

Metadata Extraction Tool and Schema Mapper for Scanning Electron Microscopy (SEM) images

Metadata from SEM images mapped to a well-defined schema

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Introduction

The tool extracts metadata from TIFF images generated by Scanning Electron Microscopes (SEM) and maps the metadata to the published SEM schema* for use with Electronic Lab Notebooks (ELN) and repositories.

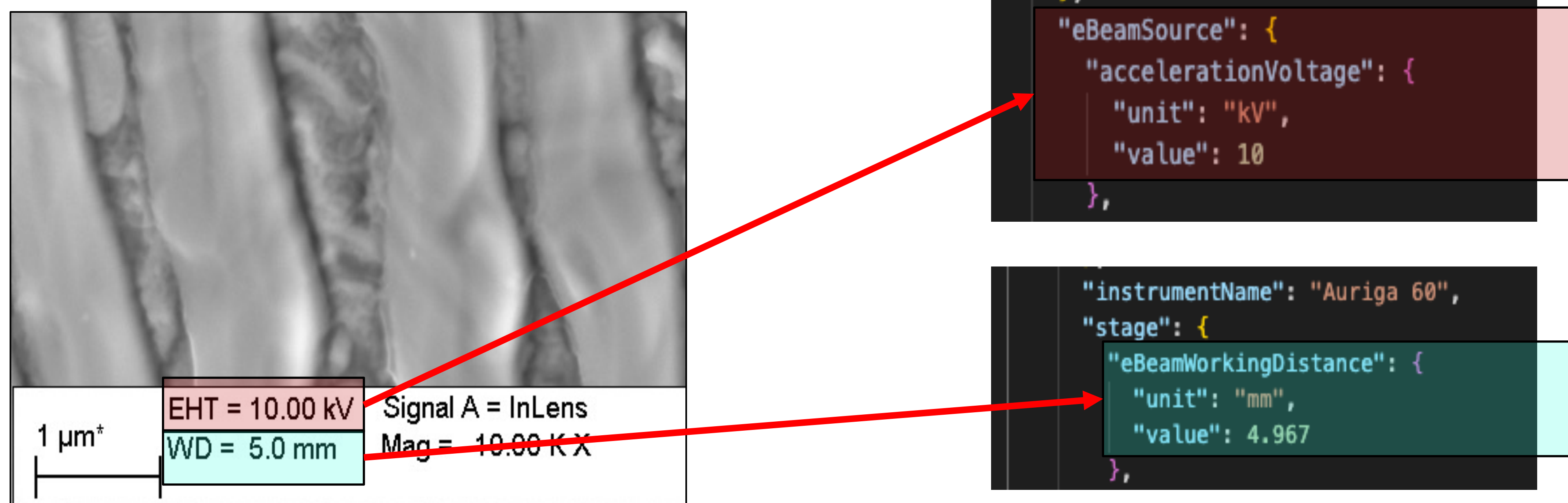
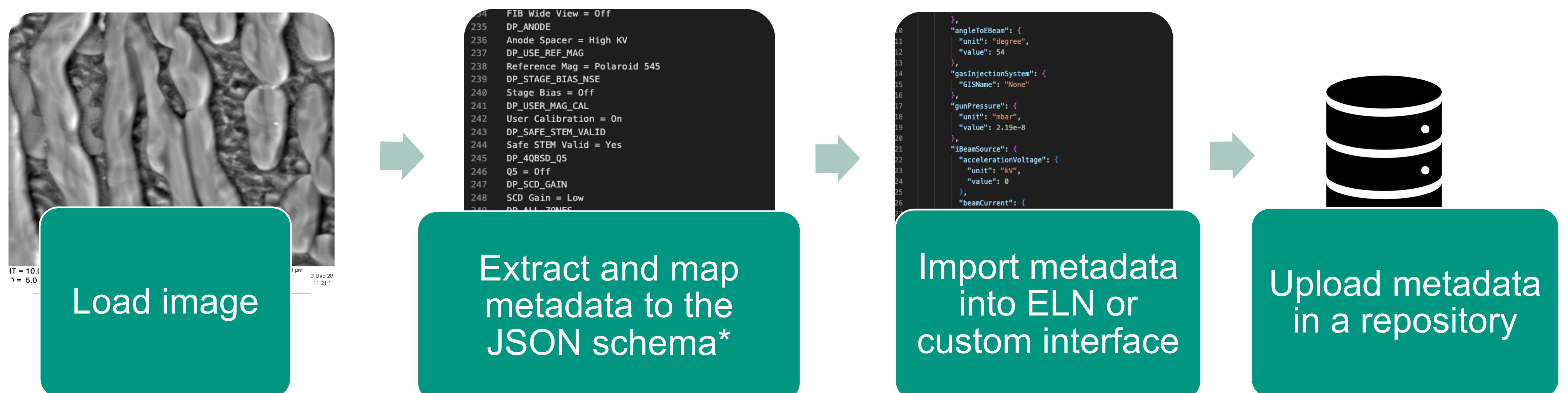


Fig. 1: Comparison between embedded SEM image metadata and the extracted, formatted JSON metadata document.

Fig. 2: Example workflow for a data curator or research scientist utilizing and working with SEM images containing metadata.



Mapping-Service GUI

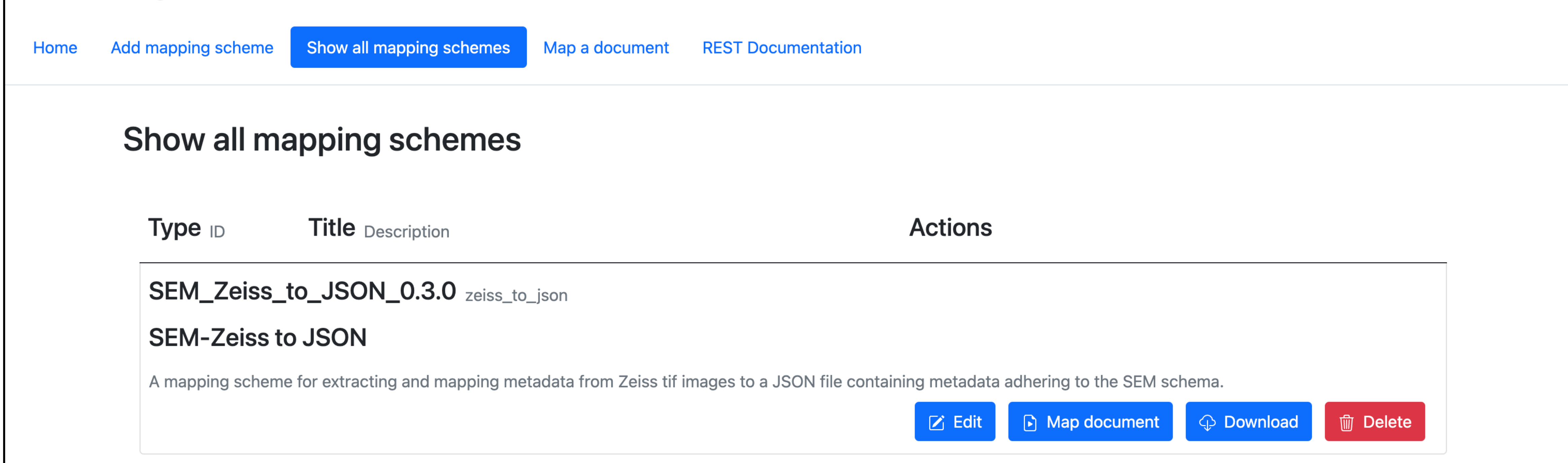


Fig. 3: Screen capture highlighting the starting page of the Mapping Service and showing the developed plugin to be used for extracting and mapping metadata from ZEISS SEM images into the published SEM schema.

Advantages

- Reduces the amount of manually inserted fields
- Can be integrated into ELNs or a custom interface can be used for reviewing / editing the metadata

Future Work

- The tool currently supports images from ZEISS SEM. Planned to be extended to other manufacturers and measurement techniques
- Authentication and Authorization Interface (AAI) is possible

Custom Interface for viewing SEM JSON metadata: <https://kit-data-manager.github.io/Metadata-Schemas-for-Materials-Science/>

GitHub Repository: <https://github.com/kit-data-manager/SEM-Mapping-Tool>

* <https://ceur-ws.org/Vol-3036/paper21.pdf>



Discover the Mapping Service with this QR code.