MEMO

Date: March 2, 2012
To: Lucy Barber, NHPRC
Cc: Lynn Backstrom-Funk, Project Administrator
Office of Research & Sponsored Programs
From: Nancy Allen, Dean and Director
Subject: Final Report, December 31, 2011

Introduction
This is the final report for Grant NAR10-DS-50014-10, a project conducted under the leadership of the University of Denver to develop Open Source Software for Records Management Administration. The product developed under the grant is known as the Records Authority software.

Activity on the project concluded as of December 31, 2011. This report documents the final accomplishments and outcomes of the project as well as the current status of the Records Authority software.

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Executive Summary

All of the objectives set forth in the original project proposal have been met or exceeded. Most notable, however, is the level of interest that the project has generated and the diversity of the organizations that have expressed interest in using the Records Authority (RA) software. This diversity directly substantiates the premise put forward the 2009 narrative proposal submitted to the NHPRC:

Many ... in academic, government, and other non-profit institutions ... need a lightweight, inexpensive, and easy-to-use ... administrative tool that:

- Makes repeatable and as such streamlines the survey and interview process for conducting records inventories
- Facilitates the creation, maintenance, and delivery of retention schedules
- Organizes information about records for easy search and retrieval
- Creates and manages record-related metadata for [potential or eventual] interoperability

Among the organizations interested in RA are an Ivy League university (Harvard), a museum (Baltimore Museum of Art), and a nation-wide records repository (The Archives of the Episcopal Church)!

In terms of concrete deliverables, most of the project’s original goals were addressed as designed and deployed as described in the proposal although a few were reframed as the project evolved.
Of the reframed items a) and b) have been reported on prior, only c) through e) are new as of this report:

<table>
<thead>
<tr>
<th>Original Specification</th>
<th>Final Status</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Application Programming Interface (API) for data import/export</td>
<td>Completed as: import/export using comma separated value (CSV) files</td>
<td>Import/export data is small volume, batch data without frequency or volatility that would call for an API for effective transfer.</td>
</tr>
<tr>
<td>b) Feasibility study: using Tufts NHPRC grant TAPER metadata schema and/or software integration</td>
<td>Completed instead: internal whitepaper describing the novel approach taken overall to complete the Records Authority software</td>
<td>Tufts project evolved to a process entailing greater mediation rather than complete automation of intake. Internal whitepaper needed to preserve full context for design decisions.</td>
</tr>
<tr>
<td>c) Survey form editor/generator</td>
<td>Completed instead: documentation about how the survey software can be modified to tailor the survey to local needs</td>
<td>In the final year of the grant, DU’s records program focused on using RA to publish the retention schedule and ease of use/access to it. It was deemed more effective therefore to have future adopters enhance the survey to their own specifications.</td>
</tr>
<tr>
<td>d) Software user discussion forum</td>
<td>Completed instead: Wiki at Google Project (where RA Open Source software is currently hosted)</td>
<td>Co-locating a wiki with the software provides synergy and efficiency</td>
</tr>
<tr>
<td>e) On-site RA installs</td>
<td>Remote support of installs</td>
<td>Install process straightforward.</td>
</tr>
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As of the prior report, the project team had developed the RA User Guide and established close working relationships with the grant partners. Since that time each partner institution actively engaged in testing the RA software, in the technical implementation process for testing, and in providing feedback. There is tangible “buzz” about the software and its potential, namely:

- One of the most pro-active institutions to participate in testing and providing feedback was a new partner. In the same timeframe as American University bowed out of the project due to resource constraints, the Baltimore Museum of Art made unsolicited contact with the project team to inquire about the software and its availability. After some discussion, the RA project team and the museum decided it was in their mutual interest for the museum to become a (non-cost share) partner.
- The project team received a genuinely enthusiastic response to a panel presentation entitled, "Open Source Software for Records Management Administration" which was delivered at the 2012 Society of American Archivists conference. (See Appendix 3 for a summary of the presentation.) Not only did the question and answer session run over time, but it also generated interest from the following organizations:
Representatives of the Archivematica open source, micro-services initiative (http://archivematica.org) approached the panel with the suggestion that RA could make a valuable addition to their application “stack.”

Giovanni Michetti (giovanni.michetti@uniroma1.it), Assistant Professor in Archival Science at the University of Rome contacted the project principal investigator about the possibility of contributing an article to a special issue of an important Italian journal ("Archivi & Computer") in the archival domain to be focused on open source tools.

Josh Schneider (jschneid@library.berkeley.edu) from the University Archives at UC Berkeley requested further details and a copy of the presentation.

Several other institutions have since also made unsolicited contact with the RA project team to express interest in the software and obtain further information, namely:

- Dominican University, River Forest, Illinois
- The Archives of the Episcopal Church, Austin, Texas

Most notably, in late Q4 2011 DU received word from David Read that Harvard University has funded continued development of Records Authority. David Read, the original RA project principal investigator and now Records Analyst at Harvard University, sent the following announcement:

Enhancement to RA has been funded by a Library Lab grant at Harvard (Arcadia Fund).
See the official announcement below and a link to [the] very new public facing website.

- http://osc.hul.harvard.edu/liblab/proj/irma-improved-records-management-administration
- http://isites.harvard.edu/icb/icb.do?keyword=k84828

The last six months of the project were also exciting in terms of the work that was completed. Among the highlights of that work are the following accomplishments of the project team:

- Finished XML schema mapping and created the XML export function;
- Created technical documentation;
- Made the public search landing page more generic to allow for easier local branding;
Project Detail

Following the plan for this stage of the project, attention turned to testing, stabilization, and final “packaging” of the RA software for open source distribution – as opposed to new development. As such, the majority of recent effort focused on finalizing, generalizing, and documenting capabilities for future users of the software. This period also saw the standardization of the public search landing page, the addition of an XML export option to the dashboard, finalization of the survey function, and the handling of division and department information.

Q3 2011

- Partner testing initiated in earnest.
- Key DU stakeholders engaged. Obtained initial response to the public search and display features.
- Partners and the project team agreed that travel on-site would not be required to support installation of the software. All technical support was provided via phone, web, and email.
- Conference presentation made early (Q3 instead of Q4) to take advantage of fit and opportunity at the Society of American Archivists conference in August, 2011.

Q4 2011

- Software published to Google Code site.
- Technical documentation written and published to Google Code site.
- User guide written and published to Google Code site.
- RA website (hosted by DU Penrose Library) updated.
- Partner testing feedback collected, synthesized, and summarized.
- Case study drafted for journal submission.

Staffing Note

During this final reporting period there were no further changes to the make-up of the project team.

Despite personnel changes during the prior reporting periods, former project team members, David Read, Greg Colati, and Lindy Naj collaborated on the panel materials for the SAA Conference and met in Chicago to present with the Tufts team.

Continuing project team members Joanna Lamb and Evan Blount provided continuity to the software development and testing portions of the project: completing the software and technical documentation and providing seamless support to the partners. Nancy Allen and Candace Doughty assumed administrative and budget management roles. Together, this team drove the project to a successful conclusion.
**Partner Update**

As of the previous reporting period only three partner institutions were expected to fully participate in testing:
- City of Seattle Clerk's Office
- Michigan State University
- Wheaton College

Heading into the testing period, Emily Rafferty, Associate Librarian & Archivist at the Baltimore Museum of Art was considering participating as a non-cost share partner. The museum became a fourth partner in testing.

Note: To recap, in April, American University had re-assessed its involvement and withdrawn due to resource constraints and organizational concerns.

**Communication**

Early in the project, the team established a Listserv for communication about Records Authority. The use of the listserv ended up being primarily one-way: from the RA project team to the partners. As outlined in the last interim report, when individually surveyed all of the participants at the partner institutions requested that phone and email communication be used as primary means of communication during the testing period.

And indeed throughout completion of the work with the partners, institution-specific conference calls were the mainstay and the norm. The dedication of the RA project team and the limited number of partners made this level of “high-touch” supportable.

Because the focus of the last months of the project was on testing and installation, Evan Blount, the project software engineer managed the bulk of the support communication. Joanna Lamb, the project administrator provided logistical coordination, conducted the partner survey to obtain feedback, synthesized those results, and wrote the case study.
Testing

As outlined in the last report, the partner testing consisted of the following steps in which the RA project team:

1. Deployed a development instance for demo/testing. This test instance was populated with a copy of DU retention schedule data to enable the partners to see firsthand the behavior of a fully configured and populated environment, as well as “play with” the features and content therein.

2. Deployed multiple virtual server instances, one per partner institution. These virtual servers were set up as blank slate environments for the partners to configure as desired and populate with their own data, test or actual.

The RA Project team was very satisfied with the level of testing activity and diligence devoted to the project by the testing partners. And the observations and suggestions the partners reported back were highly valuable, both to this project and to future development of the RA software.

The project testing goal was to gather feedback from partner institutions and this happened. All of the partners participated in Step 1 testing and “playing” in the DU test environment. Step 2, testing in locally installed test environments, went as follows:

- **Baltimore Museum of Art** – BMA was able to complete local testing and made detailed suggestions for additional fields to include in the inventory and record descriptions. Along with other partners they also recommended the addition of in-context help to be associated with mouse rollovers and interface-driven ability to modify display labels/terminology. BMA is currently using the software to develop its retention schedule and looks forward to more full-fledged implementation in future.

- **Michigan State University** – MSU completed on-site installation and provided significant depth of feedback about the administrative and public feature sets. This partner suggested some regrouping of administrative features to better co-locate related or like functions and they recommended developing an interface for managing the terminology related to records attributes. MSU was enthusiastic about the public search and display module and was very interested in deploying it. After completing testing MSU halted further consideration of deployment. There was concern about not having a designated lead institution like DU once the grant concluded. This concern may now be addressed by Harvard’s commitment to continuing development going forward.

- **Seattle City Clerk’s Office** – Seattle’s local testing ended up being primarily a test of the installation process itself. On-site installation could not be completed due to issues that were eventually diagnosed as stemming from the city’s IT infrastructure privacy settings. The City Clerk’s Office is enthusiastic about the Division and Department-based search
capabilities of the software and though this partner has some reservations about the scalability of the software for an organization of their size (35 departments and 10,000 employees), they would like to install RA in future. Near term Seattle decided not to pursue permissions to circumvent the privacy policy for testing, but was planning to revisit the issue once RA was made available in its final form.

- **Wheaton College** – Wheaton College was able to install the software and complete on-site testing. Wheaton’s testing was extensive, but focused almost exclusively on the features for conducting surveys and documenting inventory information. They plan to use the software for these features and have begun to recommend its use to other institutions that have the same needs.

See Appendix – Partner Feedback Summaries for more information about each partner institution and their testing.

**RA Feedback Themes**

The primary goal of the project was always to deliver a stable and lightweight yet highly functional product based on records management best practices. As the staff at the partner institutions immersed themselves in testing and envisioning how their institution might use the software several themes emerged. (See the Appendix 4 for Partner Feedback Summaries.)

**Testing Partners - Overall Feedback**

Overall, the partners were impressed with the product as a whole and found it easy to use. The public search and display features received high marks and the partners made substantive suggestions for enhancements. Among these recommendations were inline user helps at mouse-over and provisions for descriptive captions.

Although future users may tailor the search display labels to local preferences, there was a fair amount of communication to clarify this relative to the presentation choices DU made for display of its schedule.

DU’s guiding principle in labeling components of the retention schedule display was to use plain words wherever possible instead of records management terminology. For example what are often called record types or records series, DU chose to call record groups. Since terminology preferences differ from records manager to records manager and from institution to institution, the ability for institutions to modify the display terminology to meet local requirements is critical.
Testing Partners Software Feedback Theme – Records Survey/Inventory

One of the themes emerging from the testing partners’ feedback was a high level of interest in extending the records survey and inventory capabilities of the software.

The survey and inventory features were developed early in the project and used extensively by DU as soon as they were ready. These functions are simple, but solid. As it turned out, a couple of the partners ended up most interested in using RA for the purpose of conducting records surveys and inventories.

There were two common threads in suggestions these partners made. They expressed interest in: a) an interface to create and tailor additional survey forms to specific audiences and b) ensuring high scalability of the feature to support environments with a significant number of department inventories or high volumes of inventory data.

The survey and inventory forms contain primarily text or unstructured information for records administrators’ reference and documentation. This information is used by records staff as a basis for developing a retention schedule. RA allows it to be associated or linked to retention schedule entries which are “publishable” for public search and display.

Although the RA project team gave serious consideration to developing an interface for creating and managing multiple survey and inventory forms, the team decided to instead focus resources on enhancing public search and display and administrative capabilities for managing retention schedule content. The team’s reasoning was as follows:

- The survey and inventory forms provided in RA (and associated data structures) are straightforward to modify or extend.
- Institutions desiring extended survey/inventory capabilities in RA will be in the best position to design the changes effectively and to local requirements.
  - During initial development the DU Records team made extensive use of the survey and inventory forms. During the final phase of development the DU Records team was focused on publishing the retention schedule and on public search access rather than continued inventorying;
  - Hence the DU team concluded it would not be engaged with the inventory function in the practical way that typically yields the best specifications for ongoing development. (For more background about DU records management priorities at the time, see the internal whitepaper in Appendix 2.)
- The goal of the RA project was to develop a basic, lightweight toolset for managing the retention schedule creation process and content and not to re-create functionality that was otherwise relatively accessible.
There are many readily available, low to no-cost tools for creating and deploying surveys (in general). While in no way developed specifically for conducting records inventories, tools such as SurveyMonkey, SharePoint surveys, and Zoomerang can be effectively used for collecting narrative inventory information.

Many universities make survey tools, such as SharePoint surveys, available to the community as part of the IT or Communications infrastructure. In other environments the community is encouraged to take advantage of readily available hosted options.

In the end effect, the primary purpose of housing inventory information in RA is the ability to then associate it with relevant record types for future reference. This outcome can be achieved using the RA survey and inventory functions to: a) input data real-time or b) collect data either on paper or using other survey tools for final input into RA.

Other test partners' observations focused on the public search interface, search results display, and the administrative dashboard features and layout.

Testing Partners Documentation Feedback Theme – Import Data

Partners with a lack of legacy schedule data naturally focused more extensively on the survey and inventory aspects of RA and did not envision much use of the data import feature. Partners who were focused on the retention schedule publication and access aspects of RA were impressed with the data acquisition options that had been developed. There was some initial confusion about the steps for uploading and importing retention schedule data and a suggestion that more detail, including screen captures, be added to the relevant sections of the User Guide to help minimize this in future. In response, the project team spent significant time enhancing that section of the guide and adding screen shots to illustrate the process.

As was noted in the prior reports, in comparison to the data set sizes associated with typical database applications, retention schedules are small. (Even a retention schedule in the hundreds of pages will require modest storage.) And typically, retention schedule data is fairly stable, if not static over time. In lieu of a specific need for exchanging sizable amounts of dynamic data or for real-time connectivity to the Records Authority database, the project team decided to provide straightforward comma-separated value (CSV) files for loading (and extracting) data in batch form. This seemed a better use of limited development time/resource than investing in developing an API without a specific use case in mind or an immediate practical application for the API. It worked well in testing.
Testing Partners Technical Resource Feedback Theme – Availability

The partners were complimentary about the level of communication and support they received from the RA project team. During the testing period the RA project software engineer worked directly with technical staff at the partner institutions. The open source model was originally proposed because it is one of the most flexible and least demanding of users in terms of technical resource – if the software is deployed as is.

Some of the testing partners nonetheless expressed concern about whether they would be able to obtain adequate institutional and/or technical support for installing and configuring the software locally, should they desire to use it in production. The RA project team understood this to be a major factor in testing partners’ future decisions about whether to actually adopt RA for live deployment, but it was a local factor which the project team could not address.

Testing Partners Process Feedback Theme – Real Time Interview Notes

Due to a natural desire to systematize the interview process for efficiency’s sake, one of the partners explored using the RA interview form for online note-taking during the process. Indeed RA has a form that includes fields for note-taking. However, this particular partner found it difficult to use within their existing process (despite its similarity to DU’s).

Records managers who have conducted end user inventory interviews may find they’ve had a similar experience in which trying to simultaneously gather and “type up” information divides focus and proves to be less beneficial an approach than expected. Interviewees usually relay a large amount of loosely-related input that is often best captured free-form, then organized and cleaned up in a separate step after the interview is over. This then, is a question of individual institutional workflow, process, and preference.

DU Public Search Feedback – Usability

In the last Interim Report, #3 from July 2011, we described moving the Records Authority (RA) software into production early and also how the University of Denver Records Management team used the software platform to immediately publish a working retention schedule.

Initial Use

Records Authority (RA) has now been live at the University of Denver for almost a year. In the first few months it was used primarily for maintaining the retention schedule and for making it web-accessible to the University community. Initial one-on-one meetings with key stakeholders at DU emphasized the public search interface, the concise nature of the schedule itself (independent of RA), the availability of keyword searching, and the end-user oriented layout and language in the presentation of search results. University counsel, staff in the Controller’s Office, in the Office of Research and Special Programs, and in the Registrar’s Office all noted the ease of use of the public search and the DU retention schedule.
Recent Use
During fall, 2011 DU once again began using the Records Authority to continue the task of inventorying/assessing the University’s records in order to help departments respond to audit findings and comply with action plans. The RM team is currently working with five units, collecting data about their records using the RA Survey form to identify ways in which the university-wide schedule may need to be tailored to unique requirements. The data gathered via RA will also be used by records management to develop individualized unit-specific records training, tools, and guidelines.

The initial feedback from the RA survey users at DU has been positive. They are finding the survey form to be user-friendly and using it to be simpler than expected. DU units have also reported using the online retention schedule (using RA) as a quick way to identify records within their units. Providing users with the ability to react to something tangible, i.e. a published schedule, was one of the drivers behind going live with early RA to quickly ‘stand-up’ a schedule for DU.

Project Look-Back
Key observations here have more to do with software development approaches and human/organizational factors than with records management practices. Specifically:

- The most effective way to engage users and to help them understand what they actually need, what they will actually use, and how things will actually work for them is to put functionality into their hands as quickly as possible. Once the testing partners were able to “play” with the software itself the relationships with them immediately became more productive.
- Tried-and-true, high touch communication such as phone and email are often still the preferred mode for delivering technical support and consultation.
- It’s a testament to a special combination of factors that despite several changes in the make-up of the project team over time, RA was completed, tested and deployed, and will enjoy continued development into the future without interruption. Among these factors are: a) the adept formulation of the original project goals, b) DU leadership, and c) the commitment and dedication of the various project team members who provided continuity over multiple transitions.
- Records Authority is today as originally envisioned: a lightweight, portable, and extensible open-source software tool. However, installing and maintaining it, much less tailoring it to a given institutional environment is not merely an end-user configuration exercise. Being able to deploy RA is dependent upon having available a level of local technical know-how and resource that interested institutions may not be able to obtain in today’s constrained economic environment.
Conclusion
At the close of the project, it is gratifying to be able to report that:

- The University of Denver has been using Records Authority in production for about a year and it has met the promise of a lightweight and easy-to-maintain solution;
- The testing partners’ feedback has substantiated both the existing feature set and a future for Records Authority in which it can be productively and readily adapted to a variety of environments and uses;
- Harvard University, although not a testing partner, has independently validated the need for a tool like Records Authority by committing to its continued development under a library grant program and to its live deployment at Harvard.

David Read, Records Analyst at Harvard, reports that informal plans call for user surveys and focus groups for obtaining input that will determine which enhancements will be considered. Users to be surveyed are defined as both end users and records management administrative team members, including Records Management Services staff and Medical School and Business School records management staff. This approach can’t help but substantially deepen and refine the current capabilities of the software.

The development effort is to be sponsored under the auspices of the library, and as such is expected to be highly end-user focused. As a result, David Read also anticipates that development emphasis, as at DU, is likely to continue to be on further developing RA’s front-end features, namely its public search and search results display features. Some of the specific enhancements he reports are likely to be considered are:

- “Did you mean” capabilities to the search;
- A “Build-Your-Own-Schedule” feature to let users filter/pull office-specific schedules or see only general, or public records or create personalized views;
- An API to provide system access to schedules to support a related, potential pilot project to add retention metadata to a home grown “rescue repository.” See: http://osc.hul.harvard.edu/liblab/proj/zone-1.
- Further enhancements to the survey and inventory forms features of RA based on the suggestions of the grant testing partners.

Presentations and Publications

1. At ARCHIVES 360°, the SAA Annual Meeting that took place August 22-August 27th, 2011 in Chicago, Illinois, Greg Colati moderated a panel that included;
   - Veronica A. Martzahl, who provided information on the potential records management applicability of accessioning tools developed by the NHPRC-funded TAPER project at Tufts University and
   - David Read and Lindy Naj, who discussed the inception of the RA software and the lead-up to its release to production respectively. (See the Appendix 3 for a summary of the presentation at the 2011 Annual SAA Conference.)

2. A case study authored by Joanna Lamb and entitled Developing Open-source software for Records Management: Records Authority at the University of Denver, is included in the appendices to this document. It is in the process of being submitted to the following journals, in the order they appear here:
   - The American Archivist, ISSN 0360-9081, http://www2.archivists.org/american-archivist

3. David Read, Records Analyst at Harvard University has submitted to ARMA International a proposal for himself and Joanna Lamb to facilitate an education program about Records Authority at the annual conference, ARMA 2012 to take place in Chicago, IL.
Appendices

1. August 2011 SAA Annual Meeting: ARCHIVES 360° Presentation Summary

   Saturday, August 27th 8:00 AM - 9:00 AM
   Session 505: Open-Source Tools for Taming Records Management
   Greg Colati, Veronica Martzahl, David Read, Lindy Naj

   The session enjoyed fantastic attendance for a last-day-of-the-conference, first-thing-in-the-morning panel. Steve Fisher of DU and the senior leadership of the Tufts Archives were present.

   Presentation
     - Slides available at:
     - Demo screencast available
       at:http://library.du.edu/site/about/urmp/recordsAuthority/grantInformation.php

   Greg Colati, an experienced and adept moderator, was at ease and able to engage the audience immediately. Greg presented a very cohesive picture, not only of the evolution of the RA project, but also of the ways in which the work at Tufts and at DU relate to each other. He set the stage so that the panel presenters' material served as illustration and an extension of his opening remarks.

   David Read and Lindy Naj collaborated in email and in person prior to the presentation to combine slides into one presentation. Although it was not possible to present a "seamless" chronology due to the multiple institutional emblems and role changes over time of those representing DU, the presenters were nonetheless able to meld the various "brands," NHPRC, DU, Penrose Library, and Harvard (as the institution sponsoring David's travel and participation), into one cohesive set of slides and remarks.

   David's screencast demo of the Records Authority software was extremely well done and succeeded in concisely emphasizing key features of the tool. David articulated the diligence done up-front to validate the need for a tool like RA and the inception of the project, then turned over the presentation of details of developments from late 2010 through present day to Lindy Naj who focused on the regrouping in late 2010 and the adjustment of development direction to emphasize public search interface usability and readability, in particular keyword searching.
After the DU portion of the presentation was complete, Veronica Martzahl gave an overview of the Tufts project. Most interesting were the points she made about the initial vision of project outcomes versus the evolution of their tools and processes to accommodate human factors. She described initial efforts to design a process driven almost fully by end user expertise and actions (contributors, one time or recurring) to supply information. And she described how based on actual user behavior, the process is evolving into a much simpler and often still mediated set of steps. The end result now seeks to alleviate contributors from having to take any but the most rudimentary actions to initiate the contribution/accessioning process.

Collectively, the panel was able engage the audience. Despite the very early hour and number of competing sessions (9 others), only one person in the audience exited to sample the other presentations.

Response
Greg designed the presentation to allow 15-20 minutes of questions at the end. He and David pre-prepped questions in case the early a.m. audience did not kick in with their own. However, there ended up being so many questions that the next group of presenters had to all but kick the panel off the dais. The lion’s share of the questions were posed to the DU presenters or a combination of all DU and Tufts, most of the questions being focused on the practical application and practical decisions related to the RA project.

Having first-hand insight into the 2010 and 2011 design decisions and recent events Lindy had the privilege of responding to a great many of these, with David providing insight into the original drivers behind the project and Greg providing some synthesis and the open source context.

A significant number of audience members come up to dais after the session ended and there was opportunity to:

• Jointly answer some of the audience’s questions with Steve Fisher of DU.
• Meet Deanna Hauck from Wheaton College, the most active of the grant partner institutions, in person.
• Hear a little bit about the Archivematica digital preservation system and how Peter Van Garderen, one of their team members also presenting at the conference, saw that RA might be a viable candidate "micro-service" in that suite.
2. URLs Relevant to the Project

- **University of Denver**
  - RA Informational Website, Penrose Library: [http://library.du.edu/site/about/urmp/recordsAuthority.php](http://library.du.edu/site/about/urmp/recordsAuthority.php)
  - Public Search DU Retention Schedule: [https://recordsmanagement.du.edu/recordsAuthority/index.php/du/retentionSchedules](https://recordsmanagement.du.edu/recordsAuthority/index.php/du/retentionSchedules)
  - RA Administrative Dashboard: contact the records management department for information.


- **RA coming to Harvard University:**
  - [http://osc.hul.harvard.edu/liblab/proj/irma-improved-records-management-administration](http://osc.hul.harvard.edu/liblab/proj/irma-improved-records-management-administration)
  - [http://isites.harvard.edu/icb/icb.do?keyword=k84828](http://isites.harvard.edu/icb/icb.do?keyword=k84828)

3. Internal Whitepaper: RA at DU – The Road Taken, prepared by Lindy Naj
This whitepaper, appended separately, documents the records management context and decisions behind the final stage of development of RA.

4. Individual Partner Feedback Summaries, prepared by Joanna Lamb
These summaries, appended separately, document the testing observations of the partner institutions.
   a. Baltimore Museum of Art
   b. Michigan State University
   c. Wheaton College, and the
   d. Seattle City Clerk’s Office

5. RA User Guide
The RA User Guide, appended separately, is also available at the Google Code Site. See Appendix 1 for the Google Code URL.
6. **Developing Open-source software for Records Management: Records Authority at the University of Denver, a Case Study authored by Joanna Lamb**

The case study, appended separately, is being submitted to the following journals in the order they appear here:

- The American Archivist, ISSN 0360-9081, [http://www2.archivists.org/american-archivist](http://www2.archivists.org/american-archivist)

**End Notes**

1 List of key deliverables extracted from the project summary:

**Development process**
- Work with institutional partners to define and test Records Authority retention schedule management software and its installation and use.

**Key software features**
- Records survey feature
- Records inventory tracking
- Auditing features for tracking retention schedule
- Full-text search
- Retention schedule reporting and export
- XML schema for export

**Communication and publication**
- Liaison project website for posting grant updates and deliverables
- User guide
- Technical documentation
- Conference presentation about the software and its usage
- User discussion forum (became current wiki)
- Case study about the local DU implementation of RA that describes the development, testing, and use of the inventory methodology and software. This study will be published in a relevant journal.
Appendix 1

Presentations and Publications: Case Study
Developing Open Source Software for Records Management:
Records Authority at the University of Denver

The University of Denver (DU), founded in 1864, is the oldest private academic institution in the Rocky Mountain Region and enrolls about 11,600 students in our undergraduate and graduate programs. The Carnegie Foundation classifies DU as a doctoral/research University with high research activity. A formal University Records Management and a Board of Trustees-approved records management policy was established in 2009.

The same year, DU implemented a movement to centralize and restructure university-wide processes. Part of this movement was to standardize and streamline the records management process at the University. The main focus in the early stages of the University Records Management Program (URMP) was the identification, capture, and management of university records that posed the highest compliance risk. One of these risk-related drivers was the IRS regulations asking non-profits to state if they have a records management program and policy at their institution. Another driving factor in the development of the new program’s methodology and tools was the growth of digital resources and e-records at the University.

DU is a part of the Alliance Digital Repository (ADR), a Fedora-based consortial digital repository service offered by the Colorado Alliance of Research Libraries. DU’s instance of the ADR serves as a long-term preservation and access repository for the University’s digital objects. These objects include electronic university records of enduring value. In order to ensure that these records were identified, captured, and entered into the repository, URMP needed a systematic inventory method that identified university records as well as the systems that manage them.

The URMP team decided to approach the task of inventorying the University’s records with a two-part method. This approach was developed with input from the international records
management standard ISO 15489:2001, which offers best-practice guidelines on how to design and implement records management systems. The ISO 15489 standard recommends a series of steps to “collect information from documentary sources and through interviews” on the organization’s structure, business activity, and recordkeeping requirements (ISO 15489-1:2001 Sec 8.4).

The first part of the URMP inventory method required a high-level user survey designed to capture general information about a department’s records and systems and encouraged users to think about records and records management before being interviewed. It also helped identify key contacts for the second part of the process, which involved in-depth, one-on-one interviews with records users and creators. These second interviews draw on the general information collected in the first survey, but also go into detail about the format and location of specific record types and the systems that house them.

By systematically gathering this metadata about records, the business processes that generate them, and the systems that house those records, this method lays the foundation for future business process mapping for the targeted capture of electronic records living in complex systems. Because of the high volume of today’s electronic records, the fragility of some file formats, and the issues of software and hardware obsolescence, a proactive, systematic approach is the only feasible way to succeed at records management. This active approach to records management focuses on ensuring the authenticity, reliability, and trustworthiness of all records and their metadata, especially for those records identified as having enduring value.

Feedback from a prior records inventory at DU made it clear that retention schedule users wanted retention information about the records in their unit only, and didn’t want to scroll through a lengthy document to find relevant retention schedules. Once URMP sets retention schedules, our goal

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2 For more about this approach to records management, see An Xiaomi, "An integrated approach to..."
was to instantly publish those schedules on the web with searching and sorting functions that will give users the targeted information they require.

URMP evaluated existing proprietary software tools to see if any would fit the program’s needs. Enterprise Content Management (ECM) software such as Documentum Records Manager from EMC, which manages records as well as metadata about records, was prohibitively expensive, resource-intensive, and had many more features than were needed. Administrative and inventory software such as Versatile Retention 7 from Zasio Enterprises and a.k.a. Disposition Management Software from Synercon Management Consulting were also cost-prohibitive and over-featured in some respects, but less dramatically so than the ECM software. However, because the ISO 15489 process of multiple interviews was such an integral part of our method and because of a lack of clear interoperability standards and XML export functions in proprietary software, URMP and the Penrose Digital Library Team conceived of an open-source software development project to fill the administrative needs of the records management program.

In light of the financial limitations that many higher education institutions were experiencing, the implementation of an open-source application is an attractive option when compared to purchasing and licensing proprietary vendor software. Open-source software provides flexibility to address the needs of the user by allowing institutional adaptation, and users have the ability to audit code and ensure for themselves that the capabilities of the software meet their needs, rather than relying on the claims of a vendor. Institutional needs do not have to be sacrificed in order to conform to the capabilities of proprietary software, and customization of the software at the outset of implementation also supports long term adoption of the product.

Since open-source products are not-for-profit, they do not need to generate consistent revenue; changes to open source code can be made in response to actual needs of a specific community. These changes can be made quickly, reducing the time it may have taken a vendor to

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2 GBdirect. Retrieved April 28, 2009, from [http://open-source.gbdirect.co.uk/migration/benefit.html](http://open-source.gbdirect.co.uk/migration/benefit.html)
provide a solution. After the code is published, users may also contribute significant improvements to the project increasing the usability and flexibility of the software, and if the project team ceases to provide official support and upgrades, a community of users will remain available to provide informal support and improvement options.

In 2006, The Alliance for Higher Education Competitiveness conducted a “Best Practices in Open Source Software in Higher Education Study” with 195 U.S. institutions responding. Most of the institutions surveyed were public or private 4-year colleges or community colleges. The study found that 56% of respondents thought there was a total cost advantage to open source software, and only 7% thought there was an overall cost disadvantage. According to the respondents, security, integration with other systems, better functionality, and total cost of ownership were cited as advantages of open source software, with disadvantages being the staff skills required and the lack of product support and mature solutions.

At DU we decided that the disadvantages of the high demands on our in-house programming staff and our lack of records management software development experience were far outweighed by the advantages of building a flexible tool that fit our criteria and the needs of University users, and the broader archival and records management community. We were also inspired by the success of archival open source software projects such as Fedora (currently in use at DU as our digital preservation repository), Archivist’s Toolkit, Archon, and the ICA-AtoM archival software.

In 2009, we began development of software that facilitated a structured inventory process to collect data that could be used to create file plans and retention schedules. The data would also be

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8 Fedora Commons, [http://www.fedora-commons.org/](http://www.fedora-commons.org/)
used to evaluate records systems in use and to assist with efforts to manage and preserve both non-
permanent electronic records and those of enduring value. The software supported our two-part
inventory method and we began to use some of the survey and inventory features during initial
development.

Web-based forms were used to collect detailed data on the structure of departments, specific
record types, and records systems. The forms and data were protected by a login feature that
authenticated people as administrators or departmental users. Integration of the survey functionality
into the software ensured that all data about a unit could be reliably and easily retrieved from a single
source. The beta version had several pre-constructed surveys and a survey builder used to create new
surveys. Functionality of the survey builder was limited and needed to be expanded before it was
flexible and robust enough to use without programming support. The survey forms captured the data
in a structured database designed to share structured metadata from the records inventory process
with the retention schedule creation and dissemination tools for authority control and efficiency.

Once the inventory process was completed, metadata from inventoried records was passed to
the retention schedule portion of the software to create retention schedule records. The software
balanced the need for local customization with an adherence to accepted records management
standards and best practices. Administrative users can create and manage controlled vocabularies for
divisions and departments, record categories, and file types. Once record type names are entered into
the retention schedule, the software suggests those record type names when administrators create
inventory forms, helping to ensure standardized classification.

A goal of the DU project was to ensure that the metadata collected was reusable in other
systems, especially DOD 5015.29\textsuperscript{12} certified electronic records management systems. Between the
inventory and retention schedule forms, the Records Authority software collected data for all the

\textsuperscript{12} Department of Defense, DoD 5015.02-STD, "Electronic Records Management Software Applications Design
mandatory 5015.2 File Plan data fields and some of the mandatory Record Metadata fields. In the beta version of Records Authority, the primary method of retrieving database records was to browse by university department. There was limited full-text search functionality for a few database fields including record name and record description.

When the beta version of Records Authority was completed in June 2009, it was a useful but ultimately limited tool, designed specifically for the needs on the DU campus. After securing a National Historic Publication and Records Commission (NHPRC) Strategies and Tools grant, the Records Authority team began work to make the software available to the general public with features that conform more fully to records management standards and focus on the reusability of metadata.

The purpose of the NHPRC grant project was to draw from traditional records management methodology to build a web-based, open-source software tool. The goal of the project was to create a free, customizable, standards-based tool that will improve the professional performance and effectiveness of records managers and archivists when conducting records inventories and building retention schedules. The grant team will make the tool freely available to other institutions that may lack the tools or methodology for performing detailed records inventories, in the hopes of improving the management and preservation of records that might otherwise be lost. To encourage wide adoption of the software, the grant team focus was on interoperability with archival and records management software such as collection management systems, digital repositories, and electronic records management (ERM) systems.

In addition to making the software available, we hoped the grant project would serve as a methodological model for inventorying records and distributing retention schedules. After project completion, software and documentation would be available for free distribution under the

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GNU General Public License\textsuperscript{14} open source license. Releasing the software for free under this license encourages adoption and enhancement of the software and creates a community of records managers and archivists committed to using flexible, open tools to assist in identifying, managing, and preserving records regardless of format.

The audience for the NHPRC grant funded project and tool was records managers and archivists from medium to large academic, government, non-profit, and for-profit organizations. A posting sent to SAA's Archives & Archivists listserv, the Records/Info Management listserv, and SAA's Electronic Records Section listserv summarizing the project generated positive responses from a variety of sizes and types of institutions. Responses to our posting indicated that Records Authority would be useful not only to university records management programs, but to any institution that was concerned with identifying and locating records regardless of their format. This would allow records management programs to:

- Send web-based records inventory surveys to units at their institution
- Collect structured information from in-person records interviews on units and records
- Create retention schedules and associate them with all relevant units
- Publish dynamic, searchable retention schedules online
- Create and export formatted reports of inventory or retention schedule information
- Search inventory and retention schedule records
- Customize the data collection and controlled vocabularies for use at their own institutions

The initial work plan included five major stages and was to begin in January 2010. The first half of the year would be devoted to adding necessary functions and features to what was available in the beta version of Records Authority. These improvements would focus on two areas: improving the retention schedule search and delivery functions for users, and adding more tools to the administrative side such as a way to audit changes to retention schedule entries. The improvements to the search would involve the integration of Solr\textsuperscript{15}, an open-source indexing application that improves the speed of search as well as allows for “did you mean” suggestions and faceted results.

In the second stage of the grant, from July through December 2010, the grant team would work to make the software general enough for use at other institutions, and to increase the shareability and reusability of metadata captured by the software. This stage would focus on the interoperability of the software as a whole, and generalization of the login system for authentication at other institutions. The survey builder would also be improved, giving institutions a greater ability to customize survey data collection and access. This stage also involved the creation of an open API (Application Programmer Interface), to build other applications that harvest data from Records Authority.

The third stage, from January 2011 through March 2011, would involve building an XML metadata import/export tool capable of crosswalking Records Authority metadata into a standards-based and widely adopted XML metadata format for reuse in electronic records management or archival collection management tools. There would also be an attempt to map Records Authority metadata elements to the Records Creator Record XML schema developed by the NHPRC-funded TAPER project at Tufts University, with the goal of determining the feasibility of using the Records Creator Record metadata in Records Authority and DU's Fedora archival digital repository. A report on the conclusions of the study would be issued through the Records Authority project website.

\footnote{\textsuperscript{15} Apache Solr, “Welcome to Solr,” 9 February 2009, \url{http://lucene.apache.org/solr/}}
The fourth stage of the project, from April 2011 through June 2011, would involve testing and fine-tuning Records Authority 1.0 prior to its release. The DU grant team plan to travel to partner sites to assist in the installation of Records Authority and train users on the software. Partners would test the software for a period of 10 weeks. After this, the partners will evaluate the software and examine possible uses at their institution. During this period the software will be used at DU for the creation of records inventories and retention schedules to be disseminated to the University through Records Authority’s web-based search interface. The final stage of the project, from July to December 2011, would focus on releasing, distributing, and evaluating the Records Authority software and other products of the grant work.

Prior to starting work, the project team secured Partner testing commitments from Michigan State University, Wheaton College, and the city of Seattle, to test and evaluate the software and its methodology. Michigan State University (MSU), the nation’s first agricultural college, established itself as the as a leader in innovation and technology. MSU’s tradition of leadership and innovation has carried through in its approach to automating archival functions and preserving the University’s records, regardless of format, in the twenty-first century. In 1969 MSU’s Board of Trustees established the University Archives and Historical Collections to collect and preserve the historical records of MSU and to provide access to these records to the University community, scholars, and the public. In 2009, the MSU Director and Archivists expressed interest in new tools to prepare records schedules for the University. At the time, they were systematically revising retention schedules in workflow and business systems.

Wheaton College is a four-year, private liberal arts college with a student body of 1,550. Because of the college’s small size, their operations require high quality and efficiency for the institution to run. The Wheaton College RIM Committee was established in 2008 and is comprised of individuals from each college’s division, a representative of technology infrastructure, the Records Manager (Associate Archivist), College Archivist and Special Collections Curator. The purpose of
the committee is to “provide planning, advising, and leadership in matters relating to the creation organization, retention, and disposition of the College’s records. “ The committee hoped that the open source software would provide options for collecting survey information as well as organizing the information that is gathered.

The city of Seattle Records Management Program was started in 2001 and serves 35 departments and 10,000 employees. Records Management is responsible for many services including the writing and distribution of retention schedules. In addition to assisting with the testing process, the Records Manager was interested in the retention schedule publishing function.

The Baltimore Museum of Art requested to participate as a tester in May 2011. The museum is home to an internationally renowned collection of 19th-century, modern, and contemporary art. Founded in 1914 with a single painting, the BMA today has 90,000 works of art—including the largest holding of works by Henri Matisse in the world. They started a records management project during the summer of 2011, and want to implement software that would support that program.

TheUniversity Records Manager left the University of Denver before grant work began. The project start date was delayed, and work did not begin until March 2010 when a project programmer was hired. The programmer was an employee of the library and was familiar with the programming environment and Records Authority prototype. We also adopted two complementary web-based open-source software systems for project management. The first, dotProject, is an overall project management tool. The other, Mantis, is a software error reporting and tracking software. Both tools are standard types of management tools used in software development.

As per the plan of work, the team did a comprehensive review of the application and its features, and based on that review and our experience using the application at DU, made a number of significant changes to both the back-end data management architecture and front-end management and user interfaces. Two of the data collection forms (for records inventory and retention schedules) required substantial revisions before other work could begin. As the team examined the
In June 2010, the Records Management unit moved from the library to Business and Financial Affairs. A new Records Manager continued as a project participant, but not the PI on the project, which remained based in the library but with a high degree of collaboration with the Records Management unit.

The department moved away from the systematic inventory approach and the project priorities shifted from survey development, software generalizations, and interoperability to an emphasized development of the public interface. The new goal was the publication of a high-level university-wide retention schedule in February 2011. Changes were made to the work plan and timeline within the overall commitments for software deliverables in the NHPRC project. The software development project demonstrated that Records Authority is indeed a flexible tool that can be equally useful regardless of the administrative location or priorities of the records unit.

Examples of improvements to the software made during this phase include: the addition of a record classification code field, a new emphasis on functional rather than departmental organization, the renaming of many display fields to make the terminology more accessible to end users, and a switch to "natural language" retention period explanations rather than coded retention periods. Though these changes to the software delayed some of the original items in the grant plan, we believed the project would be more useful for a greater number of institutions.

Also, after examining the uses for an API, the grant team decided that a simpler approach would be the most efficient way of sharing data from the software. The idea of an API was included in the original grant proposal to enable other programs to harvest large volumes of quickly-changing data, or to connect "live" to the Records Authority database. In our work on the grant project, we decided that there was no need for that kind of interaction with other software and focus on getting data into and out of Records Authority using a simple, reusable format: a comma-separated value (CSV) file.
We built an export function in the Dashboard (administrative) side first which allowed administrator to export data in Excel, CSV, and HTML formats. For public users, we created a print-friendly HTML report of the full retention schedule. We also determined that we would like to add print schedule export for public users. In order to import pre-existing retention schedule data, we created function that could import data from a CSV template into the database, and tested it successfully with a small sample of DU retention schedule data. The next step would be to import DU’s entire new retention schedule in February 2011, which would hopefully contain about 200-250 record groups.

The team decided to delay opening the demo server to the partners for testing until the new version of the software was production-ready at DU. Responding to tester feedback, we discontinued the blog, and instead started holding monthly web conferences with representatives from our partner institutions to review our progress. At this stage, we also found that dotProject was not being used as intended by project management and, while we continued to use it for software documentation, it was no longer necessary as an overall project management tool. In general, the team focused on the communication preferences of the partners rather than management of communication tools.

During the next phase, the public interface was moved into production at DU and went live at the end of February of 2011 with the new university-wide retention schedule. In March and April the project team focused on minor clean-ups of the DU instance of Records Authority. Most changes had to do with display elements instead of data integrity or functional issues. By May the team had developed the first edition of the RA User Guide, and starting in mid-May DU-based testing sandboxes were available for the partners, and initial partner testing began without the need for custom or even on-site installation procedures.

As originally planned, the team looked at potential interoperability with the Tufts TAPER project, specifically for interoperability with the Records Creator Record XML structure used by that project. The team determined that a less targeted data scheme was likely to be more appropriate for
RA and selected the Model for Functional Requirements\textsuperscript{16} or MoReq2, an EU standard that defines \textit{generic} requirements for an electronic records management system, or ERMS. We built a crosswalk of the University of Denver’s Database Management System (DBM) to the Model for Functional Requirements (MoReq2) in order to achieve greater interoperability and harvesting potential for the records held at the University of Denver.

The first step was to establish absolute mapping from the smallest elements of each system. This involved taking each DBM child element and finding a similar component counterpart in MoReq2. This was accomplished by examining the specifications of MoReq2, determining the functions of each element, and finding the closest match in DBM.

The second step was to determine the proper XML Schema Definition (XSD) most appropriate for this function. After several tries with various templates we determined that the Component XSD was the best fit for our purpose. We then placed our individual components within the larger Class XSD because the ability of the Component XSD to allow for the addition of several elemental properties beyond the basic specification. We believe that this allows for the greatest versatility of the sharing of information when exporting the database files.

There are elements within each XSD that may not be used in a particular instance, such as the technical information located in the USE element, but are required for validation. If these particular elements required input in order to validate we included the symbols [] to stand in for information. We reasoned that there may be future need to include more information in these particular records and that we can utilize these “blank” fields for added flexibility. Our final step was to take a sample record from the DBM database, and show how it fits within the MoReq2 XSD.

The monthly partner conference calls were ended in June and were replaced with one-on-one phone calls to discuss testing progress. The programmer began to work closely with the partners,

\textsuperscript{16} Model for Functional Requirements, http://www.moreq2.eu/home
making fixes as needed. After the initial testing in DU sandboxes was completed, we employed individual testing instances for each institution, and continued to address issues on an as needed basis. The majority of bugs that were discovered in this phase of testing were browser-related. These types of bugs are often seen in the development of web-based tools and were not of significant concern since the programmer was able to fix each bug. After testing was completed, the programmer partnered with the staff of the institutions that decided to install the product to ensure the success of the install. The partners that chose to install the software were Wheaton College and the BMA. MSU also initially planned to install the software, but changed their mind after learning that once open-source code was published; there would not be continued software support from DU. They may reconsider in the future, depending on the nature of the evolving open source community for RA. The Wheaton install went smoothly with a few minor glitches, while the BMA had some installation problems but were able to identify an individual client work around and they continue to use the software.

Our partners contributed significant feedback via phone, email, and a survey, often with similar comments. Each institution employed the software during testing to meet their needs, but most did not plan to actively use all modules. While all the partners were highly impressed with the public interface, the majority felt they would have more use for the survey and inventory functions.

In August 2011 staff from DU and Harvard partnered to present the Records Authority software during Session 505 - Open Source Tools for Taming Records Management at Archives 360°: the 75th Annual Meeting of the Society of American Archivists in Chicago, Illinois. The presentation generated interest in the software and two serious inquiries were made to the DU team from Dominican University and The Archives of the Episcopal Church. The project administrator and programmer held a web conference with Dominican University regarding the use of Records Authority at their institution. The administrator also spoke in-depth with representative from The

Archives of the Episcopal Church to determine if Records Authority could be deployed as part of records initiative to combine multiple schedules to one enterprise-wide schedule.

The final version of Records Authority was published to Google Code in December 2011. Ultimately the project was a success, and the final product met our goal of providing an inexpensive, flexible tool to assist records management with the systematic collection of records metadata and the distribution of retention schedules. The free, customizable, standards-based tool will hopefully improve the professional performance and effectiveness of records managers. Additionally, by incorporating multiple methodologies during the development process we were able to explore the many different ways that the tool might be used by other institutions.

During October 2011 we began using the Records Authority survey function to continue the task of inventorying the University's records. We are pleased to have returned to a modified version of URMP's initial inventory methodology. We are currently working with the Office of Financial Aid, the Sturm College of Law, University Advancement, Conference and Events Services and the Institute for Public Policy Studies to collect metadata about departmental records to create individualized retention schedules to add to the university-wide schedule. We are also using the business processes information gathered during the surveys to develop individualized records frameworks.

Initial feedback from the on-campus survey users has been good. They are finding the survey forms user friendly, and the process simpler than they expected. Many unit contacts are using the published retention schedule as a jumping off point for identifying records within their units. Thus far the software has met our needs, and we are pleased to return to the methodology that first inspired the project. We have recently begun to receive completed surveys, and are moving forward with a systematic assessment process.

In December 2011 Harvard University announced that it has received funding to continue enhancements to Records Authority. This project will be an undertaking in user driven innovation by
taking Harvard University records management stakeholders feedback to push the NHPRC project forward with enhancements to both user and systems access to records retention metadata, laying the foundation for true electronic records management at Harvard University. This project and tool was selected because the NHPRC has concluded by its funding of the project, and the tool fills a void for a low cost, flexible and web based solution for user engaged and systematic retention schedule building and access.
Records Authority at DU – The Road Taken

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Introduction
A white paper typically a) outlines the problem, b) presents proof that the problem exists and
gives broader background related to it, c) outlines a typical approach to solving it, and d) concludes by advocating a specific new or alternative approach. This synopsis will focus on completion of the Records Authority software as it relates to the direction taken by the University of Denver Records Management department:

- Outlining the most common approach to the retention schedule challenges the
department undertook to solve, and
- Describing the hybrid approach taken instead by DU.

Initial funding for the development of Records Authority has been provided by the National Historical Publications and Records Commission. The software was originally developed at the University of Denver in Denver, CO.

The grant proposal narrative1 to the NHPRC comprehensively covers the need for lightweight software to help universities, other not-for-profits, and small for-profit organizations efficiently create, effectively manage and provide access to a retention schedule. It also addresses the broader university and records management environment and related issues. Recaps of topics covered in the proposal are included here only to the extent they are necessary to give context.

The Challenge
While the role of Archives and Special Collections is well understood and well-established in higher education, Records Management is often relegated to an ancillary or supporting process. However, over the last decade compliance risks in general and new regulations specifically, have created increased focus on records management as a foundational practice for risk mitigation. Specific drivers include:

- IRS regulations requiring non-profit executives to attest to having an active records
  management policy and program.

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1 NHPRC Grant Project Narrative available at: http://library.du.edu/site/about/urmp/recordsAuthority.php.
• The expense of producing records for legal or regulatory purpose. The expense can be significantly mitigated in a well-managed environment wherein the overall volume of records is kept in check through disciplined disposal of expired information.

• The need to contain the year-over-year accumulation and storage costs of electronic information.

The cornerstone to a practical records management practice is a well-built retention schedule. The retention schedule contains the rules for disposition. It serves as a reference to help people in the organization understand what needs to be kept and for how long. A good retention schedule can be used directly by the people who need to make decisions about records. Ideally, it is a tool that should not require a records professional to translate or interpret the rules.

Retention schedules are typically organized into categories. In addition to the rules about how long records must be retained, the categories in the schedule may include descriptions of many characteristics of records. A given retention schedule may contain any subset, or all, of the following elements:

• Categories of records grouped by organizational function or process or filing scheme.
• Subcategories of records that have related content and similar or the same requirements for retention. And for each subcategory:
  o Codes for easy citation and reference
  o Examples of documents or content in each subcategory
  o Retention periods
  o Locations of records
  o Instructions for storing and disposing of records
  o Legal citations and other research used in deciding how to set retention periods
  o Ownership or accountability at the role or department level
  o Confidentiality classification level
  o Privacy restrictions
• Free-form notes

Most schedules contain only a subset of the elements listed here. Nonetheless, there are many relationships among the data in the schedule, including both one-to-one and one-to-many relationships.

Retention schedule data can be managed in many ways using a variety of general or purpose-built tools. Although the data is not necessarily high volume or volatile, it can be challenging to manage and to display meaningfully for end users.

In many organizations retention schedules are maintained in word processing documents or spreadsheets. Depending upon the number of categories in a given schedule these formats can be challenging to maintain and not easy to use.

There are a handful of commercially available database tools for managing retention schedule data. Most of these have been designed with business users in mind and may be more costly or more complex than required for records management in higher education. As David Read noted in the original grant proposal to the NHPRC:

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Many ... in academic, government, non-profit institutions ... need a lightweight, inexpensive, and easy-to-use ... administrative tool that:

- Makes repeatable and as such streamlines the survey and interview process for conducting records inventories
- Facilitates the creation, maintenance, and delivery of retention schedules
- Organizes information about records for easy search and retrieval
- Creates and manages record-related meta-data for [potential or eventual] interoperability

In preparing the grant proposal to the NHPRC, DU's records management team queried the Society of American Archivist’s listserv and the Records Management listserv to obtain input about the potential demand for such a tool. The responses they received validated both the gap in the available options and interest in a solution.

There are additional challenges for records managers that are unrelated to the available tools. One is the long time duration typical to creating retention schedules using the most common, traditional approach. That approach calls for completing comprehensive and highly detailed department-by-department records inventory interviews up-front in the process. Often, it also calls for a cumbersome series of internal reviews and approvals at the end of the process.

Such inventories frequently take years to complete, both in terms of carrying out the interviews and in terms of obtaining the necessary approvals. And the level of detail delivered by a traditional inventory may actually be more than what is required to create a schedule that works. A traditional and comprehensive records inventory process may not always be needed in order to create a retention schedule capable of supporting consistent, practical, and defensible records practices.

Over the time it may take to complete a traditional inventory process much can change. Not only may the organization and its recordkeeping change, but the sponsors or leadership may begin to view the process as interminable and lose faith in a practical outcome. This can negatively affect the institution’s commitment to building a foundational records management practice.

This type of traditional inventory process is records-centric or records-driven. While it can indeed be used to produce a very detailed, comprehensive picture of the records held across an organization, a more contemporary approach takes its cues from the institution and the environment. A risk/reward framework is a more apt approach for today’s institutions. This framework combined with an understanding that resources tend to be allocated to endeavors that rapidly deliver tangible results will often dictate a less traditional approach to building a retention schedule.
The Circumstances

In 2006 DU engaged a third party to conduct a records inventory and create a retention schedule. The completed schedule was presented in paper form in binders, but it didn’t gain institution-wide traction. Some of the reasons for this were reported to be the length of the schedule and the necessity of browsing through pages of retention categories to find needed entries applicable to one’s work or department.

During the first twelve months of the Records Authority grant project (2009/2010), DU Records Management (RM) embarked upon a traditional inventory approach, but in a risk-focused manner. RM conducted thorough records inventory interviews with several departments that manage critical records: Human Resources, Accounting and Finance, and the Registrar’s Office. RM used RA to collect survey and inventory data.

RM was able to produce, and get approved, schedules for student records, financial records, and personnel and compensation-related records. The schedule data for these categories of records was ready to publish with the Records Authority software once it could be completed and implemented, but as is normal in any project, issues had also been identified:

- The schedule-by-schedule or category-by-category internal approval process turned out to be both arduous and time-consuming for everyone involved. RM, legal counsel, and the committee overseeing risk and compliance issues for the university began to bog down. Eventually, inside counsel and the committee overseeing Risk and Compliance requested that an alternate approval process be devised, citing resource constraints.
- Although the intent was to publish schedules incrementally as they were completed, even an aggressive estimate of how long it might take to complete all of the schedules put the finish line out multiple years.
- As a result of the users’ objections to browsing the paper 2006 schedule, one of the stated goals for the Records Authority software was to produce a schedule that ensured departments would be able to view only the entries for their department. While user-centric in intent, a number of obstacles to its realization arose:
  - It was based on the assumption that the retention schedule would necessarily contain many, many hundreds of entries, some duplicative or overlapping, through which the user would have to browse. (NOTE: This consideration can be neutralized with a web-accessible schedule that contains a controlled number of entries and entries which are keyword-searchable and constructed to be as mutually exclusive as possible.)
  - Operating under a decentralized administrative model, DU, like many similar institutions, does not maintain one, centrally managed list of approved divisional or departmental entity names. As a result, it was not possible to install into the software a single, authorized list of divisions and departments for users to select from for the purposes of presenting a definitive “my records only” view of the schedule. And trying to cobble together a makeshift facsimile of

2 The schedule was partially deployed to key stakeholders - in hard copy only. Some of the departments involved in reviewing it at the time described the end product as difficult to use, both in terms of the organization of content and its layout in paper format. However, for the purposes of RM’s efforts to build a new schedule in 2010, the 2006 DU schedule provided a wealth of DU-specific source data.
such a list could easily result in displaying an incomplete or otherwise misleading view of the schedule.

- Every department in every organization handles both record types that are unique to its function and record types that are universal across functions. Some good examples of universal record types are personnel file notes and meeting notes. Retention schedule data structures need to account for both types of data relationships and manage the presentation such that multiple entries are not required to enable universal record types to appear in views for multiple or all departments.

The Updated Approach

After the first year of the NHPRC project, and taking into account the learning from that first year, the DU grant project team, which included Records Management staff, re-assessed the plans for completing the inventory and the software.

The team landed on the following premises and assumptions:

- The idea that instead of doing blank slate records interviews – it would produce more usable results faster if it was possible to have a working schedule in hand when working with departments.

- The adoption of an “Agile”-like or Rapid (software) Application Development (RAD) concept for the second year work. A RAD model is one in which new code is quickly developed and put in the hands of users whose reactions and requests are iteratively incorporated into each new, incremental software release. This enables development cycles to be compressed and features to reflect what users actually request instead of what project teams and designers anticipate may be required by users. This approach would allow RM to:
  - “Publish” a retention schedule within just months so that it could be put to immediate use in working with departments to resolve records retention questions and support requests in a consistent fashion.
  - Work with schedule users earlier in the development process and spend time and energy developing first those aspects of the schedule with the highest compliance value.
  - Begin to use the schedule to build the awareness and support for records management as a both a discipline to adopt and a responsive service provided by the university.

- The expectation that DU’s records were likely to be very similar in type to those of other like institutions. This meant that the general requirements for their retention would also be similar. It would obviate the need for DU to develop an entire schedule from scratch, a level of effort that would instead only be needed for any record types unique to DU – and only as these were identified over time instead of up-front.

- The conviction that existing DU records practices and the regulatory environment were stable enough for a novel approach to be undertaken without introducing undue risk to the institution. This was based on:
  - Leadership’s confidence and historical experience,
  - Records practices in critical areas like student information being long-established and routinely monitored.

- The belief that it would not be truly possible to address, and so be more productive to overcome, the users’ professed desire to see only “their” section of the schedule and
instead to show them that it could be equally useful to see the entire schedule if that schedule had:

- A limited number of entries overall and
- Offered keyword searching based on both rich descriptions and added keywords.

Based on the premises above, the team crafted a novel, updated approach. With the goal of publishing a working, but full, retention schedule within 3-6 months they proposed to:

- Stop inventorying ahead of publishing a working schedule;
- Construct a new working schedule by combining inputs from the following:
  - Retention schedule data from similar institutions,
  - The results of the 2009/2010 partially completed DU inventory/schedule, and
  - The full DU inventory/schedule completed in 2006.
- Preserve in Records Authority the data structures supporting division and department designations, but add data structures and search interface features to also support keyword searching and enhance usability of the content, layout, and presentation.
- Send out the schedule, once constructed, for third party legal and regulatory review.
- And also start using the newly constructed schedule immediately in working with departments to obtain their input for extending, tuning, and amending it based on practical experience in the field and on feedback from end users.
- Incorporate changes recommended by the third party review and those requested by users.

And the team set to work with refreshed perspective and goals of:

- Reducing the steps needed to produce a working schedule,
- Publishing the schedule to the web as soon as ready, and
- Making the schedule search and display as straightforward as possible for end-users.

They obtained the go-ahead to move away from completing inventories for all departments as a prerequisite to creating a schedule. They also obtained the go-ahead to send out the schedule, once drafted, for third party legal and regulatory review. Doing this as one step after drafting the schedule replaced the multiple rounds of internal approvals that had begun to bog down the overall completion rate. It also alleviated resource constraints inherent in the internal approval process, while promising to deliver increased quality in the end product. The third party reviewer was to be an outside firm with a longstanding records retention practice and subject matter experts who specialize in identifying and understanding records-applicable regulations and laws.

The only remaining question was if Records Authority would still be the right software to support the new approach? And if so, could the new features be developed without negatively impacting the overall goals of the grant project?

---

3 Institutions designated similar for this purpose: Princeton, Yale, Tufts. Schedules referred to by dint of excellent coverage or format or by virtue of having authoritative citations: Oregon State University, DePaul University.
The Outcome

To tackle that question, the team

a. Thoroughly reviewed RA’s current functionality and feature set and examined the initial assumptions behind its design;

b. Diagrammed the existing data architecture from the ground up;

c. Wrote an expanded set of software requirements that incorporated the existing features and also extended the data architecture diagrams to show the work needed to extend its capabilities without impinging on existing features.

Highlights of the updated requirements included the following features:

- Ability to add and index keywords associated with each retention schedule entry,
- Search interface display changes to drive users first to a keyword search instead of a division/department pick list,
- Addition of an alphanumeric record code for ease of citation, and
- Many modifications to the layout and labeling of public search results to make it behave in a more straightforward “Google-like” way, one which did not require users to first “declare” division or department affiliation.

The developer was able to design and execute modifications to the software and extensions to the data model to address all of the newly requested capabilities. And he was able to do so while leaving in place pre-existing functionality. This would allow future implementers of RA to opt for searching by selecting division and department first or by keyword searching first.

All of the changes were developed and ready for live deployment within 4 months. During the same timeframe as the software changes were being made, the DU RM team constructed the content of the draft working schedule so that within that time DU was able to:

- Push the Records Authority software into live production;
- Load the new retention schedule data into it;
- Make the new DU Retention Schedule web-accessible to departments with keyword-searching;
- Begin working with users to:
  - Obtain real-time, inventory-like feedback immediately, feedback based on users’ actual and practical needs rather than the educated guesses of the RM team,
  - Fine-tune the content of the schedule, in particular keywords;
  - Increase their awareness of the schedule as a tool and records management as a practical, achievable compliance practice.
- Export the schedule for delivery to the third party reviewer.
- Manage and maintain the schedule as a “living,” instead of static document.

The successful outcome, and the speed with which it could be realized, is a testament to the original vision, the initial software design decisions, and the flexibility of the open-source platform approach taken by the grant project team.
Appendix 4

Partner Feedback Summaries
The Baltimore Museum of Art

The Baltimore Museum of Art is home to an internationally renowned collection of 19th-century, modern, and contemporary art. Founded in 1914 with a single painting, the BMA today has 90,000 works of art—including the largest holding of works by Henri Matisse in the world. They started a records management project during the summer of 2011. At that time they requested to join the project as testers, and the replaced American University as a testing partner.

The staff at the museum used Microsoft Windows and MAC OS for testing. They tested Internet Explorer 7, Firefox and Chrome browsers during testing. They preferred using Firefox, although they had some errors while editing and updating records.

As with the other testing partners, Baltimore misinterpreted the use of the inventory/survey functions. Once the purpose of each was understood, they were able to move forward with testing. Their initial concerns were terminology and branding customizations. There were some DU specific field headings in the inventory that they thought might cause confusion. Their institution prefers to use “record series” instead of “record group”, and wanted the option to change that terminology throughout the software. Additionally, the testers wanted the option to add fields in the inventory. They had several suggestions for additional fields including:

- Record type (electronic, paper, other)
- Confidential file field, similar to the Vital Records field
- Accumulation rate
- Reference activity rate

They found the survey function useful, and were very appreciative that multiple export and import options had been included. They felt that the ability to copy and paste data using a spreadsheet would expedite the creation of similar records in the software. They found the User Guide extremely helpful, and recommended adding more screen shots throughout the document. The testers reported that they would like to see “roll over” pop ups with examples integrated into the software.

Overall, they were very satisfied with the product and look forward to a possible install of a client server/software component to a desktop. To date, they are still using it to create their records inventory. The testers felt that most problems they ran across were browser and computer related, and unfortunately troubleshooting those issues to up a tremendous amount of testing time. The lead tester was also very appreciative of the DU staff and project implementation and included the following statement in her survey responses:

"The program and staff at records authority are wonderful, and we do not have the best IT help here on our end, which most likely complicated things for us significantly."

11/2011
The City of Seattle

The city of Seattle Records Management Program was started in 2001 and serves 35 departments and 10,000 employees. Records Management is responsible for many services including the writing and distribution of retention schedules. In addition to assisting with the testing process, the Records Manager was interested in the retention schedule publishing function. In October 2011, the City Council passed a resolution concerning the City’s retention of email; reaffirming the City’s commitment to managing the preservation and destruction of public records in accordance with State records law and the City’s approved records retention schedules; and requesting modification to the City’s email system. They tested using Microsoft Windows, and used both Internet Explorer and Firefox browsers.

While testing the in the development site with DU staff login and then in the initial sandbox, Seattle liked the user interface and the web publishing option. They were very impressed with the product as a whole, but had some concerns over the usability of the survey on such a large institutional scale. Their information gathering needs are probably best served by the import function. They felt strongly that the Division/Department designations would be very useful for the identifying and cataloging the 35 department’s inventories. They especially liked the User Guide. The Records Manager thought it was clear, concise, and helpful.

As testing progressed and moved into individual sandboxes they had several issues accessing the software due to the City’s technology infrastructure. After spending large amounts of time, and trying several possible solutions, it was determined by their IT department that the City’s required privacy settings were preventing access. At the time special permissions were not granted to circumvent security protocols.

They have no current plans to install, but the Records Manager is hopeful that after the software is released the City’s IT department will approve the use of the software and they can install it.
Wheaton College

Wheaton College is a four-year, private liberal arts college with a student body of 1,550. Because of the college’s small size, their operations require high quality and efficiency for the institution to run. The Wheaton College RIM Committee was established in 2008 and is comprised of individuals from each college’s division, a representative of technology infrastructure, the Records Manager (Associate Archivist), College Archivist and Special Collections Curator. The purpose of the committee is to “provide planning, advising, and leadership in matters relating to the creation organization, retention, and disposition of the College’s records.” The committee hoped that the open source software will provide options for collecting survey information as well as organizing the information that is gathered.

The majority of their testing was on Mac computers using MAC OS and Google Chrome. There were a few hiccups along the way using the MAC, but all were resolved during the testing process. They were very impressed with the production function, but plan to use the software for inventory purposes only at this point.

Due to Wheaton’s needs, their testing and feedback focused mainly on the survey functionality. There was some initial confusion regarding terminology that was used in the software. Some of the descriptive headings were confusing for them, particularly the use of “record group” and “functional category.” They recommended that the terminology be more generalized, as their organizational preferences differed from that of what was provided. Additionally, they were confused by the description of the survey/inventory. They initially perceived the inventory function as the survey and recommended that a brief description be included in the dashboard as well as the user documentation. At this time, there is no way to include the description, but future developers might consider adding a roll over pop up with descriptors.

They also found that it was difficult to type the survey answers while conducting inventory interviews. They felt the computer was inhibitive to the conversation, especially if there was a software malfunction or error while conducting the inventory. They preferred taking notes during the inventory and entering the information later. Additionally they would have liked an option to populate duplicate inventories with departments that have similar records. Required edits could then be made, saving time and making the process more efficient for their staff.

Since they are using the software mainly to create inventories via the survey, they found that the use of the import was unclear. They have no plans to import existing data into the software, and would like to see more description in the User Guide regarding the need for this function. Other institutions that have legacy record information can use this function to initially populate the inventories. They would also like to add additional heading designations which would include the linear feet accumulation rates and provide more options for public display.
They reported that enjoying testing the software and look forward to implementing it. They have begun to recommend the software to colleagues at institutions with similar needs.
Michigan State University.

As the nation's first agricultural college, MSU established itself as the as a leader in innovation and technology. MSU's tradition of leadership and innovation has carried through in its approach to automating archival functions and preserving the University's records, regardless of format, in the twenty-first century. In 1969 MSU's Board of Trustees established the University Archives and Historical Collections to collect and preserve the historical records of MSU and to provide access to these records to the university community, scholars, and the public. In 2009 the Director and Archivists expressed an interest in new tools to prepare records schedules for the University. At the time, they were systematically revising retention schedules in workflow and business systems.

The tested on both Mac and Window PCs using Microsoft Windows and Mac OS. They used Firefox, IE 8 and IE9 and Chrome browsers. They reported that other than some initial PHP errors while using the survey, Firefox and IE worked well for them. They currently use the Archivist's Toolkit for their archival records.

Michigan's initial reaction was that they were interested in DU's approach to recordkeeping practices. After testing began they did not understand how the survey could be used to populate the retention schedule. The problem may have between a misunderstanding of the use of the survey and creation of the inventory similar to the reaction that Wheaton had. There was also some confusion about how to use and edit and use the survey.

The testers offered a lot of feedback regarding the improvements to the user interface design. Most notably, "There is a tenet of user interface design that related items should be close together. This violates the requirement and makes the tool that much less effective." Many software interface suggestions mirrored features currently included in the Archivist's Toolkit.

Overall, Michigan liked the concept of the software, but had some concerns about the execution, especially that the web display of the schedules needed more flexibility and in-depth descriptions, as well as software integrated user guidance via hover or rollover functions. Additionally, they were concerned with the efficiency of the survey. They wondered if any unit's would invest the time or energy to completing the survey.

They were very impressed with the web display function and planned to implement the use of this module. The feasibility of using the software was high until they learned, at the SAA conference, that DU would not continue to support the open source project after the completion of the grant and publication of the software. They were concerned that after installing and implementing the software that it would be short lived in technology terms after DU's support ended. They have only one IT person in the University Archives and it became a cost/benefit question.

11/2011
Dominican University

The Archive and Special Collections librarian from Dominican University contacted the Records Authority (RA) project staff to inquire about the feasibility of adopting RA. Located in River Forest, Illinois, the university offers more than 50 undergraduate majors and several pre-professional programs. Dominican has five Graduate academic divisions: The Graduate School of Library and Information Science, the Brennan School of Business, the School of Education, Graduate School of Social Work, and Continuing Studies.

The university is in planning to establish an institutional repository and to publish a university-wide document retention policy. A task force has been formed to address the needs of the initiative, and they had begun reviewing tools to support the initiative. We provided a web conference for the task force in November to demonstrate the Records Authority software. At this time, no decision has been made to use install the software.

The Archives of the Episcopal Church

The Archives of the Episcopal Church is the repository for the official records of the national body of The Episcopal Church. The Archives also collect the records of allied Episcopal organizations and the personal papers of prominent Episcopalians. The Archivist for Records Management and Information Services is currently leading a project to revise their retention schedules. They plan to incorporate multiple departmental schedules to one, functionally based, enterprise wide schedule. As part of the project she researched off the shelf retention schedule databases and discovered the open-source Records Authority project.

The project in the early planning stages and a group is meeting in Austin in January to discuss the next steps. During a phone conference, we reviewed the features and functionality provided by the application. The Archivist was very excited to hear that Records Authority would meet their needs. She plans to discuss the implementation of the software at the January meeting, and has high hopes that the institution will adopt the application.

Additional Inquiries

Additionally, one or two informal inquiries about the project were made. These inquiries requested additional information about the project. They were directed to the website, and instructed to contact the project staff for additional assistance or information.
Appendix 5

Records Authority User Guide

(Three Copies)
USER GUIDE
Records Authority
A Grant Project of the NHPRC and the University of Denver
Prepared by Evan Blount, Robin Dean, Joanna Lamb, and Lindy Naj
Last Update: January 2012

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Preface

Initial funding for the development of Records Authority has been provided by the National Historical Publications and Records Commission. The software was originally developed at the University of Denver in Denver, CO.

Acknowledgements

This project could not have been completed without the significant contributions of time and effort from a number of people.

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I. Introduction

Records Authority is an open source web application designed to manage structured and reusable metadata about records and record systems. The software is a lightweight and inexpensive tool used to survey departments; inventory records; and create, manage, and distribute retention schedules.

The tool allows users to:

- Standardize and streamline the survey and interview process for conducting records inventories

- Facilitate the creation, maintenance, and delivery of retention schedules

- Organize information about records for easy search and retrieval

- Create and manage record-related metadata for interoperability and long-term use in other systems
II. Requirements

Server Requirements

- Redhat Linux
- Ubuntu
- Apple OS X 10.6
- Windows 7

Software Requirements

- Apache
- MySQL
- PHP 5.2

Records Authority runs on Open Source LAMP (Linux, Apache, MySQL, and PHP) architecture. **PHP v.5**: PHP is a scripting language used to query data from a database and dynamically generate HTML output based on the queried data. **Apache v. 2**: Apache is an HTTP web server used to deliver HTML documents to the web browser. **MySQL v. 5**: MySQL is a relational database management system. **Solr**: provides distributed search and index replication, powers search and navigation features.

Recommended Software


Hardware

Hardware and space requirements depend on the operating system selected and the volume of records in the database.

Recommended Browsers (in no particular order)

- Firefox
- Mozilla
- Google Chrome
- Safari
- IE9
Because end-users access Records Authority through the web, not a software client, the software will be compatible with any up-to-date operating system and browser combination.

**Authentication**

**Departmental Survey**
- By default RA is designed to use LDAP (Lightweight Directory Access Protocol) to enable authorized institutional users to access to the survey.
- However RA can be modified to use other directory-based sources of authentication.
- It is also possible to use “standalone authentication.” This requires the RA administrator create individual logins for each person who is to access the survey.
- Work with the technical support designate or team supporting your instance of RA to determine the best approach for your institution.

**Admin Dashboard**
- Authentication is standalone and requires creation of individual logins.
- Access to the Admin Dashboard is expected to be limited to a few people at each site. Because this is a low volume activity only someone with the RA (technical) admin access may create a new account. Each installation of RA is likely to have one person designated as the technical administrator and one backup (possibly on the records management team).
III. Records Authority Overview

Records Authority provides three access interfaces:

1. The Administrative Dashboard

Manage the database, survey, inventories, and retention schedule.

<table>
<thead>
<tr>
<th>Database</th>
<th>Search</th>
</tr>
</thead>
</table>
| ➤ Browse Submitted Surveys
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2. The Survey

Gather information about institutional records and organizational structure.

**Departmental Records Management Survey**

Please take no more than 15 minutes to fill out this survey about the functions and recordkeeping activities of your department. We are looking for a general overview of your department and its activities. If you are unsure of the answers to any questions, skip the question or answer "no" or "not sure" if a response is required. This survey will help the Records Management program prepare a detailed inventory of your department's records.

Note: The questions below apply to all records in your department regardless of format (paper or electronic).

If you have any questions or technical difficulties with this survey, please contact Records Management at records@du.edu or x13662.

* indicates a required field.

Please fill out your contact information:

First Name *

Last Name *

Job Title *

Select your division

Select your department
3. Public Search

View, search and browse the published retention schedule.

Retention Schedule Search Results

<table>
<thead>
<tr>
<th>Records Found: 193</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACA-001 Academic</td>
</tr>
<tr>
<td>ACA-005 Academic</td>
</tr>
<tr>
<td>ACA-010 Academic</td>
</tr>
</tbody>
</table>

IV. Branding

Institutional programmers are able to manipulate the code to customize the banner and other institutional references throughout Records Authority.
V. The Dashboard

The Administrative Dashboard consists of four quadrants that allow users to manage the data in Records Authority.

1. Data Entry – Access submitted surveys and create record surveys and inventories.
2. Database – Populate and edit Functional Categories, Departments, and Divisions (required designations.)
3. Search – Search, browse, and print inventory/series data
4. Administrative – Import data and legacy records, index data, access audit records, and change passwords.

Log in

1. Enter Username
2. Enter Passcode
3. Click Login button

Getting Started - Database (lower left quadrant)

Populate Functional Categories (series), Divisions, Departments

You must populate Functional Categories (series), Divisions, and Departments before conducting surveys, populating series, and completing inventories. All data included in the database must be
associated with these designations. In the event that your institution is not using these designations, a default can be set. If you are importing data or legacy records, your import will need to include the Functional Categories, Divisions, and Departments.

If you choose to use the survey and inventory functions, you will set up the survey in this quadrant. The Survey Editor feature allows you to populate survey and inventory questions.

Create Record Designations
To open a popup box to enable you to create new information, click:
+ Create Functional Category

1. To view previously populated Functional Categories (series), select the arrow on left drop down box.
2. Enter the new Functional Category (Series).
3. Click Save.

OR
+ Create Divisions

1. To view previously populated Divisions select the arrow on left drop down box.
2. Enter the new Division in the text box and click save.
OR
+ Create Departments (Departments are linked to Divisions, so you must populate Divisions first.)

1. To view previously populated Departments select the arrow on left drop down box.

2. Select the Department you would like to associate the Division with.
3. Enter the new Division in the text box.
4. Click Save.

Default Designations
If your Institution does not use the above designations, you can create a default designation to replace the above associations. In each instance you will need to enter the default chosen in text box and click Save.

When creating a default for the Division designation, you will select the default that you entered in Departments and then enter the default in the text field before saving.

Editing Record Designations

Edit Functional Category

1. Use the Select a Functional Category drop down to see the list of categories that are already in the system.
2. Select one to modify or delete.
Modifying a Functional Category will cause the display to be updated for all associated Inventory records and Record Groups.

Deleting a Functional Category will unlink the category from any record inventory records or record groups.
   a. In order to maintain the integrity of the public search tool, identify the record groups that will be impacted prior to making a change like this.
   b. Create the new Functional Category to replace the one to be deleted.
   c. Update the relevant record groups BEFORE deleting the original Functional Category.

**Edit Divisions**

1. Use the Select a Division drop down to see the list of divisions that are already in the system.
2. Select one to modify or delete.

Modifying a Division will cause the display to be updated for all associated Inventory records and Record Groups.

Deleting a Division will unlink the division from any record inventory records or record groups.
   a. In order to maintain the integrity of the public search tool display, identify the record groups that will be impacted prior to making a change like this.
   b. Create the new Division to replace the one to be deleted.
   c. Update the relevant record groups BEFORE deleting the original Division.

**Edit Departments**

1. Select a Division to Retrieve Departments.
2. Select a Department to Edits.
3. Modify or Delete the selected department.
Survey Editor (create and edit surveys and inventories)

The Survey Editor allows you to create and edit survey and inventory forms.

Click on Survey Editor to access the function. The Survey Editor popup box will open with a list of available survey forms. Click the survey form that you would like to edit.

| [Delete] | Departmental Records Management Survey |
| [Delete] | Follow up Departmental Records Management Survey |

Editing Surveys

After choosing the survey that you would like to edit, you will access a popup box with six tabs. The initial page will show the survey that you would like to edit.

**Departmental Records Management Survey**

Survey Name: 
Departmental Records Management Survey

Survey URL:

Survey Description:

Update Description

1. What is the mission or purpose of your department?
   Required: ☒
   Question Order: 0

The three static elements of the survey form are:

1. Survey Name
2. Survey URL
3. Survey Description

These elements can be edited, but cannot be deleted from the form.
The survey can include as many questions as you deem necessary. All questions can be edited or deleted. (See question 1. above). You can also determine if the question is required, change the question format, determine the question order or delete the question.

To add new questions select one of the following Question Type tabs:

- **Field Type:**
  - Text

  □ Required? (check if yes)

  Add Question

- **Question:**

  A question with a Yes/No option (two radio buttons) is generated.

  □ Required? (check if yes)
  □ Add a Sub Question? (check if yes)

  Add Question

- **A question with multiple choices is generated. You will be prompted to enter sub questions once the main question is submitted.**

  □ Required? (check if yes)

  Add Question
A question asking for contact information is generated. You will be prompted to enter contact fields once the main question is submitted.

Contact Question:

Add Contact Question

To preview the survey select: Preview Survey

This will show you the survey as it appears to those logged into the Survey module.

Follow up Departmental Records Management Survey

This survey will be sent to contacts provided by the Departmental Records Management Survey. Its purpose is to identify records on an item level that interviewee deals with on a daily basis. Results will be used to pre-populate B forms to use in one-on-one interview.

* indicates a required field.

Please fill out your contact information:

First Name *

Last Name *

Continue to edit the Survey as needed.
Survey and Retention Schedule Links
At the bottom of the Dashboard module there are two links. These links take you to the published retention schedule and survey login.

- Public Search
- Public Survey

Data Entry (upper left quadrant)
The Data Entry quadrant allows you to browse surveys that have been taken and submitted in the Survey function, Create in-depth departmental inventories, and create record series.

Browse Submitted Surveys
To browse submitted surveys click on the Browse Submitted Surveys link. This will open a popup box with two drop down menus.

You can choose to view surveys by department and division. If you have chosen a default, and do not have different divisions and department, the only options available will be the default.

You will also have the option to View All. After choosing from the drop down menu options click the Get Submitted Survey button. A list of submitted surveys will then be available.

Select the link to the survey that you would like to view.
Create Record Inventory

To create records Inventories select the Create Records Inventories link. Records Inventories consist of the information collected in the survey and the information collected by records management/archives staff. Each inventory form is meant to contain information about specific departmental/division holdings. Asterisked fields are required and are indexed and searchable in the Right Upper Quadrant of the Dashboard.

After selecting the link, an inventory form will be available for completion.

1. Record Name: *

2. Record Description: *

3.) Select a Functional Category *

4.) What department is the Office of Primary Responsibility for these records?
   Select a Division * departments *

5.) Records Notes
   Notes: (Department Answer)

6.) What is the format of the official record?
   © Paper
   © Banner Database Record
Create Record Series

The Create Record Series allows users to manually input individual Record Series that are searchable in the Dashboard and Public View. When using an inventory record to start a Record Series, key data from the Inventory such as the Record Name assigned there will display for reference within the input form, but will not auto- or prefille any fields. To create a record series, select the Create Records Series link and complete the pop up form. Fields that display in search results in the Public Interface are labeled “Public. Unless otherwise indicated, the contents of fields are indexed and searchable in the RA Public Search tool.

To begin select Create Record Series.
To create the series, click the create Record Series button.

Users can choose to approve and publish the series at this time. An approval date is required.
Create Record Series Form Field Definitions/Requirements

1. Record Code: This is a unique code assigned to each record group series. It is used to make it easy to cite a specific record series.

2. Record Name (required field): These names display in the public interface.

3. Record Description (required field): Input a free text description for display in the public search tool.

4. Functional Category (required field): Select a category in which the new record group should display in the public search tool.

5. Keywords: The ability to add keywords for searching to record series. Add individual words and phrases and separate by a comma for indexing and searching.


7. Retention Decisions: Text box for storing background about factors that contributed to the formation of the Retention Period. Does not display in the public search tool.

8. Retention Rule: Text field displaying additional information about the application of retention periods.

9. Primary Authority: Field for storing information about the main legal, regulatory, or business or operational requirements behind the Retention Period.

10. Primary Authority Retention: Field for storing the retention period indicated in or by the law, regulation, or business or operational process in the primary authority.

11. Related Authorities: Field for storing information about additional sources consulted in determining retention period.

12. Primary Owner: Designated combination of division and associated department/unit.

13. RM Notes: Internal administrative notes.


15. Approve and Publish: Flag to “publish” a record group or index it for searching and display in the public search tool.

16. Date of Approval: Date record was approved for publishing.

17. Click Create Record Group/Update Record Group to save the record group to the database.

Use Text Search and Browse options in the Search (Upper Right Quadrant) to access and update or delete existing Record Groups.
Search (upper right quadrant)

This quadrant contains text and browse options for accessing Inventory and Record Group records for update, publication or removal from publication (public display), or deletion. Data exports, including the retention schedule, are available in Search Record Series and Browse Record Series.

- Search Record Inventory
- Search Record Series
- Browse Record Inventory
- Browse Record Series

Search

Select Search Records Inventory or Search Records Series.

A field will pop up that allows you to search by keyword or the * wildcard.

**enter * to search all**

Search Records Inventory

Displays asterisked data from the Records Inventory form.

<table>
<thead>
<tr>
<th>Records</th>
<th>Department</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business &amp; Finance Affairs</td>
<td>Controller</td>
<td>Accounting &amp; Tax</td>
</tr>
<tr>
<td>Business &amp; Finance Affairs</td>
<td>Controller</td>
<td>Accounting &amp; Tax</td>
</tr>
<tr>
<td>Registrar</td>
<td>Registrar</td>
<td>Athletics &amp; Recreation</td>
</tr>
</tbody>
</table>
To view the full record, select the Record Name. A pop up box with the record will open on the left side of the screen.

1) Record Name: Employee Attendance

2) Record Description:
Payroll records indicating time worked, including absences, vacation, sick leave, etc. Includes allocation of time to various projects.

3) Functional Category
Employment

4) What department is the Primary Owner for these records?
Select a Division

4) Records Notes
Notes: (Department Answer)

Search Record Series
Displays asterisked data from the Record Series form.

From this screen you can access and export data. There are four formatting options:
1. excel spreadsheet
2. CSV file
3. HTML
4. XML

To create the export, select the format that you want. The icons are located on the upper left corner of the data table.
You may also choose to publish or unpublished the Record Series. This option is available in the last (right) column.

Check or uncheck the publish box and click select.

Use the Publish check box to flag records that are approved and should appear in the Public Search Tool search results or to “un-publish” or remove records from the public search results. Alternatively, use the Publish All checkbox at the bottom of the screen to flag ALL record groups for public search display. NOTE: This is the only place where the publish flag can be managed without going into the individual Record Group.

To view the full record, select the record name you want to access. A pop up box with the record will open on the left side of the screen.

**Browse**

Select Browse Record I

1. Select Browse Record inventory. A field will pop up with a drop down box.
2. Select the Department and Division that you would like to view.
3. Select Display All to view all. If you have a default for Division/Department select Display All.
4. Click the Get Department Record Types or Get Records Series button.
Browse Records Inventory

This will display asterisked data from the Inventory.

To view the full record, select the record name. A pop up box with the record will open on the left side of the screen.

Browse Record Series

This will display the Retention Schedule.
From this screen you can export the retention schedule. There are four export formatting options:

1. Excel spreadsheet
2. CSV file
3. HTML
4. XML

To create the export, select the format that you want. The icons are located on the upper left corner of the data table.

To view the full record, select the record name. A pop up box with the record will open on the left side of the screen.

Update and Delete Records

Records accessed through Browse and Search can be updated and deleted. After opening the record, make edits in the appropriate field and scroll to the bottom of the form.

Create Record Series

You will have the option to Update, Delete, or Create Record Series.

- Click the Update button to save edits.
- Click the Delete button to Delete the record (all deleted records are still accessible in the database).
- Click the Create Record Series link to open a Record Series form.
Administrative (Lower Right Quadrant)

This quadrant contains allows uploads and imports, access to deleted records, indexing, records audits, and dashboard password changes.

<table>
<thead>
<tr>
<th>Administrative</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ Upload Files</td>
</tr>
<tr>
<td>▪ Import Retention Schedules</td>
</tr>
<tr>
<td>▪ Browse Deleted Record Inventory</td>
</tr>
<tr>
<td>▪ Browse Deleted Record Series</td>
</tr>
<tr>
<td>▪ Delete Public Search Index</td>
</tr>
<tr>
<td>▪ Run Database Index</td>
</tr>
<tr>
<td>▪ Refresh Public Search Index</td>
</tr>
<tr>
<td>▪ Text Search - Audit</td>
</tr>
<tr>
<td>▪ Change Password</td>
</tr>
</tbody>
</table>

Upload Files

The Upload function allows users to upload batch Records Series. The Record Series may then be indexed, and can be accessed and edited via browse and search Record Series. CSV files must be used for upload. Any spreadsheet can be converted to a CSV file. Please consult your software directions to determine how to convert your spreadsheet.

*Comma Separated Value (CSV) is a simple file format that is widely supported by consumer, business, and scientific applications. Among its most common uses is to move tabular data between programs that naturally operate on a more efficient or complete proprietary format.

To begin, select Upload Files. This will open a screen that outlines the data formatting requirements for upload, and the file browse and upload buttons. A Data Template is available as well.

**Data Template - Downloadable excel spreadsheet form**

<table>
<thead>
<tr>
<th>recordCategory</th>
<th>recordCode</th>
<th>recordName</th>
<th>recordDescription</th>
<th>keywords</th>
<th>retentionPeriod</th>
<th>disposition</th>
<th>retentionDecisions</th>
<th>retentionNotes</th>
<th>primaryOwnerOverride</th>
</tr>
</thead>
</table>

upload
Data Headers (same as the fields in the Record Series Form) are:
recordCategory
recordCode
recordName
recordDescription
keywords
retentionPeriod
disposition
retentionDecisions
retentionNotes
primaryOwnerOverride
*see the Record Series Form for requirement definitions

To upload:
1. Select the Browse button to choose the file for upload
2. Click the Upload button

![Browse button](browse.png)

**Import Retention Schedules**
This function allows you to import legacy Retention Schedules. The Retention Schedule may then be indexed, and can be accessed and edited via browse and search Record Series. CSV files must be used for upload. Any spreadsheet can be converted to a CSV file. Please consult your software directions to determine how to convert your spreadsheet.

*Comma Separated Value (CSV) is a simple file format that is widely supported by consumer, business, and scientific applications. Among its most common uses is to move tabular data between programs that naturally operate on a more efficient or complete proprietary format.*

Select the Import Retention Schedules link to begin. This will open the import page.

**Data Template - Downloadable xcel spreadsheet form**

***Delete Header row before conversion to CSV format***

<table>
<thead>
<tr>
<th>recordCategory</th>
<th>recordCode</th>
<th>recordName</th>
<th>recordDescription</th>
<th>keywords</th>
<th>retentionPeriod</th>
<th>disposition</th>
<th>retentionDecisions</th>
<th>retentionNotes</th>
<th>primaryOwnerOverride</th>
</tr>
</thead>
</table>

Select your file

![Import Retention Schedules button](import.png)
Data Headers (same as the fields in the Record Series Form) are:
recordCategory
recordCode
recordName
recordDescription
keywords
retentionPeriod
disposition
retentionDecisions
retentionNotes
primaryownerOverride

*see the Record Series Form for requirement definitions

To import the file:

1. Select file uploaded to server from the dropdown menu.
2. Click the Import Retention Schedules button

NOTE: Duplicate record codes will be rejected and will produce a database error. All imported information is appended to the record group table, nothing is overwritten.

Upload/Import Troubleshooting

1. The upload/import writes only new records. If any record series has the same code it will not load.
2. If reloading the entire retention schedule database, the existing contents must first be cleared out of the database. This can be accomplished by:
   a. Manually deleted the existing record series.
   b. Asking your local technical resource for the RA system to clear the database using commands, scripts, and/or code they develop.
3. When the Index step is required in to pick up new entries for display in Public Search Tool:
   a. Delete index (only if starting over with a new retention schedule database)
   b. Run index (to re-index)
c. Refresh public index (to pick up new entries for display)

4. If the columns in the upload spreadsheet are re-ordered the data will load, but incorrectly, into the wrong columns.

5. The upload posts the data it finds and skips empty cells.

6. Headers not deleted from the upload spreadsheet will be included as a record series

**Browse Deleted Record Inventory**

This function allows you to browse deleted Records Inventories. Once accesses the deleted records can be restored or purged.

To open the Browse Deleted Inventory function, select the Browse Deleted Record Inventory link on the Dashboard page.

```
Select your division

Select your department  Get Deleted Record Types
```

To open the table of deleted records, select s division and department from the drop down menus. You can also select Display All. Then click the Get Deleted Record Types button. This will open the table of deleted records.

**Display All**

<table>
<thead>
<tr>
<th>Restore</th>
<th>Division</th>
<th>Department</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business &amp; Financial Affairs</td>
<td>Controller</td>
<td>Accounting &amp; Tax</td>
<td>(DELETE) Cost Accounting Records</td>
</tr>
<tr>
<td>Business &amp; Financial Affairs</td>
<td>Controller</td>
<td>Accounting &amp; Tax</td>
<td>(DELETE) Credit Applications and Financing Records</td>
</tr>
<tr>
<td>Business &amp; Financial Affairs</td>
<td>Controller</td>
<td>Accounting &amp; Tax</td>
<td>(DELETE) Trial Balances</td>
</tr>
</tbody>
</table>

**New Search**

Select the New Search link to start a new search.

**Restore**

Click the Restore button to restore the data.
Purge
Click the Purge button to purge the data.

Browse Deleted Record Series
This function allows you to browse, restore, and purge deleted record series.

To open the Browse Deleted Series function, select the Browse Deleted Record Series link on the Dashboard page.

To open the table of deleted record series, select s division and department from the drop down menus. You can also select Display All. Then click the Get Deleted Record Series button. This will open the table of deleted records series.

Restore
Click the Restore button to restore the data.

Purge
Click the Purge button to purge the data.
Indexing

The indexing functions allow users to index the Public Search data and backend data. Jetty is used for the database and Solr for the public search. To update the public search the index must be deleted and then refreshed.

- Delete Public Search Index
- Run Database Index
- Refresh Public Search Index

Delete Public Search Index
Click the Yes button

Are you sure you want to delete the public search index.

[Yes] [No]

Run Database Index

Click the link and the new database index will pop up.

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACA-001</td>
<td>Commencement</td>
</tr>
<tr>
<td>ACA-005</td>
<td>Course Materials</td>
</tr>
<tr>
<td>ACA-010</td>
<td>Curriculum Planning and Content</td>
</tr>
<tr>
<td>ACA-015</td>
<td>Faculty Promotion and Tenure</td>
</tr>
<tr>
<td>ACA-020</td>
<td>Library Book or Publication Disposal Record</td>
</tr>
<tr>
<td>ACA-025</td>
<td>Library Collection Management Records</td>
</tr>
</tbody>
</table>

Refresh Public Search Index

This is required to update the public search after upload/imports and manual additions. Select the link and the following message will pop up when the index is complete.

Records Indexed Successfully.

Text Search - Audit

Use this option to display the transaction log for all changes made via the Records Authority dashboard.

Select the Text Search-Audit link to open the Audit Search page.
To search for audited records:
1. Enter keyword or * wildcard
2. Choose date range
3. Click the Search button

This opens a table of audited changes,

<table>
<thead>
<tr>
<th>User</th>
<th>Date</th>
<th>Previous Data</th>
<th>Current Data</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2011-04-14</td>
<td>retentionScheduleID: 144; userId: 4d79400b47be7; recordCode: FIN-674; recordName: Undeclared Wages; recordDescription: Reports and other records related to abandoned wages remitted to the state; recordCategory: Fiscal; keywords:; retentionNotes: ; retentionDecisions: APA 2009, 10-15: 5 years in the State of Colorado; disposition: Destroy; primaryAuthority: ; officeOfPrimaryResponsibility: 1000; relatedAuthorities: ; notes: ; vitalRecord: no; approvedByCounsel: yes; approvedByCounselDate: 2011-03-10; sessionDate: 2011-03-10 14:18:03; updateTimestamp: ; updateUser:</td>
<td>retentionScheduleID: 144; recordCode: FIN-674; recordName: Undeclared Wages; recordDescription: Reports and other records related to abandoned wages remitted to the state; recordCategory: Fiscal; keywords:; retentionNotes: ; retentionDecisions: APA 2009, 10-15: 5 years in the State of Colorado; disposition: Destroy; primaryAuthority: ; officeOfPrimaryResponsibility: 1000; relatedAuthorities: ; notes: ; vitalRecord: no; approvedByCounsel: yes; approvedByCounselDate: 2011-03-10; sessionDate: 2011-03-10 14:18:03; updateTimestamp: ; updateUser:</td>
</tr>
<tr>
<td></td>
<td>2011-04-14</td>
<td>retentionScheduleID: 145; userId: 4d79400b47be7; recordCode: FIN-680; recordName: Vendor Bids; recordDescription: Proposals from outside vendors that indicate the terms and conditions under which they will supply goods or services.; recordCategory: Fiscal; keywords:; retentionNotes: ; retentionDecisions: disposition: Store securely.; primaryAuthority: ; officeOfPrimaryResponsibility: 1000; relatedAuthorities: ; notes: ; vitalRecord: no; approvedByCounsel: yes; approvedByCounselDate: 2011-03-10; sessionDate: 2011-03-10 14:18:03; updateTimestamp: ; updateUser:</td>
<td>retentionScheduleID: 145; recordCode: FIN-681; recordName: Vendor Bids; recordDescription: Proposals from outside vendors that indicate the terms and conditions under which they will supply goods or services.; recordCategory: Fiscal; keywords:; retentionNotes: ; retentionDecisions: disposition: Store securely.; primaryAuthority: ; officeOfPrimaryResponsibility: 1000; relatedAuthorities: ; notes: ; vitalRecord: no; approvedByCounsel: yes; approvedByCounselDate: 2011-03-10; sessionDate: 2011-03-10 14:18:03; updateTimestamp: ; updateUser:</td>
</tr>
</tbody>
</table>

The table shows:
User – the last user to access the record
Date – the date and timestamp from when the record was accessed
Previous Data – original data from each series heading at time accessed
Current Data – changes made
Change Password

This function enables dashboard users to change their own passwords.

NOTE: Only the system administrator has the ability to establish new dashboard passwords or to delete passwords.

To open the Change Password page, select the Change Password link.

1. Enter old password.
2. Enter new password.
3. Enter new password again.
4. Click the Update button.
VI. Records Survey

The Records Survey is intended to be sent to departments, offices, or individuals to gather information about their records. If your institution chooses to use the Survey a URL link to the survey form will be sent to a designate that will complete and submit the online survey. The submitted survey will then be accessible via the dashboard. The survey is easily accessible and modifiable. Use of this module is not required.

Survey Features

- The survey allows departments to designate contacts and assemble high level responses about purpose, structure, and record uses and holdings.
- The questions on the survey are intended to apply to all records held, whether in paper or electronic form.
- Allows respondents to attach files (org charts and departmental histories)

Once the designated respondent has received the request to complete the survey, and the link to access the survey, they will login to access the survey. The RA survey is designed to authenticate at the institution level so anyone with rights to your institution’s network will be able to use their login to access the survey form. See Authentication in Requirements.
The survey consists of predetermined questions that can be modified in the Survey Editor Function in the Administrative Dashboard. The respondent will complete each question field.

Please list any records and their formats that your department owns or uses. *

What is unique about your department in regards to records?

Are there any records you would like assistance managing in your department? (List records)

Do any of your department's records fall into the following categories? (Check all that apply) *

- Records containing personally identifiable information such as SSNs
- Student records
- Records containing other sensitive or confidential information
- Records with restricted access
- Records whose retention is governed by legislation
- None of the above
- Not sure

Once completed the respondent will need to click:

Submit your responses

Respondents should be notified that the survey will need to be completed in its entirety at the time it is submitted. It cannot be saved and completed later.
VII. Public Retention Schedule

The Public Retention Schedule Module gives Institutions a way to publish the retention schedule. The use of this module is not required.

After opening the Public Retention Schedule page, users will be able to search and browse to view the Retention Schedule.

Search the Records Retention Schedule

Search, Browse, Download/Print

Information may be retrieved from the retention schedule via:

Keyword Search
Typing in a word or words and clicking the Search button retrieves based on full-text indexing of the contents of all fields in the retention schedule. The following types of keyword searching are supported: implicit phrase searching (no quotation marks required), searching on word components of compound words, and wildcard searching of word stems with an asterisk (*).

Full Schedule
- Clicking on the Full Schedule link runs a pre-set query that displays all published content for the retention schedule.
- Clicking on the Print Full Schedule link will initiate an export of the schedule in Microsoft Excel format. This function can be used by anyone to save and print a local copy of the schedule.

Browse the Schedule
- Browse by Functional Category — allows users to select Functional Category to browse.
• **Browse by Department** – allows users to select Department to browse.

![Select a division select a department search]

### Search Results Display

Search results display directly below the gray search box. Depending on the size of the screen it may not always be apparent that results have displayed without scrolling down.

![Search results display]

<table>
<thead>
<tr>
<th>Records Found: 153</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Record Code</strong></td>
</tr>
<tr>
<td>ACA-001 Academic</td>
</tr>
<tr>
<td>ACA-005 Academic</td>
</tr>
<tr>
<td>ACA-010 Academic</td>
</tr>
<tr>
<td>ACA-015 Academic</td>
</tr>
<tr>
<td>ACA-020 Academic</td>
</tr>
<tr>
<td>ACA-025 Academic</td>
</tr>
</tbody>
</table>

- The total number of **Records Found** (record group or series records) is displayed upper left.
- Use the touch device scroll or the inside scroll bar to display more than one page of results.
- The column headings persist as the display scrolls down. Clicking on the arrows beside a column header sorts the list by values in that column.
  - **Record Code** – Unique code assigned to each record group for convenient reference.
  - **Functional Category** – Broad grouping by high level process
  - **Record Group Name** – Name of a record series
  - **Record Description** – Contains narrative text that describes the record group.
  - **Retention Period** – Holds a text description of the requirements for retention.
  - **Retention Rules** – Information about disposition
NOTE: Institutions may work with their technical administrators to modify which fields display in the RA Public Search Tool and to modify the column header labels as desired.

- If the contents of the Description and Search Term fields exceed the space allotted for display, the more... link will appear.
- Click on the Record Group name or any more... link to see the full including information that exceeds the display space and non-displaying information.

---

University Records Management Program

Record Code:
ACA-001

Functional Category:
Academic

Record Group:
Commencement

Description:
Published record of graduates for public distribution.

Search Terms:
Undergraduate, post-graduate, honorary degrees

Retention Period:
Permanent, keep in unit until no longer needed

Retention Rules:
Transfer an official copy to DU Archives at Penrose Library.

Primary Owner:
DU - DU

Public Retention Schedule - Approved Date:
2011-03-10
VIII. FAQ

Question: How do I get updates I have made to a “published” Record Group (Series) to display in the Public Search results?

Answer: Once you have made and saved your changes, go to the Administrative (Lower Right Quadrant) tools and select Index.
   - Once the indexing is complete, select Refresh Solr.
   - When the refresh has completed, click the link to Public Search in the Database (Lower Left Quadrant) to double-check that search results display the update.

Question: Must I have survey information to create an Inventory (record) for a department?

Answer: No you may create an inventory record independently or based on a department inventory.

Question: Must I have a pre-existing inventory record in order to create a new record series?

Answer: No you may create a new record series from scratch or base it on a department inventory.

Question: Why can't I see the updates I just imported on the Public Search

Answer: More than likely, you forgot to refresh the Solr index. Delete the current index and rerun Solr.
IX. Appendices

CSV File Prep

Summary – Upload Steps
1. Prepare retention schedule data in a spreadsheet, one row per record group or series
2. Remove headers from spreadsheet
3. Save spreadsheet as a CSV file
4. Upload or Import

Step-by-Step File Prep
1. Prepare the spreadsheet using the layout in the Upload Example below.
2. The upload uses the column position to determine which data to move to the correct table and field in the Records Authority database.
3. Columns or cells may be left blank, but should not be re-ordered. Re-ordering will cause the upload to fail or to load data to incorrect locations.
4. The Upload Example below illustrates the number of columns and the order of the columns that is REQUIRED for the upload to work.

<table>
<thead>
<tr>
<th>recordCategory</th>
<th>recordCode</th>
<th>recordName</th>
<th>recordDescription</th>
<th>keywords</th>
<th>retentionPeriod</th>
<th>disposition</th>
<th>retentionDecisions</th>
<th>retentionNotes</th>
<th>primaryOwnerOverride</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Once the spreadsheet is complete, and PRIOR to file conversion, REMOVE ALL header rows.
1. **Convert the spreadsheet to .CSV format.** This is usually accomplished using Save As to select the new format. Save the .csv file in an easy to browse to location.
2. Go to **Upload Files in the Administrative section of the Dashboard.**
XML Export

The XML Export option available from the Dashboard is based on the MoReq XML Schema. The information that follows is a synopsis by John Adams, DU MLIS Candidate, and describes his mapping of the MoReq2 schema and RA.

RA XML Crosswalk

The purpose of this report is to explain the process by which we built a crosswalk of the University of Denver's Database Management System (DBM) to the Model for Functional Requirements (MoReq2) in order to achieve greater interoperability and harvesting potential for the records held at the University of Denver.

The first step was to establish an absolute mapping from the smallest elements of each system, respectfully. This involved taking each DBM child element and finding a similar component counterpart in MoReq2. This was accomplished by examining the specifications of MoReq2, determining the functions of each element, and finding the closest match in DBM. This can be seen in Figure One below.

The second step was to determine the proper XML Schema Definition (XSD) that would be the most appropriate for this function. After several tries with various templates we determined that the Component XSD would be the best fit for our purpose. We then placed our individual components within the larger Class XSD. We arrived at this decision because the ability of the Component XSD to allow for the addition of several elemental properties beyond the basic specification. We believe that this will allow for the greatest versatility of the sharing of information when attempting to export the database files.

There are elements within each XSD that may not be used in a particular instance, such as the technical information located in the USE element, but are required for validation so we left them in as a necessity. If these particular elements required input in order to validate we included the symbols [] to stand in for information. We can also reason that if it becomes prudent in the future to include more information in these particular records, we can utilize these “blank” fields to add for greater.

Our final step was to take a sample record from the DBM database, Figure Two, and show how it fits within the MoReq2 XSD. This is exemplified in Figure Three.
<table>
<thead>
<tr>
<th>Event_history.date.modified</th>
<th>updateDate</th>
<th>rm_audit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identity.system_identifier_rendition</td>
<td>auditID</td>
<td>rm_audit</td>
</tr>
<tr>
<td>Relation.entity_agent</td>
<td>username</td>
<td>rm_audit</td>
</tr>
<tr>
<td>Description.abstract.description</td>
<td>previousData</td>
<td>rm_audit</td>
</tr>
<tr>
<td>Event_history.date.created</td>
<td>timestamp</td>
<td>rm_audit</td>
</tr>
<tr>
<td>Description.abstract.description</td>
<td>currentData</td>
<td>rm_audit</td>
</tr>
<tr>
<td>Identity.system_identifier</td>
<td>divisionID</td>
<td>rm_departments</td>
</tr>
<tr>
<td>Abstract.description</td>
<td>departmentName</td>
<td>rm_departments</td>
</tr>
<tr>
<td>Event_history.date.created</td>
<td>timestamp</td>
<td>rm_departments</td>
</tr>
<tr>
<td>Identity.system_identifier</td>
<td>divisionID</td>
<td>rm_departments</td>
</tr>
<tr>
<td>Description.title</td>
<td>divisionName</td>
<td>rm_departments</td>
</tr>
<tr>
<td>Description.classification.case_id</td>
<td>recordCategoryID</td>
<td>rm_recordCategories</td>
</tr>
<tr>
<td>Description.abstract.description</td>
<td>recordCategory</td>
<td>rm_recordCategories</td>
</tr>
<tr>
<td>Event_history.date.created</td>
<td>timestamp</td>
<td>rm_recordCategories</td>
</tr>
<tr>
<td>Description.classification.case_id</td>
<td>recordCode</td>
<td>rm_retentionSchedule</td>
</tr>
<tr>
<td>Description.title</td>
<td>recordName</td>
<td>rm_retentionSchedule</td>
</tr>
<tr>
<td>Description.abstract.reason</td>
<td>recordDescription</td>
<td>rm_retentionSchedule</td>
</tr>
<tr>
<td>Description.classification.classification_code</td>
<td>recordCategory</td>
<td>rm_retentionSchedule</td>
</tr>
<tr>
<td>Description.abstract.keyword</td>
<td>keywords</td>
<td>rm_retentionSchedule</td>
</tr>
<tr>
<td>Event_plan.date</td>
<td>retentionPeriod</td>
<td>rm_retentionSchedule</td>
</tr>
<tr>
<td>Identity.system_identifier</td>
<td>primaryAuthorityRetention</td>
<td>rm_retentionSchedule</td>
</tr>
<tr>
<td>Description.abstract.description</td>
<td>retentionNotes</td>
<td>rm_retentionSchedule</td>
</tr>
<tr>
<td>Description.abstract.description</td>
<td>retentionDecisions</td>
<td>rm_retentionSchedule</td>
</tr>
<tr>
<td>Description.mandate</td>
<td>disposition</td>
<td>rm_retentionSchedule</td>
</tr>
<tr>
<td>Identity.system_identifier</td>
<td>primaryAuthority</td>
<td>rm_retentionSchedule</td>
</tr>
<tr>
<td>Identity.system_identifier</td>
<td>officeOfPrimaryResponsibility</td>
<td>rm_retentionSchedule</td>
</tr>
<tr>
<td>Description.abstract.description</td>
<td>relatedAuthorities</td>
<td>rm_retentionSchedule</td>
</tr>
<tr>
<td>Use.status.vital_record</td>
<td>vitalRecord</td>
<td>rm_retentionSchedule</td>
</tr>
<tr>
<td>Event_history.date.reviewed</td>
<td>approvedByCounselDate</td>
<td>rm_retentionSchedule</td>
</tr>
<tr>
<td>Event_history.date.created</td>
<td>timestamp</td>
<td>rm_retentionSchedule</td>
</tr>
<tr>
<td>Identity.system_identifier.retaination_and_disposition_schedule</td>
<td>retentionScheduleID</td>
<td>rm_retentionScheduleDeleted</td>
</tr>
<tr>
<td>Identity.system_identifier_rendition</td>
<td>uuid</td>
<td>rm_retentionScheduleDeleted</td>
</tr>
<tr>
<td>Description.classification.case_id</td>
<td>recordCode</td>
<td>rm_retentionScheduleDeleted</td>
</tr>
<tr>
<td>Description.title</td>
<td>recordName</td>
<td>rm_retentionScheduleDeleted</td>
</tr>
<tr>
<td>Description.abstract.reason</td>
<td>recordDescription</td>
<td>rm_retentionScheduleDeleted</td>
</tr>
<tr>
<td>Description.classification.classification_code</td>
<td>recordCategory</td>
<td>rm_retentionScheduleDeleted</td>
</tr>
<tr>
<td>Description.abstract.keyword</td>
<td>keywords</td>
<td>rm_retentionScheduleDeleted</td>
</tr>
<tr>
<td>Event_plan.date</td>
<td>retentionPeriod</td>
<td>rm_retentionScheduleDeleted</td>
</tr>
<tr>
<td>Identity.system_identifier</td>
<td>primaryAuthorityRetention</td>
<td>rm_retentionScheduleDeleted</td>
</tr>
<tr>
<td>Description.abstract.description</td>
<td>retentionNotes</td>
<td>rm_retentionScheduleDeleted</td>
</tr>
<tr>
<td>Description.abstract.description</td>
<td>retentionDecisions</td>
<td>rm_retentionScheduleDeleted</td>
</tr>
<tr>
<td>Description.mandate</td>
<td>disposition</td>
<td>rm_retentionScheduleDeleted</td>
</tr>
<tr>
<td>Identity.system_identifier</td>
<td>primaryAuthority</td>
<td>rm_retentionScheduleDeleted</td>
</tr>
</tbody>
</table>
### Figure Two. Sample DBM Record

<table>
<thead>
<tr>
<th>Identity_system_identifier</th>
<th>officeOfPrimaryResponsibility</th>
<th>rm_retentionScheduleDeleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description.abstract.description</td>
<td>relatedAuthorities</td>
<td>rm_retentionScheduleDeleted</td>
</tr>
<tr>
<td>Description.abstract.description</td>
<td>notes</td>
<td>rm_retentionScheduleDeleted</td>
</tr>
<tr>
<td>Use.status.vital_record</td>
<td>vitalRecord</td>
<td>rm_retentionSchedule Deleted</td>
</tr>
<tr>
<td>Event_history.abstract.review_action_reason</td>
<td>approvedByCounsel</td>
<td>rm_retentionSchedule Deleted</td>
</tr>
<tr>
<td>Event_history.date.reviewed</td>
<td>approvedByCounselDate</td>
<td>rm_retentionSchedule Deleted</td>
</tr>
<tr>
<td>Event_history.date.created</td>
<td>timestamp</td>
<td>rm_retentionSchedule Deleted</td>
</tr>
<tr>
<td>Event_history.date.modified</td>
<td>updateTimestamp</td>
<td>rm_retentionSchedule Deleted</td>
</tr>
<tr>
<td>Event_history.date.modified</td>
<td>updateUser</td>
<td>rm_retentionSchedule Deleted</td>
</tr>
</tbody>
</table>

### Record Code:
ATH-210

### Functional Category:
Athletics

### Record Group:
Athletic Eligibility

### Description:
Verification which Athletics provides to NCAA verifying student athletes' academic progress.

### Search Terms:
Squad list, Compliance assistant eligibility checklist, eligibility audit excel file

### Retention Period:
5 years after last day of attendance or 6 years total

### Retention Rules:
Destroy.

### Primary Owner:
DU - DU

### Public Retention Schedule - Approved Date:
2011-03-10
Figure Three. Sample DBM record in MoReq2 Component XSD.

<!--The XSD for this schema will need to be downloaded on the particular machine reading it from http://www.moreq2.eu/moreq2-->

<?xml version="1.0" encoding="UTF-8"?>
<Class xmlns="http://www.dlm-network.org/moreq2/1.04.01"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.dlm-network.org/moreq2/1.04.01.xsd">

<!--The XSD for this schema will need to be downloaded on the particular machine reading it from http://www.moreq2.eu/moreq2-->

<Description xmlns=

<Event-history xmlns=

<Event-plan xmlns=

<Identity xmlns=

<Relation xmlns=

</Relation>

</Identity>

</Event_plan>

</Event_history>

</Date>

<Created>2011-05-10T09:00:00</Created>

<Opened>2011-05-10T09:00:00</Opened>

</Date>

</Event_plan>

<Identity xmlns="">

<System_identifier>DU001</System_identifier>

</Identity>

<Relation xmlns="">

<Agent>

<Owner>DU</Owner>

</Agent>

<Is_child_of>[]</Is_child_of>

<Retention_and_disposition_schedule>[]</Retention_and_disposition_schedule>

</Relation>

</Class>
<Use xmlns="">
  <status>
    <active>0</active>
    <physical>0</physical>
  </status>
</Use>

<Files xmlns="">
  <File_Stub xmlns="http://www.dlm-network.org/moreq2/1.04.01">
    <Description xmlns="">
      <abstract>
        <description>[]</description>
      </abstract>
      <classification>
        <new_fully_qualified_classification_code>[]</new_fully_qualified_classification_code>
      </classification>
      <title>[]</title>
    </Description>
    <Relation xmlns="">
      <agent>
        <destroy_or_transfer_or_relocate>[]</destroy_or_transfer_or_relocate>
      </agent>
    </Relation>
  </File_Stub>
  <Record xmlns="http://www.dlm-network.org/moreq2/1.04.01">
    <Description xmlns="">
      <author>
        <name>DU DBM MOREQ2</name>
      </author>
      <classification>
        <classification_code>[]</classification_code>
        <fully_qualified_classification_code>[]</fully_qualified_classification_code>
      </classification>
      <date>2011-05-10T09:00:00</date>
      <title>[]</title>
    </Description>
    <Event_history xmlns="">
      <date>
        <captured>2011-05-10T09:00:00</captured>
      </date>
    </Event_history>
  </Record>
</Files>
<Event_history>
  <Event_plan xmlns="">
    <date>
      <return>2011-05-10</return>
    </date>
    <status>
      <permanent>0</permanent>
    </status>
  </Event_plan>
  <Identity xmlns="">
    <system_identifier>[]</system_identifier>
  </Identity>
  <Relation xmlns="">
    <agent>
      <owner/></owner>
    </agent>
    <is_child_of>[]</is_child_of>
    <retention_and_disposition_schedule>[]</retention_and_disposition_schedule>
    <record_type>[]</record_type>
  </Relation>
  <Use xmlns="">
    <status>
      <electronic_signature>0</electronic_signature>
      <physical>0</physical>
      <vital_record>0</vital_record>
    </status>
    <technical_environment>
      <electronic_signature>[]</electronic_signature>
    </technical_environment>
  </Use>
  <Components xmlns="">

<!-- Record Code: ATH-210 -->

  <Component xmlns="http://www.dlm-network.org/moreq2/1.04.01">
    <Description>
      <abstract><reason_for_rendition>recordCode</reason_for_rendition></abstract>
      <classification>
        <classification_code>###</classification_code>
      </classification>
    </Description>
  </Component>
</Event_history>
<fullyQualifiedClassificationCode>[]</fullyQualifiedClassificationCode>
</classification>
</Description>
</Identity>
<system_identifier>ATH-210</system_identifier>
</Identity>
<Relation>
<is_child_of>rm_retentionSchedule</is_child_of>
</Relation>
<Use>
<technical_environment>
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<file_format_original>[]</file_format_original>
<file_format_version>[]</file_format_version>
<file_format_version_original>[]</file_format_version_original>
</technical_environment>
</Use>
</Component>

<!-- Functional Category: Athletics -->
<Component xmlns="http://www.dlm-network.org/moreq2/1.04.01">
</Component>
<!-- Record Group: Athletic Eligibility -->

<Component xmlns="http://www.dlm-network.org/moreq2/1.04.01">
  <Description/>

  <abstract><reason_for_rendition>recordName</reason_for_rendition></abstract>
  <classification>
    <classification_code>[]></classification_code>
    <fully_qualified_classification_code>[]></fully_qualified_classification_code>
  </classification>

  <Identity>
    <system_identifier>[]></system_identifier>
  </Identity>

  <Relation>
    <is_child_of>rm_retentionSchedule</is_child_of>
  </Relation>

  <Use>
    <technical_environment>
      <file_format>[]></file_format>
      <file_format_original>[]></file_format_original>
      <file_format_version>[]></file_format_version>
      <file_format_version_original>[]></file_format_version_original>
    </technical_environment>
  </Use>

  <Custom><Description><abstract>Athletic Eligibility</abstract></Description></Custom>
</Component>
<Component xmlns="http://www.dlm-network.org/moreq2/1.04.01">
  <!-- Description:
Verification which Athletics provides to NCAA verifying student athletes' academic progress.-->
  <Component xmlns="http://www.dlm-network.org/moreq2/1.04.01">
    <Description>
      <abstract><reason_for_rendition>recordName</reason_for_rendition></abstract>
      <classification>
        <classification_code>recordName</classification_code>
      </classification>
    </Description>
    <Identity>
      <system_identifier>recordName</system_identifier>
    </Identity>
    <Relation>
      <is_child_of>recordName</is_child_of>
    </Relation>
    <Use>
      <technical_environment>
        <file_format>recordName</file_format>
        <file_format_original>recordName</file_format_original>
        <file_format_version>recordName</file_format_version>
        <file_format_version_original>recordName</file_format_version_original>
      </technical_environment>
    </Use>
  </Component>
</Component>

<!-- Search Terms: Squad list, Compliance assistant eligibility checklist, eligibility audit excel file -->

<Component xmlns="http://www.dlm-network.org/moreq2/1.04.01">
  <Description>
    <abstract><reason_for_rendition>recordName</reason_for_rendition></abstract>
  </Description>
</Component>
<classification>
  <classification_code>[]</classification_code>
  <fully_qualified_classification_code>[]</fully_qualified_classification_code>
</classification>
</Description>
<Identity>
  <system_identifier>[]</system_identifier>
</Identity>
</Relation>
<is_child_of>rn_retentionSchedule</is_child_of>
</Relation>
<Use>
  <technical_environment>
    <file_format>[]</file_format>
    <file_format_original>[]</file_format_original>
    <file_format_version>[]</file_format_version>
    <file_format_version_original>[]</file_format_version_original>
  </technical_environment>
</Use>
<Custom><Description><abstract><keywords>Squad list, Compliance assistant eligibility checklist, eligibility audit excel file</keywords></abstract>
</Description>
</Custom>
</Component>

<!--Retention Period: 5 years after last day of attendance or 6 years total--> 
<Component xmlns="http://www.dlm-network.org/moreq2/1.04.01">
  <Description>
    <abstract><reason_for_rendition>retentionPeriod</reason_for_rendition></abstract>
    <classification>
      <classification_code>[]</classification_code>
    </classification>
    <fully_qualified_classification_code>[]</fully_qualified_classification_code>
  </Description>
</Component>
<Event_history/>

<Identity>
  <system_identifier>65</system_identifier>
</Identity>

<Relation>
  <is_child_of>rm_retentionSchedule</is_child_of>
</Relation>

<Use>
  <technical_environment>
    <file_format>pdf</file_format>
    <file_format_original>pdf</file_format_original>
    <file_format_version>pdf</file_format_version>
    <file_format_version_original>pdf</file_format_version_original>
  </technical_environment>
</Use>

<Custom><Description><abstract>5 years after last day of attendance or 6 years total</abstract></Description>
</Custom>

<!-- Retention Rules: Destroy.-->

<Component xmlns="http://www.dlm-network.org/morerq2/1.04.01">
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    <classification>
      <classification_code>65</classification_code>
    </classification>
    <fully_qualified_classification_code>65</fully_qualified_classification_code>
  </Description>
  <Identity>
    <system_identifier>65</system_identifier>
  </Identity>
  <Relation>
    <is_child_of>rm_retentionSchedule</is_child_of>
  </Relation>
</Component>

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<Use>
  <technical_environment>
    <file_format>[]</file_format>
    <file_format_original>[]</file_format_original>
    <file_format_version>[]</file_format_version>
    <file_format_version_original>[]</file_format_version_original>
  </technical_environment>
</Use>

<!-- Primary Owner: DU - DU -->

<Component xmlns="http://www.dlm-network.org/moreq2/1.04.01">
  <Description>
    <abstract><reason_for_rendition>officOfPrimaryResponsibility</reason_for_rendition></abstract>
    
    <classification>
      <classification_code>[]</classification_code>
      <fully_qualified_classification_code>[]</fully_qualified_classification_code>
    </classification>
  </Description>

  <Identity>
    <system_identifier>[]</system_identifier>
  </Identity>

  <Relation>
    <is_child_of>rm_retentionSchedule</is_child_of>
  </Relation>

  <Use>
    <technical_environment>
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      <file_format_original>[]</file_format_original>
      <file_format_version>[]</file_format_version>
      <file_format_version_original>[]</file_format_version_original>
    </technical_environment>
  </Use>

  <Custom><Description><abstract> DU - DU</abstract></Description></Custom>
</Component>
<!-- Public Retention Schedule - Approved Date: 2011-03-10-->
<Component xmlns="http://www.dlm-network.org/moreq2/1.04.01">
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        <classification_code>[]</classification_code>
      </classification>
      <fullyQualified_classification_code>[]</fullyQualified_classification_code>
    </classification>
    </Description>
    <Identity>
      <system_identifier>[]</system_identifier>
    </Identity>
    <Relation>
      <is_child_of>rm_retentionSchedule</is_child_of>
    </Relation>
    <Use>
      <technical_environment>
        <file_format>[]</file_format>
        <file_format_original>[]</file_format_original>
        <file_format_version>[]</file_format_version>
        <file_format_version_original>[]</file_format_version_original>
      </technical_environment>
    </Use>
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  </Component>
</Components>
</Record>
</Records>
</File_Stub>
</Files>
</Class>