

Documentation

- [About Project Bamboo \(summary\)](#)
- [Cataloging Digital Tools for Humanities Scholarship - Bamboo DiRT \(summary\)](#)
- [Interoperability of Digital Collections \(summary\)](#)
- [Proxied Access to Remotely Hosted Tools for Scholarship \(summary\)](#)
- [Identity and Access Management - Authentication and Authorization \(summary\)](#)
- [Centrally-Hosted Bamboo Services - Development-Deployment-Invocation \(summary\)](#)
- [Research Environments to Store Manipulate and Manage Digital Content \(summary\)](#)
- [Curation of Digital Materials - planning for future development \(summary\)](#)
- [Links to Project Bamboo on-line artifacts \(summary\)](#)

Aids to navigating Project Bamboo documentation:

- [Bamboo Documentation FAQ](#)
- [List of Documentation Pages](#) (*Table of Contents format, also available in collapsible / expandable form in the left-side navigation bar*)

About Project Bamboo

An overview of Project Bamboo's eighteen-month planning phase (April 2008 - September 2009) and two-year technology implementation phase (October 2010 - September 2012). The planning phase brought together over 600 participants from more than 100 institutions and organizations, to address the question "How can we advance arts and humanities research through the development of shared technology services?" In the technology implementation phase, ten institutions participated in technical development work around cataloging digital tools, interoperability of digital collections, proxied access to remotely hosted tools for scholarship, identity and access management, research environments, and curation of digital materials. *More: [About Project Bamboo](#)*

Cataloging Digital Tools for Humanities Scholarship: Bamboo DiRT

Bamboo DiRT is a directory of digital research tools, particularly targeting those tools relevant for humanities scholars. Developed by Project Bamboo in response to strong interest expressed by scholars, librarians and IT staff during the *Bamboo Planning Phase* (April 2008-September 2009), Bamboo DiRT expands on the longstanding DiRT (Digital Research Tools) wiki, providing an interface that facilitates task-oriented browsing and searching (e.g. "I need a research tool to manage bibliographic information"). Tools range from content management systems to music OCR, statistical analysis packages to mindmapping software. *More: [Cataloging Digital Tools for Humanities Scholarship - Bamboo DiRT](#)*

Interoperability of Digital Collections

Scholars who work with digital content from multiple repositories identified the heterogeneous formats used by those repositories as a barrier to efficient research workflows. This drove Bamboo's efforts to develop a model for 'normalizing' the presentation of content from diverse repositories – without sacrificing the formats and detailed metadata specific to any given repository – in order to facilitate scholars' use of digital tools for collecting, analyzing, and manipulating that content. *More: [Interoperability of Digital Collections](#)*

Proxied Access to Remotely Hosted Tools for Scholarship

Using a common RESTful service interface with a shared Identity and Access Management (IAM) framework (see below) for a variety of distinct tools, computation resources, and storage services simplifies the process of integrating those functionalities into new applications and virtual research environments. Use of common services also delegates responsibility for operating technology away from humanities research groups, and enables library and central information technology organizations on campuses to support scholarship with their specialized expertise. Bamboo developed a service interface and common IAM framework, and implemented it initially in support of a small number of tools for textual analysis. *More: [Proxied Access to Remotely Hosted Tools for Scholarship](#)*

Identity and Access Management (IAM): Authentication and Authorization

The initial phase of the Bamboo Technology Project addressed the need for identity-related functionality to support humanist scholars' interest in cross-disciplinary, cross-institutional, and international collaboration, with proper records of scholarly provenance and appropriate credit for collaborative contribution. This work resulted in a suite of services to provide identity and access management (IAM), often discussed in terms of the closely tied capabilities for Authentication (AuthN) and Authorization (AuthZ). Bamboo's Identity and Access Management infrastructure outsources authentication (login) to institutional Identity Providers (IdPs) (e.g., campus authentication systems based on Shibboleth), and/or to social media Identity Providers (such as Google). A Social/SAML gateway normalizes the data returned to applications and platforms by social media IdPs. Authorization (permission) to access services or resources is effected via definition, decision, and enforcement of policies that allow or deny service and resource access based on factors that include institutional affiliation; membership in groups managed independently of individual applications; resource ownership; and/or the identity of a client application from which a user issued her/his request. *More: [Identity and Access Management - Authentication and Authorization](#)*

Centrally-Hosted Bamboo Services: Development, Deployment, Invocation

Bamboo's centrally-hosted services include an IAM (Identity and Access Management) suite, Collection Interoperability Hub, and proxy services to remotely-hosted tools for scholarship. This set of services runs on [FUSE ESB](#), an enterprise distribution of Apache's open-source [ServiceMix](#) (acquired in 2012 by [RedHat](#)). A number of additional, open-source technologies are required to support these services, including Apache Web Server ([httpd](#)), and [Grooper](#). *More: [Centrally-Hosted Bamboo Services - Development-Deployment-Invocation](#)*

Research Environments to Store, Manipulate, and Manage Digital Content

Team members conducted usability studies on, extended, and integrated open-source platforms built to manage and/or manipulate digital content. These platforms included [HUBzero](#), [Alfresco ECM](#), [Drupal](#), and the [OpenSocial framework](#). HUBzero and Drupal platforms were integrated with centrally-hosted BSP services; Alfresco ECM was integrated with an institutional archive (the [California Digital Library's Merritt Repository](#)); and the OpenSocial framework was explored in conjunction with [SURFnet](#). These efforts resulted in production of significant bodies of reusable code, such as a CMIS interface for the Fedora Commons repository, and implementation of the ACL (permissions) aspect of the [CMIS specification](#) in [Apache Chemistry](#) v0.5. In addition, usability studies at UC Berkeley led to production deployment of Alfresco ECM as an institutionally-supported production service, dubbed [Research Hub](#). The term "Work Spaces" was used within the Bamboo Technology Project to name this broad area of software development and integration. *More: [Research Environments to Store Manipulate and Manage Digital Content](#)*

Curation of Digital Materials: planning for future development

A faculty-led thread of work during the first phase of the Bamboo Technology Project funded by the Andrew W. Mellon Foundation was charged with setting direction for future development atop the successful products of the initial phase of work. The proposed direction, which was not ultimately funded, focused on support for collaborative curation of digital materials using shared identity and access management (IAM) services, and aggregation of textual content from multiple, heterogeneous repositories. During planning work for this activity, it was referred to as "CorporaSpace". The documentation in this section gives a conceptual overview of how the project team intended to move forward had funding been granted. *More: [Curation of Digital Materials - planning for future development](#)*

Proposals to the Andrew W. Mellon Foundation

Final and funded proposals to the Andrew W. Mellon Foundation for the Bamboo Planning Project and Bamboo Technology Project are included in this documentation for reference. These were publicly-released scope-setting documents during the respective projects whose work they proposed. *More: [Proposals to the Andrew W Mellon Foundation](#)*

Links to Project Bamboo on-line artifacts

Links to related sites and material outside this wiki-hosted set of documentation are included for reference and convenience. *More: [Links to Project Bamboo on-line artifacts](#)*