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Project Document Cover Sheet

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e-Portfolio Interoperability Final Report

Summary

Implementing the LEAP2A interoperability standards within the Mahara e-Portfolio system has generally proved to be a very successful project, where all project partners have seen most if not all of their expectations met with the current solution.

Although some desirable import/export elements were excluded from this project due to various constraints it is expected that the a fully functional import/export system will be included in the upcoming Mahara 1.2 release due in Summer 2009. Subsequently all Mahara users will be able to use LEAP2A for the 2009/10 academic year.

This report provides a summary of work undertaken which is expected to continue beyond the life of the project. On-line documentation provided on the JISC CETIS and Mahara Wikis provides ongoing commentary of Mahara's implementation of the LEAP2A specification.[1]

Organisational Considerations

The Mahara development team and stakeholders were aware of the need for an implementable standard for e-portfolio import/export functionality and the LEAP2A project evolved at the right time to explore this. Within the wider Mahara community this project sees the beginning of the implementation of a long requested feature. Furthermore, the implementation is shaping up to be robust and pluggable, with support for a published and used standard right out of the box - ensuring the results will have long-term benefits for the Mahara project and community.

The University of Glasgow was committed to providing a way of exporting portfolios from Mahara in a way that would be useful to students. Much of the code needed for LEAP2A export is also useful for HTML export, which is seen as the preferred format until LEAP2A (or another interoperability specification) has become dominant. By adding the University of Glasgow requirement for an HTML export to the project, is has been possible to achieve both objectives. University of Glasgow's implementation of a simple LEAP2A reader, available at http://sourceforge.net/projects/leap2reader, has provides the opportunity to explore using LEAP2A outside of specialist e-portfolio software.

1 JISC CETIS Wiki http://wiki.cetis.ac.uk/PIOP_Mahara; Mahara Wiki http://wiki.mahara.org/Developer_Area/Import%2f%2fExport

For ULCC and the various Mahara users supported by them import and export functionality within e-portfolios is seen as essential to support strategic agendas for e-portfolio portability: 'It should eventually be possible for an individual to build this personal electronic record through education and carry on using it in the workplace and lifelong learning',[2] and 'an increasing appetite for lifelong learning will lead to more and more learners needing to manage a lifelong learning record'.[3] The implementation of LEAP2A within Mahara is a positive development to achieving these.

LEAP2A Specification

Working with and being involved with helping to define the specification during this project will hopefully see LEAP2A become the forefront portfolio specification, which will provide a huge benefit for Mahara's continued use and growth.

We found that our mapping of Mahara data to the LEAP2A specification was reasonably accurate and the support from JISC CETIS and other project partners was successful in clarifying and/or tweaking the specification to ensure that import/export lost as little information as possible.[4]

It is believed that continued work with the LEAP2A specification will result in a fully transportable e-portfolio. Importing and exporting presented their own considerations in relation to the specification which are summarised below.

LEAP2A Exports[5]

Mahara has a plug-in architecture allowing development of artefacts by the core Mahara team, but also community contributions. Subsequently each plug-in should be responsible for handling different versions of export formats that it will process. This project has seen the development of a LEAP plug-in that deals with LEAP2A, and any future LEAP versions as opposed to a LEAP2A plug-in and separate plug-ins for future versions.

Because both artefacts and formats are pluggable, the export mechanism is not going to be able to exist as a self-contained process and each artefact must therefore define which formats it can use. The formats should then provide a way to export any artefact in a generic way. This allows certain artefacts to say that the base class export is sufficient for their export or to provide details of customisation required to map to a specific format.

There presents two classes involved in export: a base class; and potential children for exporting individual artefacts. A manager class is then used to tie it all together and produce the external structure.

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2 DfES e-Strategy: Harnessing Technology

3 Enhancing learning and teaching through the use of technology: A revised approach to HEFCE's strategy for e-learning

4 Mapping details available at http://wiki.cetis.ac.uk/PIOP_Mahara_Mapping

5 Details available at http://wiki.mahara.org/Developer_Area/Import%2f%2fExport/LEAP_Export

A second export class for HTML exports, a popular request from the user community, was developed to test this functionality and provide an alternative export route.

LEAP2A Imports[6]

When considering imports there was possibilities that on import a new account would be created from the import, or that imported data may need to be merged into existing accounts. This raised the issue of how to deal with conflicts in the data when merging which led to a 'Holding area' concept to offset this problem, something discussed at the original partner meeting.

The decided approach to this was to present users with a two-column menu. On the left would be a list with information about each item in the import, followed by suggested targets and 'actions' on the right. For example importing html content, would present potential targets in Mahara as a 'blog post' or 'file', where the blog and file plug-ins would be asked to offer any additional options about where to import; file might give a list of target folders, and the blog plug-in would give a list of available blogs.

This menu could also be used to handle conflict resolution. If one of the targets is a single-type artefact (e.g. profile information or resume/CV fields), Mahara can offer the user the option to overwrite or keep existing data. Users can also choose to discard imported information no longer required.

Further Development

There were some elements for import/export that require further development for both the Mahara and the LEAP2A specification.

Presentation of collated artefacts

One key aspect of e-portfolios is to collate different artefacts in a presentation, in Mahara these are called “views”.[7] It is believed that the LEAP2A type 'Selection' may support these, however there is further work to be completed to ensure rendering information is not lost and to test import and export between systems with this capability. This is essential for providing complete e-portfolio import/export functionality without losing information and context.

Content and relationships with other users

While this was discussed frequently it was decided that the current scope of the specification would need extending or require incorporation of other specifications to handle a range of content that have specific relationships with other users. In Mahara this includes friend data, and how content is shared with other users and where content used may be owned by other others for collaboration. Currently this information may be lost on import/export and it is to be determined what and how this should be handled.

Granular Export

There is potential value in being able to export part of one's portfolio only, rather than the entire collection. This was raised but not explored as part of the project.

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6 Details available at http://wiki.mahara.org/Developer_Area/Import%2f%2fExport/LEAP_Import

7 See glossary of terms: http://wiki.cetis.ac.uk/PIOP_Mahara_Glossary

Bulk Import/Export

It seems possible that many users might want to import/export large portfolios at the same time, or a bulk transition may be desirable which would have implications for administration and performance. This was left for future consideration and it was assumed we would mainly deal with the case of the individual importing/exporting their own e-portfolio

Import/Export with other systems

There may be value in importing/exporting with systems not considered as e-portfolios in the traditional sense. For example exporting user content from a VLE to an e-portfolio system, something supported between Moodle and Mahara for example. LEAP2A may provide a richer format for this transaction.

Qualifications and Assessment

There are some wider implications when describing awards, qualifications and assessment considered beyond the scope of the current specification. Looking at how LEAP2A relates to alternative assessment and qualification driven e-portfolio systems may be a valuable future exploration.

Deliverables

The Mahara PIOP deliverables have been made available via the JISC CETIS Wiki at http://wiki.cetis.ac.uk/PIOP_Mahara. In particular:

- 5.1 Test account http://wiki.cetis.ac.uk/PIOP_Mahara#LEAP2A_Development_Site
- 5.2 Scenarios http://wiki.cetis.ac.uk/PIOP_Mahara#Use_Case_Scenarios
- 5.3 Mapping http://wiki.cetis.ac.uk/PIOP_Mahara_Mapping
- 5.4 Glossary http://wiki.cetis.ac.uk/PIOP_Mahara_Glossary
- 5.5 Import http://wiki.mahara.org/Developer_Area/Import%2f%2fExport/LEAP_Import
- 5.6 Export http://wiki.mahara.org/Developer_Area/Import%2f%2fExport/LEAP_Export