

Designing a Migration Path: Assessing Barriers Upgrading to Fedora 4.x

Executive Summary

DuraSpace requests a National Digital Platform Planning Grant for \$49,952 to investigate barriers to upgrading hundreds of U.S.-based libraries and archives running unsupported versions of Fedora. Consulting with, finding support, and expanding capacity for libraries and archives to manage and maintain open source software (OSS) is critically important to the sustainability of the content and services they support. This project will consult with an advisory board of stakeholders from the Islandora, Samvera, and Fedora communities, conduct an environmental scan of relevant community initiatives, and gather primary research data to inform recommendations. Success metrics of this project include long-term strategic collaboration among stakeholders, as well as new spin-off projects that increase support and resources for U.S.-based libraries and archives upgrading to the official Fedora release.

Statement of Need

Hundreds of American libraries and archives use the OSS Fedora repository software to deliver scholarly publications, research data, cultural heritage, and special collections-related content and services to patrons. Fedora 4.x has been the official release since 2015. However, the upgrade to Fedora 4.x impacts underlying technologies, data models, standards for description, and functionality. The entire Islandora community, which represents 130 repositories in the United States, is still running the previous, now unsupported version of Fedora¹. Similarly, almost 90 custom repositories built on Fedora in the U.S. and 20 Samvera repositories (representing 80% of all Samvera installations in the U.S.) are running unsupported versions of Fedora². Running unsupported versions of software carries risks including, “[losing the] stability of a mainstream code release, the risk to information security, and the likelihood that the tool in question will become increasingly less functional and reliable as it ages.”³

A survey done by DuraSpace in 2017 on the challenges of major software upgrades found the risk of falling out of step with peer and technical support provided by an OSS community was a motivation to upgrade. For example, one respondent said “We didn't want to be stuck on abandoned software. It was more about sustainability. [...] We don't have the resources to build a custom solution.”⁴ Unfortunately, resources and support for the upgrade were lacking. Eight of the 2017 survey respondents were pioneers in the upgrade process from Fedora 3.x to 4.x. They described experiences normalizing data models and metadata, gaps in skills and knowledge, and redefining services based on the new capabilities of Fedora 4.x. In addition, they shared anecdotes about communications challenges within the Fedora community, as well as, challenges with the pace of development in the Islandora and Samvera communities. The responses underlined a need for strategic collaboration between community stakeholders. The cross-community engagement and information gathering proposed in this project will lay the foundation to create resources and support for a migration path to Fedora 4.x. Our work will complement four related projects including Bridge2Hyku ([LG-70-17-0217-17](#)) and Beyond the Repository ([LG-72-16-0135-16](#)), on which DuraSpace staff are advisory board members, as well as the Fedora API specification and the Oxford Common Filesystem Layout (OCFL)⁵ projects focused on interoperability and preservation.

¹ <http://islandora.ca/islandora-installations>

² <http://registry.duraspace.org/registry/fedora>, <https://samvera.org/samvera-partners/>

³ Gengenbach, M., Peltzman, S., Meister, S., Graham, B., Waugh, D., Moran, J., Seifert, J., Dowding, H., and Carleton, J. (2016, Oct 25). OSS4EVA: Using Open-Source Tools to Fulfill Digital Preservation Requirements. Retrieved from <http://journal.code4lib.org/articles/11940>

⁴ Tripp, E. (2018, Jan 21). Anonymized Migration Stories Survey Results 2018. Retrieved from <https://osf.io/36pmc/>

⁵ https://docs.google.com/document/d/13gFfSu1fePKx0eQYk458zE6OZwCW5JH_hTIG58f3S8c/edit

Work Plan

Phase One: Consultation	October 2018 - December 2018	Conducting an environmental scan/ needs assessment, as well as, consultations, developing a survey, and in-person advisory board meeting.
Phase Two: Information Gathering	January 2019 - February 2019	Reviewing Fedora front-end applications and services, sets of data, existing migration tooling, outcomes of the API specification, and work on the Oxford Common Filesystem Layout. Administer the survey (80-100 responses).
Phase Three: Evaluation and Dissemination	March 2019- Sept 2019	Anonymizing survey data, stakeholder consultation, and in-person advisory board meeting. Writing and disseminating final report/recommendations.

National Impact

This project will build capacity and resources for the 240 U.S.-based libraries and archives now running unsupported versions of Fedora by 1) Developing migration path recommendations that are usable, discoverable, and re-usable, 2) Forming of a long-term advisory group to facilitate communication and collaboration among stakeholders, and 3) Planning related spin-off initiatives such as a) developing tools to map data models at scale for standard front-end applications, b) generalizing and documenting existing migration tooling, c) developing training curriculum on new standards for description and dependencies, and d) assisting the Islandora community with development of its Fedora 4.x front end (Islandora CLAW). These outcomes will be key metrics for the success of this project.

Bridging the gap between unsupported versions of Fedora and the current, supported release is essential to safeguarding the digital heritage entrusted to the Fedora community. This project will make it possible for a spectrum of organizations to upgrade to Fedora 4.x more easily with fewer resources. An increase in the number of U.S.-based libraries and archives using the official Fedora release will advance digital preservation theory and practice. Fedora 4.x's linked data implementation enhances discovery⁶ and supports new, more sustainable models for extensibility and integration with external applications. It will further facilitate technical development and collaboration around community supported, free, and open source repository software.

Personnel

Andrew Woods, the Technical Lead for Fedora, David Wilcox, the Fedora Product Manager, and Erin Tripp, the Business Development Manager for DuraSpace will be the co-principal investigators on this project. Mr. Woods will provide technical expertise. Both Mr. Woods and Mr. Wilcox will provide knowledge of related initiatives in the community and connections to stakeholders. Ms. Tripp will provide expertise in conducting research and project design. The advisory board members include representatives from the Islandora Foundation Board of Directors, Samvera Steering Committee, John Hopkins University, Amherst College, and the University of North Carolina at Chapel Hill. These stakeholders represent a spectrum of experiences deploying Fedora, as well as, a diversity of organization sizes and resources.

Budget

The proposed budget for this project was developed using an estimation technique to challenge assumptions and clarify workflow⁷. The work effort for DuraSpace staff is estimated at 653 hours (total of \$30,695). The fringe costs are assessed against the total direct costs at 27% (total of \$8,288). The indirect costs are assessed against the total direct costs at 10% (total of \$3,070). Travel funding for the co-PIs and advisory board members to meet twice in-person at CNI Membership Meetings includes required airfare, hotel, meal per diem, and local transportation (total of \$7,900). The total requested budget from IMLS for this project is \$49,952.

⁶<http://lj.libraryjournal.com/2015/02/shows-events/ala/lita-members-talk-tech-trends-ala-midwinter-2015/#>

⁷ https://docs.google.com/spreadsheets/d/1jCX39orARuLCKh1miqXP2YVGfF-SKOWy0V7cXkOl_YE/edit?usp=sharing