

Emhub: A Web Platform for Cryoem Centers Management and On-The-fly Data Processing

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We present a new web platform called EMhub designed to serve CryoEM centers' needs such as instrument bookings, data management, and reporting. EMhub has been in use in the last few years at the Swedish National CryoEM Facility and has been very useful for the management of users, applications, bookings, invoicing, and project tracking. A central component of this application is a booking calendar which allows booking microscopes and instruments or even services such as bi-weekly facility drop-ins. Users are grouped by laboratories and universities, which is very convenient to evaluate yearly applications and generate invoices for specific periods. Another helpful feature is the implementation of projects and their associated entries. This documents the whole process of grids preparation, screening, and data collection. Moreover, different processes can be attached to the application via a REST API to automate different tasks (e.g folder creation, user and password generation, etc) and for monitoring on-the-fly data processing independently of the software used. Recently, it has also been installed in the CryoEM center at the Structural Biology Department at St. Jude Children's Research Hospital. There, it has been more centered on on-the-fly data processing and analysis. Currently, a fully automated pipeline is in place that goes until 2D classification and selection of best classes.