IR to RIMS

Transforming an Institutional Repository (IR) into a Research Information Management System (RIMS)

Aim

DSpace is one of the most feature rich and widely used IR applications. However, it currently lacks features when compared to RIMS applications. A RIMS is used to store and manage the intellectual data created by an institution, and aims to improve the visibility and accessibility of research. We identified opportunities to transform DSpace into a RIMS by developing three add-ons for DSpace: a report writer, an ingestion manager, and an automatic and manual metadata mapper.

Ingestion Manager

The Ingestion Manager implements a workflow-based submission system that allows non-admin users to import batches of items into DSpace, while maintaining a submission approval workflow. Users are able to submit a batch CSV file of items to be ingested into DSpace. Managers are able to approve or remove batches before they are ingested into DSpace.

Results

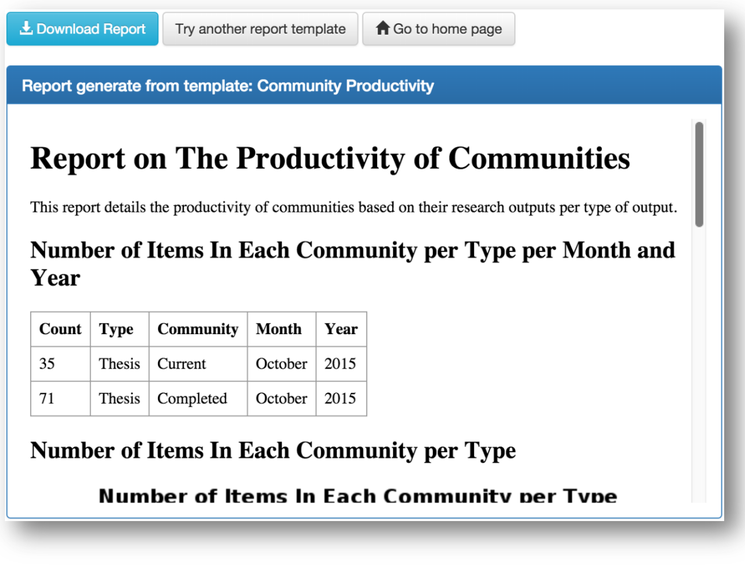
- Amount of time taken to ingest batches of items increases linearly as the batch size increases.
- Users scored it just below excellent on the System Usability Scale (SUS score: 84).

Report Writer

The Report Writer generates detailed reports on the objects in DSpace using predefined XML templates. Custom report templates can be created and existing templates can be refined. Reports are generated in HTML and chart images are bundled with the HTML report in a downloadable ZIP archive.

Results

- Amount of time needed to generate a report depends on the complexity of the report.
- Users scored it excellent on the System Usability Scale (SUS score: 90).

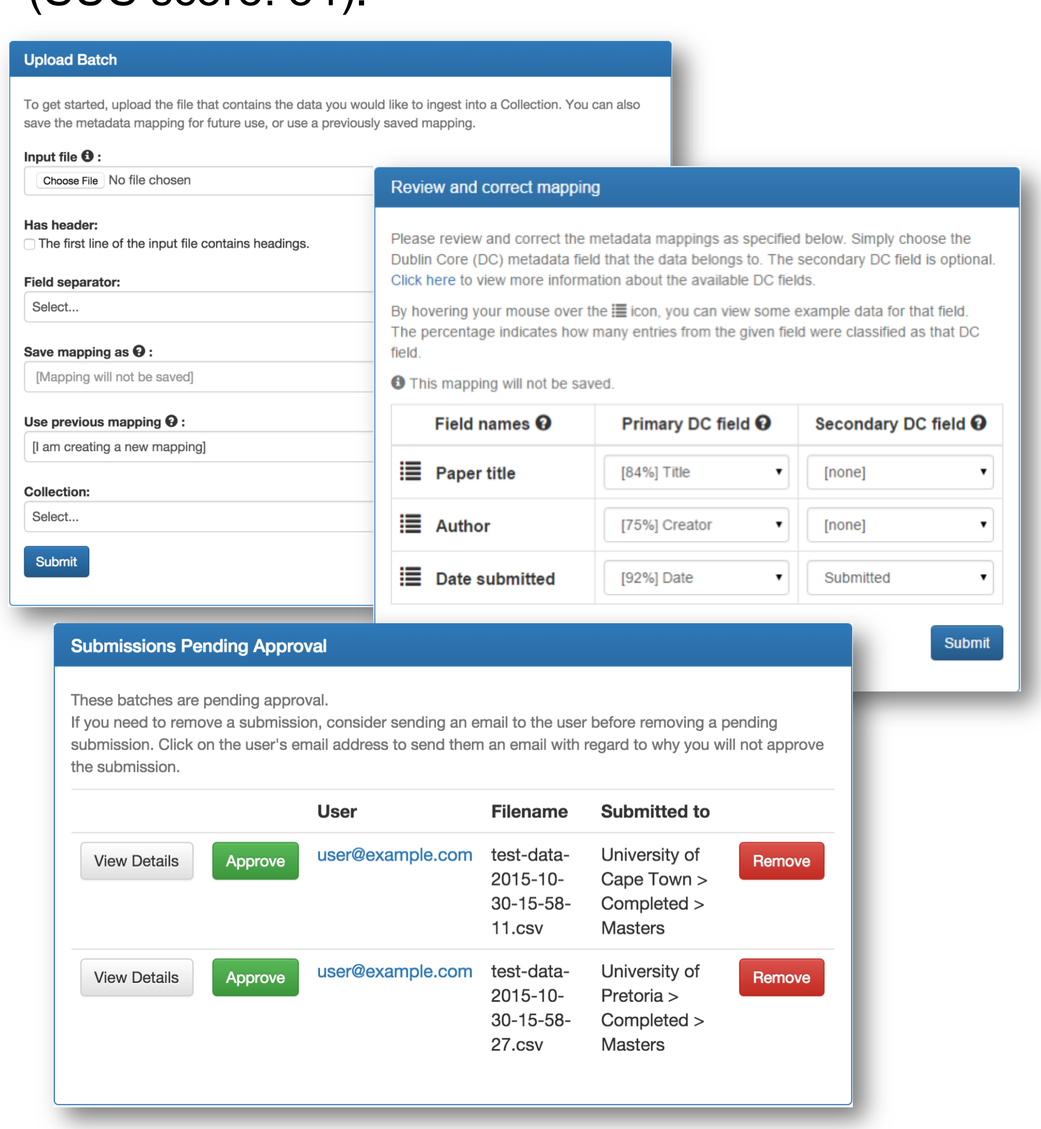


Metadata Mapper

The Metadata Mapper aims to make the process of importing and migrating data into a DSpace repository simpler, easier, and faster. It accepts a CSV file (containing source data) as input, and then uses machine learning to automatically determine how the input data should map to the Dublin Core metadata fields as used by DSpace.

Results

- Of the five machine learning algorithms tested, Random Forest and C4.5 performed best.
- The results of usability testing were very positive (SUS score: 84).



Project Conclusions

We created three effective and usable tools that together help transform DSpace into a RIMS. The tools we developed will help users to perform previously tedious tasks with ease and minimal interaction. Furthermore, these tools will hopefully promote DSpace, which in turn should help improve the management and distribution of research.

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