize and customize our NOMAD Oasis to fit the FAIR requirements and support our scientific work from data collection to publication. It will detail our previous achievements in developing these systems, including a metadata PostgreSQL database3, our configuration of the nomad oasis4 and plugin development5 as well as the implementation at our chair. Furthermore, we will present our roadmap for developments planned in the future.
References
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