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Automated Scientific Metadata Recording and Viewing During Experiments at MAX IV

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Beamline instrumentation has dramatically improved over the years in synchrotron research facilities. Nowadays, detectors can produce thousands of frames in a matter of seconds. Therefore, a well-structured and configurable framework is required to easily access and assess the quality of these enormous amounts of data.

In this communication we present a metadata management solution recently developed and implemented at MAX IV to automatically retrieve and record metadata from Tango devices relevant to the current experiment. User-selected scientific metadata and predefined defaults related to the beamline setup are propagated into the Sardana control system and automatically recorded at each scan using a library, SciFish[1]. The recorded metadata, stored in the SciCat[2] database, can be accessed through a ReactJS-based web-interface, Scanlog [3], to easily sort, filter and extract important information. This tool allows to access the metadata in real-time and is used for monitoring as well as exporting for post-processing.

These new software tools ensure that recorded data is findable, accessible, interoperable and reusable (FAIR[4]) for many years to come. Collaborations are on-going to develop these tools at other particle accelerator research facilities.

Footnotes:

[1] SciFish <https://gitlab.com/MaxIV/lib-maxiv-scifish>

[2] SciCat <https://scicatproject.github.io/>

[3] Scanlog <https://gitlab.com/MaxIV/svc-maxiv-scanlog>

[4] Wilkinson, Mark D., et al. "The FAIR Guiding Principles for scientific data management and stewardship. Sci Data 3: 160018." (2016). <https://www.nature.com/articles/sdata201618>

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