

Microscopes monitoring

Proposal author (Förslagslämnare)

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Background (Bakgrund)

Researchers and practitioners in Materials sciences rely on monitoring equipment such as electron microscopes to conduct their investigations and inspect/assess the quality of various industrial processes. Such monitoring equipment generates continuous streams of data, both in terms of data it senses, as well as in terms of data describing how the equipment is being utilized by researchers/practitioners. Live monitoring of such data is of key importance, as it can be used to assess whether the equipment is being used according to the planned activities and assess the importance of the monitoring data being produced.

Project description (Projektbeskriving)

This project is expected to design and implement a three-part prototype framework able to:

- Monitor the processes running on a Window machine connected to monitoring equipment such as electron microscopes
- Forward the collected data to an external publish/subscribe system
- Define custom data analysis pipelines to process such data and visually report it to users involved in materials' monitoring processes.

Parts of the project can be conducted together with researchers from the Department of Industrial and Materials Science, for instance to discuss which data to gather and how to interpret it, and to define data analysis/visualization pipelines. Local Window installations can also be used to design/develop the framework in parallel.

Target Group

D, DV, IT, E and MED

Suggested reading material (Litteraturförslag)

- Monitoring daemons for Windows OS (e.g., NSClient++)
- Big data handling frameworks
 - Apache Kafka
 - Apache Flink