

**E-TERNALLY YOURS:  
THE CASE FOR THE DEVELOPMENT OF A RELIABLE  
REPOSITORY  
FOR THE  
PRESERVATION OF PERSONAL DIGITAL OBJECTS**

by

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## **ABSTRACT**

This paper examines the feasibility of establishing reliable repositories intended for the use of the average individual for the preservation of personal digital objects. Observers of technological change warn of the coming of a “digital dark age.” Rather than being systematic, the attempts of the average individual to preserve his or her personal digital objects – photos, documents, music – are ad hoc, at best. Digital archiving involves challenges both in terms of hardware reliability and software obsolescence, and requires a blend of technology platforms, legal and public policies, and organizational structure. These three areas must be combined in a cohesive manner in order to facilitate the preservation of personal digital objects for periods of decades or even centuries. Regarding the issue of technological feasibility, I present an examination of work that has already been performed in the field of digital preservation, including an assessment of DSpace, an open source platform used in institutional repositories to encapsulate data for long term archival. I then introduce my development of Alexandria@CyberStreet.com as an exploration of how a DSpace installation may be modified to suit the needs of personal archiving. Next, I present an examination of the legal and public policy issues concerning such a repository. Finally, I examine organizations that are devoted to the oversight of long-term endeavors and draw conclusions as to an appropriate administrative structure. I conclude that there are sufficient technological tools, public policies and organizational models in place to enable establishment of reliable, long term repositories for personal digital objects.

## **DEDICATION**

This thesis is dedicated to my loving husband Walter, who through more than twenty-five years has joined me in creating so many memories worthy of preserving.

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## CHAPTER ONE: INTRODUCTION

*Here is all that ever was, none are forgotten  
Nothing fades forever  
All that has passed comes around again  
For here, What is remembered lives  
What is remembered lives – “The Gates,” Reclaiming Collective*

German officers in World War I uniforms find rest in a field; a pack of foxhounds stare intently into the camera's eye; a young boy and girl gaze up at a cuckoo clock – these images sit lovingly against a backdrop of cracked yellow paper, scenes from a bygone era. My husband's grandfather was the photographer, and the boy and girl are his uncle and mother as they appeared in the days of their youth. All of the people in these photographs are long since gone; all that remains is the footprints that they have left behind, the tangible proof of their existence. These relics of the past serve to breathe life into our ancestors, allowing them to live once more through our memories. As befits the irreplaceable, we treasure these artifacts and make every effort to keep them safe from harm.

Enter another generation – a new century, a new millennium. My husband and I are excited as we plan our twenty-fifth wedding anniversary. We dig out boxes that have lain buried in the back of the closet, unearthing photos that tell the story of almost three decades of personal history. But our history does not lie solely on a piece of paper bearing the stamp of “Kodak” on its back; the images of the last several years have been captured by a digital camera, our hugs and our smiles encoded as a series of bits. The paper photos are scanned and blended with their digital counterparts; with the addition of a soundtrack, the entire story of the life we built together is encapsulated into one big,

multimedia package. The result is breathtaking, heartfelt, and at times even poignant.

But, is it permanent? In today's digital world, how can we be certain that we will be able to pass down the stories of our lives to our descendants? How can we ensure that we will be able to live on in their memories?

## **1.1 DIGITAL PRESERVATION**

When we look at a document, we listen to a story. This is because, as David Levy observes, "Documents are talking things. They are bits of the material world – clay, stone, animal skin, plant fiber, sand – that we have imbued with the ability to speak" [1]. Whether it is a photograph, an article, a piece of music or a video, they are conveying a message. But today, while documents may indeed "talk," they are no longer anchored to the material world. As we blog, "Twitter" and upload photos, we find that "being digital means being ephemeral" [2]. We can paste a traditional photo or a newspaper clipping into an album, store it in a shoebox, or even just place it in a drawer. In any case, it exists as a self contained entity. But this is not the case with a digital equivalent, which consists of byte streams, metadata, and requires the appropriate hardware and software framework to interpret it. We refer to these items as "digital objects," which may be defined as: "all of the relevant pieces of information required to reproduce the document including the metadata, byte streams, and special scripts that govern dynamic behavior"[1]. Examples include digital photos, electronic journal articles and books, music and video files.

Since digital objects cannot be placed in a scrapbook or stored in a shoebox, they require a special means of preservation, one that is suited to their ephemeral nature. Preservation of digital objects requires the ability to preserve the integrity of the data that

produces the object along with the ability to reconstitute the object in the face of changing technologies. Indeed, these requirements are so fundamental that the Research Libraries Group considers them to be defining characteristics of “digital preservation”:

“[T]he managed activities necessary: 1) For the long term maintenance of a byte stream (including metadata) sufficient to reproduce a suitable facsimile of the original document and 2) For the continued accessibility of the document contents through time and changing technology”[1].

## **1.2 THE “DIGITAL DARK AGES”**

How well equipped are we to meet the unique requirements for preserving digital objects? According to a number of observers, not well enough; many go so far as to predict that we are on the brink of an impending “digital dark age”[2]. Indeed, Matthew Connell, curator of Australia’s technology based Powerhouse Museum, wonders “what happens [...] when we discover that we no longer have the machines, the programs – the hardware and software – the know-how, to access all of that computer-based, digital material” [3]. Our lack of preparedness has caused Terry Kuny, one of the principles of the Canadian based information management consulting firm XIST, to observe that we are living in “an epoch of forgetting” [2], as more and more of our digital objects move towards obsolescence. He notes four trends that point to the beginning of a digital dark age: 1) We have already lost a substantial amount of digital information; 2) An increasing amount of digital information will be amassed as the Baby Boom generation retires and incorporates their materials into libraries and archives; 3) Information technologies become obsolete at an alarming rate, essentially every

18 months; 4) The proliferation of hardware and software formats, each with its own dependencies [2].

We already see evidence to support Kuny's observations. Senior Information Systems Analyst with the RAND Corporation Jeff Rothenberg informs us that: "Irreplaceable material is already being rendered illegible, unintelligible, and in some cases lost, primarily in the US, which, of course, led the digital revolution" [3]. The irony of the situation is not lost, as "[r]ecords of the entire present period of history are jeopardized by precisely the technology, and the pace of the technological change, that characterized it" [3]. Rothenberg points to the narrow escape of the records of the 1960 U.S. Census, which were stored on magnetic tape and "became obsolete faster than expected" [4]. The Census Bureau was successful at migrating portions of the records onto newer media, while those that were no longer readable were pieced together from information that had been stored on microfilm. While the bureau believes "that nothing irreplaceable was lost" [4], it serves to highlight the fragile nature of digital objects, prompting Rothenberg's observation that "digital information lasts forever – or five years, whichever comes first" [4].

Some records were not as fortunate, as "old NASA tapes and irreplaceable records from numerous experiments age ungracefully in the absence of funding to copy them to newer media" [4]. Other examples of information that has been lost cover a wide range of fields, including studies on marijuana abuse, consumer finance, public health, education finance, and records pertaining to prisoners of the Vietnam War [4]. And these are only examples of information that we have

already judged to be of value; we are at risk of losing irreplaceable pieces of our past due to the fact that “[t]he historical significance of many of our digital documents – which we may not consider important enough to warrant saving – may become apparent only long after they have become unreadable” [4].

### **1.3 CURRENT ATTEMPTS AT PRESERVATION**

The threat of a digital dark age has not gone unnoticed. Indeed, attempts are currently underway within the realms of government, academia and business to protect and preserve vital digital records. In December 2000, the Library of Congress instituted the National Digital Information Infrastructure and Preservation Program. At a cost of \$99.8 million dollars, this “program is funding research into various aspects of digital preservation, including collection practices, risk analysis, legal and policy issues, and technology” [5]. In a similar vein, 1998 witnessed the U.S. National Archives and Records Administration establishment of the Electronic Records Archive, with a goal of “a governmentwide move to electronic records management” [5].

In the realm of academia, Stanford University has established the LOCKSS (Lots of Copies Keep Stuff Safe) program, which is currently being “used by more than 80 institutions worldwide” [5]. In addition, The Massachusetts Institute of Technology has undertaken an open-source based initiative called DSpace, which is being used by more than 100 organizations worldwide, including Cornell University, the University of Cambridge, and the Hong Kong University of Science and Technology [5].

Industry giant IBM has not been left out. Members of their Haifa Research Lab are working to preserve the cultural heritage of Israel through the CASPAR (Cultural, Artistic, and Scientific knowledge for Preservation, Access and Retrieval) project. Manager of Storage Technologies Dalit Naor remarks: “Today, we can read and interpret the Dead Sea Scrolls written almost 2000 years ago, but we cannot do the same with information generated 20 years ago and stored on a 5.25 inch floppy disk” [6]. Researchers at IBM are contributing to the CASPAR project with an open standards storage technology called Preservation Datastores, coupled with “the Open Archival Information System to provide a common storage interface” [6].

What all of these projects have in common is the development and application of a systematic approach to preserving digital objects. According to Kuny, the concept of preservation is fairly straightforward: “As long as the relationship between hardware, software, humanware (organizations and people) is maintained, a kind of ‘preservation nexus’ exists and a digital object can be preserved forever”[2]. And yet here is the challenge: it is not enough to simply copy the data “from one storage medium to another but will also entail translation into new formats or structures” [2]. We see that digital preservation must take into account the following four factors: 1) physical conservation of the data to avoid degradation; 2) conversion of the data to newer media; 3) migration of the data to newer software platforms; 4) “retention of original equipment” [3].

## 1.4 THE CHALLENGES OF PERSONAL DIGITAL ARCHIVING

The desire to preserve information is not limited to governmental, academic or corporate entities, however. As ever more individuals capture the details of their lives in digital format, there is increasing concern about how to best protect and preserve these personal records. Catherine C. Marshall has conducted extensive research into the manner in which individuals endeavor to manage their digital objects. She details stories of scattered and mislabeled CDs, hard drives that have been destroyed by viruses, and files spread across multiple email accounts. And the loss of these files can have profound emotional effects, generating feelings similar in nature to those experienced after losing material objects in a house fire. Such observations have led her to conclude that “it should be evident that storing and maintaining personal information over the long haul is an important topic that raises particularly challenging issues in a digital environment” [7]. Certainly the preservation of personal digital objects is of profound societal importance, since “we don’t want to end up with great unfillable gaps in our personal record” [8].

How exactly do individual efforts fare in comparison with the systematic efforts of large organizations? An examination into the realm of personal digital archiving shows that such attempts are ad hoc, at best. One of the most common methods is to maintain old data along with the original hardware, such as storing an old computer in the back of a closet in anticipation of future retrieval. Another method is to make backups onto removable media, such as flash drives; people tend to “think of system backups as the same thing as a long term archive” [9].

Others turn to sources outside of the home or office environment, choosing to store their digital objects “in the cloud.” For instance, an individual may choose to email himself a copy of an important document; if he has more than one email account, he may choose to send a copy to each one. Or, an individual may place her photos on any of a variety of social networking sites; she may have the same set of photos on MySpace, Facebook or Flickr. Videos may find their way onto YouTube, GoogleVideo or Vimeo. In any case, all of these approaches represent a belief that making multiple backups is a sufficient form of archiving.

Yet nothing could be further from the truth. None of these methods take into account the lack of safeguards necessary for maintaining these records over long periods of time. Old computers may fail to boot. Removable media provides no guarantee, as according to Marshall, “there’s ample evidence that CDs and other backup media do not have the lifespan we originally thought they did. Anecdotal evidence finds at least 10% of shiny media is no good from the get-go” [9]. Email and social networking sites are tenuous, as providers may suffer data loss due to malicious attacks or go out of business with little or no warning.

Moreover, simply storing the data is not the same as preservation. Even if the data were to remain intact on a hard drive, CD or flash drive, even if the email attachment or video file were to survive unmolested in the cloud, what happens when the software to run it becomes obsolete? Again, backing up data is not the same thing as preserving a digital object.

Then there is the matter of administration. Most individuals have no centralized means of categorizing their files. Some families rely on one member

to maintain the photo collection, and another to store the Word documents. Maintaining a collection involves not only storing the objects, but knowing what one has in the collection and where to find it. And yet, most people have no mechanism in place for curating their digital objects. As Marshall notes: “For if there is one constant across all kinds of people doing all kinds of things on computers, it is that *they do not remember what they have buried in the dark recesses of their file systems* or where they have stored what they do remember” [9]. Instead, files are maintained in a haphazard fashion, spread across media both at home and in the cloud.

And so, Marshall points out four challenges to personal digital archiving:

1) Accumulation – knowing what to keep and what not to; 2) Distribution – where and how to maintain copies; 3) Digital stewardship – maintaining not only the objects, but properly cataloging them; 4) Long term-access – having not only the data, but the means of retrieving and accurately rendering the data. This last point is especially important, as “preservation and access are inextricably linked” [1].

### **1.5 TOWARDS A RELIABLE REPOSITORY FOR PERSONAL DIGITAL OBJECTS**

We can see from the foregoing that these ad hoc strategies are not sufficient for the long term preservation of digital objects. If our personal memories are not to be doomed to fade into oblivion, what is called for instead is a reliable digital repository. What would constitute such an entity? The Research Libraries Group provides us with the following criteria:

“A reliable digital repository is one whose mission is to provide long-term access to managed digital resources; that accepts

responsibility for the long-term maintenance of digital resources on behalf of its depositors and for the benefit of current and future users; that designs its system(s) in accordance with commonly accepted conventions and standards to ensure the ongoing management, access, and security of materials deposited within; that establishes methodologies for system evaluation that meet community expectations of trustworthiness; that can be depended upon to carry out its long-term responsibilities to depositors and users openly and explicitly; and whose policies, practices, and performances can be audited and measured” [1].

We have seen a clear need for making such a repository available to the average individual, but is this an achievable goal? Do we have the technological tools available to build such a structure? And even we do, how can we assure a robust system that will be available for vast periods of time? What obstacles must be faced and what advances, if any, have been made to overcome them?

As we will see, the development of a reliable digital repository involves challenges both in terms of hardware reliability and software obsolescence, and requires a cohesive blend of technology platforms, legal and public policies, and robust organizational structures. These three areas must be combined in a cohesive manner in order to facilitate the preservation of personal digital objects for periods of decades or even centuries. We will now begin to explore the issues related to each of these.

## **CHAPTER TWO: TECHNOLOGICAL FEASIBILITY**

Since we have already seen that digital preservation involves the maintenance of both the byte streams (including metadata) of the digital object along with the accessibility of these data throughout time and changing technologies, it is clear that there is a need for appropriate hardware and software technologies in order to build a reliable digital repository.

### **2.1 HARDWARE RELIABILITY**

One of the many benefits of digital objects is the ability to produce faithful copies of the original. Unlike photocopying a paper document, a copy of a word processing file is indistinguishable from the original. Furthermore, third, fourth, fifth, and nth generation copies remain faithful renditions of the original document. And yet, it appears that the paper document would have an inherently longer lifespan, as the physical media – hard drives, CD ROMs, flash drives – “are far from eternal” [4]. Rothenberg points out: “There is considerable controversy over the physical lifetimes of media: for example, some claim that tape will last for 200 years, whereas others report that it often fails in a year or two” [4]. Nevertheless, he posits that the physical lifetime is not the primary constraint, as media becomes obsolete faster than it degrades. He provides the following figures for comparison:

<i>Medium</i>	<i>Practical physical lifetime</i>	<i>Average time until obsolete</i>
<b>Optical (CD)</b>	5 – 59 years	5 years
<b>Digital tape</b>	2 – 30 years	5 years
<b>Magnetic disk</b>	5 – 10 years	5 years

**Table 1: (Data source - Rothenberg)**

Even when media are within their expected lifetime, they are subject to fault. There are two types of media faults that bear special consideration – visible faults and latent faults. Visible faults are those that are detected almost immediately after they occur, while latent faults are those that are not detected until a significant amount of time has elapsed. One of the most challenging latent faults is termed bit rot, which is used to describe the gradual accumulation of bit errors within the media. Mary Baker, senior research scientist with HP Labs in Palo Alto, California, has done extensive research into methods of mitigating data loss due to latent faults. Her model is built upon mirroring through the use of RAID technologies. Her basic approach is as follows:

“Latent errors manifest themselves in two basic ways: as inaccessible data or as corrupted data. If data are inaccessible, then noticing the fault upon access is straightforward. We can repair this fault by creating a new copy from the remaining redundant copies. If the data are corrupted, then noticing the fault requires further work such as comparing the data to a copy” [10].

Furthermore, her model makes a distinction between the size of the data unit that is being replicated and the size of the fault:

“For instance, while we might replicate data at the file level, a fault might only affect a few bytes of the file. Traditionally, in looking at block-level or disk-level replication strategies, faults have sometimes been assumed to affect a whole disk, even if some of the information is salvageable from the disk. We separate replication size and fault size in our model to make it possible to identify more generally what data are actually damaged” [10].

Baker then proceeds to examine the reliability estimations under three separate scenarios: “1) the effect of latent errors is ignored, 2) latent errors exist but the system does not try to detect or repair them, and 3) latent errors exist and the system detects and repairs them” [10]. The first case makes the assumption that users do not seek to access the data, so latent errors are not discovered. The second case makes the assumption that the data has been accessed and errors have been discovered, but there are no systematic attempts to seek out these errors and no attempts to repair the ones that have been found. Finally, the third case makes the assumption that there is a systematic search for errors – a process that she refers to as “auditing” – and if errors are found there is an attempt to repair them. The longer that errors are allowed to persist without being corrected, the greater the potential for a substantial loss of data.

Baker’s calculations show that without a proactive approach, it can take far longer to realize that latent errors exist, resulting in a greatly reduced mean

time to data loss (MTTDL). The following table summarizes her reliability estimates with and without auditing:

<i>Auditing strategy</i>	<i>Mean time to data loss (MTTDL)</i>
<b>No audit</b>	64 days
<b>4 month audit</b>	3.4 years
<b>2 week audit</b>	12.3 years

**Table 2: (Data source - Baker)**

Interestingly, Baker points out that since detecting and fixing these errors puts some measure of physical strain upon the media, “auditing can potentially induce an increase in the rate of visible or latent errors” [10]. Nevertheless, because her data show such a dramatic improvement in the mean time to data loss, it is clear that the benefits derived from auditing far outweigh the potential for harm. She points out that this is particularly true for long term data preservation, as long periods of time may go by before a user attempts to access a piece of data. Without auditing, latent faults may be allowed to build up to the point where recovering the data becomes impossible.

Baker’s model includes the following list of “strategies for reducing the probability of irrecoverable data loss” [10]:

Mary Baker “Strategies for reducing the probability of irrecoverable data loss”
<ul style="list-style-type: none"> <li>• Select media that is less prone to catastrophic loss</li> <li>• Select media that is less susceptible to corruption</li> <li>• Detect latent faults by auditing the data frequently</li> <li>• Reduce human error by automatically repairing data faults</li> <li>• Increase speed at which recoveries take place by providing hot spare drives</li> <li>• Add robustness through increased replication, either “within RAID systems, across RAID systems, and across simple mirrored replicas.”</li> </ul>

**Table 3: (Data Source - Baker)**

Of the first two strategies, it is important to note that there is a wide disparity of quality between products from different manufacturers. Typical consumer grade drives are “cheap, fairly fast, and fairly reliable, and enterprise-grade drives, which are vastly more expensive, [are] much faster but only a little more reliable” [10]. Thus, we cannot rely solely on the quality of the media; we must build systems that add robustness through a combination of redundancy along with fault detection and correction.

**2.2 SOFTWARE OBSOLESCENCE**

Hardware is only one aspect of preserving digital objects; another equally important one is the ability to access and faithfully render a digital object. They differ greatly from paper documents, in that “they cannot be ‘held up to the light’ but must be viewed by using appropriate software” [4]. A document or music file may include not only data, but also the necessary metadata for the software program to correctly interpret it. There is little standardization in this area

however, so that “in addition to having complex structure, many documents embed special information that is meaningful only to the software that created them” [4]. These metadata can vary not only from software developed by different vendors, but also from one upgrade to another within the same product line. After many generations of upgrades, a file that was created from an obsolete version may become undecipherable to current versions.

Indeed, software bears similarity to human language, in that it evolves over time. We can see the effects of the passage of time by reading these 11<sup>th</sup> century lines from the prologue of the epic *Beowulf*, the oldest narrative recorded in the English language [11]:

***Prologue to Beowulf – Old English***  
“Hwæt! We Gardena in geardagum,  
    þeodcyninga, þrym gefrunon,  
    hu ða æþelingas ellen fremedon.  
Oft Scyld Scefing sceaþena þreatum,  
monegum mægþum, meodosetla ofteah,  
    egsode eorlas. Syððan ærest wearð  
    feascraft funden, he þæs frofre gebad,  
weox under wolcnum, weorðmyndum þah,  
    oðþæt him æghwylc þara ymbsittendra  
    ofer hronrade hyran scolde,  
    gomban gyldan. þæt wæs god cyning!”

**Figure 1:** (Source – *University of Toronto Library*, <http://rpo.library.utoronto.ca/poem/19.html>)

To someone who has not been schooled in the study of Old English, the above passage is completely indecipherable. And yet, English it is; we may think of it as “English 1.0!” The language continued to evolve into Middle English (“English 2.0”), early Modern English (the language of Shakespeare – “English

3.0”), and finally late Modern English (the language we speak today – “English 3.1”). Here is the same passage translated into what we may call “English 3.0”:

*Prologue to Beowulf – “English 3.0” (Early Modern English)*

“LO, praise of the prowess of people-kings  
of spear-armed Danes, in days long sped,  
we have heard, and what honor the athelings won!  
Oft Scyld the Scefing from squadroned foes,  
from many a tribe, the mead-bench tore,  
awing the earls. Since erst he lay  
friendless, a foundling, fate repaid him:  
for he waxed under welkin, in wealth he throve,  
till before him the folk, both far and near,  
who house by the whale-path, heard his mandate,  
gave him gifts: a good king he!”

**Figure 2:** (Source – *University of Toronto Library*, <http://rpo.library.utoronto.ca/poem/19.html>)

Now we can “parse” the words and understand the meaning; this passage is “compatible” with the current “version” of English. But it is important to remember, this change took place over the course of a thousand years; we can easily read the words of Arthur Conan Doyle from one hundred years ago. Software, on the other hand, evolves at a much faster pace. There is no guarantee that a Microsoft Word document that is created with today’s version 2007 will be compatible with a version 50 years from now. For that matter, there is no possible way of knowing if this product will even exist; it is entirely possible that it will become a “dead” language, such as ancient Hittite. The scale of time in the realm of software development is blindingly fast compared to the evolution of spoken language.

Rothenberg mentions two strategies that have been proposed for overcoming these problems: 1) devising and enforcing software standards, and 2)

migration of data as standards change. There are problems inherent in each of these approaches, however. In the case of the former, standards are difficult both to enforce and to establish because the variation in features and functionality in software is “a direct outgrowth of the natural evolution of information technology as it adapts itself to the emerging needs of users” [9]. In other words, it is difficult to foretell the needs of the future, and software development cannot be hobbled in such a manner. Regarding the latter strategy, the migration of data, Rothenberg points out the potential for data loss as each generation is migrated to a new platform. The swift rate of technological change means that “new paradigms do not always subsume their predecessors: they represent revolutionary changes in what we mean by documents. By definition, paradigm shifts do not necessarily provide upward compatibility” [9].

Finally, there is not only the data itself, but its context. Baker points out that: “Preserving context is as important as preserving the actual data and it can even be hard to recognize all required context in time to collect it” [10]. Context that needs to be preserved includes the subject of the digital object along with its provenance.

## **2.3 CURRENT APPROACHES**

### ***2.3.1 Data Storage***

In order to avert a loss of personal history, we must find a way to build a personal digital repository. But from what shall we build it? In the face of the foregoing challenges, what tools and technologies are currently under development for the long term preservation of digital objects?

Jantz notes that “perhaps the core of the repository is the storage infrastructure” [1]. We saw from Baker’s calculations that redundancy combined with auditing greatly reduce mean time to data loss (MTTDL), and we see the beginnings of storage systems that keep this fact in mind. Storage Area Networks (SANs) provide “a network of shared devices that all other participants on the same SAN may ‘see’ and connect to” [1]. Rutgers University Libraries report the following advantages of maintaining their digital archives using a SAN platform:

<i>Key advantages of (SAN) vs. Network-Attached Storage (NAS)</i>
<ul style="list-style-type: none"> <li>• Open architecture</li> <li>• Increased scalability</li> <li>• (up to 16 million devices)</li> <li>• Availability of storage devices to numerous servers</li> <li>• High speed throughput (2 Gb/s traffic between devices)</li> <li>• Separation from the LAN</li> </ul>

**Table 4: (Data Source - Jantz)**

A commercial technology that is based upon a SAN model is SafeStore, which is “a distributed storage system designed to maintain long-term data durability despite conventional hardware and software faults, environmental disruptions, and administrative failures caused by human error or malice” [12]. Rather than storing data at one location, SafeStore is based upon a consortium of Storage Service Providers (SSPs). This model “stores data redundantly across multiple SSPs” and “employs a ‘trust but verify’ approach: it does not interfere with the policies used within each SSP to maintain data integrity, but it provides an *audit* interface so that data owners retain end-to-end control over data

integrity” [12]. SafeStore employs a two-level architecture: the local server at the client end acts as a cache and write buffer, and the SSPs provide robust storage through redundancy and auditing. Moreover, the interface is restricted so as to “protect against careless users, malicious insiders, or devious malware” [12]. The system utilizes economy of scale, thus putting the cost within reach of smaller organizations.

### ***2.3.2 Data Intelligibility***

We see that technologies are emerging for long term data storage. But, what options are available for preserving the intelligibility? How might the digital object be reconstituted? The simplest, most straightforward approach is one of brute force; Rothenberg calls it “byting the bullet” [4]. He proposes preserving everything that is necessary to render a digital object in its current form – data, software and the related hardware components. He points out that it is already becoming common to “distribute digital documents along with appropriate viewing software – and sometimes even a copy of the appropriate version of the operating system needed to run that software” [4]. He believes this trend will continue, as public domain software is widely available on the Internet and it is likely that proprietary software will eventually enter the public domain.

This might work for the software, but what of the hardware? Will it be necessary to maintain antique computers in working condition, ready to power up 100 years from now? Rothenberg does not believe that this need be the case: “Fortunately, it is not necessary to preserve physical hardware to be able to run obsolete software. Emulators – programs that mimic the behavior of hardware –

can be created to take the place of obsolete hardware as needed” [4]. The technical specifications for existing hardware already provide the basis for emulation; indeed, various pieces may have been created from emulation to start with. In addition, there is an increasing number of special interest groups devoted to “obsolete video games and early personal computers” [4], providing a ready network of individuals to help keep these platforms from fading into oblivion.

A more elegant approach treats digital objects as encapsulated data. The digital preservation architecture currently in place at Rutgers University Library is based upon the Flexible Extensible Digital Object Repository (Fedora) framework. Originating in 1997 at Cornell University, Fedora began as a DARPA and NSF research project into developing a system to organize digital objects. It has evolved into an open source platform under the Mozilla Common License and is overseen by the not-for-profit foundation Fedora Commons [13].

Fedora manages digital objects based upon a content model. It encapsulates data streams into four different components: 1) a unique, persistent identifier; 2) object properties, which help to track the object within a repository and include methods to establish relationships to other objects, cross domain referencing, and auditing; 3) datastream(s), stored as a MIME-typed content item which may be either internal to the repository or external, in which case a pointer to the content is stored in the form of a URL; 4) disseminators, which provide bindings to software methods that can be used to process the data streams.

The datastream(s) may include both content and metadata, including description, source, rights, and provenance. A resource index describes the digital

objects in context, rather than in isolation. The integrity of the digital object is ensured by the implementation of digital signatures, which automatically generate checksums for each data stream that is entered into or modified in a repository. The disseminators are optional, allowing the use of service methods that “produce ‘virtual representations’ of the object. A ‘virtual representation’ is content that is not explicitly stored in a digital object, instead it is produced at runtime” [13].

Below is the container view of the Fedora Digital Object Model:

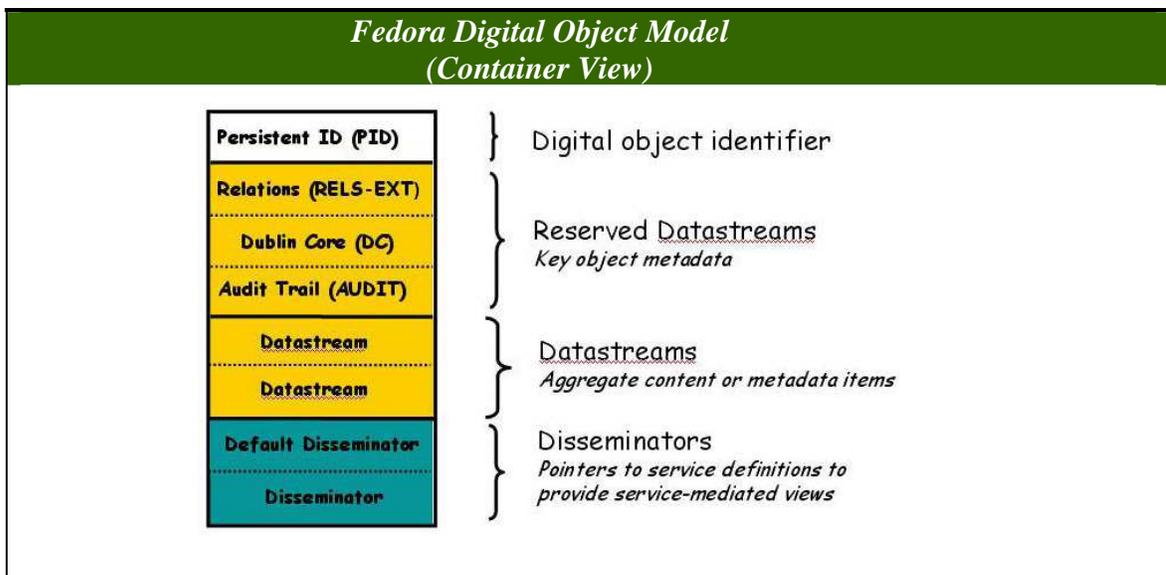


Figure 3: (Source – *Fedora Commons*, [www.fedoracommons.org](http://www.fedoracommons.org))

The Fedora architecture provides two of the key requirements necessary in a trusted digital repository: flexibility and robustness. One major advantage is its ability to manage content regardless of the format. This is a vital issue in the face of software obsolescence, as this method creates a “non-proprietary version of the original source content in the event that the presentation formats need to be regenerated or migrated to new formats or platforms” [1]. Moreover, it is based upon the Open Archival Information System (OAIS) model, which provides for

designation of communities, rather than single individuals or organizations, to maintain the archive. This prevents loss of information upon the collapse of any one member. Another advantage is its ability to recover data in the face of corruption. Digital objects are stored in an XML-based format, and in case of data corruption or hardware failure, a repository can be rebuilt by crawling the object store [14].

Fedora is not the only such initiative. Developed in joint partnership with MIT and HP Labs and released in November 2002, DSpace is another leading platform for the preservation and management of digital objects. Like Fedora, it is based upon an OAIS model, so community support is vital. To this end, MIT and HP Labs announced the formation of the DSpace foundation, a non-profit organization that will lend support to the DSpace community, which includes “a growing group of committed programmers distributed across the globe who continually maintain and improve it” [1].

DSpace “preserves and enables easy and open access to all types of digital content including text, images, moving images, mpegs and data sets” [15].

Written in Java and JSP, it provides a web based interface that is fully customizable. Like Fedora, it encapsulates data and metadata, and with the use of the relational databases Oracle and PostgreSQL, allows for full text searching of data items.

Archives are “divided into communities, each of which generally corresponds to a laboratory, research center, or department” [5]. Data objects are referred to as “items,” which form the basis for each archive. Each item is divided

into bit streams which are transmitted over the Internet and captured onto a storage medium. Related bit streams – the files and images that make up a single digital entity, such as a web page – are organized into bundles. Bundles may include: 1) the original bit streams; 2) thumbnails of image bit streams; 3) text to be used for indexing [5]. The file format and other physical properties are then processed, and a checksum is generated to provide an audit trail. DSpace also manages intellectual property rights by storing information regarding the depositor’s distribution rights. The item is submitted, and then goes through a review and approval process, the duty of which falls to the archive’s curator. Finally, “DSpace adds a provenance statement to the metadata, allowing the curator to track how the item has changed since a user submitted it” [1]. Below is a diagram of the DSpace architecture:

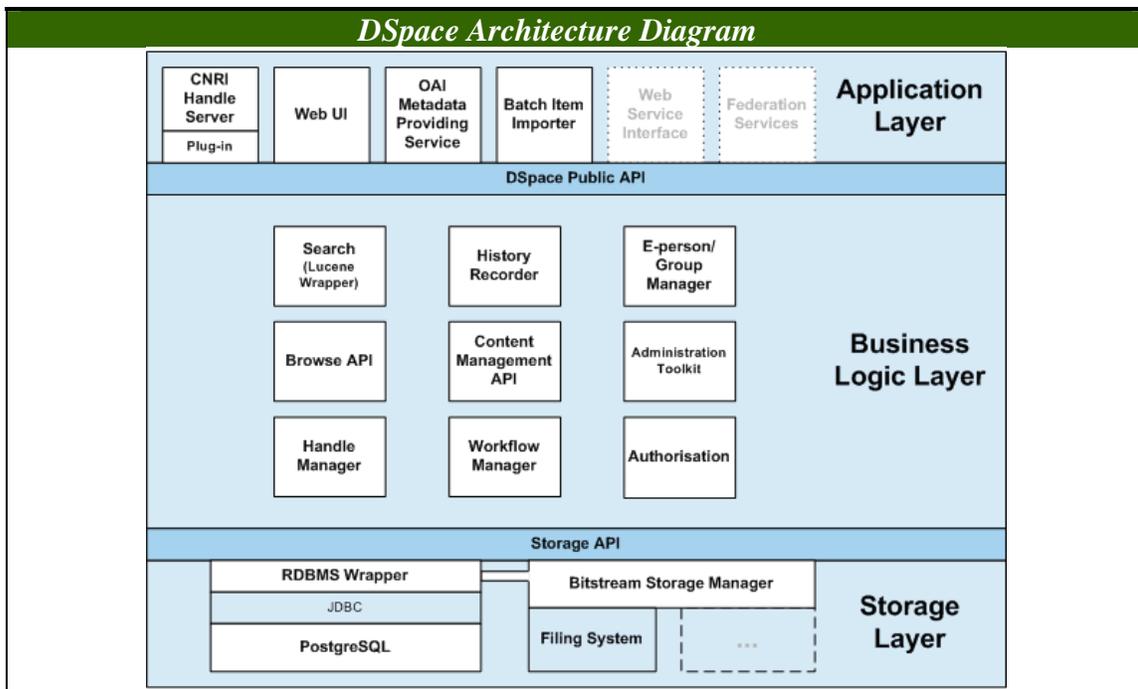


Figure 4: (Source - MIT Libraries, <http://libraries.mit.edu/dspace-mit/technology/>)

DSpace recognizes a large number of popular formats, including PDF and Word documents, JPEG, MPEG, and TIFF files [15]. The following types of objects may be stored:

<i>Types of Objects That Dspace Can Store</i>	
• Documents, such as articles, preprints, working papers, technical reports, conference papers	• Overlay journals
• Books	• Bibliographic datasets
• Theses	• Images
• Data sets	• Audio files
• Computer programs	• Video files
• Visualizations, simulations, and other models	• eformatted digital library collections
• Multimedia publications	• Learning objects
• Administrative records	• Web pages
• Published books	

**Table 5: (Data Source - *DSpace.org*)**

Since it is an open source platform supported by a growing community, it is reasonable to believe that additional formats will be added as they emerge. The duty of tracking, and possibly migrating, the item falls to each archive's curator. If in the future a new format is established for a particular item, the curator may run a query to find all of the files in the archive that are currently preserved in the

old format, and then run a utility to convert this batch to the new format [5] (we will assume that this utility will either be provided by the software vendor or by a third party within the DSpace development community).

In July of 2008, a working collaboration was established between Fedora Commons and DSpace Foundation. Action items under consideration include adopting common standards for depositing items into their respective repositories and defining common content models; the former would allow DSpace to map its content to the Fedora model [15].

## **2.4 SUMMARY**

It is clear that we are entering a watershed moment in human history. We have often heard the following adage in academic circles: “Publish or perish.” Yet, in this increasingly digital age, we certainly don’t want our published items to perish. As a result, academic institutions such as Rutgers and MIT have taken the lead in developing tools for digital preservation. These have found the enthusiastic support of the open source development community. With robust storage technologies and flexible, yet powerful, software platforms, the technological means are at hand for the development of trusted digital repositories.

## **CHAPTER THREE: ALEXANDRIA@CYBERSTREET.COM**

As shown in the previous chapter, the technology platforms exist for building digital archives. While these tools are aimed at creating repositories for institutional archiving, is it possible to adapt them to the needs of a personal repository? In a hands-on effort to examine the suitability of the DSpace platform, I created Alexandria@CyberStreet.com, named after the ancient Great Library of Alexandria. My goal was to explore how such a repository might be structured and what modifications might be necessary.

I selected DSpace in combination with Postgresql as an appropriate software platform. DSpace was chosen because it offers a web based user interface, which is a comfortable and convenient means of interaction for the typical individual, and it is fully customizable, thus allowing the repository to develop its own unique look and feel. Postgresql was chosen over Oracle because it provides the benefits of OAIS compliance.

A DSpace repository may be implemented in two different ways: through JSP pages or through the Manakin development framework. Let us take a moment to examine the differences between these two frameworks and consider which one would be the more desirable choice.

### **3.1 JSP (JSPUI) vs. MANAKIN (XMLUI)**

Prior to v.1.5, the default DSpace UI was the JSPUI, which was based upon Java Server Pages (JSP). While customization was possible under this framework, it did present developers with the following difficulties:

- No presentation layer
- Difficult to extend and maintain
- Heavy use of HTML table layout [16]

Because modifications require extensive knowledge of Java programming, and upgrading to newer versions of DSpace often requires the reworking of existing Java code, developers found that it was “difficult and expensive to modify, and reinforces a cookie-cutter approach to the user interface” [16].

This changed with v.1.5, which implemented Manakin as the default UI.

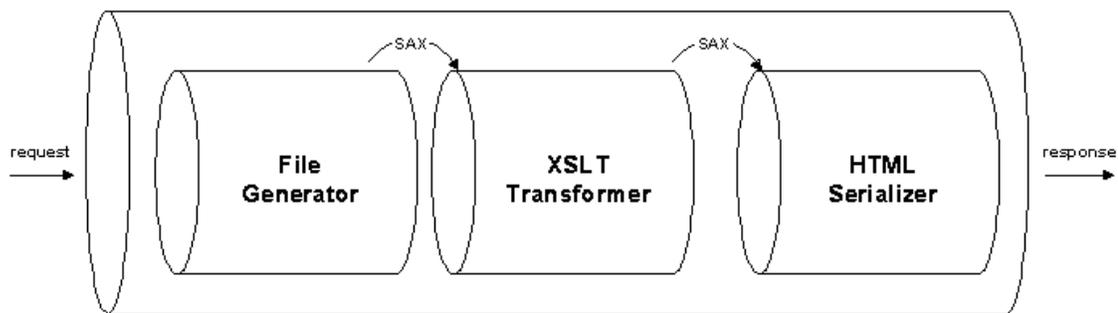
Manakin is based upon the Apache Cocoon framework, and provides the following improvements over the JSPUI:

- “radical skinning or "theming" of individual collections or items
- “integration of interactive, in-page media viewers and functionality (e.g., zoom-and-pan for digital images, in-page video players for video, etc.)
- “integration or removal of new page elements into DSpace (e.g. adding information sidebars, new metadata fields, or removal of the same)
- “a way to provide static pages” [17]

Manakin XMLUI customizations are tiered and may be made at any one of the following three levels:

1. Style Tier (render/display content)
2. Theme Tier (transform content)
3. Aspect Tier (generate content) [18]

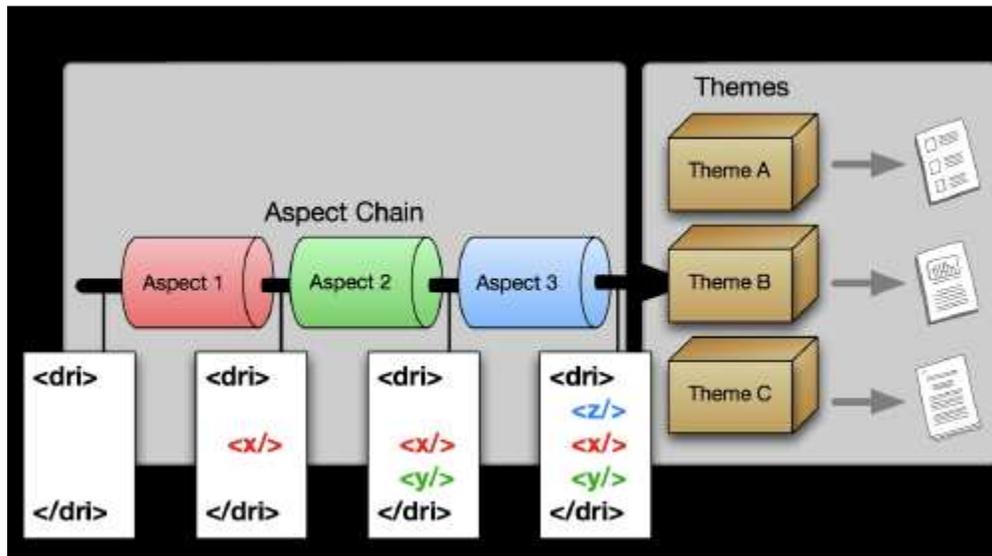
Based upon the Apache Cocoon web development framework, Manakin's architecture is built upon the concept of a pipeline, which means that a response is generated through a series of components for a given request. Under this scenario, "an individual page is generated through the combination of many components arranged together along a 'pipeline', each feeding into another until the final page is produced" [16]. "A Cocoon pipeline is defined in an XML configuration file (called the sitemap), which contains a sequence of elements. Usually, these include a specification for a "generator" (the source of the XML for the pipeline), one or more "transformers," (which modify the XML stream, often via XSL), and a "serializer," which writes the modified stream to the destination" [19].



**Figure 5: Cocoon Pipeline** (Source – <http://cocoon.apache.org/2.1/userdocs/concepts/367.daisy.img> )

How does Manakin work? According to Scott Phillips, Research and Development Coordinator at the Texas Digital Library of Texas A&M University Libraries, "The Manakin framework introduces three unique concepts: the *DRI schema*, *Aspects*, and *Themes*. These are the basic components a Manakin developer will use in creating new functionality for a repository or modifying the repository's look-and-feel" [16]. DRI refers to the Digital Repository Interface XML schema, which was developed specifically for use in Manakin. The DSpace DRI Schema Reference informs us that:

“Since every DSpace page in Manakin exists as an XML Document at some point in the process, the schema describing that Document had to be able to structurally represent all content, metadata and relationships between different parts of a DSpace page. It had to be precise enough to avoid losing any structural information, and yet generic enough to allow Themes a certain degree of freedom in expressing that information in a readable format” [20], and a theme “is a collection of XSL stylesheets and supporting files like images, CSS styles, translations, and help documents”[20]. Finally, “Aspects are arrangements of Cocoon components (transformers, actions, matchers, etc) that implement a new set of coupled features for the system. These Aspects are chained together to form all the features of Manakin” [20].



**Figure 6: Converting Aspects into Themes (Source - <http://www.dlib.org/dlib/november07/phillips/11phillips.html>)**

We can see that Manakin provides far more flexibility in the design and presentation of a DSpace UI. As it has become the default UI for current implementations of DSpace, it is likely that an increasing amount of community

development and support will continue into the future. For these reasons, Alexandria has been constructed based upon the Manakin XMLUI rather than the JSPUI.

### **3.2 DSPACE SCALABILITY**

We would expect that a repository would grow over time, both in terms of the number of depositors and the items being deposited. As a repository grows, scalability issues may become a concern. Scalability may be defined as: “Ability of the system to accommodate large number of items without compromising performance” [21]. Since growth is anticipated, we need to examine how well we can expect DSpace to scale.

It should be pointed out that earlier versions of DSpace have presented some noticeable scalability problems. Indeed, members of the DSpace architectural review group have noted that among the “new areas for improvement [that] have been raised by the community ... [perhaps] foremost among them are a set of concerns which concern ‘scalability’” [22]. They identified the following areas as being of particular concern:

- “the responsiveness of the Web UI as a function of repository size. Note that this is different from responsiveness as a function of concurrent users, requests, etc (load).
- “the duration of certain administrative procedures, such as batch imports, appears to increase in a non-linear fashion with respect to the size of the datasets involved, suggesting a non scale-optimal design.

- “the ability of the system to operate with large individual content files. Early limitations in the RBDMS schema (4 gigabyte maximum per file) have been rectified, but the ability of the system to serve very large files via http remain.
- “the responsiveness and style of the Web UI as a function of the number of container objects (communities and collections).
- “the lack of functional partition or independence among parts of the system: e.g. an OAI harvest seriously degrading the Web UI performance” [22].

Members of the architectural review team point out that “DSpace 1.4 has taken a few modest steps in the direction of addressing these scalability issues” [22]. However, significant improvement did not come about until the release of DSpace 1.5. In addition to the introduction of the Manakin UI, this release included “many new configurable options and scalability improvements” [23]. These improvements include a completely new browsing system, and an events system “which improves scalability and modularity by introducing an event model to the architecture [... and] will allow future add-ons to automatically manage content in the repository based upon when an object has been added, modified, or removed from the system” [23].

How well have these improvements worked? In July of 2008 the DSpace Foundation announced that: “The U.S. National Library of Medicine has recently preformed scalability tests on the DSpace platform, ingesting 1 million items” [24]. The results of these tests indicated that there were “no hidden problems or flaws in system architecture detected in building a one-million item archive” [21], ingestion speed of items increased linearly with respect to increase of repository size, overheads were “negligible (approx. 10%) compared to actual archiving and indexing of data” [21], and

the tests were repeatable with comparable results [21]. Based upon their testing, they reached the following conclusions:

- “Our archive, built on DSpace, shows acceptable performance in ingesting up to a million items
- “Larger file sizes will not significantly affect performance
- “Additional bitstreams would cause some increase (3% to 4% per bitstream) in ingest time
- “Additional benchmarks needed for building DSpace archives much larger than 1 million items
- “Our benchmarks should be useful to other DSpace installation sites concerned with performance” [21].

In addition to the scalability of the DSpace software, scalability issues may also be addressed via load balancing. Since DSpace may be configured to run on an Apache Tomcat server, clustering may be implemented in order to allow a DSpace instance to run on parallel servers. This would be of enormous benefit for a large repository; indeed, “clustering is crucial for scalable enterprise applications, as you can improve performance by simply adding more nodes to the cluster” [25]. Clustering provides both scalability and redundancy, increasing the performance and the reliability of the archive.

Load balancing options are not limited to the Apache Tomcat server. The database backend of a DSpace installation must also provide high availability. While DSpace can utilize either Oracle or PostgreSQL, it is preferable that a long term repository look to open source rather than proprietary solutions. For this reason, PostgreSQL is being employed as the database for Alexandria. While not considered an

enterprise class database, a larger repository may still be able to implement PostgreSQL through connection pooling and clustering. Such technology was not originally considered a part of the PostgreSQL project's focus. However, in May of 2008, Tom Lane, a member of the core PostgreSQL development team, issued a statement indicating that:

“it is becoming clear that this policy is hindering acceptance of PostgreSQL to too great an extent, compared to the benefit it offers to the add-on replication projects. Users who might consider PostgreSQL are choosing other database systems because our existing replication options are too complex to install and use for simple cases. In practice, simple asynchronous single-master-multiple-slave replication covers a respectable fraction of use cases, so we have concluded that we should allow such a feature to be included in the core project. We emphasize that this is not meant to prevent continued development of add-on replication projects that cover more complex use cases” [26].

At the current moment in time, many add-on products do exist for connection pooling and load balancing, including PGCluster, Slony and pgpool. While these are not open source products, they should nevertheless suffice to fill the need until such time as the PostgreSQL team eventually develops similar functions for the open source product. As there is demand and interest for the addition of these features, there is little reason to believe that they will not be added eventually.

### **3.3 THE MANAKIN UI**

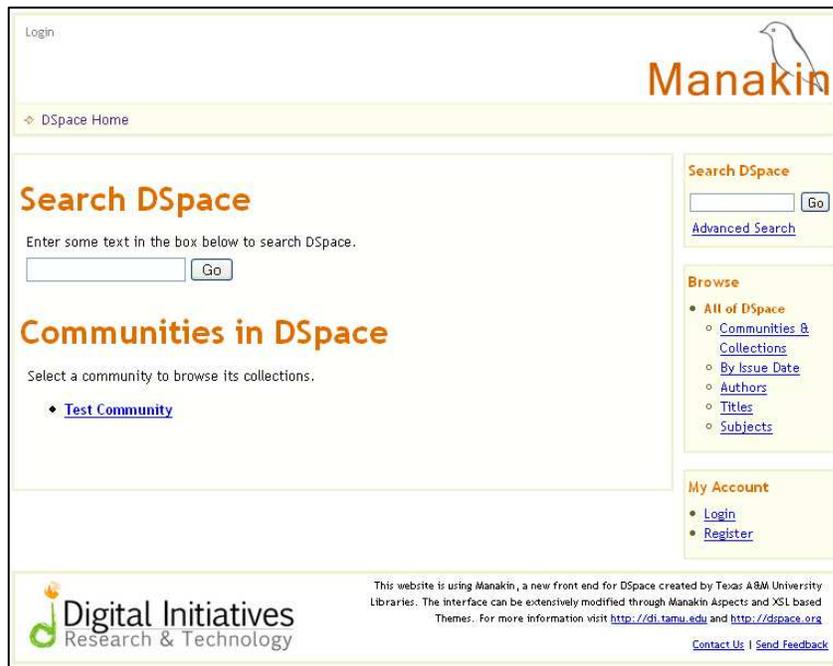
As we have seen, Manakin allows for customizing the look and feel of a DSpace repository through the use of themes. The DSpace download comes with three different

themes already packaged – Reference, Classic and Kubrick. The Classic theme presents the look and feel of a DSpace JSPUI instance, while the fresher look of the Reference theme is the default. The three themes are displayed below:



**Figure 7: Classic theme**

(Source – *Ideals, DSpace 1.5 : Moving towards the future of DSpace*, [www.ideals.illinois.edu](http://www.ideals.illinois.edu) )



**Figure 8: Reference theme**

(Source – *Ideals, DSpace 1.5 : Moving towards the future of DSpace*, [www.ideals.illinois.edu](http://www.ideals.illinois.edu) )



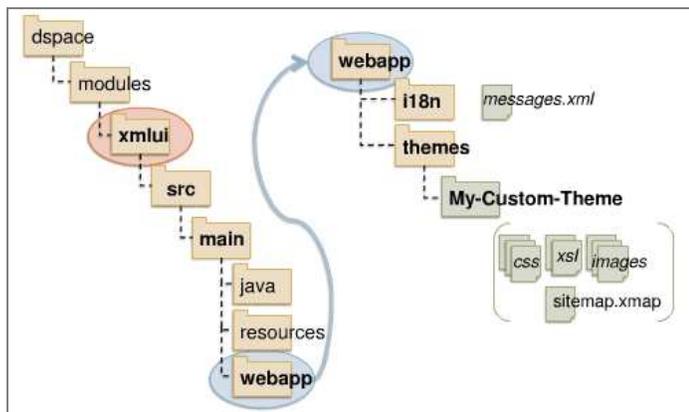
**Figure 9: Kubric theme**  
 (Source – *Ideals, DSpace 1.5 : Moving towards the future of DSpace* , [www.ideals.illinois.edu](http://www.ideals.illinois.edu) )

### 3.4 A TOUR THROUGH ALEXANDRIA

Since Manakin allows DSpace users to customize the look and feel of their repositories, I have created a new theme, appropriately named Alexandria. The new theme was developed by performing the following steps:

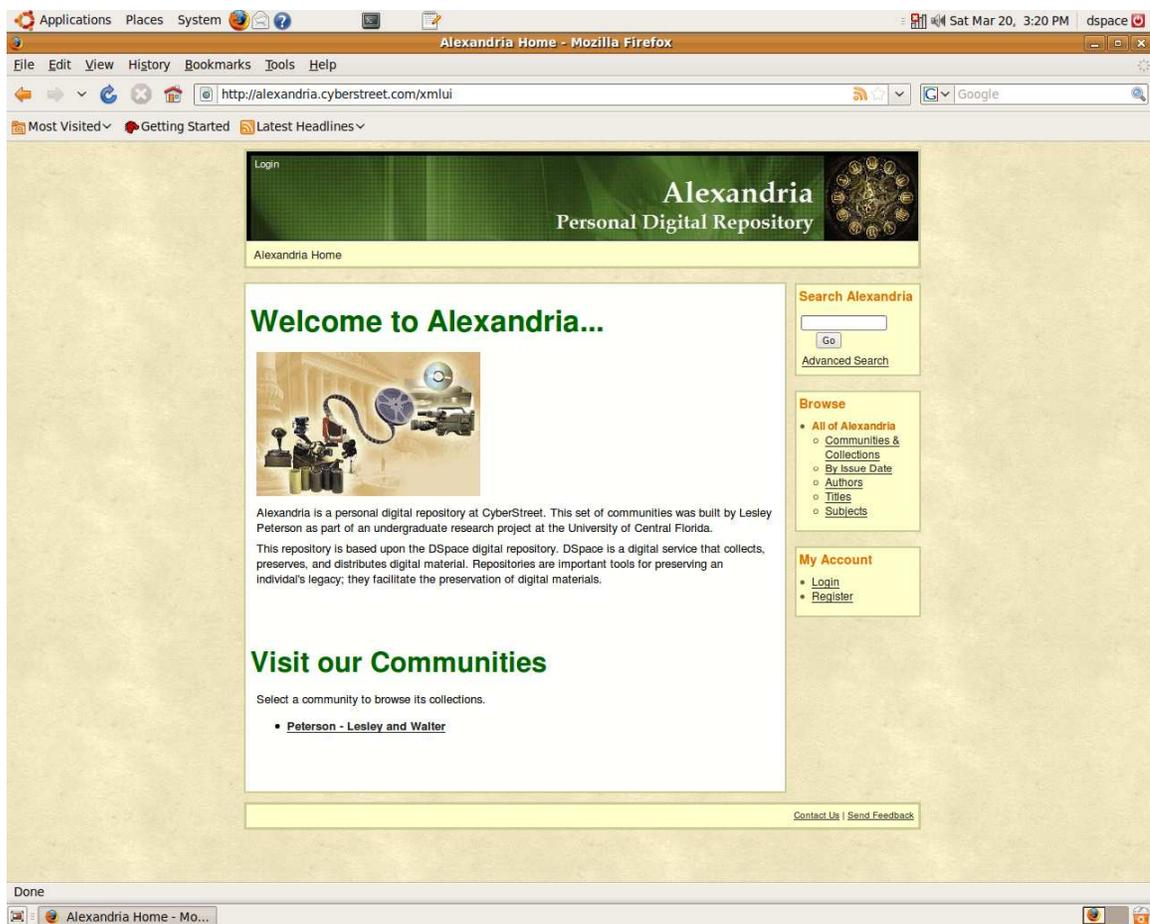
- Creating a new folder, along with associated style and image folders, to contain the new theme
- Creating an .xsl file with the name of the theme – in this case, Alexandria.xsl – which reflects changes that are specific to the theme, overriding the defaults in the structural.xsl file
- Creating a new sitemap.xmap file to add that theme to the pipeline structure
- Modifying the messages.xsl file, contained in the i18n directory, to change the displayed text and prompts

- In this case, I changed the default site name of DSpace to Alexandria
- I experimented with changing the terminology of “Community” or “Communities,” but decided to leave the original. The important point is that it can be changed to whatever terminology is desired.
- Creating an Alexandria.xsl override so that when viewing the files contained within an item, the file description is displayed instead of the file name
- Changing the welcome message on the introductory page has by modifying the content of the news-xmlui.xml file
- Modifying the contents of the default.license file so as to create a licensing agreement that is appropriate to the relationship of the depositors and the repository
- Creating a new style.css sheet
- Changing the xmlui.conf file to set the default theme to the newly created theme



**Figure 10: Theme overlay structure**  
 (Source – *Making DSpace 1.5 Your Own: Customizations via Overlays*  
<http://www.slideshare.net/tdonohue/making-dspace-15-your-own-customizations-via-overlays>)

As previously discussed, Manakin allows customizations to be performed at the style, theme and aspect tiers. Alexandria has been customized via the first two tiers, with the creation of a new style sheet and a new theme overlay. Customization via the aspect tier, while necessary in order for development into a full-scale, publicly accessible repository, involves modification of the underlying Java code and is beyond the scope of this demonstration.



**Figure 11: Alexandria theme  
Fresh installation with test community  
(Source – Author)**

### 3.4.1 Structural Overview

The structure of a DSpace repository is based upon communities, each of which houses its own collection of items. Individual users may be placed into groups, with individual users having rights to selected collections within the community.

### 3.4.2 The Administrative View

In the Alexandria repository, each family unit comprises a community, and each family member may have his or her own collections – photo albums, music collections, etc. Family members may share a joint collection, as well. Each family is assigned to a group. Presently, the repository administrator assigns groups and creates a family’s community; this will need to be automated in a full-scale, publicly accessible repository.

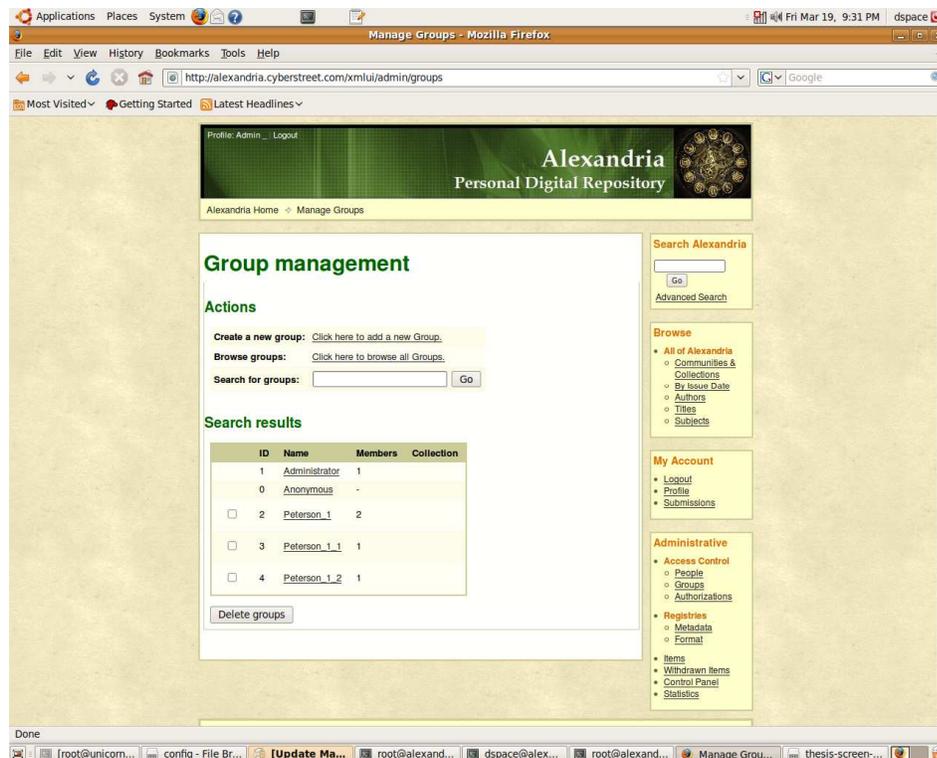


Figure 12: Assigning users to a group (Source – Author)

DSpace allows administrators to assign permissions to communities by declaring a set of policies. Community policies include:

- Read (the ability to view the community – this is a must for a member of the community, but it may be denied to an anonymous use in order to keep the community from being publicly viewable)
- Write (the ability to update the welcome message and other display items on the community's main page)
- Add (the ability to add collections to the community)
- Remove (the ability to remove the community – best left to the repository administrator with explicit community permission, since it would not be acceptable if one member were allowed to erase everyone's collections.)

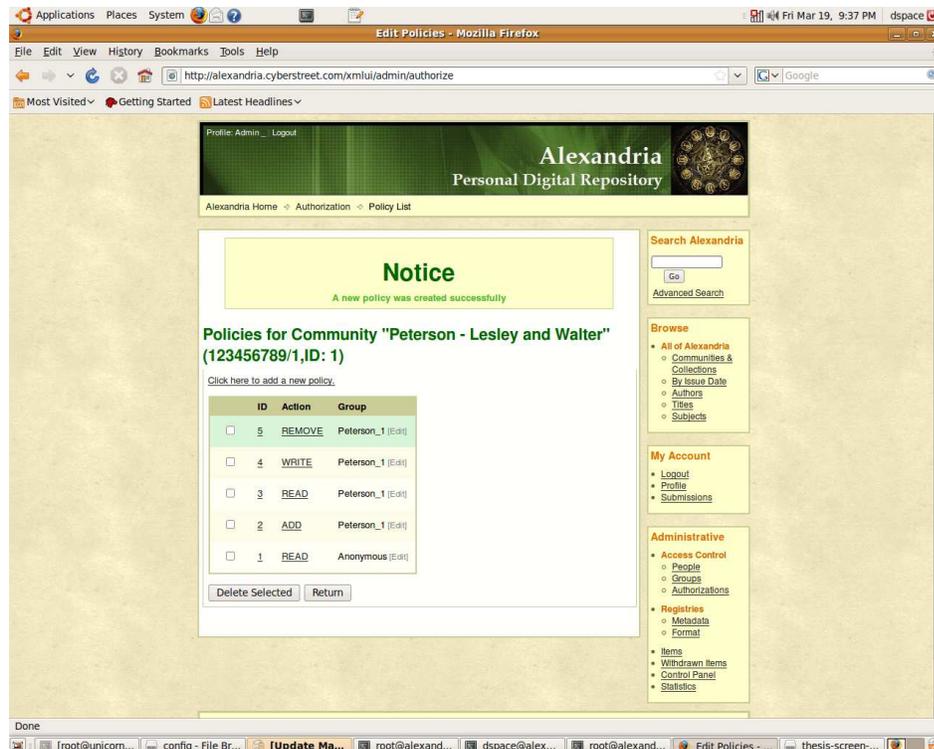


Figure 13: Granting access rights to a community (Source – Author)

Finally, the administrator assigns permissions for each collection. This allows members of the same family to have either independent or collections within their community.

### 3.4.3 The User View

A user is created after he or she has registered. A verification notice is emailed to the user. The user must click on the link provided with the email in order to complete the registration process. He or she will then be able to create a profile.

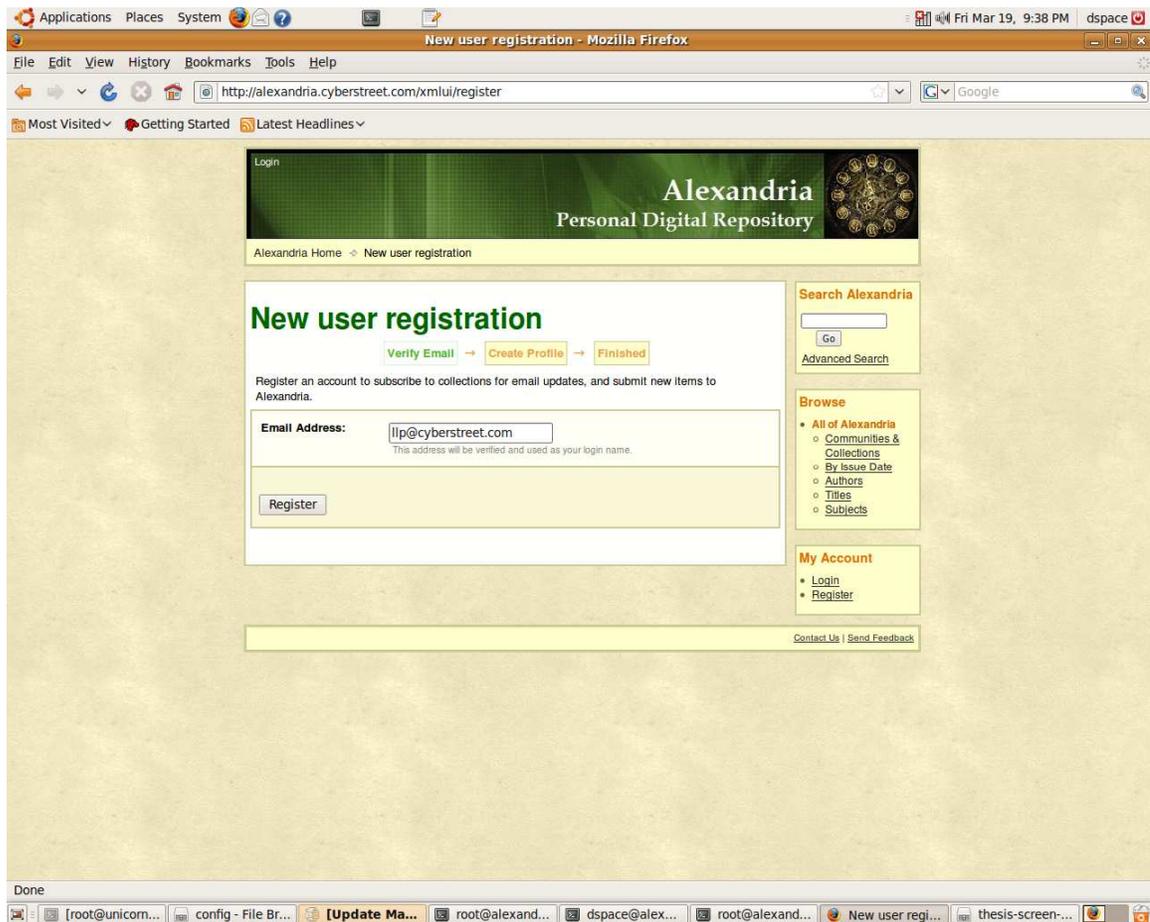
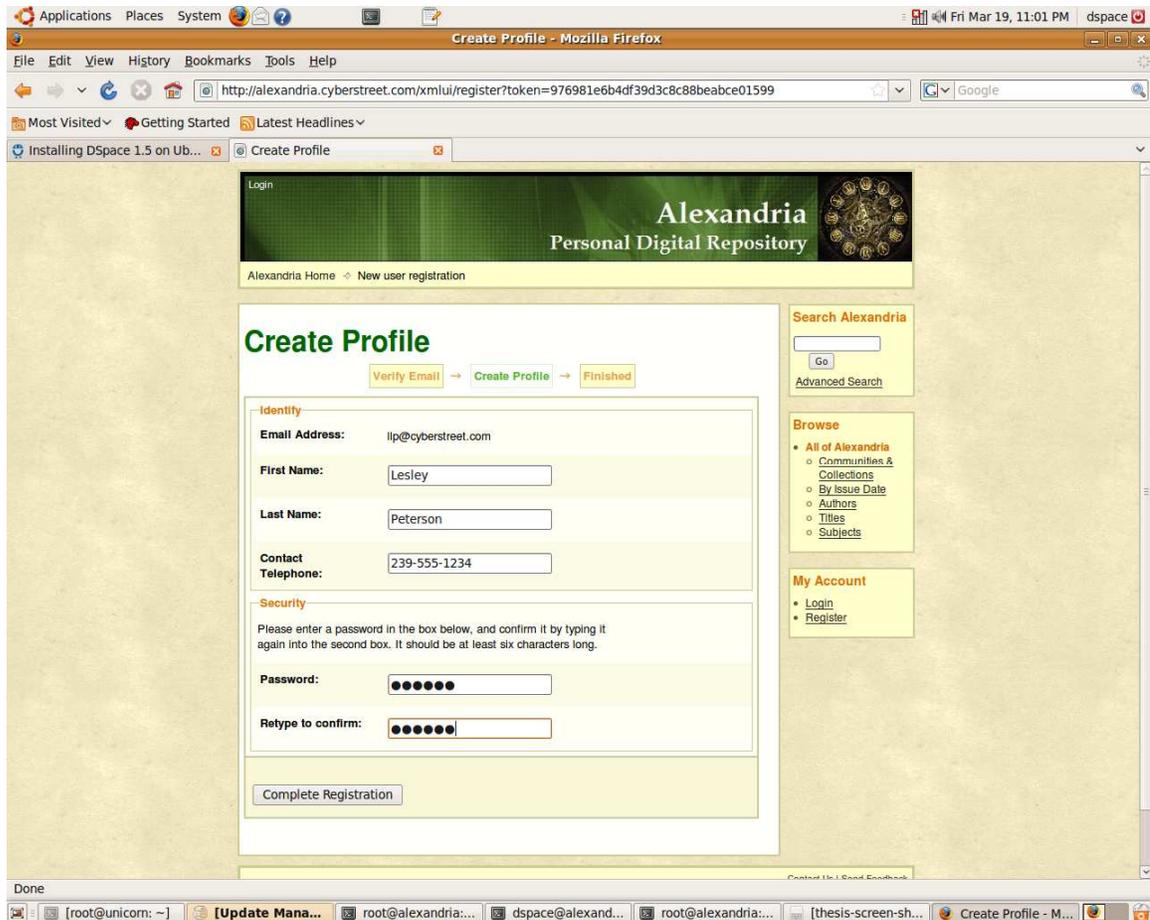
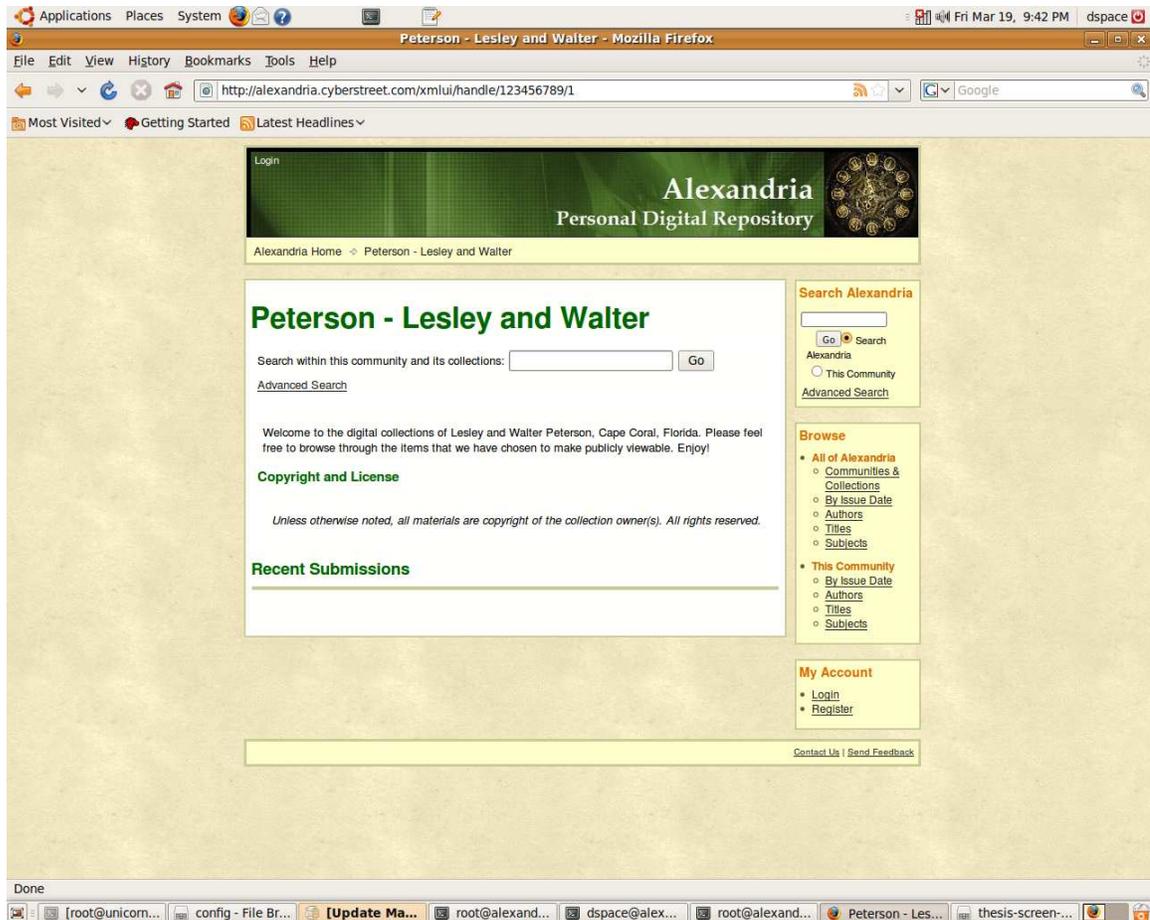


Figure 14: New User Registration (Source – Author)



**Figure 15: Creating a New User Profile (Source – Author)**

Once assigned to a community, a user may create collections, and may add, edit or remove items. If the items have been granted read access to anonymous users (ie, those who are not logged in as members of a community), then they are visible to the general public. Otherwise, they are not available for public viewing. Since this repository is not intended to be a social networking site, we can assume that most people would prefer to keep their personal objects hidden from public view. But, since we would like to showcase the workflow process of depositing and viewing these items, for the purposes of this project we will leave the majority of items available for public viewing.



**Figure 16: A new community, ready to add collections (Source – Author)**

Once a user creates a collection, he or she may then begin to deposit items. A workflow guides the user through the process, asking the user to provide the appropriate metadata (author; image, video, document; creation date, etc.) and descriptors (key words, description of the item, etc.) These metadata help to establish provenance as well as providing a means of allowing the user to search through the community and/or collection so as to find a particular item (“I know I have that picture of my son’s first haircut in here *somewhere!!!*”).

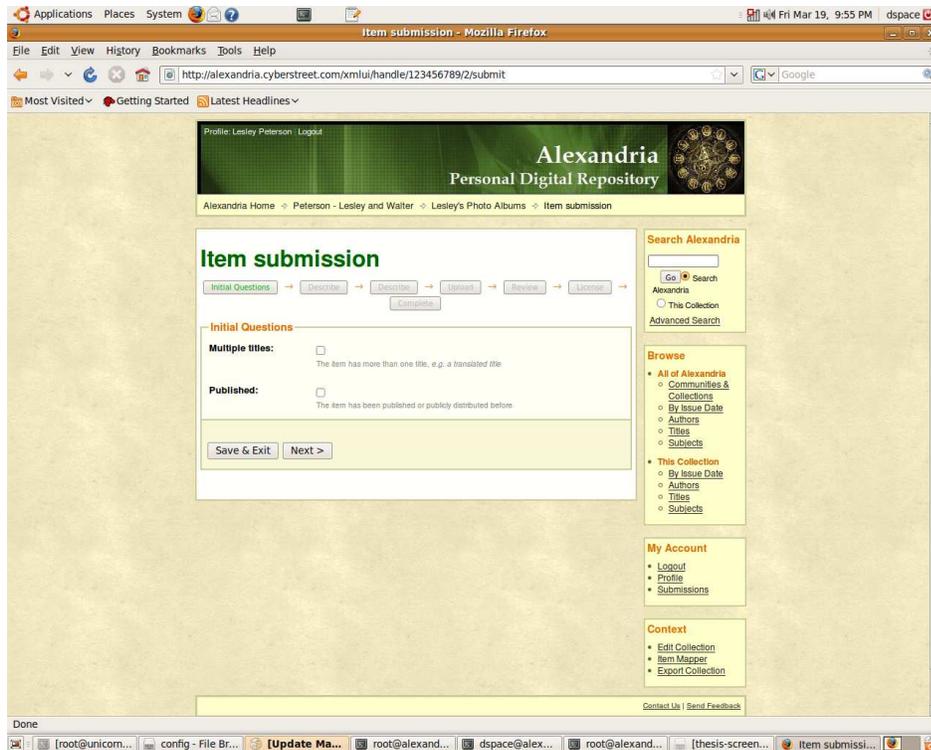


Figure 17: Item submission step 1 – Initial questions (Source – Author)

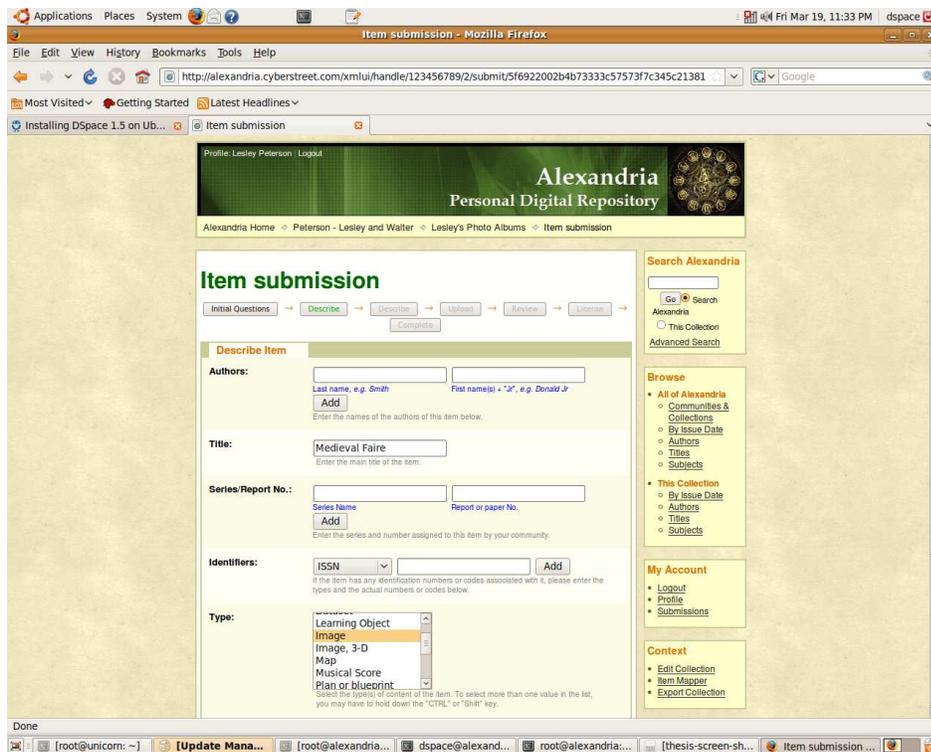


Figure 18: Item submission step 2 – Describe the item (Source – Author)

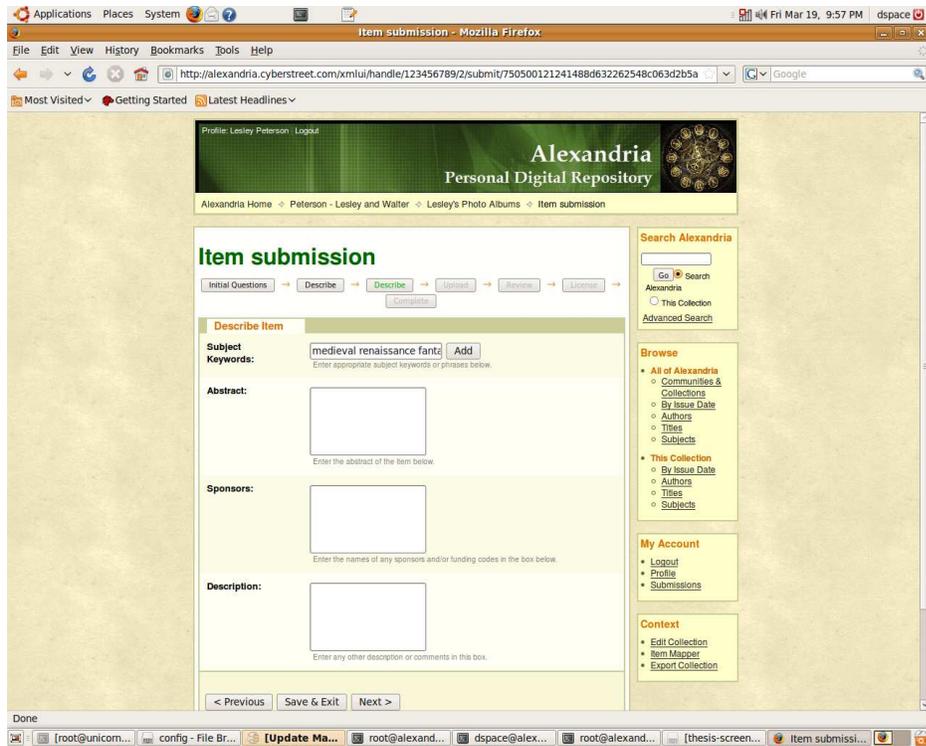


Figure 19: Item submission step 3 – Describe the item, continued (Source – Author)

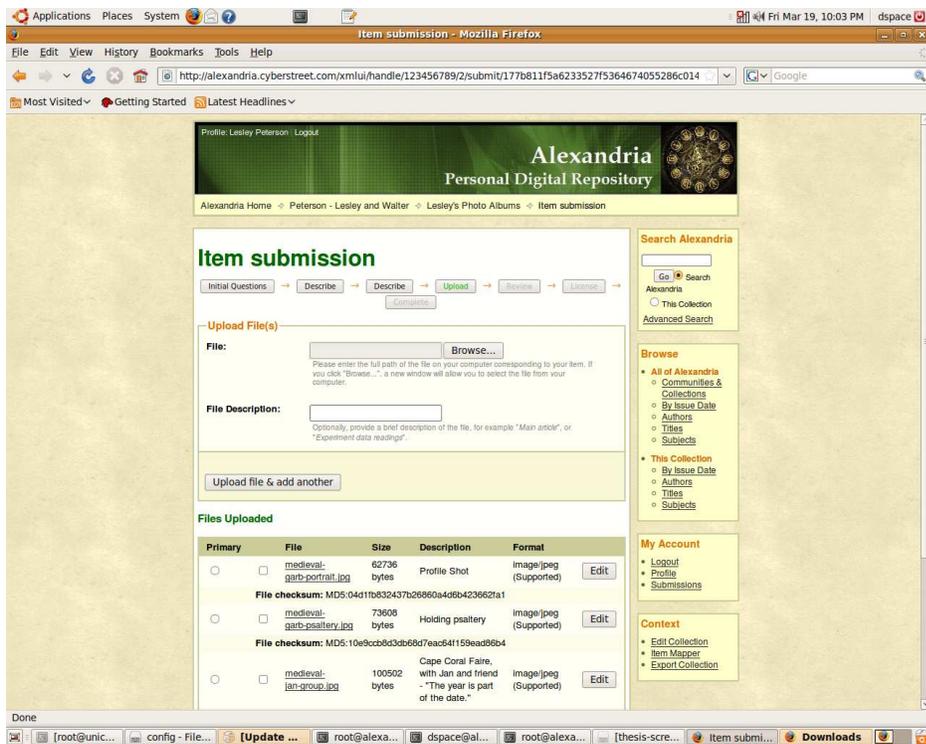


Figure 20: Item submission step 4 – Upload files (Source – Author)

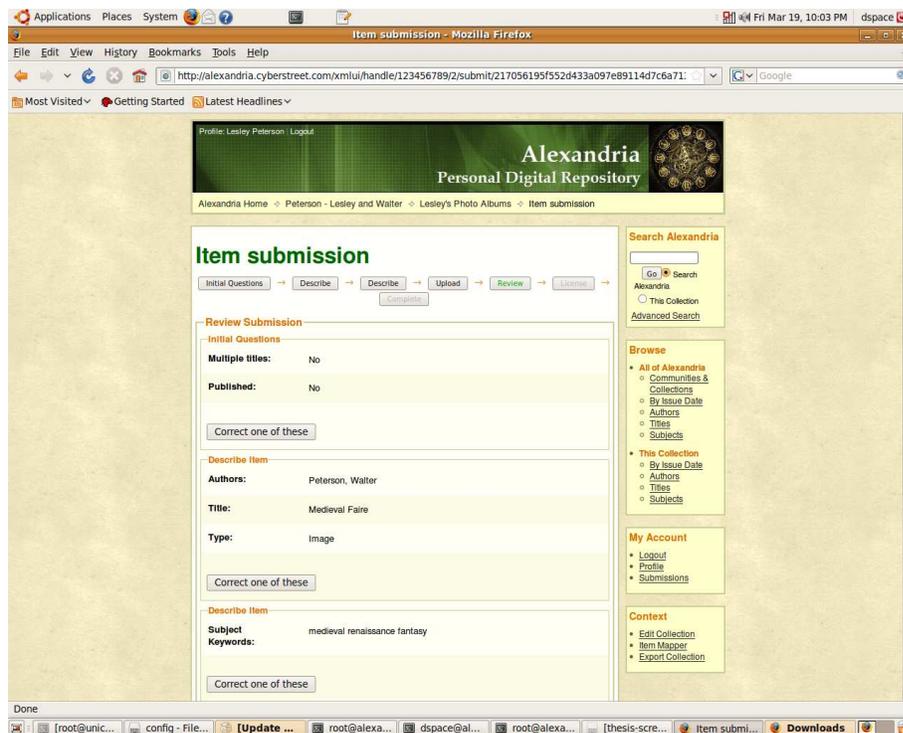


Figure 21: Item submission step 5 – Review and correct (Source – Author)

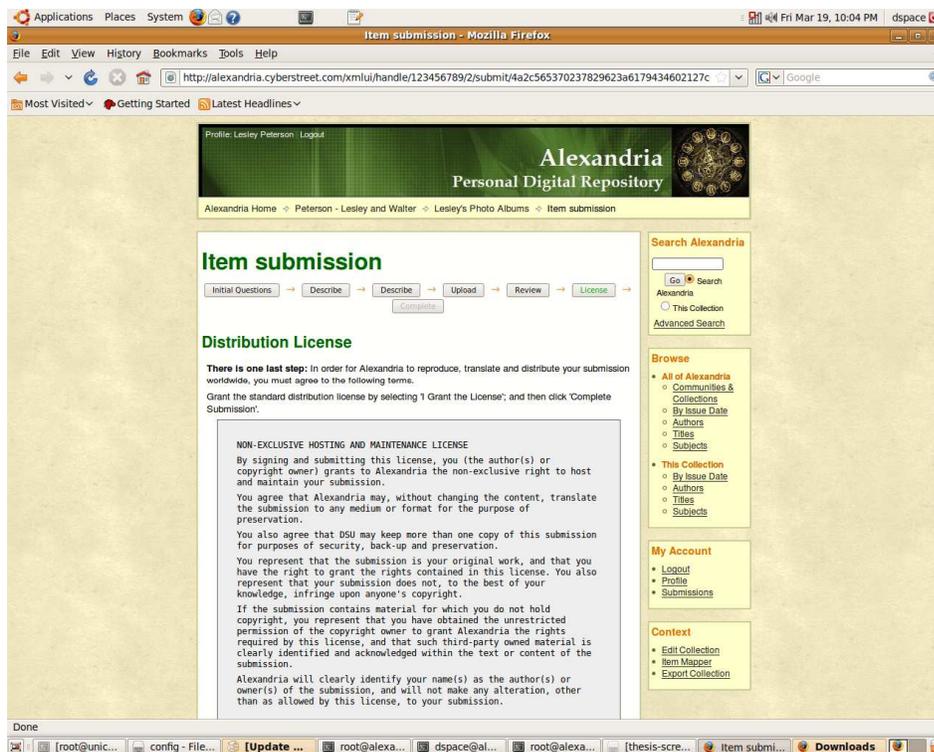
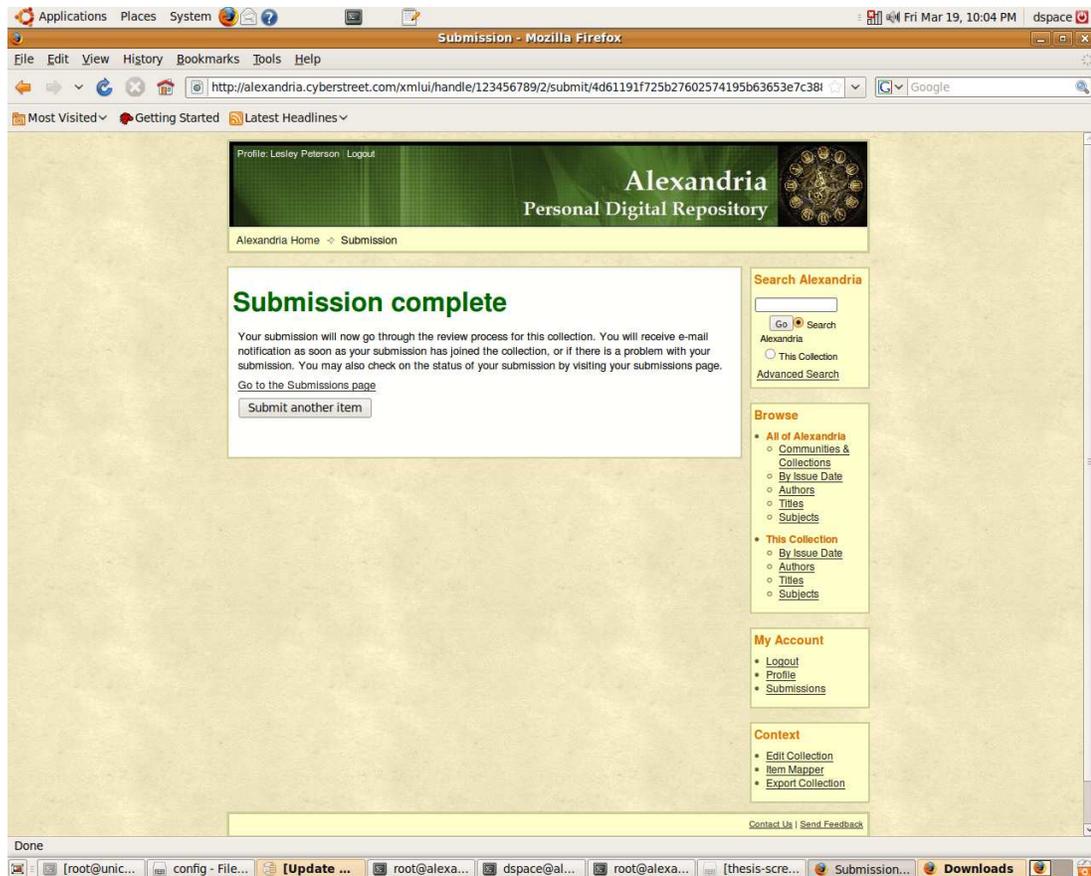


Figure 22: Item submission step 6 – Agree to License (Source – Author)



**Figure 23: Item submission complete (Source – Author)**

After items have been added to a collection, the user may come back at any time to view the items, add additional items, or remove items that are no longer wanted. Items may be opened for viewing through the web interface, or they may be exported as .zip files. Entire collections, and even entire communities (ie, the entire set of collections belonging to a group of users), may be exported.

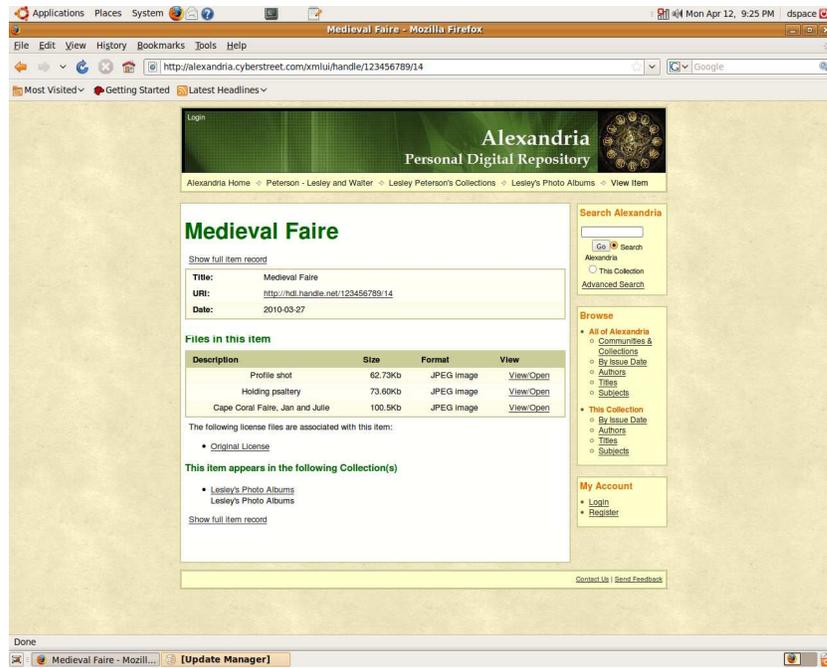


Figure 24: An item within a collection. It contains several related files. (Source – Author)

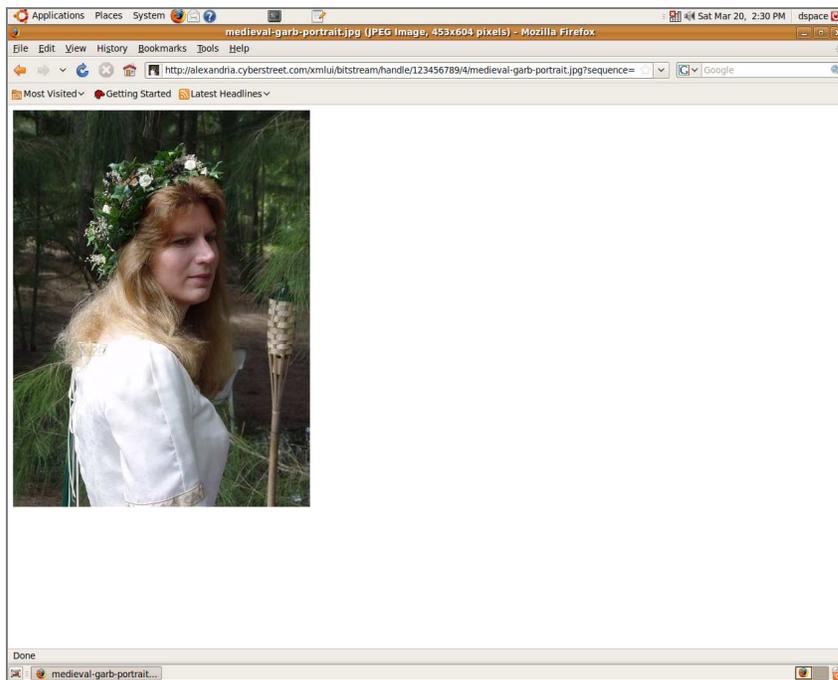


Figure 25: A file within the item, as viewed through the web interface. (Source – Author)

### 3.5 SUMMARY

As demonstrated by Alexandria@CyberStreet.com, the DSpace concept of organizing data bundles into communities and collections may be used in a personal repository by building a structure based upon families as communities and storing personal or joint collections within them. It is important to note that Alexandria is not presented as a commercial grade service open to the general public; far more work is necessary in order for such a repository to be launched. Instead, it is intended to be a demonstration of the capabilities of the DSpace platform. In order to establish a repository that would be open to the general public, a number of further customizations would need to be performed, especially related to the aspects tier of development. Fortunately, DSpace is an open source platform and its source code is readily available. Therefore, it is possible for a development team to design and implement the necessary changes. These include, but are not limited to:

- New community automatically set up upon new user registration
- Alternately, a new user may join a pre-existing community upon registration
- Appropriate permissions automatically granted to users upon registration
- User directed to his or her community page upon signing in
- Default setting of community and/or collection to non-viewable for anonymous users
- Alternately, elimination of anonymous users; an individual would need to be registered with the repository in order to gain access to it at all

- Permission to remove a community granted only to the repository administrator(s) – business practices would need to be established to authorize such removals
- Additional aesthetic modifications, including more user-friendly messages and work flow

In addition to the modifications to the UI, the repository would need to be mirrored and clustered in order to provide redundancy and load balancing. Once again, this is beyond the scope of this demonstration. Nevertheless, it is important to note that all of these issues are capable of being addressed. In addition, the DSpace platform will continue to be developed through the foreseeable future, and further enhancements in terms of scalability and ease of customization should be expected. Therefore, it is feasible to consider DSpace as a viable platform on which to build a reliable personal digital repository.

## **CHAPTER FOUR: LEGAL AND PUBLIC POLICY ISSUES**

Since technologies are emerging upon which to base a trusted digital repository, it is important to examine the legal and public policy issues that would surround it. Indeed, the legal landscape often is forced to evolve. As technology writer Susan B. Shor observes: “The advent of a new technology often requires building a whole new set of rules to govern its use. Occasionally, the technology’s use easily falls under a set of rules already in place” [27]. We find both of these aspects in play with regard to digital archiving, as the courts struggle to find a balance between existing precedent and the establishment of new laws surrounding the legal standing of digital materials.

### **4.1 COPYRIGHTED MATERIALS**

Since the possibility exists that depositors may place copyrighted materials into a digital repository, it is imperative that we examine the current legal landscape. While our digital repository is aimed at private individuals rather than institutions, we can nevertheless gain insight into the implications of copyright law by examining how they have been applied to libraries and other digital archives.

The U.S. system of copyright was first established under Article I, Section 8, Clause 8 of the Constitution, granting Congress the power “To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries” [28]. Modern copyright law was established in 1976 by the passage of the 1976 Copyright Act [29]. As outlined by the U.S. Copyright Office:

Copyright is a form of protection provided by the laws of the United States (title 17, *U. S. Code*) to the authors of ‘original works of authorship, including literary, dramatic, musical, artistic, and certain other intellectual works. This protection is available to both published and unpublished works. Section 106 of the 1976 Copyright Act generally gives the owner of copyright the exclusive right to do and to authorize others to do the following:

- To reproduce the work in copies or phonorecords;
- To prepare derivative works based upon the work;
- To distribute copies or phonorecords of the work to the public by sale or other transfer of ownership, or by rental, lease, or lending;
- To perform the work publicly, in the case of literary, musical, dramatic, and choreographic works, pantomimes, and motion pictures and other audiovisual works;
- To display the work publicly, in the case of literary, musical, dramatic, and choreographic works, pantomimes, and pictorial, graphic, or sculptural works, including the individual images of a motion picture or other audiovisual work; and
- In the case of sound recordings, to perform the work publicly by means of a digital audio transmission [30]

The application of this law to digital media presents unique concerns. According to Donna L. Ferullo, Director and Assistant Professor at the University Copyright Office of Purdue University Libraries, “Academic librarians face complex issues and challenges in navigating the maze that is the copyright landscape. Some of the issues are obvious,

but others are far more subtle, particularly in a digital environment. Issues that invoke confusion and concern as to the applicability of the copyright law include e-reserves, licensing, document delivery, and fair use” [31].

Ferullo goes on to state: “Copyright law is all about balance. Our forefathers’ intent was to balance the rights of the author with the rights of the public to use the information freely. The premise of copyright is that authors need an incentive to create works and the incentive is to allow the authors to have exclusive rights to their works for a limited period of time” [31].

But that balance is getting harder to define. According to Byron Anderson, Professor and Head of Reference at Northern Illinois University Libraries, the 1976 Copyright act was established in order to find “a balance between creators, publishers, and consumers. Soon thereafter, technology, or more specifically the accelerated pace of information and media technology, began to upset the balance. The digital age presented new challenges to fundamental copyright principles” [29]. He cites as particularly problematic the fast moving pace of technological change, which leads to “more applications and features generating new issues involving copyright, for example, peer-to-peer file sharing features” [29]. These new technologies facilitate the creation and sharing of identical copies of a digital work, thus infringing upon an author’s rights to maintain control over distribution.

#### ***4.1.1 The Digital Millennium Copyright Act (DMCA)***

In response to these issues, Congress passed the 1998 Digital Millennium Copyright Act (DMCA), making it illegal to circumvent digital rights management (DRM) techniques. It is important to note that this act applies both to the tools utilized as

well as to the act of DRM circumvention itself, irrespective of whether or not the work being accessed is, indeed, protected by copyright. Thus, it goes so far as to ban “the manufacture and distribution of technologies that enabled circumvention for these lawful purposes” [29].

This act has been controversial. Its proponents claim that DRM techniques are necessary in order to preserve the creative and financial rights of artists [29]. The illegal copying and distribution of digitized material is a worldwide problem that has been growing on a massive scale. As of 2006, it has been reported that over 90 percent of all new business software distributed in Russia and China comes from pirated sources [29]. Peer-to-peer file sharing enables music and video files to be freely disseminated among Internet users, with “media analyst Big Champagne [estimating] that more than 60 million Americans are using file-sharing software” [29]. Considering that music and video files are now customarily released in digital format, with even the printed word starting to give way to e-books, it is no wonder that authors of these materials are dismayed at the prospect of losing control of their creations.

Yet, while creators of digital works may have legitimate concerns about their illegal distribution, not everyone agrees that the DMCA has been working out in the public’s best interest. The Electronic Frontier Foundation argues that the DMCA is too restrictive and infringes upon the doctrine of fair use, which they describe as: “a limitation on the exclusive rights of copyright holders. The Copyright Act gives copyright holders the exclusive right to reproduce works for a limited time period. Fair use is a limitation on this right. A use which is considered ‘fair’ does not infringe copyright, even if it involves one of the exclusive rights of copyright holders. Fair use

allows consumers to make a copy of part or all of a copyrighted work, even where the copyright holder has not given permission or objects to your use of the work” [32]. They go on to claim that: “By banning all acts of circumvention, and all technologies and tools that can be used for circumvention, the DMCA grants to copyright owners the power to unilaterally eliminate the public’s fair use rights” [32].

The curtailing of fair use rights has become a matter of concern for librarians and other archivists. Carrie Russell, Copyright Specialist with The Washington Office of the American Libraries Association, takes issue with DRM’s interference with an individual’s right to lawfully interact with digital media. “A library customer checks out a new DVD from the library only to discover that it won’t play on her Linux operating system at home. Another, who is blind, borrows an e-book from the library and finds that his text-to-voice software cannot ‘read’ the product. Yet another user checks out a new music CD but can’t get it to play on his laptop. These activities are absolutely legal, but technologies installed within equipment, tied to content, or built into a software program, make them no longer possible” [33].

This is an unacceptable situation in the world of digital archiving, as individuals with a legitimate right to materials must be ensured access to them. Russell sums up the matter: “If you accept that the future is digital, then you must also accept that the work of librarians, whose very enterprise is dependent upon *fair use*, is threatened by the current DRM agenda. To ensure a vibrant digital future, librarians must work with other stakeholders and commercial interests to push for and develop DRM that serves patrons as well as content owners” [33].

#### *4.1.2 Proposed Reassertion of Fair Use*

In response to such concerns, Representatives Rick Boucher and John Doolittle have co-sponsored the Digital Media Consumers' Rights Act (DMCRA). While it is true that they had supported the 1998 Digital Millennium Copyright Act, it became "very clear to both that the DMCA had eroded user rights. Their bill would restore the historic balance in U.S. copyright law by reaffirming fair use" [34]. The provisions to restore fair use would call for an amendment of the existing Copyright Act and the proposed text is worded as follows:

FAIR USE RESTORATION.—Section 1201(c) of title 17, United States Code, is amended—

(1) in paragraph (1), by inserting before the period at the end the following: "and it is not a violation of this section to circumvent a technological measure in order to obtain access to the work for purposes of making noninfringing use of the work"; and

(2) by adding at the end the following new paragraph:

"(5) Except in instances of direct infringement, it shall not be a violation of the Copyright Act to manufacture or distribute a hardware or software product capable of substantial noninfringing uses" [35].

Because these revisions would help to preserve the doctrine of fair use, the DMCRA has been embraced by the librarian community. Mary Alice Baish, Associate Washington Affairs Representative American Association of Law Libraries, voices this support, declaring that the DMCRA "reaffirms fair use in a networked environment, resolves key concerns regarding hardware and software that permit significant

noninfringing uses, and allows researchers to engage in the scientific research of technological protection measures” [34].

#### ***4.1.3 Orphaned Works***

Then there is the case of “orphaned works,” which are “those for which the copyright owner is difficult or impossible to find when a library or museum seeks permission for copyrighted works” [34]. A 1993 Library of Congress film preservation study warned of the dangers posed to orphan works that “lack either clear copyright holders or commercial potential to pay for their continued preservation” and advised that they “require the most urgent attention from government and preservationists” [36].

One issue surrounding orphaned works is the risk posed to users should the author come forward. In our increasingly digital world, “[t]here are more independent book publishers, record labels and motion picture companies than at any time in the past” [36]. In response to these problems, the Orphan Works Act of 2006 was introduced into the House of Representatives. It was “largely based on the Register of Copyrights’ ‘Report on Orphan Works’” and “concluded that the best way to address the ‘problem’ is by limiting the remedies available to a copyright owner if a user of a copyrighted work makes a ‘reasonably diligent search’ aimed at locating the copyright owner” [36]. Under this proposed legislation, if a noncommercial user ceased using the work after the author became known, such user would face no monetary damages. Furthermore, even “if the user ‘transformed the orphan work into a derivative work’ ... the copyright owner would not be able to enjoin the user from continuing to exploit the derivative work” [36].

This legislation was not adopted, however. Photographers in particular were not pleased with these provisions, “fearing that too many of their works [would] be

incorrectly deemed to be orphans and thus used with little or no compensation” [36].

Additional work needs to be done to address these concerns, as legislation of this type is of vital concern to preservationists. It should be noted, after all, that “if orphan materials are not preserved ... then there will be no uses or rights left to debate” [36].

Google, however, seems determined to step in and provide a home to a certain class of orphans. In 2004 Google announced its Google Book Search project, an ambitious “effort to digitize the world’s books, particularly those that were out-of-print and available in only a few libraries” [37]. Google’s intended approach was to scan books irrespective of their copyright status; they would provide the full text for books in the public domain, while for the remainder they would “provide a Snippet View, or a small section of the book that was related to the search terms being used. Google would then provide a link to a bookseller or a library where the book could be purchased or borrowed” [37].

While Google believed that this constituted fair use, the Authors Guild and The Association of American publishers disagreed, suing Google for copyright infringement. A settlement was reached, in which “Google agreed to pay up to \$60 to the copyright owner for each book that had been already scanned. Google would also be permitted to continue to digitize books and pay royalties unless the copyright owner opted out” [37]. Both sides appeared satisfied at reaching a compromise that would provide “a means of making long-lost and hard-to-obtain print resources broadly available to the general public” [37].

But, the settlement has proven to be contentious, as it grants Google immunity from copyright infringement of “orphans,” yet it fails to provide the same protection to

any other organization which would seek to digitize these same works. By extending this protection solely to Google, critics argue that the corporate giant is being granted an unfair monopoly [37]. United States Register of Copyrights Marybeth Peters goes even further, claiming that the settlement is “fundamentally at odds with the law” [38]. In a House Judiciary Committee hearing, “Peters told lawmakers that the settlement was in essence a compulsory license, and that only Congress – not the courts – could enact such licenses” [38]. Furthermore, she expressed concern that “the settlement could jeopardize Congress’s efforts for more meaningful orphan works legislation” [38].

A week later, the Department of Justice issued a brief urging the court to reject the settlement, arguing: “As presently drafted the proposed settlement does not meet the legal standards this court must apply.... This court should reject the proposed settlement and encourage the parties to continue negotiations to comply with Rule 23 and the copyright and antitrust laws” [39]. Google, the AAP and the Authors Guild, responded that they would address the concerns posed by the DoJ: “We are considering the points raised by the Department and look forward to addressing them as the court proceedings continue” [39].

And so, a revised proposal was filed with the courts on November 13, 2009. The changes to the settlement stipulate that Google will include only works that originate from the US, the UK, Australia or Canada, and will ensure that all monies made from these works will be held for a period of 10 years so as to maintain adequate compensation in the event that an author comes forward during that time. The proposal does not address the issue of Google’s sole claim to protection, thus raising the ire of “the Open Book Alliance, a consortium of Google’s opponents including Microsoft and Amazon ... [who]

... immediately criticized [it] as a ‘sleight of hand’” [40]. As of this writing, the courts have yet to weigh in, yet one would hope that they understand the importance of avoiding the approval of an agreement that does not address the matter of such exclusivity.

As we consider the implications of the controversy surrounding the Google settlement, it becomes obvious that the issue of fair use of orphaned works and the accompanying protection from copyright infringement should apply to ordinary individuals and not just corporate behemoths. Anyone involved in the realm of digital archiving has a legitimate interest in seeing that the courts do not grant such a monopoly to any single organization or entity.

How do all of the aforementioned issues affect the development of a personal digital repository? It is clear that those who would deposit works into a digital repository share concerns similar to those of librarians and archivists. As stated earlier, music, video and even books are all distributed in digital format. An individual may want to store such a work into her personal repository and retrieve it at some future time for personal use. With the rapidly changing pace of technology, the means for interacting with the stored material – viewing a movie, listening to a song, reading a book – may have changed. Certainly the individual would want to have both the technology at hand and the legal right to move that digital object to a new platform without the fear of facing criminal charges. Indeed, it seems perfectly reasonable, even imperative, that the issues of fair use that extend into our system of libraries also encompass the needs of private individuals.

## **4.2 NETWORK NEUTRALITY**

In addition to addressing the concerns surrounding copyright issues and fair use, there is also the need to consider the matter of document delivery. Moving digital objects

to and from a repository requires bandwidth, and the doctrine of network neutrality posits that all Internet traffic must be treated equally.

#### ***4.2.1 Tiered Bandwidth***

There is concern within the librarian and archivist communities that telecom giants would reap financial benefits from a two-tiered system, under which “content, application, and service providers would have to pay a fee to run their content and services at the same speed and quality as the telecom’s own content and services. Those who don’t pay or can’t pay the fee would be in the slower, but free ‘public’ Internet lane. Web sites of individuals, start-ups, charities, small companies, nonprofits may be left out of the fast lane. Civic and noncommercial online programming would be pushed to the end of the line” [41].

This would create various “classes” of Internet traffic, and without network neutrality, repositories may not be able to move the necessary volume of information [42]. While “[t]elecom supporters liken the proposed new tiers of service to adding faster lanes to an existing freeway” [42], one has to wonder what would happen to these smaller users if they were forced to transverse such a toll road. Rick Weingarten, director of the American Library Association’s Office for Information Technology Policy, explains: “Imagine you had some shelves in the library that were unreachable to users... Yeah, you’ve got the books, but you can’t get at them. If you’ve got an internet where some resources take forever to download, that has an enormous implication, both on the usability for the user and on the library resources” [42]. These same concerns apply to the world of personal archiving, as new repositories may find themselves unable to pay the same type of fees as mega-giant corporations; would users then become frustrated with

the requirement of waiting an exorbitant amount of time depositing and retrieving their digital materials?

#### ***4.2.2 Value Judgments Concerning Content***

In addition to tiered bandwidth, there is concern that Internet Service Providers (ISPs) may institute policies of blocking access or degrading performance due to value judgments concerning content. This would fundamentally change the landscape of the Internet, as currently “‘Internet Access’ means access to everything the Internet has to offer, not access to a selection of Internet applications and content approved by our ISP” [43]. Indeed, at a symposium held at the University of Colorado School of Law, Chairman of the Federal Communications Commission Michael K. Powell spoke concerning the urgency of protecting the freedom of use that Internet subscribers currently enjoy. In particular, he proposed the following four “Internet Freedoms”:

1. Freedom to Access Content: “Consumers have come to expect to be able to go where they want on high-speed connections, and those who have migrated from dial-up would presumably object to paying a premium for broadband if certain content were blocked” [44].
2. Freedom to Use Applications: “As with access to content, consumers have come to expect that they can generally run whatever applications they want. Again, such applications are critical to continuing the digital broadband migration because they can drive the demand that fuels deployment. Applications developers must remain confident that their products will continue to work without interference from other companies” [44].

3. Freedom to Attach Personal Devices: “Because devices give consumers more choice, value and personalization with respect to how they use their high-speed connections, they are critical to the future of broadband. Thus, I challenge all facets of the industry to permit consumers to attach any devices they choose to their broadband connection, so long as the devices operate within service plan limitations and do not harm the provider’s network or enable theft of service” [44].

4. Freedom to Obtain Service Plan Information: “Simply put, such information is necessary to ensure that the market is working. Providers have every right to offer a variety of service tiers with varying bandwidth and feature options. Consumers need to know about these choices as well as whether and how their service plans protect them against spam, spyware and other potential invasions of privacy” [44].

The first two freedoms are of particular interest to our discussion, as they address the right to access content and applications. The technology to block content due to value judgments currently exists, and allegations of such actions have already surfaced. For example, “[in] 2007, Verizon Wireless rejected a request by NARAL Pro-Choice America, an abortions rights group, to let them send text messages over Verizon Wireless’ network using a five-digit code. In the same year, AT&T deleted words from a Webcast of a Pearl Jam concert in which the singer criticized George W. Bush” [43]. Whether or not an organization agrees with the policies or statements of a given entity should in no way influence the decision to carry their network traffic; the ability to communicate without hindrance is vital in a free and open society. The Internet is

arguably one of the greatest mediums for communication in the history of humankind, and it is imperative that it remain nondiscriminatory. Indeed, this must continue to be so “if the Internet is to realize its full economic, social and political potential. [...] This ability to choose is fundamental if the Internet is to create maximum value, for us as individuals and for society” [43].

These issues are certainly germane to the concerns of a digital repository. It should appear obvious that personal digital objects would be every bit as diverse as the individuals utilizing the archive. What would be the impact upon traffic into and out of a digital repository if it was known to contain the works of a prominent individual who espoused views that were considered unpopular, or just plain unfashionable, at the time? If ISPs were allowed to block traffic based upon such value judgments, the entire repository would be placed at risk, with network providers shaping “public discourse based upon their own interests and idiosyncratic content policies” [43]. In such an environment, the digital artifacts of an entire generation may be placed in jeopardy as political and social views fade in and out of fashion. Such an occurrence is anathema to the idea of long term preservation.

#### **4.3 INHERITANCE UPON DECEASE**

“In 2005, a Michigan judge ordered Yahoo! to release the e-mails of a U.S. soldier killed in Iraq to his family after they filed suit. Chris Sprigman, a University of Virginia law professor, says that’s just the beginning. ‘There will be a flood of these cases cropping up,’ he says” [45].

A personal digital repository would contain far more than just email; it might contain digital photographs, music or video files, or electronic documents. Who would be

allowed access to these items upon decease of the depositor? How is the law evolving to accommodate the inheritance of digital possessions?

According to Marc Rotenberg, executive director of the Electronic Privacy Information Center: “Lawyers are already encouraging their clients to think about the issue of who has access to a computer or e-mail if they die” [45]. Most lawyers advise their clients to wait until probate has been cleared and they have been granted the legal authority to view a dead loved one’s personal files. But if a file, such as a letter, happens to be stored on the deceased’s home computer, the matter is usually treated with little formality, as “the truth of the matter is that most often, surviving family members would just go into the closet or onto the hard drive and get the letters they felt they have a right to see” [27].

The situation is very different if the files have been stored in an online environment. The family of Justin Ellsworth, a Marine who was killed in Iraq, encountered difficulties in retrieving email stored in the soldier’s Yahoo! account, as the service provider refused access due to privacy issues. From a legal point of view, the contract for accessing such files was between the service provider and the deceased, not the family members [27]. Under those circumstances, “the only person who can access the deceased person’s property is the executor of the estate once the estate has been probated, a process that can take days or years depending on many factors” [27].

Since family members may not want to spend years waiting for access to their deceased’s digital materials, estate planning becomes very important. Villanova law professor James Maule advises that “the contract with the storage site owner ought to provide that the customer’s executor or attorney have the right of access. [...] The

username and password need to be made available by the individual to his or her attorney or executor” [27]. Moreover, “Kennedy points out, for security reasons, passwords should not be kept in a list handy for all to read. But, they should be made available to the executor of the estate” [27].

Given that a digital repository is intended to maintain items over long periods of time, it is expected that depositors will die and may wish to pass their objects down to their descendents. With this in mind, the curators of such a repository would be expected to work with estate planners in order to maintain the proper and necessary balance between depositors’ rights to privacy and the lawful inheritance of their heirs. Indeed, it is reasonable to expect that appropriate policies and procedures would be incorporated into a repository’s formal business practices. As journalist Carolyn O’Hara succinctly observes: “With so much of people’s lives and property already concentrated online, we may soon reach a time when an heir unseals a will only to find that – ding! – they’ve got mail” [45]. With a personal repository, they may indeed find that they have mail... and so much more!

#### **4.4 SUMMARY**

We have looked at how issues of copyright and fair use, network neutrality, and inheritance upon decease would impact a personal digital repository. We can see that such an enterprise would not stand forsaken in our courtrooms; instead, it would expect to find allies within the communities of librarians and institutional archivists, as well as guidance from estate planners. Already, the legal landscape is being reshaped as we move forward into a digital age.

Indeed, all of these issues currently are within the realm of public discussion. As this discourse continues, laws will continue to adapt in order to embrace our changing technologies, just as they have done so many times in the past. Thus, we can remain optimistic that, as a society, we will find a way to maintain the security of our digital repositories while keeping in mind the individual liberties of its contributors. As the renowned physician William Osler keenly observed: “The search for static security - in the law and elsewhere - is misguided. The fact is security can only be achieved through constant change, adapting old ideas that have outlived their usefulness to current facts.” So true, and yet we may go on to modify that last line so as to state: adapting old paradigms to suit current technologies.

## **CHAPTER FIVE: ORGANIZATIONAL AND ADMINISTRATIVE CONCERNS**

It would be a mistake to believe that issues related to technological change and legal policies are the only obstacles that a reliable digital repository must face. In Chapter Two, we examined the hardware and software challenges identified by Baker, but she has also identified other areas that must be taken into account. These are human and organizational issues. Organizations die out, networks suffer attack, and humans commit errors – either unintentionally or by malice. Baker provides an example with the case of an IT company that closed one of its research labs. All of the lab’s projects were copied to tape, with the request that they be forwarded to another of its labs. Because most of the individuals at the lab were not familiar with the work that was on these tapes, they were neglected. When it became clear that they might be useful, there was no one on hand who knew exactly what was on them and “the volume of data was too huge to construct an index” [10].

Indeed, the technological issues appear trivial compared to ensuring that efforts to maintain and oversee the repository remain in place for vast periods of time. One only has to look at the ruined temples of ancient Greece or the glazed porcelain remains of Chinese dynasties to recognize that civilizations rise and fall, leaving behind bits and pieces of the lives of their once great inhabitants. Within our own cultural period, we have seen the online community of Geocities rise and, in October 2009, ultimately fall, leaving its members who did not move their files to another hosting service bereft of

those items [46]. Certainly, such a situation is not what one would hope for from a reliable digital repository.

In our fast paced digital age, preserving for the long haul may seem to be a futile attempt. Our society is all about change – newer, better, faster – with items becoming obsolete almost as soon as they are acquired. Indeed, whether it is consumer products – or sadly, our pets or even spouses – we are increasingly moving towards life in a disposable world. Even so, we do find ourselves confronted with certain scenarios in which “dispose and forget” is not an option, but rather long-term caretaking is vital. With that in mind, we will turn our attention to three seemingly unrelated things – nuclear waste containment facilities, cemeteries, and a large underground clock in the U.S. desert southwest – and see what this unlikely combination can teach us about the organizational concerns of a reliable digital repository.

## **5.1 PRESERVING FOR THE LONG HAUL**

### ***5.1.1 Going Underground***

With the recent concern over climate change, public interest has increased in the search for alternatives to fossil base fuels. One such alternative is nuclear power, which after decades of image problems following the accidents at Three Mile Island and Chernobyl, is “experiencing an American renaissance, similar to the global renaissance that prompted France to rely on nuclear power for 80 percent of its energy and has prompted China to announce plans for 20 new reactors” [47]. Yet while nuclear power does not contribute to the carbon footprint, it does leave behind some nasty materials, including “highly radioactive elements, such as cesium, strontium, technetium, and neptunium” [48]. This is not an easy problem to deal with, as according to the

Department of Energy: “Some of these elements will remain radioactive for a few years, while others will be radioactive for millions of years. Scientists worldwide agree that the safest way to manage these materials is to dispose of them deep underground in what is called a geologic repository” [48]. Indeed, in 1982 Congress enacted the Nuclear Waste Policy Act (NWPA), which aims to “[establish] geologic repositories as the long-term solution to the problem of storing high-level nuclear waste, and it set in motion the process to site and develop such repositories” [49].

When discussing containment as a long term strategy, how long are we talking about? Decades? Centuries? For the issue of nuclear waste, we are looking at containment over much longer periods of time, as the “proposed EPA standard requires that we understand repository behavior well enough 10,000 to 1 million years in the future to make accurate predictions of whether the radiation dose standard will be met. This is no small task” [49]. Indeed; and no small time frame, either.

Why have scientists deemed that a geological repository poses the best choice for nuclear waste storage containment? According to the Department of Energy: “As long as nuclear waste remains in a solid form and is properly shielded, it will not harm people or contaminate the environment — and over time it produces less and less radiation. The idea behind deep geologic disposal, therefore, is to keep the waste as dry and isolated as possible, for as long as possible, so that its radiation can diminish to safe levels. Isolated in a deep underground repository, the waste would not be subject to the many environmental factors that on the earth’s surface would cause it to break down into radioactive particles that could be dispersed by air or water into the accessible environment” [48].

While our digital objects certainly pose no danger to us from radiation or other contaminants, the media upon which they reside are subject to breakdown and decay, as we saw in Chapter Two. In order for the objects stored in a digital repository to experience as little bit rot as possible, we would want to provide them with the best possible environment. Moreover, underground geological sites provide the benefit of protection from a variety of natural disasters, such as tornados, hurricanes, and tsunamis; care must be taken, of course, to avoid sites which are prone to earthquakes.

The advantages of deep underground siting have not been lost on the information storage industry. For example, Iron Mountain is an information and documents management company that provides “access to more than 425 million cubic feet of paper records, 10 billion emails, 65 million computer backup tapes, 2.5 million PCs and 20,000 servers” [50]. Iron Mountain was established in 1951 in Livingston, New York by Herman Knaust, a mushroom grower who purchased a “depleted iron ore mine and 100 acres of land so that he could have more space to grow his product” [51]. After his business began to see a downturn, he turned his attention to “the relocation to the United States of many Jewish immigrants who had lost their identities because their personal records had been destroyed during the war. At this time, the world was also embroiled in Cold War apprehension regarding atomic security. Both factors caused Mr. Knaust to focus on protecting vital information from wars or other disasters” [51]. He established vaults within his mine in which to store these records, naming his new venture after the site’s origins [51]. Over the years, the company has expanded and added several additional underground facilities, including a refrigerated former limestone mine in Boyers, Pennsylvania which houses documents and other media for entities as diverse as

the National Archives, Warner Brothers, Universal Studios, the Federal Office of Management and Budget, and Bill Gates [52].

While Iron Mountain began its history by storing physical media – photographs, paper documents and the like – it branched out to include digital media, as well. The facilities include two data centers in the U.S., including the one in Pennsylvania, as well as centers in other parts of the globe, including “Toronto, Montreal, London and Belgium” [53]. John Clancy, President of Iron Mountain Digital, describes their archiving strategy as “storage-as-a-service. We're interested in technologies that do three things: capturing data, technologies that help store and protect data, and thirdly, [...] making that data useful. We protect more data on a hosted basis than any company in the world” [53]. Moreover, Clancy reports that the company has found that siting the facilities underground provides a distinct advantage, as “once you go 10 or 15 feet below the surface, you're at 58 degrees. We actually have natural cooling inside these data centers. We also have engineers that literally work on how best to work in a cave. These are all limestone mines. They've found ways to dig inside the limestone to capitalize on the natural flow of air. It's a nice advantage for us in terms of power and cooling and ultimately one we can scale with. We don't have the same power consumption needs as a typical data center” [53].

In exploring the requirements of a reliable digital repository, it should be clear that it would be advisable for it to be sited in a safe, stable location, free from environmental hazards and natural catastrophes. From an examination of the handling of hazardous materials to the care of irreplaceable documents, we can see that this appears to be the best environment for ensuring the long term safety of deposited items.

Therefore, it would be best to locate a repository's servers and related networking equipment in a data center that is situated in a secure, underground location.

### ***5.1.2 Paying it Forward***

Securing our data centers from physical harm is an essential component of a plan for a reliable digital repository, but it is not enough. The most secure facility in the world is of no value if there are no funds available to maintain the items that have been deposited, some of them from a long time past. We are accustomed to pay as you go services – our television cable or satellite bill, our cellular phone plans, our internet and perhaps web hosting services. How will a repository find the money to maintain the digital items of generations past?

One possible solution would be found in passing our items down to our descendents, as touched upon in Chapter 4. The software platform upon which a repository is based should allow for the importation and exportation of not only individual items, but entire collections. Indeed, the DSpace software that we have previously examined allows for such importing and exporting. In this way, descendents would have the option of accepting an inherited collection *in toto*, or deciding what to keep and what to discard.

But what about the case of descendents that, for whatever reason, are unwilling to accept a collection? Perhaps grand- or great-grand children would look back and wish that they had had the opportunity to acquire them. The choices made by a single generation could have an impact on those yet to come. How can we ensure that we provide for them?

As with the case of data center security, the answer may also lie underground. But in this case, we are not looking in abandoned mines, but rather peering under the shadow of tombstones. As we look upon the expanse of a cemetery, we often find stately shade trees, meticulously manicured lawns, and benches for the benefit of visitors. And yet, the grand- and great-grandchildren of these well maintained parks do not receive a monthly maintenance bill. Instead, their business model typically falls under what the Internal Revenue Service deems a “Perpetual Care Organization.” According to Chapter 76, Section 21 of the IRS Manual: “Perpetual care organizations may come within the meaning of the term ‘cemetery company.’ These organizations are usually created by cemetery companies to receive and hold funds for the perpetual care and maintenance of the cemeteries” [54]. An individual pays an up front fee for a gravesite, and part of the money must be placed in an interest bearing perpetual fund, which must be used for maintenance of the gravesite and general facility. Care must be taken that sufficient principle is left upon which to draw the necessary amount of interest. This is demonstrated by legislation that came before the Nebraska state legislature last year, providing that “the principal of the perpetual fund may be used for the general care, management, maintenance, improvement, beautifying, and welfare of the cemetery as long as no more than twenty percent of the principal is so used in any fiscal year and no more than forty percent of the principal is so used in any period of ten consecutive fiscal years” [55].

The concept of perpetual funding has found its way into the digital world, as well. In a statement by the American Geophysical Union (AGU), it recognized that “it has a responsibility to the scientific community to assure that its publications are available for

the future. Without the careful protection and upgrading of the files developed for AGU's electronic publications, there could be a hiatus in the archive of the body of knowledge" [56]. In order to avoid such a loss, and to "assure that AGU has the financial resources to maintain an archive of the material included in its electronic publications, to refresh these files on a regular basis, and to migrate the material in the archive to new formats and media as the technology for electronic publishing changes, a trust fund for perpetual care has been established" [56]. AGU plans to administer the funds as follows:

"Monies in the trust fund are invested in the same manner as the long-term endowment of the Union. The principal of the fund will be protected so that it can continue to create income needed in the future. In the long run, it is expected that only the income from the fund will be used to cover the expenses of maintaining and migrating the archive.

"The income generated by this trust fund will be allowed to accumulate in such a way that more than one year's income can be called upon for the major expense of a migration to a new format. The expenses that would be covered by the trust fund will be charged to a specific project in AGU's accounting records. Thus, it will be possible to know precisely the amount of revenue to that should be withdrawn from the trust fund each year for the covered archival functions" [56].

Thus, we can see that through the model of perpetual funding, not only our physical remains, but also our digital remnants may be provided with the finances required for their ongoing maintenance.

### *5.1.3 And The Clock Ticks On*

The year was 01996. No, that's not a typo; that's the notation used by Brian Eno when he speaks of the year in which he established The Long Now Foundation. Born in England, Eno moved to New York City, where he found that people's attention span was indeed shorter than the proverbial New York minute. He observed that to the average individual, "the here and now meant 'this room and this five minutes'" [57]. This was in contrast to his experiences growing up in England, in which he claims to have experienced a "larger hear and a longer now" [57]. He speaks of the oak beams which hold up the ceilings in College Hall at New College, Oxford: "'Last century, when the beams needed replacing, carpenters used oak trees that had been planted in 1386 when the dining hall was first built. The 14th-century builder had planted the trees in anticipation of the time, hundreds of years in the future, when the beams would need replacing" [57]. But in our modern world, who stops to think this far into the future? Who bothers to plant the trees for the benefit of generations that will not appear until hundreds of years into the future?

And so, Eno established the Long Now Foundation in an effort to combat the increasing tendency towards short sightedness so prevalent in today's society. The foundation "wants us to think slower and better, and they encourage us to do that by thinking of 'now' as a period of 10,000 years" [58]. In an effort to increase public awareness and participation, the foundation is building a clock in a remote, underground location in the U.S. desert southwest. The clock will stand 60 feet tall and will "tick once a year, bong once a century, and the cuckoo will come out once every millennium" [57]. The clock will not be powered by electricity, but rather by what the designers refer to as

“bronze age” technology, using only simple tools and mechanical theories should it require maintenance. According to Executive Director Alexander Rose: “We hope to achieve something that is easily maintainable and can have context to the next 400 generations” [59].

Does this low-tech approach mean that the members of the Long Now Foundation advocate that we all become Luddites? No; far from it. It is simply one approach that they are using to raise awareness of the value of long term thinking and the willingness to commit to goals which extend into the far future. Another equally ambitious project embraces the digital landscape – using the Internet as a tool for archiving the world’s languages. The Long Now Foundation began the Rosetta Project as its “first exploration into very long-term archiving. It serves as a means to focus attention on the problem of digital obsolescence, and ways we might address that problem through creative archival storage methods” [60]. Linguists are concerned that of humanity’s 7,000 languages, many of them are on the verge of extinction. According to Long Now Foundation member Stewart Brand: ““There is a level of endangerment to the survival of languages, driven primarily by globalization [...] In this century, 50 to 90 percent of the languages will evaporate under the current circumstance” [61].

The Rosetta Project strives to preserve the world’s languages in three different ways: print media, nickel disks inscribed with microetching technology, and an online archive. The archive is divided into two sections – The Rosetta Collection in the Internet Archive and Rosetta Base in Freebase. The latter is an open wiki repository which welcomes global participation [62]. With help from the National Science Foundation, the Archive has continued to grow and flourish:

“In 2004, the Rosetta Project: ALL Language Archive was awarded a \$1,000,000 NSF National Science Digital Library grant to grow the breadth and depth of the Rosetta collection as well as to elaborate the navigation, search, interoperability, networking, and collaborative tools for users of and contributors to the site. A primary product of this grant is the current website, Rosetta V2.0, a linguistic-specific CMS built in Plone with the means of organizing and displaying resources on any language, language family, subgroup, or dialect” [62].

And so, The Long Now Foundation envisions a future in which our linguistic memory will continue to live on, its heartbeat ticking along in time with the 60 foot clock. An ambitious goal – yes. But lofty goals can be reached if people have the will to make it so. In order to generate that collective will, people must begin to care. Thus, a reliable digital repository must be set up with the long term as an explicit part of its agenda, fostering and nurturing attitudes which contribute towards caring about the value of the long now.

## **5.2 WHERE ARE WE HEADED?**

From the foregoing, we can see that three things are vital in order for a reliable digital repository to survive for long periods of time: physical safety, perpetual funding, and a commitment to continued existence into the long now. Have any digital preservation organizations been founded which combine these attributes? And if so, are there any further concerns that they would need to address?

### *5.2.1 A Nascent Beginning*

Founded in 2005, Eternal Star, Inc. is registered with the Indiana State Division of Corporations as an online obituary service [63]. Their stated goal is “to educate future generations concerning their past heritage. It provides a permanent webpage with future posting guaranteed by a perpetual care trust so that personal biographies, photographs, and precious documents can be preserved forever in a safe, easily accessible location” [64]. Their service addresses several of the concerns already raised in previous chapters, including mirrored servers and periodic auditing to mitigate the effects of bit rot. Perpetual funding has been “achieved by establishing a trust fund for educational purposes to ensure future financing of the internet hosting sites” [64].

While this is a laudable start, there are some notable shortcomings to this service. The first thing that one may notice is the limitation on the amount of digital objects that a user may store. The most premium package offered, the Platinum Webpage, requires the payment of a one time fee of \$347.00 and provides users with: “a permanent internet webpage which will hold 35 photographs, up to 125,000 words of text and captions, and up to 2 minutes of audio recording or video recording. Additional pictures can be added for \$1.00 each” [64]. While it is true that storage requires space, which in turn must be paid for, the limitations seem to be unduly restrictive. With the amount of digital material that is being amassed today, the base amount of digital objects permitted will not suffice to tell a complete story of an individual’s life.

Of greater importance, though, is the corporate structure of Eternal Star, Inc. An examination of their latest corporate report with the Indiana Secretary of State lists only one principle – William Forgey, President. The same individual is listed as the Registered

Agent for the corporation as well as its Incorporator [63]. Thus, Eternal Star appears to be a very small business venture. While there is much to praise about small businesses, a small entity operating alone and unaffiliated with any type of association is not a sufficiently robust type of organization. Considering that over half of all small businesses fail within the first five years [65], such an operating structure does not instill faith and confidence that the items deposited therein will last in perpetuity. The desire to continue into the long now may exist, but the appropriate framework for doing so has not been put in place.

### ***5.2.2 Towards A More Robust Future***

As demonstrated by the demise of GeoCities, an organizational structure that relies upon a single corporate entity can become a point of failure for the long term stability of a digital repository. Companies, and even entire societies, are subject to periods of growth and decay, of expansion and contraction. How then can we improve the chances that a repository will survive the guaranteed ups and downs of an uncertain future?

As we have seen in Chapter Two, redundancy is a common technique that is employed for adding robustness to data storage. The same concept may be extrapolated and applied to an organizational model. Indeed, we can already see this type of framework in place by examining the manner in which Internet domain names are assigned and maintained.

The Internet Corporation for Assigned Names and Numbers (ICANN) was “formed in 1998 [... as] a not-for-profit public-benefit corporation with participants from all over the world dedicated to keeping the Internet secure, stable and interoperable” [66].

According to its bylaws, its mission “is to coordinate, at the overall level, the global Internet's systems of unique identifiers, and in particular to ensure the stable and secure operation of the Internet's unique identifier systems” [66].

In order to navigate through the Internet, computers depend upon IP addresses, which are numbers that serve as unique identifiers. For example, ICANN's website may be found by typing 192.0.34.163 into the address bar of a web browser. But, since it is much harder for people to remember a string of numbers than a name, a domain name may be used in place of an IP address. In our example, a person can type “icann.org” into the address bar of their web browser instead of the number. How are these domain names and IP addresses matched? According to ICANN: “These domains are sold by a large number of ‘registrars,’ free to charge whatever they wish, although in each case they pay a set per-domain fee to the particular registry under whose name the domain is being registered” [66]. While the registrars are independent companies, they are not left entirely to their own devices; ICANN plays a key role: “ICANN draws up contracts with each registry. It also runs an accreditation system for registrars. It is these contracts that provide a consistent and stable environment for the domain name system, and hence the Internet” [66]. In other words, registrars are able to charge fees for managing domain names, and domain owners have a variety of registrars from which to choose, each determining its own pricing scheme. Users are not locked in permanently to any one registrar, but are able to transfer their domain names at will. There is a key advantage here that is of particular interest to us – if a registrar should cease to exist, an owner is able to transfer the domains to a different registrar.

We may take this concept and apply it to a long term repository. An oversight and accreditation body might be established that would draw up contracts with independent repositories. A key requirement for accreditation would be that a repository must agree to mirror its items with at least two other sites, with at least one of those being situated in a different geopolitical location. In this way, if a repository were to go out of business, be destroyed as the result of a natural catastrophe, or become censored due to social or political unrest, the depositor would be able to retrieve his or her collection(s) from one of the mirrored sites and host it with a different repository; alternately, one of the mirrored sites could become the official host for the collection, which would then in turn mirror it with a different site in order to preserve the requirement of a two mirrored site minimum.

For those collections which have been “orphaned” by long dead depositors whose descendents have not claimed them, provisions could be made to move them should they become endangered; perhaps they could become the property of public historians who would continue to oversee them. Just as medieval monks preserved centuries of written material, we can envision new careers emerging in which digital curation is viewed as being akin to a sacred undertaking, overseen by enclaves of repositories devoted to the care of orphan collections.

### **5.3 SUMMARY**

While it is true that ours has become an increasingly fast paced world, it has also become an increasingly interconnected one. By establishing an oversight body to provide accreditation of independent repositories and requiring geopolitically diverse mirroring, we can add a remarkable amount of robustness to our preservation efforts. This type of

organizational structure would help to ensure that while businesses and societies inevitably wax and wane, repository collections would have a chance of finding safe haven elsewhere. We may find that our best chance at preserving personal legacies for future generations is embodied by the Linux catchphrase: “World domination through world cooperation.”

## **CHAPTER SIX: CONCLUSION**

### **6.1 FUTURE WORK**

There is far more to establishing reliable digital repositories than that which can be done by any one individual. As discussed in Chapter Five, doing so would require a coordinated effort between multiple repositories, with appropriate siting and funding structures. More research is needed to examine the specific operational details in order to determine the guidelines for such organizations and their member repositories.

Watchdog groups may be formed with an eye to protecting the rights of depositors to fair use of deposited materials and network neutrality, as discussed in Chapter Three. And, specific platform technologies would need to be standardized among repositories and appropriate user interfaces fully developed, as discussed in Chapters Two and Four.

While there is much work to do, all of the issues herein discussed are capable of being addressed. Thus, we can conclude that it is possible to begin developing reliable repositories for the preservation of personal digital objects.

### **6.2 INTO THE LONG NOW...**

As I sift through the plethora of photographs which tell the story of my life, I notice one that has been set aside for special care and consideration. It shows my infant self, carefully positioned in front of a piano, alongside my mother and older sister. This photograph is precious to me because, due to the loss of personal items from an egregious act of vandalism, this is the only photograph left in existence of myself from any point in my childhood. While I am pleased to have this heirloom to pass down to my children and

grandchildren, I wish that I were able to provide them with a more complete record of my youth. And yet, if the most recent generation does not have the means of preserving their personal digital objects, this one photograph is more than they may be able to pass down to their descendents.

Can we guarantee with a 100 percent degree of certainty that a network of digital repositories will never fail? Of course not; we cannot make that guarantee about anything. This is especially true when one is discussing periods extending into vast expanses of time. But, most certainly we are guaranteed to risk losing vital pieces of our personal histories if we do not even attempt to move forward in addressing this problem. Since the means to do so are within the realm of possibility, it is imperative that we begin to act.

Is this simply too ambitious a project to even attempt? Why should it be, when history has shown that people are capable of achieving lofty goals when the group will and motivation to do so exist? Within our own recent cultural memory, the launch of the Soviet satellite Sputnik galvanized the will of a nation, transporting Americans from the safety of planet Earth to the alien surface of the moon. Can the desire to avert a personal “digital dark age” be another “Sputnik moment” in the making?

In the end, we must decide that the time is right to combine our technological, legal, and organizational concerns into a cohesive whole and begin devoting ourselves to this grand enterprise. In the final episode of the television series “The Day The Universe Changed,” – entitled, appropriately enough, “Worlds Without End” – James Burke discusses how one’s perception affects one’s reality. He does not intend this in the metaphysical sense, but rather posits that peoples’ belief of what is possible has a direct

bearing upon that which they are willing to attempt. His ending monologue concludes with the words: “If, as I've said all along, the universe is — at any time — what you say it is ... then *say!*” [67].

And so, let us say that we have the technological capability to preserve our digital objects; let us say that we will enact and uphold legal and public policies that are friendly towards interacting with those objects; let us say that we are committed to long term thinking and the building of robust organizational structures, those which ensure the best possible chance of passing those objects down to generations waiting centuries to yet be born. Let us join hands together as we proceed into the long now, and as we raise our voices to future generations, *let us say...*

## **APPENDIX A: ALEXANDRIA SERVER SPECIFICATIONS**

## Appendix A: Alexandria Server Specifications

### Hardware Specifications:

- Dell PowerEdge model 750
- 1 Gigabyte RAM
- 2 250GB SATA Hard drives
- 2.4GHz Intel P4 Processor

### Software Configuration:

- Operating System: Ubuntu 9.04 server edition
- Alexandria Installation Directory: /dspace Alexandria
- Base URL: <http://alexandria.cyberstreet.com:8080/xmlui> Alexandria
- Host Name: alexandria.cyberstreet.com
- Name of the Site: DSpace at CyberStreet
- Database Name: postgres
- Database URL: jdbc:postgresql://localhost:5432/dspace
- JDBC Driver: org.postgresql.Driver
- SMTP Mail Server: localhost
- From E-mail Address: dspace@cyberstreet.com

## **APPENDIX B: ALEXANDRIA MANAKIN CUSTOMIZATIONS**

## Appendix B: Alexandria Manakin Customizations

### MAIN SITE MAP - SITEMAP.XMAP

This is the main sitemap, but with Alexandria Manakin “recipe,” which calls upon the alexandria.xsl file to override the sitemap defaults. This removes the redundant search bar that comes with the default theme and displays the file description instead of the file name in item display mode.

```
<?xml version="1.0" encoding="UTF-8"?>
<!--
    sitemap.xmap

    Version: $Revision: 3705a $

    - Date: $Date: 2010-02-08
    - Revised by: Lesley Peterson

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    ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR
    TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE
    USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH
    DAMAGE.
-->
<map:sitemap xmlns:map="http://apache.org/cocoon/sitemap/1.0">
  <map:pipelines>

    <!--
      Define global theme variables that are used later in this
      sitemap. Two variables are typically defined here, the theme's
      path and name. The path is the directory name where this theme
      is located, such as "Reference" for the reference theme. The
      theme's name is used only for descriptive purposes to describe
      the theme.
    -->
```

```

<map:component-configurations>
  <global-variables>
    <theme-path>Alexandria</theme-path>
    <theme-name>Default Alexandria Theme</theme-name>
  </global-variables>
</map:component-configurations>

```

```

<map:pipeline>
  <!-- Allow the browser to cache static content for an hour -->
  <map:parameter name="expires" value="access plus 1 hours"/>

  <!-- Static content -->
  <map:match pattern="themes/*/*/*" >
    <map:read src="{2}"/>
  </map:match>
</map:pipeline>

```

```

<!--
  The theme's pipeline is used to process all requests handled
  by the theme. It is broken up into two parts, the first part
  handles all static theme content while the second part handle
  all dynamic aspect generated content. The static content is
  such things as stylesheets, images, or static pages. Typically
  these are just stored on disk and passed directly to the
  browser without any processing.
-->

```

```

<map:pipeline>
  <!-- Never allow the browser to cache dynamic content -->
  <map:parameter name="expires" value="now"/>

  <!-- Static content -->
  <map:match pattern="themes/*/*/*" >
    <map:read src="{2}"/>
  </map:match>

  <!-- Aspect content

```

There are five steps to processing aspect content:

#### 1: Generate the DRI page

The first step is to generate a DRI page for the request; this is handled by the aspect chain. Once it is generated it is the beginning of a theme's pipeline, the DRI page is ultimately transformed in the resulting XHTML that is given to the user's browser.

#### 2: Add page metadata

The next step is to add theme specific metadata to the DRI page. This is metadata about where the theme is located and its name. Typically this metadata is different depending on the users browser, this allows us to give different stylesheets to Internet Explorer than for other browsers.

#### 3: Transform to XHTML

The third step is the main component of a theme the XSL transformations will turn the DRI page from the aspects into an XHTML page useable by browsers.

#### 4: Localize the page

The second to last step is to localize the content for the particular user, if they user is requesting a page in a particular language then those language strings are inserted into the resulting XHTML.

## 5: Serialize to the browser

The last step sends the page to the user's browser.

```
-->
<map:match pattern="**">

  <!-- Step 1: Generate the DRI page -->
  <map:generate type="file" src="cocoon://DRI/{1}"/>

  <!-- Step 2 Add page metadata -->
  <map:select type="browser">
    <map:when test="explorer6">
      <map:transform type="IncludePageMeta">
        <map:parameter name="stylesheet.screen#1"
          value="lib/style.css"/>
        <map:parameter name="stylesheet.screen#2"
          value="lib/style-ie.css"/>
        <map:parameter name="stylesheet.screen#3"
          value="lib/style-ie6.css"/>

        <map:parameter name="theme.path"
          value="{global:theme-path}"/>
        <map:parameter name="theme.name"
          value="{global:theme-name}"/>
      </map:transform>
    </map:when>
    <map:when test="explorer">
      <map:transform type="IncludePageMeta">
        <map:parameter name="stylesheet.screen#1"
          value="lib/style.css"/>
        <map:parameter name="stylesheet.screen#2"
          value="lib/style-ie.css"/>

        <map:parameter name="theme.path"
          value="{global:theme-path}"/>
        <map:parameter name="theme.name"
          value="{global:theme-name}"/>
      </map:transform>
    </map:when>
    <map:otherwise>
      <map:transform type="IncludePageMeta">
        <map:parameter name="stylesheet.screen"
          value="lib/style.css"/>

        <map:parameter name="theme.path"
          value="{global:theme-path}"/>
        <map:parameter name="theme.name"
          value="{global:theme-name}"/>
      </map:transform>
    </map:otherwise>
  </map:select>

  <!-- Debugging output -->
  <map:match type="request" pattern="XML">
    <map:serialize type="xml"/>
  </map:match>

  <!-- Step 3: Transform to XHTML -->
  <!-- <map:transform src="../dri2xhtml.xml"/> -->
  <map:transform src="Alexandria.xml"/>

  <!-- Step 4: Localize the page -->
  <map:act type="locale">
    <map:transform type="i18n">
      <map:parameter name="locale" value="{locale}"/>
    </map:transform>
  </map:act>

```

```
<!-- Remove any leftover i18n or dri namespaces from the final document -->
<map:transform type="NamespaceFilter" src="http://di.tamu.edu/DRI/1.0"/>
<map:transform type="NamespaceFilter" src="http://apache.org/cocoon/i18n/2.1"/>

<!-- Step 5: Serialize to the browser -->
<map:serialize type="html"/>

    </map:match>
  </map:pipeline>
</map:pipelines>
</map:sitemap>
```

## XSL FOR ALEXANDRIA

This file modifies the buildHeader template to remove the redundant search bar on the front page that comes with the default theme, and displays the file description instead of the file name in item display mode.

```
<?xml version="1.0" encoding="UTF-8"?>

<!--
  Alexandria.xsl

  Version: $Revision: 3705a $

  Date: $Date: 2010-02-08

  Based on: Reference.xsl

  Revised by: Lesley Peterson

  Notes: Modifies the buildHeader template and removes the front page search bar
-->

<xsl:stylesheet
  xmlns:i18n="http://apache.org/cocoon/i18n/2.1"
  xmlns:dri="http://di.tamu.edu/DRI/1.0/"
  xmlns:mets="http://www.loc.gov/METS/"
  xmlns:dc="http://purl.org/dc/elements/1.1/"
  xmlns:dim="http://www.dspace.org/xmlns/dspace/dim"
  xmlns:mods="http://www.loc.gov/mods/v3"
  xmlns:xlink="http://www.w3.org/TR/xlink/"
  xmlns:xsl="http://www.w3.org/1999/XSL/Transform" version="1.0">

  <xsl:import href="../dri2xhtml.xsl"/>
  <xsl:output indent="yes"/>

  <!--
    This xsl is provided only as an example of over ridding selected templates.
    Uncomment the following to add ">" to the end of all trail links, currently
    only browsers which support the pseudo element of ":after" are able to
    render the ">" trail postfix.

    Remember to remove the pseudo element from the CSS when uncommenting!
  -->

  <!--
  <xsl:template match="dri:trail">
    <li>
      <xsl:attribute name="class">
        <xsl:text>ds-trail-link </xsl:text>
        <xsl:if test="position()=1">
          <xsl:text>first-link</xsl:text>
        </xsl:if>
        <xsl:if test="position()=last()">
          <xsl:text>last-link</xsl:text>
        </xsl:if>
      </xsl:attribute>
      <xsl:choose>
        <xsl:when test="./@target">
          <a>
            <xsl:attribute name="href">
              <xsl:value-of select="./@target"/>

```

```

        </xsl:attribute>
        <xsl:apply-templates />
      </a>
    </xsl:when>
    <xsl:otherwise>
      <xsl:apply-templates />
    </xsl:otherwise>
  </xsl:choose>
  &gt;
</li>
</xsl:template>
-->

<xsl:template match="dri:div[@n='front-page-search']"> &#160; </xsl:template >

<!-- The header (distinct from the HTML head element) contains the title, subtitle, login box and various
placeholders for header images -->
<xsl:template name="buildHeader">
  <div id="ds-header">
    <a>
      <span id="ds-header-logo">&#160;</span>
    </a>

    <h1 class="pagetitle">
      <xsl:choose>
        <!-- protection against an empty page title -->
        <xsl:when test="not(/dri:document/dri:meta/dri:pageMeta/dri:metadata[@element='title'])">
          <xsl:text> </xsl:text>
        </xsl:when>
        <xsl:otherwise>
          <xsl:copy-of select="/dri:document/dri:meta/dri:pageMeta/dri:metadata[@element='title']/node()"/>
        </xsl:otherwise>
      </xsl:choose>

    </h1>

    <h2 class="static-pagetitle"><i18n:text>xmlui.dri2xhtml.structural.head-subtitle</i18n:text></h2>

    <ul id="ds-trail">
      <xsl:choose>
        <xsl:when test="count(/dri:document/dri:meta/dri:pageMeta/dri:trail) = 0">
          <li class="ds-trail-link first-link"> - </li>
        </xsl:when>
        <xsl:otherwise>
          <xsl:apply-templates select="/dri:document/dri:meta/dri:pageMeta/dri:trail"/>
        </xsl:otherwise>
      </xsl:choose>
    </ul>

    <xsl:choose>
      <xsl:when test="/dri:document/dri:meta/dri:userMeta/@authenticated = 'yes'">
        <div id="ds-user-box">
          <p>
            <a>
              <xsl:attribute name="href">
                <xsl:value-of select="/dri:document/dri:meta/dri:userMeta/
dri:metadata[@element='identifier' and @qualifier='url']"/>
              </xsl:attribute>
              <i18n:text>xmlui.dri2xhtml.structural.profile</i18n:text>
              <xsl:value-of select="/dri:document/dri:meta/dri:userMeta/
dri:metadata[@element='identifier' and @qualifier='firstName']"/>
              <xsl:text> </xsl:text>
              <xsl:value-of select="/dri:document/dri:meta/dri:userMeta/
dri:metadata[@element='identifier' and @qualifier='lastName']"/>
            </a>
            <xsl:text> | </xsl:text>
            <a>
              <xsl:attribute name="href">
                <xsl:value-of select="/dri:document/dri:meta/dri:userMeta/

```

```

        dri:metadata[@element='identifier' and @qualifier='logoutURL']"/>
      </xsl:attribute>
      <i18n:text>xmloi.dri2xhtml.structural.logout</i18n:text>
    </a>
  </p>
</div>
</xsl:when>
<xsl:otherwise>
  <div id="ds-user-box">
    <p>
      <a>
        <xsl:attribute name="href">
          <xsl:value-of select="/dri:document/dri:meta/dri:userMeta/
            dri:metadata[@element='identifier' and @qualifier='loginURL']"/>
        </xsl:attribute>
        <i18n:text>xmloi.dri2xhtml.structural.login</i18n:text>
      </a>
    </p>
  </div>
</xsl:otherwise>
</xsl:choose>

</div>
</xsl:template>
<!-- Generate the bitstream information from the file section -->
<xsl:template match="mets:fileGrp[@USE='CONTENT']">
  <xsl:param name="context"/>
  <xsl:param name="primaryBitstream" select="-1"/>

  <h2><i18n:text>xmloi.dri2xhtml.METS-1.0.item-files-head</i18n:text></h2>
  <table class="ds-table file-list">
    <tr class="ds-table-header-row">
      <th><i18n:text>xmloi.dri2xhtml.METS-1.0.item-files-description</i18n:text></th>
      <th><i18n:text>xmloi.dri2xhtml.METS-1.0.item-files-size</i18n:text></th>
      <th><i18n:text>xmloi.dri2xhtml.METS-1.0.item-files-format</i18n:text></th>
      <th><i18n:text>xmloi.dri2xhtml.METS-1.0.item-files-view</i18n:text></th>
    </tr>
    <xsl:choose>
      <!-- If one exists and it's of text/html MIME type, only display the primary bitstream -->
      <xsl:when test="mets:file[@ID=$primaryBitstream]/@MIMETYPE='text/html'">
        <xsl:apply-templates select="mets:file[@ID=$primaryBitstream]">
          <xsl:with-param name="context" select="$context"/>
        </xsl:apply-templates>
      </xsl:when>
      <!-- Otherwise, iterate over and display all of them -->
      <xsl:otherwise>
        <xsl:apply-templates select="mets:file">
          <xsl:sort data-type="number" select="boolean(/@ID=$primaryBitstream)" order="descending" />
          <xsl:sort select="mets:FLocat[@LOCTYPE='URL']/@xlink:title"/>
          <xsl:with-param name="context" select="$context"/>
        </xsl:apply-templates>
      </xsl:otherwise>
    </xsl:choose>
  </table>
</xsl:template>

<!-- Generate the bitstream information from the file section -->
<xsl:template match="mets:fileGrp[@USE='CONTENT']">
  <xsl:param name="context"/>
  <xsl:param name="primaryBitstream" select="-1"/>

  <h2><i18n:text>xmloi.dri2xhtml.METS-1.0.item-files-head</i18n:text></h2>
  <table class="ds-table file-list">
    <tr class="ds-table-header-row">
      <xsl:if test="mets:file/mets:FLocat/@xlink:label != "">
        <th><i18n:text>xmloi.dri2xhtml.METS-1.0.item-files-description</i18n:text></th>
      </xsl:if>
      <th><i18n:text>xmloi.dri2xhtml.METS-1.0.item-files-size</i18n:text></th>
      <th><i18n:text>xmloi.dri2xhtml.METS-1.0.item-files-format</i18n:text></th>
      <th><i18n:text>xmloi.dri2xhtml.METS-1.0.item-files-view</i18n:text></th>
    </tr>
  </table>

```

```

</tr>
<xsl:choose>
  <!-- If one exists and it's of text/html MIME type, only display the primary bitstream -->
  <xsl:when test="mets:file[ @ID=$primaryBitstream]/@MIMETYPE='text/html'">
    <xsl:apply-templates select="mets:file[ @ID=$primaryBitstream]">
      <xsl:with-param name="context" select="$context"/>
    </xsl:apply-templates>
  </xsl:when>
  <!-- Otherwise, iterate over and display all of them -->
  <xsl:otherwise>
    <xsl:apply-templates select="mets:file">
      <xsl:sort data-type="number" select="boolean(./@ID=$primaryBitstream)" order="descending" />
      <xsl:sort select="mets:FLocat[ @LOCTYPE='URL']/@xlink:title"/>
      <xsl:with-param name="context" select="$context"/>
    </xsl:apply-templates>
  </xsl:otherwise>
</xsl:choose>
</table>
</xsl:template>

```

```

<!-- Build a single row in the bitstreams table of the item view page -->
<xsl:template match="mets:file">
  <xsl:param name="context" select="."/>
  <tr>
    <xsl:attribute name="class">
      <xsl:text>ds-table-row </xsl:text>
      <xsl:if test="(position() mod 2 = 0)">even </xsl:if>
      <xsl:if test="(position() mod 2 = 1)">odd </xsl:if>
    </xsl:attribute>
    <xsl:if test="$context/mets:fileSec/mets:fileGrp/mets:file/mets:FLocat/@xlink:label != "">
      <td>
        <xsl:value-of select="mets:FLocat[ @LOCTYPE='URL']/@xlink:label"/>
      </td>
      <xsl:if>
        <!-- File size always comes in bytes and thus needs conversion -->
        <td>
          <xsl:choose>
            <xsl:when test="@SIZE < 1000">
              <xsl:value-of select="@SIZE"/>
              <i18n:text>xmloi.dri2xhtml.METS-1.0.size-bytes</i18n:text>
            </xsl:when>
            <xsl:when test="@SIZE < 1000000">
              <xsl:value-of select="substring(string(@SIZE div 1000),1,5)"/>
              <i18n:text>xmloi.dri2xhtml.METS-1.0.size-kilobytes</i18n:text>
            </xsl:when>
            <xsl:when test="@SIZE < 1000000000">
              <xsl:value-of select="substring(string(@SIZE div 1000000),1,5)"/>
              <i18n:text>xmloi.dri2xhtml.METS-1.0.size-megabytes</i18n:text>
            </xsl:when>
            <xsl:otherwise>
              <xsl:value-of select="substring(string(@SIZE div 1000000000),1,5)"/>
              <i18n:text>xmloi.dri2xhtml.METS-1.0.size-gigabytes</i18n:text>
            </xsl:otherwise>
          </xsl:choose>
        </td>
        <!-- Lookup File Type description in local messages.xml based on MIME Type.
        In the original DSpace, this would get resolved to an application via
        the Bitstream Registry, but we are constrained by the capabilities of METS
        and can't really pass that info through. -->
        <td>
          <xsl:call-template name="getFileTypeInfoDesc">
            <xsl:with-param name="mimetype">
              <xsl:value-of select="substring-before(@MIMETYPE, '/')"/>
            <xsl:text></xsl:text>
            <xsl:value-of select="substring-after(@MIMETYPE, '/')"/>
          </xsl:call-template>
        </td>
      </xsl:if>
    </tr>
  </td>

```

```

<xsl:choose>
  <xsl:when test=" $context/mets:fileSec/mets:fileGrp[ @USE='THUMBNAI']/
mets:file[ @GROUP_ID=current()/@GROUP_ID]">
    <a class="image-link">
      <xsl:attribute name="href">
        <xsl:value-of select="mets:FLocat[ @LOCTYPE='URL']/@xlink:href"/>
      </xsl:attribute>
      <img alt="Thumbnail">
        <xsl:attribute name="src">
          <xsl:value-of select=" $context/mets:fileSec/mets:fileGrp[ @USE='THUMBNAI']/
mets:file[ @GROUP_ID=current()/@GROUP_ID]/mets:FLocat[ @LOCTYPE='URL']/@xlink:href"/>
        </xsl:attribute>
      </img>
    </a>
  </xsl:when>
  <xsl:otherwise>
    <a>
      <xsl:attribute name="href">
        <xsl:value-of select="mets:FLocat[ @LOCTYPE='URL']/@xlink:href"/>
      </xsl:attribute>
      <i18n:text>xmlui.dri2xhtml.METS-1.0.item-files-viewOpen</i18n:text>
    </a>
  </xsl:otherwise>
</xsl:choose>
</td>
</tr>
</xsl:template>
</xsl:stylesheet>

```

## XMLUI CONFIGURATION FILE

This is the xmlui.xconf file. It sets the Alexandria theme as the default.

```
<?xml version="1.0"?>
<!DOCTYPE xmlui SYSTEM "xmlui.dtd">

<!--
- xmlui.xconf
-
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-
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- USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH
- DAMAGE.
-->

<!--
- The XMLUI (Manakin Release) configuration file
-
- Version: $Revision: 3705a $
- Date: $Date: 2010-02-08
- Revised by: Lesley Peterson
-->

<xmlui>
  <!--
    This section configures the Aspect "chain". An Aspect provides a set
    of coupled features for the system. All Aspects are chained together
    such that together they form the complete DSpace website. This is where
    the chain is defined, the order in which each aspect is declared
    determines it's order in the chain. Aspects at the top are invoked
    first.

    The <aspect> element has two attributes, name & path. The name is used
    to identify the Aspect, while the path determines the directory. The
    path attribute should be listed exactly as it is found in the
    /xmlui/cocoon/aspects/ directory followed by a slash.
  -->
```

```

<aspects>
  <aspect name="Artifact Browser" path="resource://aspects/ArtifactBrowser/" />
  <aspect name="Administration" path="resource://aspects/Administrative/" />
  <aspect name="E-Person" path="resource://aspects/EPerson/" />
  <aspect name="Submission and Workflow" path="resource://aspects/Submission/" />

  <!--
    This aspect tests the various possible DRI features,
    it helps a theme developer create themes
  -->
  <!-- <aspect name="XML Tests" path="resource://aspects/XMLTest/" /> -->
</aspects>

<!--
  This section configures which Theme should apply to a particular URL.
  Themes stylize an abstract DRI document (generated by the Aspect
  chain from above) and produce XHTML (or possibly another format) for
  display to the user. Each theme rule is processed in the order that it
  is listed below, the first rule that matches is the theme that is applied.

  The <theme> element has several attributes including: name, id, regex,
  handle, and path. The name attribute is used to identify the theme, while
  the path determines the directory. The path attribute should be listed
  exactly as it is found in the /xmlui/cocoon/themes/ directory. Both the
  regex and handle attributes determine if the theme rule matches the URL.
  If either the pattern or handle attribute is left off then the only the
  other component is used to determine matching.

  Keep in mind that the order of <theme> elements matters in the case of
  overlapping matching rules. For example, a theme rule with a very broad
  matching rule (like regex=".*") will override a more specific theme
  declaration (like handle="1234/23") if placed before it.

  Finally, theme application also "cascades" down to pages derived from the
  one that the theme directly applies to. Thus, a theme applied to a
  specific community will also apply to that community's collections and
  their respective items.
-->
<themes>
  <!-- Example configuration -->

  <!-- <theme name="Test Theme 1" handle="123456789/1" path="theme1/" /> -->
  <!-- <theme name="Test Theme 2" regex="community-list" path="theme2/" /> -->

  <!-- Default theme -->
  <theme name="Default Alexandria Theme" regex=".*" path="Alexandria/" />

  <!-- Reference theme -->
  <theme name="Reference Theme" regex=".*" path="Reference/" />

  <!-- Classic theme, inspired by the JSP UI -->
  <!-- <theme name="Classic" regex=".*" path="Classic/" /> -->

  <!-- Table based browse display -->
  <!-- <theme name="Table Theme" regex=".*" path="TableTheme/" /> -->

</themes>
</xmlui>

```

## MESSAGES FILE FOR ALEXANDRIA

This contains all of the text and prompts that appear throughout the site, with the exception of the main site page and the license agreement. It was changed so that all references to DSpace (ie: "DSpace Home") were replaced with Alexandria.

```
<?xml version="1.0"?>
```

```
<!--  
messages.xml
```

```
Version: $Revision: 3705a $
```

```
Date: $Date: 2010-02-08
```

```
Revised by: Lesley Peterson
```

```
Notes: Replaces references to DSpace with Alexandria
```

```
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Institute of Technology. All rights reserved.
```

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USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH  
DAMAGE.
```

```
-->
```

```
<catalogue xml:lang="en" xmlns:i18n="http://apache.org/cocoon/i18n/2.1">
```

```
<!--
```

```
The format used by all keys is as follows
```

```
xmlui.<Aspect>.<Java Class>.<name>
```

```
There are a few exceptions to this nameing format,
```

- 1) Some general keys are in the xmlui.general namespace because they are used very frequently.
- 2) Some general keys which are specific to a particular aspect may be found at xmlui.<Aspect> without specifying a particular java class.

```
-->
```

```

<!-- General keys -->
<message key="xmlui.general.dspace_home">Alexandria Home</message>
<message key="xmlui.general.search">Search</message>
<message key="xmlui.general.go">Go</message>
<message key="xmlui.general.go_home">Go to Alexandria Home</message>
<message key="xmlui.general.save">Save</message>
<message key="xmlui.general.cancel">Cancel</message>
<message key="xmlui.general.return">Return</message>
<message key="xmlui.general.update">Update</message>
<message key="xmlui.general.delete">Delete</message>
<message key="xmlui.general.next">Next</message>
<message key="xmlui.general.untitled">Untitled</message>

<!--
    Page not found keys

    This is a special component that is not part of any aspect but is added
    by manakin to all aspect chains.
-->
<message key="xmlui.PageNotFound.title">Page not found</message>
<message key="xmlui.PageNotFound.head">Page not found</message>
<message key="xmlui.PageNotFound.paral">We can't find the page you asked for.</message>

<!--
    This section is for feed syndications (RSS, atom, etc)
-->
<message key="xmlui.feed.general_description">The Alexandria digital repository system captures, stores, indexes,
preserves, and distributes digital research material.</message>
<message key="xmlui.feed.logo_title">The Channel Image</message>
<message key="xmlui.feed.untitled">Untitled</message>

<!--
    Default notice header
-->
<message key="xmlui.general.notice.default_head">Notice</message>

<!--!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
    ArtifactBrowser Aspect
    !!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!-->

<!-- org.dspace.app.xmlui.artifactbrowser.AbstractSearch.java -->
<message key="xmlui.ArtifactBrowser.AbstractSearch.head1_community">Search Results for Community:
{0}</message>
<message key="xmlui.ArtifactBrowser.AbstractSearch.head1_collection">Search Results for Collection: {0}</message>
<message key="xmlui.ArtifactBrowser.AbstractSearch.head1_none">Search Results</message>
<message key="xmlui.ArtifactBrowser.AbstractSearch.result_query">Your query "{0}" produced {1}
result(s).</message>
<message key="xmlui.ArtifactBrowser.AbstractSearch.head2">Communities or Collections matching your
query</message>
<message key="xmlui.ArtifactBrowser.AbstractSearch.head3">Items matching your query</message>
<message key="xmlui.ArtifactBrowser.AbstractSearch.no_results">Search produced no results.</message>
<message key="xmlui.ArtifactBrowser.AbstractSearch.all_of_dspace">All of Alexandria</message>

<message key="xmlui.ArtifactBrowser.AbstractSearch.sort_by.title">title</message>
<message key="xmlui.ArtifactBrowser.AbstractSearch.sort_by.dateissued">issue date</message>
<message key="xmlui.ArtifactBrowser.AbstractSearch.sort_by.dateaccessioned">submit date</message>
<message key="xmlui.ArtifactBrowser.AbstractSearch.sort_by.relevance">relevance</message>
<message key="xmlui.ArtifactBrowser.AbstractSearch.sort_by">Sort items by</message>

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<message key="xmlui.ArtifactBrowser.AbstractSearch.order">in order</message>
<message key="xmlui.ArtifactBrowser.AbstractSearch.order.asc">ascending</message>
<message key="xmlui.ArtifactBrowser.AbstractSearch.order.desc">descending</message>
<message key="xmlui.ArtifactBrowser.AbstractSearch.rpp">Results/page</message>

<!-- org.dspace.app.xmlui.artifactbrowser.AdvancedSearch.java -->
<message key="xmlui.ArtifactBrowser.AdvancedSearch.title">Advanced Search</message>
<message key="xmlui.ArtifactBrowser.AdvancedSearch.trail">Advanced Search</message>
<message key="xmlui.ArtifactBrowser.AdvancedSearch.head">Advanced Search</message>
<message key="xmlui.ArtifactBrowser.AdvancedSearch.search_scope">Search scope</message>
collection.</message>
<message key="xmlui.ArtifactBrowser.AdvancedSearch.search_scope_help">Limit your search to a community or
collection.</message>
<message key="xmlui.ArtifactBrowser.AdvancedSearch.conjunction">Conjunction</message>
<message key="xmlui.ArtifactBrowser.AdvancedSearch.search_type">Search type</message>
<message key="xmlui.ArtifactBrowser.AdvancedSearch.search_for">Search for</message>
<message key="xmlui.ArtifactBrowser.AdvancedSearch.type_author">Author</message>
<message key="xmlui.ArtifactBrowser.AdvancedSearch.type_title">Title</message>
<message key="xmlui.ArtifactBrowser.AdvancedSearch.type_subject">Subject</message>
<message key="xmlui.ArtifactBrowser.AdvancedSearch.type_abstract">Abstract</message>
<message key="xmlui.ArtifactBrowser.AdvancedSearch.type_series">Series</message>
<message key="xmlui.ArtifactBrowser.AdvancedSearch.type_sponsor">Sponsor</message>
<message key="xmlui.ArtifactBrowser.AdvancedSearch.type_identifier">Identifier</message>
<message key="xmlui.ArtifactBrowser.AdvancedSearch.type_language">Language (ISO)</message>
<message key="xmlui.ArtifactBrowser.AdvancedSearch.type_keyword">Keyword</message>

<!-- some common other possibilities for Advanced Search Fields -->
<message key="xmlui.ArtifactBrowser.AdvancedSearch.type_contributor">Contributor</message>
<message key="xmlui.ArtifactBrowser.AdvancedSearch.type_creator">Creator</message>
<message key="xmlui.ArtifactBrowser.AdvancedSearch.type_subject">Subject</message>
<message key="xmlui.ArtifactBrowser.AdvancedSearch.type_description">Description</message>
<message key="xmlui.ArtifactBrowser.AdvancedSearch.type_relation">Relation</message>
<message key="xmlui.ArtifactBrowser.AdvancedSearch.type_mime">Mime-Type</message>
<message key="xmlui.ArtifactBrowser.AdvancedSearch.type_other">Other Contributor</message>
<message key="xmlui.ArtifactBrowser.AdvancedSearch.type_advisor">Advisor</message>
<message key="xmlui.ArtifactBrowser.AdvancedSearch.type_department">Department</message>

<message key="xmlui.ArtifactBrowser.AdvancedSearch.type_ANY">Full Text</message>
<message key="xmlui.ArtifactBrowser.AdvancedSearch.and">AND</message>
<message key="xmlui.ArtifactBrowser.AdvancedSearch.or">OR</message>
<message key="xmlui.ArtifactBrowser.AdvancedSearch.not">NOT</message>

<!-- org.dspace.app.xmlui.artifactbrowser.ConfigureableBrowse.java -->
<message key="xmlui.ArtifactBrowser.ConfigurableBrowse.general.starts_with">Or enter first few letters:</message>
these letters</message>
<message key="xmlui.ArtifactBrowser.ConfigurableBrowse.general.starts_with_help">Browse for items that begin with
index:</message>
<message key="xmlui.ArtifactBrowser.ConfigurableBrowse.general.jump_select">Jump to a point in the
index:</message>
<message key="xmlui.ArtifactBrowser.ConfigurableBrowse.general.choose_month">(Choose month)</message>
<message key="xmlui.ArtifactBrowser.ConfigurableBrowse.general.choose_year">(Choose year)</message>
<message key="xmlui.ArtifactBrowser.ConfigurableBrowse.general.jump_year">Or type in a year: </message>
given year.</message>
<message key="xmlui.ArtifactBrowser.ConfigurableBrowse.general.sort_by"> Sort by: </message>
<message key="xmlui.ArtifactBrowser.ConfigurableBrowse.general.order"> Order: </message>
<message key="xmlui.ArtifactBrowser.ConfigurableBrowse.general.rpp"> Results: </message><!-- /Page -->
<message key="xmlui.ArtifactBrowser.ConfigurableBrowse.general.etal"> Authors/Item: </message>

<message key="xmlui.ArtifactBrowser.ConfigurableBrowse.etal.all">All</message>

<message key="xmlui.ArtifactBrowser.ConfigurableBrowse.sort_by.title">title</message>
<message key="xmlui.ArtifactBrowser.ConfigurableBrowse.sort_by.dateissued">issue date</message>
<message key="xmlui.ArtifactBrowser.ConfigurableBrowse.sort_by.dateaccessioned">submit date</message>

<message key="xmlui.ArtifactBrowser.ConfigurableBrowse.order.asc">ascending</message>
<message key="xmlui.ArtifactBrowser.ConfigurableBrowse.order.desc">descending</message>

<message key="xmlui.ArtifactBrowser.ConfigurableBrowse.author.column_heading">Authors Name</message>
<message key="xmlui.ArtifactBrowser.ConfigurableBrowse.subject.column_heading">Subject</message>

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    <message key="xmlui.ArtifactBrowser.ConfigurableBrowse.title.metadata.author">Browsing {0} by Author
{1}</message>
    <message key="xmlui.ArtifactBrowser.ConfigurableBrowse.trail.metadata.author">Browsing {0} by Author</message>

    <message key="xmlui.ArtifactBrowser.ConfigurableBrowse.title.metadata.subject">Browsing {0} by Subject
{1}</message>
    <message key="xmlui.ArtifactBrowser.ConfigurableBrowse.trail.metadata.subject">Browsing {0} by Subject</message>

    <message key="xmlui.ArtifactBrowser.ConfigurableBrowse.title.item.title">Browsing {0} by Title {1}</message>
    <message key="xmlui.ArtifactBrowser.ConfigurableBrowse.trail.item.title">Browsing {0} by Title</message>

    <message key="xmlui.ArtifactBrowser.ConfigurableBrowse.title.item.dateissued">Browsing {0} by Issue Date
{1}</message>
    <message key="xmlui.ArtifactBrowser.ConfigurableBrowse.trail.item.dateissued">Browsing {0} by Issue
Date</message>

    <message key="xmlui.ArtifactBrowser.ConfigurableBrowse.title.item.dateaccessioned">Browsing {0} by Submit Date
{1}</message>
    <message key="xmlui.ArtifactBrowser.ConfigurableBrowse.trail.item.dateaccessioned">Browsing {0} by Submit
Date</message>

<!-- org.dspace.app.xmlui.artifactbrowser.CollectionViewer.java -->
<message key="xmlui.ArtifactBrowser.CollectionViewer.search_scope">Search Scope</message>
<message key="xmlui.ArtifactBrowser.CollectionViewer.all_of_dspace">All of Alexandria</message>
<message key="xmlui.ArtifactBrowser.CollectionViewer.full_text_search">Search within this collection:</message>
<message key="xmlui.ArtifactBrowser.CollectionViewer.head_browse">Browse by</message>
<message key="xmlui.ArtifactBrowser.CollectionViewer.browse_titles">Titles</message>
<message key="xmlui.ArtifactBrowser.CollectionViewer.browse_authors">Authors</message>
<message key="xmlui.ArtifactBrowser.CollectionViewer.browse_dates">Dates</message>
<message key="xmlui.ArtifactBrowser.CollectionViewer.advanced_search_link">Advanced Search</message>
<message key="xmlui.ArtifactBrowser.CollectionViewer.head_recent_submissions">Recent Submissions</message>

<!-- org.dspace.app.xmlui.artifactbrowser.CommunityBrowser.java -->
<message key="xmlui.ArtifactBrowser.CommunityBrowser.title">Community List</message>
<message key="xmlui.ArtifactBrowser.CommunityBrowser.trail">Community List</message>
<!-- <message key="xmlui.ArtifactBrowser.CommunityBrowser.head">Communities in Alexandria</message> -->
<message key="xmlui.ArtifactBrowser.CommunityBrowser.head">Visit our Communities</message>
<message key="xmlui.ArtifactBrowser.CommunityBrowser.select">Select a community to browse its
collections.</message>

<!-- org.dspace.app.xmlui.artifactbrowser.CommunityViewer.java -->
<message key="xmlui.ArtifactBrowser.CommunityViewer.search_scope">Search Scope</message>
<message key="xmlui.ArtifactBrowser.CommunityViewer.all_of_dspace">All of Alexandria</message>
<message key="xmlui.ArtifactBrowser.CommunityViewer.full_text_search">Search within this community and its
collections:</message>
<message key="xmlui.ArtifactBrowser.CommunityViewer.head_browse">Browse by</message>
<message key="xmlui.ArtifactBrowser.CommunityViewer.browse_titles">Titles</message>
<message key="xmlui.ArtifactBrowser.CommunityViewer.browse_authors">Authors</message>
<message key="xmlui.ArtifactBrowser.CommunityViewer.browse_dates">Dates</message>
<message key="xmlui.ArtifactBrowser.CommunityViewer.advanced_search_link">Advanced Search</message>
<message key="xmlui.ArtifactBrowser.CommunityViewer.head_sub_communities">Sub-communities within this
community</message>
    <message key="xmlui.ArtifactBrowser.CommunityViewer.head_sub_collections">Collections in this
community</message>
    <message key="xmlui.ArtifactBrowser.CommunityViewer.head_recent_submissions">Recent Submissions</message>

<!-- org.dspace.app.xmlui.artifactbrowser.Contact.java -->
<message key="xmlui.ArtifactBrowser.Contact.title">Contact us</message>
<message key="xmlui.ArtifactBrowser.Contact.trail">Contact us</message>
<message key="xmlui.ArtifactBrowser.Contact.head">Contact us</message>
<message key="xmlui.ArtifactBrowser.Contact.paral">{0} administrators may be contacted at:</message>
<message key="xmlui.ArtifactBrowser.Contact.feedback_label">On-line form</message>
<message key="xmlui.ArtifactBrowser.Contact.feedback_link">Feedback</message>
<message key="xmlui.ArtifactBrowser.Contact.email">Email</message>

<!-- org.dspace.app.xmlui.artifactbrowser.FeedbackForm.java -->
<message key="xmlui.ArtifactBrowser.FeedbackForm.title">Give feedback</message>
<message key="xmlui.ArtifactBrowser.FeedbackForm.trail">Give feedback</message>

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    <message key="xmlui.ArtifactBrowser.FeedbackForm.head">Give feedback</message>
    <message key="xmlui.ArtifactBrowser.FeedbackForm.para1">Thanks for sharing your feedback about the Alexandria
system. Your comments are appreciated!</message>
    <message key="xmlui.ArtifactBrowser.FeedbackForm.email">Your Email</message>
    <message key="xmlui.ArtifactBrowser.FeedbackForm.email_help">This address will be used to follow up on your
feedback.</message>
    <message key="xmlui.ArtifactBrowser.FeedbackForm.comments">Comments</message>
    <message key="xmlui.ArtifactBrowser.FeedbackForm.submit">Send Feedback</message>

<!-- org.dspace.app.xmlui.artifactbrowser.FeedbackSent.java -->
<message key="xmlui.ArtifactBrowser.FeedbackSent.title">Give feedback</message>
<message key="xmlui.ArtifactBrowser.FeedbackSent.trail">Give feedback</message>
<message key="xmlui.ArtifactBrowser.FeedbackSent.head">Feedback sent</message>
<message key="xmlui.ArtifactBrowser.FeedbackSent.para1">Your comments have been received.</message>

<!-- org.dspace.app.xmlui.artifactbrowser.FrontPageSearch.java -->
<message key="xmlui.ArtifactBrowser.FrontPageSearch.head">Search Alexandria</message>
<message key="xmlui.ArtifactBrowser.FrontPageSearch.para1">Enter some text in the box below to search
Alexandria.</message>

<!-- org.dspace.app.xmlui.artifactbrowser.ItemViewer.java -->
<message key="xmlui.ArtifactBrowser.ItemViewer.trail">View Item</message>
<message key="xmlui.ArtifactBrowser.ItemViewer.head_parent_collections">This item appears in the following
Collection(s)</message>
<message key="xmlui.ArtifactBrowser.ItemViewer.show_simple">Show simple item record</message>
<message key="xmlui.ArtifactBrowser.ItemViewer.show_full">Show full item record</message>

<!-- org.dspace.app.xmlui.artifactbrowser.Navigation.java -->
<message key="xmlui.ArtifactBrowser.Navigation.head_browse">Browse</message>
<message key="xmlui.ArtifactBrowser.Navigation.head_all_of_dspace">All of Alexandria</message>
<message key="xmlui.ArtifactBrowser.Navigation.communities_and_collections">Communities &
Collections</message>
<message key="xmlui.ArtifactBrowser.Navigation.browse_title">Titles</message>
<message key="xmlui.ArtifactBrowser.Navigation.browse_author">Authors</message>
<message key="xmlui.ArtifactBrowser.Navigation.browse_subject">Subjects</message>
<message key="xmlui.ArtifactBrowser.Navigation.browse_dateissued">By Issue Date</message>
<message key="xmlui.ArtifactBrowser.Navigation.browse_dateaccessioned">By Submit Date</message>
<message key="xmlui.ArtifactBrowser.Navigation.head_this_collection">This Collection</message>
<message key="xmlui.ArtifactBrowser.Navigation.head_this_community">This Community</message>

<!-- org.dspace.app.xmlui.artifactbrowser.SimpleSearch.java -->
<message key="xmlui.ArtifactBrowser.SimpleSearch.title">Search</message>
<message key="xmlui.ArtifactBrowser.SimpleSearch.trail">Search</message>
<message key="xmlui.ArtifactBrowser.SimpleSearch.head">Search</message>
<message key="xmlui.ArtifactBrowser.SimpleSearch.search_scope">Search Scope</message>
<message key="xmlui.ArtifactBrowser.SimpleSearch.full_text_search">Full Text Search</message>

<!-- org.dspace.app.xmlui.artifactbrowser.RestrictedItem.java -->
<message key="xmlui.ArtifactBrowser.RestrictedItem.title">This resource is restricted</message>
<message key="xmlui.ArtifactBrowser.RestrictedItem.trail">Restricted</message>
<message key="xmlui.ArtifactBrowser.RestrictedItem.head_resource">This resource is restricted</message>
<message key="xmlui.ArtifactBrowser.RestrictedItem.head_community">This community is restricted</message>
<message key="xmlui.ArtifactBrowser.RestrictedItem.head_collection">This collection is restricted</message>
<message key="xmlui.ArtifactBrowser.RestrictedItem.head_item">This item is restricted</message>
<message key="xmlui.ArtifactBrowser.RestrictedItem.head_bitstream">This bitstream is restricted</message>
<message key="xmlui.ArtifactBrowser.RestrictedItem.para_resource">You do not have the credentials to access the
restricted resource.</message>
    <message key="xmlui.ArtifactBrowser.RestrictedItem.para_community">You do not have the credentials to access the
restricted community <b>{0}</b>.</message>
    <message key="xmlui.ArtifactBrowser.RestrictedItem.para_collection">You do not have the credentials to access the
restricted collection <b>{0}</b>.</message>
    <message key="xmlui.ArtifactBrowser.RestrictedItem.para_item">You do not have the credentials to access the restricted
item <b>{0}</b>.</message>
    <message key="xmlui.ArtifactBrowser.RestrictedItem.para_bitstream">You do not have the credentials to access the
restricted bitstream <b>{0}</b>.</message>
    <message key="xmlui.ArtifactBrowser.RestrictedItem.type_collection">collection</message>
    <message key="xmlui.ArtifactBrowser.RestrictedItem.type_community">community</message>
    <message key="xmlui.ArtifactBrowser.RestrictedItem.type_bitstream">bitstream</message>
    <message key="xmlui.ArtifactBrowser.RestrictedItem.type_item">item</message>
    <message key="xmlui.ArtifactBrowser.RestrictedItem.type_resource">resource</message>

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<message key="xmlui.ArtifactBrowser.RestrictedItem.unknown">unknown</message>

<!-- Authentication messages used at the top of the login page: -->
<message key="xmlui.ArtifactBrowser.RestrictedItem.auth_header">The item is restricted</message>
<message key="xmlui.ArtifactBrowser.RestrictedItem.auth_message">The item you are attempting to access is a restricted
item and requires credentials to view. Please login below to access the item.</message>

<message key="xmlui.ArtifactBrowser.StatisticsViewer.choose_month">Monthly Reports</message>
<message key="xmlui.ArtifactBrowser.StatisticsViewer.report.title">Statistical Summary</message>

<message key="xmlui.ArtifactBrowser.StatisticsViewer.no_report.title">No reports currently available</message>
<message key="xmlui.ArtifactBrowser.StatisticsViewer.no_report.text">There are currently no reports available for this service.
Please check back later.</message>

<!-- Authentication messages used for bitstream authentication -->
<message key="xmlui.BitstreamReader.auth_header">The file is restricted</message>
<message key="xmlui.BitstreamReader.auth_message">The file you are attempting to access is a restricted file and
requires credentials to view. Please login below to access the file.</message>

<!-- Export Archive download messages -->
<message key="xmlui.ItemExportDownloadReader.auth_header">This export archive is restricted.</message>
<message key="xmlui.ItemExportDownloadReader.auth_message">The export archive you are attempting to access is a
restricted resource and requires credentials to view. Please login below to access the export archive.</message>

<!--!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!

EPerson Aspect

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<!-- General keys used by the EPerson aspect -->
<message key="xmlui.EPerson.trail_new_registration">New user registration</message>
<message key="xmlui.EPerson.trail_forgot_password">Forgot Password</message>

<!-- org.dspace.app.xmlui.eperson.CannotRegister.java -->
<message key="xmlui.EPerson.CannotRegister.title">Registration unavailable</message>
<message key="xmlui.EPerson.CannotRegister.head">Registration unavailable</message>
<message key="xmlui.EPerson.CannotRegister.para1">The configuration of this Alexandria repository does not allow
registration in this context. Please contact the <a href="."/contact">site administrator</a> with questions or comments.</message>

<!-- org.dspace.app.xmlui.eperson.EditProfile.java -->
<message key="xmlui.EPerson.EditProfile.title_update">Update Profile</message>
<message key="xmlui.EPerson.EditProfile.title_create">Create Profile</message>
<message key="xmlui.EPerson.EditProfile.trail_update">Update Profile</message>
<message key="xmlui.EPerson.EditProfile.head_update">Update Profile</message>
<message key="xmlui.EPerson.EditProfile.head_create">Create Profile</message>
<message key="xmlui.EPerson.EditProfile.email_address">Email Address</message>
<message key="xmlui.EPerson.EditProfile.first_name">First Name</message>
<message key="xmlui.EPerson.EditProfile.last_name">Last Name</message>
<message key="xmlui.EPerson.EditProfile.telephone">Contact Telephone</message>
<message key="xmlui.EPerson.EditProfile.subscriptions">Subscriptions</message>
<message key="xmlui.EPerson.EditProfile.subscriptions_help">You may subscribe to collections to receive daily e-mail
alerts of new items added. You can subscribe to as many or as few collections as you wish. Another alternative to daily e-mail alerts is
to use the RSS feeds available for all collections.</message>
<message key="xmlui.EPerson.EditProfile.email_subscriptions">Email Subscriptions</message>
<message key="xmlui.EPerson.EditProfile.select_collection">( Select Collection )</message>
<message key="xmlui.EPerson.EditProfile.update_password_instructions">Optionally, you can enter a new password in
the box below, and confirm it by typing it again into the second box. It should be at least six characters long.</message>
<message key="xmlui.EPerson.EditProfile.create_password_instructions">Please enter a password in the box below, and
confirm it by typing it again into the second box. It should be at least six characters long.</message>
<message key="xmlui.EPerson.EditProfile.password">Password</message>
<message key="xmlui.EPerson.EditProfile.confirm_password">Retype to confirm</message>
<message key="xmlui.EPerson.EditProfile.submit_update">Complete Registration</message>
<message key="xmlui.EPerson.EditProfile.submit_create">Update Profile</message>

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    <message key="xmlui.EPerson.EditProfile.error_required">This field is required</message>
    <message key="xmlui.EPerson.EditProfile.error_invalid_password">Choose a password at least 6 characters
long</message>
    <message key="xmlui.EPerson.EditProfile.error_unconfirmed_password">Please retype your password to
confirm</message>
    <message key="xmlui.EPerson.EditProfile.head_auth">Authorization groups you belong to</message>
    <message key="xmlui.EPerson.EditProfile.head_identify">Identify</message>
    <message key="xmlui.EPerson.EditProfile.head_security">Security</message>

<!-- org.dspace.app.xmlui.eperson.EPersonUtils.java -->
<message key="xmlui.EPerson.EPersonUtils.register_verify_email">Verify Email</message>
<message key="xmlui.EPerson.EPersonUtils.register_create_profile">Create Profile</message>
<message key="xmlui.EPerson.EPersonUtils.register_finished">Finished</message>
<message key="xmlui.EPerson.EPersonUtils.forgot_verify_email">Verify Email</message>
<message key="xmlui.EPerson.EPersonUtils.forgot_reset_password">Reset Password</message>
<message key="xmlui.EPerson.EPersonUtils.forgot_finished">Finished</message>

<!-- org.dspace.app.xmlui.eperson.ForgotPasswordFinished.java -->
<message key="xmlui.EPerson.ForgotPasswordFinished.title">Password reset</message>
<message key="xmlui.EPerson.ForgotPasswordFinished.head">Password reset</message>
<message key="xmlui.EPerson.ForgotPasswordFinished.para1">Your password has been reset.</message>

<!-- org.dspace.app.xmlui.eperson.InvalidToken.java -->
<message key="xmlui.EPerson.InvalidToken.title">Invalid token</message>
<message key="xmlui.EPerson.InvalidToken.trail">Invalid token</message>
<message key="xmlui.EPerson.InvalidToken.head">Invalid token</message>
<message key="xmlui.EPerson.InvalidToken.para1">The URL you provided is invalid. The URL may have been broken
across multiple lines in your email client, like this:</message>
<message key="xmlui.EPerson.InvalidToken.para2">If so, copy and paste the entire URL directly into your browser's
address bar, rather than simply clicking on the link. The address bar should then contain something like:</message>

<!-- org.dspace.app.xmlui.eperson.Navigation.java -->
<message key="xmlui.EPerson.Navigation.my_account">My Account</message>
<message key="xmlui.EPerson.Navigation.profile">Profile</message>
<message key="xmlui.EPerson.Navigation.logout">Logout</message>
<message key="xmlui.EPerson.Navigation.login">Login</message>
<message key="xmlui.EPerson.Navigation.register">Register</message>

<!-- org.dspace.app.xmlui.eperson.PasswordLogin.java -->
<message key="xmlui.EPerson.PasswordLogin.title">Sign in</message>
<message key="xmlui.EPerson.PasswordLogin.trail">Sign in</message>
<message key="xmlui.EPerson.PasswordLogin.head1">Sign in to Alexandria</message>
<message key="xmlui.EPerson.PasswordLogin.title">Sign in</message>
<message key="xmlui.EPerson.PasswordLogin.email_address">E-Mail Address</message>
<message key="xmlui.EPerson.PasswordLogin.error_bad_login">The email address and/or password supplied were not
valid.</message>
<message key="xmlui.EPerson.PasswordLogin.password">Password</message>
<message key="xmlui.EPerson.PasswordLogin.forgot_link">Forgot your password?</message>
<message key="xmlui.EPerson.PasswordLogin.submit">Sign in</message>
<message key="xmlui.EPerson.PasswordLogin.head2">Register new user</message>
<message key="xmlui.EPerson.PasswordLogin.para1">Register an account to subscribe to collections for email updates,
and submit new items to Alexandria.</message>
<message key="xmlui.EPerson.PasswordLogin.register_link">Click here to register.</message>

<!-- org.dspace.app.xmlui.eperson.LDAPLogin.java -->
<message key="xmlui.EPerson.LDAPLogin.title">Sign in</message>
<message key="xmlui.EPerson.LDAPLogin.trail">Sign in</message>
<message key="xmlui.EPerson.LDAPLogin.head1">Sign in to Alexandria</message>
<message key="xmlui.EPerson.LDAPLogin.title">Sign in</message>
<message key="xmlui.EPerson.LDAPLogin.username">User Name</message>
<message key="xmlui.EPerson.LDAPLogin.error_bad_login">The user name and/or password supplied were not
valid.</message>
<message key="xmlui.EPerson.LDAPLogin.password">Password</message>
<message key="xmlui.EPerson.LDAPLogin.submit">Sign in</message>

<!-- org.dspace.app.xmlui.eperson.LoginChooser.java -->
<message key="xmlui.EPerson.LoginChooser.title">Choose a Login Method</message>
<message key="xmlui.EPerson.LoginChooser.trail">Choose Login</message>
<message key="xmlui.EPerson.LoginChooser.head1">Choose a Login Method</message>
<message key="xmlui.EPerson.LoginChooser.para1">Log in via:</message>

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<message key="org.dspace.authenticate.ShibAuthentication.title">Shibboleth Authentication</message>
<message key="org.dspace.eperson.LDAPAuthentication.title">LDAP Authentication</message>
<message key="org.dspace.eperson.PasswordAuthentication.title">Password Authentication</message>
<message key="org.dspace.eperson.X509Authentication.title">Web Certificate Authentication</message>

<!-- org.dspace.app.xmlui.eperson.FailedAuthentication -->
<message key="xmlui.EPerson.FailedAuthentication.BadCreds">The credentials provided are invalid.</message>
<message key="xmlui.EPerson.FailedAuthentication.BadArgs">Unable to authenticate due to invalid arguments
received.</message>
<message key="xmlui.EPerson.FailedAuthentication.NoSuchUser">A user was not found with the credentials
provided.</message>
<message key="xmlui.EPerson.FailedAuthentication.title">Authentication Failed</message>
<message key="xmlui.EPerson.FailedAuthentication.trail">Failed Authentication</message>
<message key="xmlui.EPerson.FailedAuthentication.h1">Authentication Failed</message>

<!-- Login xml files -->
<message key="xmlui.eperson.noAuthMethod.head">No Authentication Method Found</message>
<message key="xmlui.eperson.noAuthMethod.p1">No authentication method was found. Please contact the site
administrator.</message>
<message key="xmlui.eperson.shibbLoginFailure.head">Shibboleth Login Failed</message>
<message key="xmlui.eperson.shibbLoginFailure.p1">Shibboleth authentication not available at this time. Please contact
the site administrator.</message>

<!-- org.dspace.app.xmlui.eperson.ProfileUpdated.java -->
<message key="xmlui.EPerson.ProfileUpdated.title">Profile updated</message>
<message key="xmlui.EPerson.ProfileUpdated.trail">Update profile</message>
<message key="xmlui.EPerson.ProfileUpdated.head">Profile updated</message>
<message key="xmlui.EPerson.ProfileUpdated.para1">Your profile information has been updated.</message>

<!-- org.dspace.app.xmlui.eperson.RegistrationFinished.java -->
<message key="xmlui.EPerson.RegistrationFinished.title">Registration finished</message>
<message key="xmlui.EPerson.RegistrationFinished.head">Registration Finished</message>
<message key="xmlui.EPerson.RegistrationFinished.para1">You're now registered to use the Alexandria system. You can
subscribe to collections to receive email updates about new items.</message>

<!-- org.dspace.app.xmlui.eperson.ResetPassword.java -->
<message key="xmlui.EPerson.ResetPassword.title">Reset password</message>
<message key="xmlui.EPerson.ResetPassword.head">Reset password</message>
<message key="xmlui.EPerson.ResetPassword.para1">Please enter a new password into the box below, and confirm it by
typing it again into the second box. It should be at least six characters long.</message>
<message key="xmlui.EPerson.ResetPassword.email_address">Email Address</message>
<message key="xmlui.EPerson.ResetPassword.new_password">New password</message>
<message key="xmlui.EPerson.ResetPassword.confirm_password">Retype to Confirm</message>
<message key="xmlui.EPerson.ResetPassword.submit">Reset password</message>
<message key="xmlui.EPerson.ResetPassword.error_invalid_password">Choose a password at least 6 characters
long</message>
<message key="xmlui.EPerson.ResetPassword.error_unconfirmed_password">Please retype your password to
confirm</message>

<!-- org.dspace.app.xmlui.eperson.StartForgotPassword.java -->
<message key="xmlui.EPerson.StartForgotPassword.title">Forgot Password</message>
<message key="xmlui.EPerson.StartForgotPassword.head">Forgot Password</message>
<message key="xmlui.EPerson.StartForgotPassword.para1">Enter the email address you provided when you registered
with Alexandria. An email will be sent to that address with further instructions.</message>
<message key="xmlui.EPerson.StartForgotPassword.email_address">Email Address</message>
<message key="xmlui.EPerson.StartForgotPassword.email_address_help">Enter the same address used when
registering.</message>
<message key="xmlui.EPerson.StartForgotPassword.error_not_found">Email address not found.</message>
<message key="xmlui.EPerson.StartForgotPassword.submit">Send info</message>

<!-- org.dspace.app.xmlui.eperson.StartRegistration.java -->
<message key="xmlui.EPerson.StartRegistration.title">New user registration</message>
<message key="xmlui.EPerson.StartRegistration.head1">Email already in use</message>
<message key="xmlui.EPerson.StartRegistration.para1">That email address is already in use by another account. If you
want to reset the password for this account, click the reset password button below.</message>
<message key="xmlui.EPerson.StartRegistration.reset_password_for">Reset password for</message>
<message key="xmlui.EPerson.StartRegistration.submit_reset">Reset password</message>
<message key="xmlui.EPerson.StartRegistration.head2">New user registration</message>
<message key="xmlui.EPerson.StartRegistration.para2">Register an account to subscribe to collections for email updates,
and submit new items to Alexandria.</message>

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<message key="xmlui.Submission.Submissions.workflow_column5">Submitter</message>
<message key="xmlui.Submission.Submissions.workflow_submit_return">Return selected tasks to the pool</message>
<message key="xmlui.Submission.Submissions.workflow_info2">No tasks are assigned to you</message>
<message key="xmlui.Submission.Submissions.workflow_head3">Tasks in the pool</message>
<message key="xmlui.Submission.Submissions.workflow_submit_take">Take selected tasks</message>
<message key="xmlui.Submission.Submissions.workflow_info3">No tasks are in the pool</message>
<!-- Same transformer, submissions section -->
<message key="xmlui.Submission.Submissions.submit_head1">Submissions</message>
<message key="xmlui.Submission.Submissions.submit_info1a">You may </message>
<message key="xmlui.Submission.Submissions.submit_info1b">start a new submission</message>
<message key="xmlui.Submission.Submissions.submit_info1c">The submission process includes describing the item and
uploading the file(s) comprising it. Each community or collection may set its own submission policy.</message>
<message key="xmlui.Submission.Submissions.submit_head2">Unfinished submissions</message>
<message key="xmlui.Submission.Submissions.submit_info2a">These are incomplete item submissions. You may also
</message>
<message key="xmlui.Submission.Submissions.submit_info2b">start another submission</message>
<message key="xmlui.Submission.Submissions.submit_info2c">.</message>
<message key="xmlui.Submission.Submissions.submit_column1"></message>
<message key="xmlui.Submission.Submissions.submit_column2">Title</message>
<message key="xmlui.Submission.Submissions.submit_column3">Collection</message>
<message key="xmlui.Submission.Submissions.submit_column4">Submitter</message>
<message key="xmlui.Submission.Submissions.submit_head3">Authoring:</message>
<message key="xmlui.Submission.Submissions.submit_info3">No submissions left unfinished.</message>
<message key="xmlui.Submission.Submissions.submit_head4">Supervising:</message>
<message key="xmlui.Submission.Submissions.submit_submit_remove">Remove selected submissions</message>
<!-- Same transformer, inprogress section -->
<message key="xmlui.Submission.Submissions.progress_head1">Submissions being reviewed</message>
<message key="xmlui.Submission.Submissions.progress_info1">These are your completed submissions which are
currently being reviewed by collection curators.</message>
<message key="xmlui.Submission.Submissions.progress_column1">Title</message>
<message key="xmlui.Submission.Submissions.progress_column2">Collection</message>
<message key="xmlui.Submission.Submissions.progress_column3">Status</message>
<!-- Same transformer, workflow status -->
<message key="xmlui.Submission.Submissions.status_0">Submitted</message>
<message key="xmlui.Submission.Submissions.status_1">Awaiting reviewer's attention</message>
<message key="xmlui.Submission.Submissions.status_2">Submission being reviewed</message>
<message key="xmlui.Submission.Submissions.status_3">Awaiting editor's attention</message>
<message key="xmlui.Submission.Submissions.status_4">Submission being edited</message>
<message key="xmlui.Submission.Submissions.status_5">Awaiting final editor's attention</message>
<message key="xmlui.Submission.Submissions.status_6">Submission being edited</message>
<message key="xmlui.Submission.Submissions.status_7">Submission has been archived</message>
<message key="xmlui.Submission.Submissions.status_unknown">Unknown state</message>

<!-- submission progress bar messages -->
<message key="xmlui.Submission.submit.progressbar.initial-questions">Initial Questions</message>
<message key="xmlui.Submission.submit.progressbar.describe">Describe</message>
<message key="xmlui.Submission.submit.progressbar.upload">Upload</message>
<message key="xmlui.Submission.submit.progressbar.verify">Review</message>
<message key="xmlui.Submission.submit.progressbar.creative-commons">Creative Commons</message>
<message key="xmlui.Submission.submit.progressbar.license">License</message>
<message key="xmlui.Submission.submit.progressbar.complete">Complete</message>

<!-- org.dspace.app.xmlui.Submission.submit.ResumeStep -->
<message key="xmlui.Submission.submit.ResumeStep.submit_resume">Resume</message>

<!-- org.dspace.app.xmlui.Submission.submit.SelectCollection -->
<message key="xmlui.Submission.submit.SelectCollection.head">Select a collection</message>
<message key="xmlui.Submission.submit.SelectCollection.collection">Collection</message>
<message key="xmlui.Submission.submit.SelectCollection.collection_help">Select the collection you wish to submit an
item to.</message>
<message key="xmlui.Submission.submit.SelectCollection.collection_default">Select a collection...</message>

<!-- org.dspace.app.xmlui.Submission.submit.SaveOrRemoveStep -->
<message key="xmlui.Submission.submit.SaveOrRemoveStep.head">Save or cancel your submission?</message>
<message key="xmlui.Submission.submit.SaveOrRemoveStep.info1">Do you want the submission removed, or do you
want to carry on working on it later? You may return to the submission process if you clicked Exit by accident.</message>
<message key="xmlui.Submission.submit.SaveOrRemoveStep.submit_back">Oops, continue submission</message>
<message key="xmlui.Submission.submit.SaveOrRemoveStep.submit_save">Save it, I'll work on it later</message>
<message key="xmlui.Submission.submit.SaveOrRemoveStep.submit_remove">Remove the submission</message>

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<!-- org.dspace.app.xmlui.Submission.submit.InitialQuestionsStep -->
<message key="xmlui.Submission.submit.InitialQuestionsStep.head">Initial Questions</message>
<message key="xmlui.Submission.submit.InitialQuestionsStep.important_note">Important Note: </message>
<message key="xmlui.Submission.submit.InitialQuestionsStep.and"> and </message>
<message key="xmlui.Submission.submit.InitialQuestionsStep.separator">, </message>
<message key="xmlui.Submission.submit.InitialQuestionsStep.open_set"> (</message>
<message key="xmlui.Submission.submit.InitialQuestionsStep.close_set">)</message>
<message key="xmlui.Submission.submit.InitialQuestionsStep.multiple_titles">Multiple titles</message>
<message key="xmlui.Submission.submit.InitialQuestionsStep.multiple_titles_help">The item has more than one title,
<i>e.g. a translated title</i></message>
<message key="xmlui.Submission.submit.InitialQuestionsStep.multiple_titles_note">If the checkbox above is unchecked
then the following title(s) will be removed from the item: </message>
<message key="xmlui.Submission.submit.InitialQuestionsStep.published_before">Published</message>
<message key="xmlui.Submission.submit.InitialQuestionsStep.published_before_help">The item has been published or
publicly distributed before</message>
<message key="xmlui.Submission.submit.InitialQuestionsStep.published_before_note">If the checkbox above is
unchecked then the following will be removed from the item:</message>
<message key="xmlui.Submission.submit.InitialQuestionsStep.date_issued">Date Issued</message>
<message key="xmlui.Submission.submit.InitialQuestionsStep.citation">Citation</message>
<message key="xmlui.Submission.submit.InitialQuestionsStep.publisher">Publisher</message>

<!-- org.dspace.app.xmlui.Submission.submit.DescribeStep -->
<message key="xmlui.Submission.submit.DescribeStep.head">Describe Item</message>
<message key="xmlui.Submission.submit.DescribeStep.unknown_field">Error: Unknown field type</message>
<message key="xmlui.Submission.submit.DescribeStep.required_field">This field is required</message>
<message key="xmlui.Submission.submit.DescribeStep.last_name_help">Last name, <i>e.g. Smith</i></message>
<message key="xmlui.Submission.submit.DescribeStep.first_name_help">First name(s) + "Jr", <i>e.g. Donald
Jr</i></message>
<message key="xmlui.Submission.submit.DescribeStep.year">Year</message>
<message key="xmlui.Submission.submit.DescribeStep.month">Month</message>
<message key="xmlui.Submission.submit.DescribeStep.day">Day</message>
<message key="xmlui.Submission.submit.DescribeStep.series_name">Series Name</message>
<message key="xmlui.Submission.submit.DescribeStep.report_no">Report or paper No.</message>

<!-- org.dspace.app.xmlui.Submission.submit.UploadStep -->
<message key="xmlui.Submission.submit.UploadStep.head">Upload File(s)</message>
<message key="xmlui.Submission.submit.UploadStep.file">File</message>
<message key="xmlui.Submission.submit.UploadStep.file_help">Please enter the full path of the file on your computer
corresponding to your item. If you click "Browse...", a new window will allow you to select the file from your computer.</message>
<message key="xmlui.Submission.submit.UploadStep.file_error">The item must contain at least one file.</message>
<message key="xmlui.Submission.submit.UploadStep.upload_error">There was a problem uploading your file. Either the
filename you entered was incorrect, there was a network problem which prevented the file from reaching us correctly, or you have
attempted to upload a file format marked for internal system use only. Please try again.</message>
<message key="xmlui.Submission.submit.UploadStep.description">File Description</message>
<message key="xmlui.Submission.submit.UploadStep.description_help">Optionally, provide a brief description of the file,
for example "<i>Main article</i>", or "<i>Experiment data readings</i>".</message>
<message key="xmlui.Submission.submit.UploadStep.submit_upload">Upload file & add another</message>
<message key="xmlui.Submission.submit.UploadStep.head2">Files Uploaded</message>
<message key="xmlui.Submission.submit.UploadStep.column0">Primary</message>
<message key="xmlui.Submission.submit.UploadStep.column1"> </message>
<message key="xmlui.Submission.submit.UploadStep.column2">File</message>
<message key="xmlui.Submission.submit.UploadStep.column3">Size</message>
<message key="xmlui.Submission.submit.UploadStep.column4">Description</message>
<message key="xmlui.Submission.submit.UploadStep.column5">Format</message>
<message key="xmlui.Submission.submit.UploadStep.column6"></message>
<message key="xmlui.Submission.submit.UploadStep.unknown_name">Unknown</message>
<message key="xmlui.Submission.submit.UploadStep.unknown_format">unknown format</message>
<message key="xmlui.Submission.submit.UploadStep.supported">(Supported)</message>
<message key="xmlui.Submission.submit.UploadStep.known">(Known)</message>
<message key="xmlui.Submission.submit.UploadStep.unsupported">(Unsupported)</message>
<message key="xmlui.Submission.submit.UploadStep.submit_edit">Edit</message>
<message key="xmlui.Submission.submit.UploadStep.checksum">File checksum:</message>
<message key="xmlui.Submission.submit.UploadStep.submit_remove">Remove selected files</message>

<!-- org.dspace.app.xmlui.Submission.submit.EditFileStep -->
<message key="xmlui.Submission.submit.EditFileStep.head">Edit File</message>
<message key="xmlui.Submission.submit.EditFileStep.file">File</message>
<message key="xmlui.Submission.submit.EditFileStep.description">File Description</message>

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    <message key="xmlui.Submission.submit.EditFileStep.description_help">Optionally, provide a brief description of the
    contents; for example, "<i>Main article</i>", or "<i>Experiment data readings</i>".</message>
    <message key="xmlui.Submission.submit.EditFileStep.info1">Select the format of the file from the list below, for
    example "<i>Adobe PDF</i>" or "<i>Microsoft Word</i>". <strong>If the format is not in the list</strong>, please describe it in the
    input box below the list.</message>
    <message key="xmlui.Submission.submit.EditFileStep.format_detected">Detected Format</message>
    <message key="xmlui.Submission.submit.EditFileStep.format_selected">Selected Format</message>
    <message key="xmlui.Submission.submit.EditFileStep.format_default">Format not in list</message>
    <message key="xmlui.Submission.submit.EditFileStep.info2">If the format is not in the above list, <strong>select "format
    not in list" above</strong> and describe the file's format in the box below.</message>
    <message key="xmlui.Submission.submit.EditFileStep.format_user">Other Format</message>
    <message key="xmlui.Submission.submit.EditFileStep.format_user_help">The application's name you used to create the
    file, and the version number (for example, "<i>ACMESoft SuperApp version 1.5</i>").</message>

<!-- org.dspace.app.xmlui.Submission.submit.ReviewStep -->
<message key="xmlui.Submission.submit.ReviewStep.head">Review Submission</message>
<message key="xmlui.Submission.submit.ReviewStep.yes">Yes</message>
<message key="xmlui.Submission.submit.ReviewStep.no">No</message>
<message key="xmlui.Submission.submit.ReviewStep.submit_jump">Correct one of these</message>
<message key="xmlui.Submission.submit.ReviewStep.submit_jump_files">Add or remove a file</message>
<message key="xmlui.Submission.submit.ReviewStep.head1">Initial Questions</message>
<message key="xmlui.Submission.submit.ReviewStep.head2">Describe Page {0}</message>
<message key="xmlui.Submission.submit.ReviewStep.head3">Uploaded Files</message>
<message key="xmlui.Submission.submit.ReviewStep.multiple_titles">Multiple titles</message>
<message key="xmlui.Submission.submit.ReviewStep.published_before">Published before</message>
<message key="xmlui.Submission.submit.ReviewStep.no_metadata"></message>
<message key="xmlui.Submission.submit.ReviewStep.unknown">unknown</message>
<message key="xmlui.Submission.submit.ReviewStep.known">known</message>
<message key="xmlui.Submission.submit.ReviewStep.supported">supported</message>

<!-- org.dspace.app.xmlui.Submission.submit.CCLicenseStep -->
<message key="xmlui.Submission.submit.CCLicenseStep.head">Creative Commons License</message>
<message key="xmlui.Submission.submit.CCLicenseStep.info1">If you wish, you may add a <a
href="http://creativecommons.org/">Creative Commons</a> License to your item. <strong>Creative Commons licenses govern what
people who read your work may then do with it.</strong> If you wish to select a Creative Commons license click the button below.
You will be taken to the Creative Commons website, where you will be presented with several licensing options. After selecting a
license, you will be returned to this page.</message>
<message key="xmlui.Submission.submit.CCLicenseStep.submit_to_creative_commons">Proceed to Creative Commons
website to select a license</message>
<message key="xmlui.Submission.submit.CCLicenseStep.license">License</message>
<message key="xmlui.Submission.submit.CCLicenseStep.submit_remove">Remove this Creative Commons
License</message>
<message key="xmlui.Submission.submit.CCLicenseStep.no_license">no creative commons license selected</message>

<!-- org.dspace.app.xmlui.Submission.submit.LicenseStep -->
<message key="xmlui.Submission.submit.LicenseStep.head">Distribution License</message>
<message key="xmlui.Submission.submit.LicenseStep.info1"><strong>There is one last step:</strong> In order for
Alexandria to reproduce, translate and distribute your submission worldwide, you must agree to the following terms.</message>
<message key="xmlui.Submission.submit.LicenseStep.info2">Grant the standard distribution license by selecting 'I Grant
the License'; and then click 'Complete Submission'.</message>
<message key="xmlui.Submission.submit.LicenseStep.info3">If you have questions regarding this license please contact
the system administrators.</message>
<message key="xmlui.Submission.submit.LicenseStep.decision_label">Distribution license</message>
<message key="xmlui.Submission.submit.LicenseStep.decision_checkbox">I Grant the License</message>
<message key="xmlui.Submission.submit.LicenseStep.decision_error">You must grant this license to complete your
submission. If you are unable to grant this license at this time you may save your work and return later or remove the submission by
clicking the 'Save & Exit' button below.</message>

<!-- org.dspace.app.xmlui.Submission.submit.RemovedStep -->
<message key="xmlui.Submission.submit.RemovedStep.head">Submission removed</message>
<message key="xmlui.Submission.submit.RemovedStep.info1">Your submission has been cancelled, and the incomplete
item removed from the system.</message>
<message key="xmlui.Submission.submit.RemovedStep.go_submission">Go to the Submissions page</message>

<!-- org.dspace.app.xmlui.Submission.submit.CompletedStep -->
<message key="xmlui.Submission.submit.CompletedStep.head">Submission complete</message>
<message key="xmlui.Submission.submit.CompletedStep.info1">Your submission will now go through the review process
for this collection. You will receive e-mail notification as soon as your submission has joined the collection, or if there is a problem
with your submission. You may also check on the status of your submission by visiting your submissions page.</message>
<message key="xmlui.Submission.submit.CompletedStep.go_submission">Go to the Submissions page</message>

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<message key="xmlui.Submission.submit.CompletedStep.submit_again">Submit another item</message>

<!-- org.dspace.app.xmlui.Submission.workflow.PerformTaskStep -->
<message key="xmlui.Submission.workflow.PerformTaskStep.info1">Actions you may perform on this task:</message>
<message key="xmlui.Submission.workflow.PerformTaskStep.take_help">Assign this task to yourself.</message>
<message key="xmlui.Submission.workflow.PerformTaskStep.take_submit">Take task</message>
<message key="xmlui.Submission.workflow.PerformTaskStep.leave_help">Leave this task in the pool for another to
take.</message>
<message key="xmlui.Submission.workflow.PerformTaskStep.leave_submit">Leave task</message>
<message key="xmlui.Submission.workflow.PerformTaskStep.approve_help">If you have reviewed the item and it is
suitable for inclusion in the collection, select "Approve".</message>
<message key="xmlui.Submission.workflow.PerformTaskStep.approve_submit">Approve item</message>
<message key="xmlui.Submission.workflow.PerformTaskStep.commit_help">Once you've edited the item, use this option
to commit the item to the archive.</message>
<message key="xmlui.Submission.workflow.PerformTaskStep.commit_submit">Commit to archive</message>
<message key="xmlui.Submission.workflow.PerformTaskStep.reject_help">If you have reviewed the item and found it is
<strong>not</strong> suitable for inclusion in the collection, select "Reject". You will then be asked to enter a message indicating
why the item is unsuitable, and whether the submitter should change something and resubmit.</message>
<message key="xmlui.Submission.workflow.PerformTaskStep.reject_submit">Reject item</message>
<message key="xmlui.Submission.workflow.PerformTaskStep.edit_help">Select this option to change the item's
metadata.</message>
<message key="xmlui.Submission.workflow.PerformTaskStep.edit_submit">Edit metadata</message>
<message key="xmlui.Submission.workflow.PerformTaskStep.return_help">Return the task to the pool so that another
user may perform the task.</message>
<message key="xmlui.Submission.workflow.PerformTaskStep.return_submit">Return task to pool</message>

<!-- org.dspace.app.xmlui.Submission.workflow.RejectTaskStep -->
<message key="xmlui.Submission.workflow.RejectTaskStep.info1">Please enter your reason for rejecting the submission
into the box below, indicating whether the submitter may fix a problem and resubmit.</message>
<message key="xmlui.Submission.workflow.RejectTaskStep.reason">Reason</message>
<message key="xmlui.Submission.workflow.RejectTaskStep.reason_required">The reason field is required</message>
<message key="xmlui.Submission.workflow.RejectTaskStep.submit_reject">Reject item</message>

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#### Administrative Aspect

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<!-- action-generated messages. These are referenced from the sitemap rather than a transformer -->

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<message key="xmlui.administrative.FlowEPersonUtils.add_eperson_success_notice">The user was added
successfully.</message>
<message key="xmlui.administrative.FlowEPersonUtils.edit_eperson_success_notice">The user was edited
successfully.</message>
<message key="xmlui.administrative.FlowEPersonUtils.reset_password_success_notice">An email message has been sent
to the user containing a token that may be used to choose a new password.</message>
<message key="xmlui.administrative.FlowEPersonUtils.delete_eperson_success_notice">The user(s) were deleted
successfully.</message>
<message key="xmlui.administrative.FlowEPersonUtils.delete_eperson_failed_notice">The user(s) listed were not deleted
because there are constraints preventing them from being deleted, see the eperson detail page for more information.</message>
<message key="xmlui.administrative.FlowGroupUtils.edit_group_success_notice">The group was edited
successfully.</message>
<message key="xmlui.administrative.FlowGroupUtils.delete_group_success_notice">The selected groups were deleted
successfully.</message>
<message key="xmlui.administrative.FlowRegistryUtils.add_metadata_schema_success_notice">New schema has been
successfully created.</message>
<message key="xmlui.administrative.FlowRegistryUtils.delete_metadata_schema_success_notice">The schema(s) were
successfully deleted.</message>
<message key="xmlui.administrative.FlowRegistryUtils.add_metadata_field_success_notice">Metadata field successfully
added.</message>
<message key="xmlui.administrative.FlowRegistryUtils.edit_metadata_field_success_notice">Metadata field successfully
edited.</message>
<message key="xmlui.administrative.FlowRegistryUtils.move_metadata_field_success_notice">The field(s) were
successfully moved.</message>
<message key="xmlui.administrative.FlowRegistryUtils.delete_metadata_field_success_notice">The field(s) were
successfully deleted.</message>

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        <message key="xmlui.administrative.FlowRegistryUtils.edit_bitstream_format_success_notice">The format was
successfully saved.</message>
        <message key="xmlui.administrative.FlowRegistryUtils.delete_bitstream_format_success_notice">The format(s) were
successfully deleted.</message>
        <message key="xmlui.administrative.FlowItemUtils.metadata_updated">The item's metadata was successfully
updated.</message>
        <message key="xmlui.administrative.FlowItemUtils.metadata_added">New metadata was added.</message>
        <message key="xmlui.administrative.FlowItemUtils.item_withdrawn">The item has been withdrawn.</message>
        <message key="xmlui.administrative.FlowItemUtils.item_reinstated">The item has been reinstated.</message>
        <message key="xmlui.administrative.FlowItemUtils.bitstream_added">The new bitstream was successfully
uploaded.</message>
        <message key="xmlui.administrative.FlowItemUtils.bitstream_failed">Error while uploading file.</message>
        <message key="xmlui.administrative.FlowItemUtils.bitstream_updated">The bitstream has been updated.</message>
        <message key="xmlui.administrative.FlowItemUtils.bitstream_delete">The selected bitstreams have been
deleted.</message>
        <message key="xmlui.administrative.FlowMapperUtils.map_items">The items were successfully mapped.</message>
        <message key="xmlui.administrative.FlowMapperUtils.unmapped_items">The items have been unmapped.</message>

<!-- general items for all of the eperson classes -->
<message key="xmlui.administrative.eperson.general.epeople_trail">Manage E-people</message>

<!-- org.dspace.app.xmlui.administrative.Navigation -->
<!-- contextual menu items -->
<message key="xmlui.administrative.Navigation.context_head">Context</message>
<message key="xmlui.administrative.Navigation.context_edit_item">Edit this item</message>
<message key="xmlui.administrative.Navigation.context_edit_collection">Edit Collection</message>
<message key="xmlui.administrative.Navigation.context_item_mapper">Item Mapper</message>
<message key="xmlui.administrative.Navigation.context_edit_community">Edit Community</message>
<message key="xmlui.administrative.Navigation.context_create_collection">Create Collection</message>
<message key="xmlui.administrative.Navigation.context_create_subcommunity">Create Sub-community</message>
<message key="xmlui.administrative.Navigation.context_create_community">Create Community</message>
<message key="xmlui.administrative.Navigation.context_export_item">Export Item</message>
<message key="xmlui.administrative.Navigation.context_export_collection">Export Collection</message>
<message key="xmlui.administrative.Navigation.context_export_community">Export Community</message>

<!-- Site administrator options -->
<message key="xmlui.administrative.Navigation.administrative_head">Administrative</message>
<message key="xmlui.administrative.Navigation.administrative_access_control">Access Control</message>
<message key="xmlui.administrative.Navigation.administrative_people">People</message>
<message key="xmlui.administrative.Navigation.administrative_groups">Groups</message>
<message key="xmlui.administrative.Navigation.administrative_authorizations">Authorizations</message>
<message key="xmlui.administrative.Navigation.administrative_registries">Registries</message>
<message key="xmlui.administrative.Navigation.administrative_metadata">Metadata</message>
<message key="xmlui.administrative.Navigation.administrative_format">Format</message>
<message key="xmlui.administrative.Navigation.administrative_items">Items</message>
<message key="xmlui.administrative.Navigation.administrative_withdrawn">Withdrawn Items</message>
<message key="xmlui.administrative.Navigation.administrative_control_panel">Control Panel</message>
<message key="xmlui.administrative.Navigation.statistics">Statistics</message>

<!-- my account items -->
<message key="xmlui.administrative.Navigation.account_export">My Exports</message>

<!-- export item -->
<message key="xmlui.administrative.ItemExport.head">Export Archive</message>
<message key="xmlui.administrative.ItemExport.item.id.error">The item id provided is invalid.</message>
<message key="xmlui.administrative.ItemExport.collection.id.error">The collection id provided is invalid.</message>
<message key="xmlui.administrative.ItemExport.community.id.error">The community id provided is invalid.</message>
<message key="xmlui.administrative.ItemExport.item.not_found">The item requested was not found.</message>
<message key="xmlui.administrative.ItemExport.collection.not_found">The collection requested was not
found.</message>
<message key="xmlui.administrative.ItemExport.community.not_found">The community requested was not
found.</message>
<message key="xmlui.administrative.ItemExport.item.success">The item was exported successfully. You should receive
an e-mail when the archive is ready for download. You can also use the 'My Exports' link to view a list of your available
archives.</message>
<message key="xmlui.administrative.ItemExport.collection.success">The collection was exported successfully. You
should receive an e-mail when the archive is ready for download. You can also use the 'My Exports' link to view a list of your
available archives.</message>

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<message key="xmlui.administrative.ItemExport.community.success">The community was exported successfully. You should receive an e-mail when the archive is ready for download. You can also use the 'My Exports' link to view a list of your available archives.</message>

<message key="xmlui.administrative.ItemExport.available.head">Available export archives for download:</message>

<!-- org.dspace.app.xmlui.administrative.eperson.ManageEPeopleMain -->  
<message key="xmlui.administrative.eperson.ManageEPeopleMain.title">Manage E-people</message>  
<message key="xmlui.administrative.eperson.ManageEPeopleMain.main\_head">E-person management</message>  
<message key="xmlui.administrative.eperson.ManageEPeopleMain.actions\_head">Actions</message>  
<message key="xmlui.administrative.eperson.ManageEPeopleMain.actions\_create">Create a new E-Person</message>  
<message key="xmlui.administrative.eperson.ManageEPeopleMain.actions\_create\_link">Click here to add a new E-Person.</message>  
<message key="xmlui.administrative.eperson.ManageEPeopleMain.actions\_browse">Browse E-People</message>  
<message key="xmlui.administrative.eperson.ManageEPeopleMain.actions\_browse\_link">Click here to browse all E-People.</message>  
<message key="xmlui.administrative.eperson.ManageEPeopleMain.actions\_search">Search for E-People</message>  
<message key="xmlui.administrative.eperson.ManageEPeopleMain.search\_help">E-People are searched by any partial match on email or name</message>  
<message key="xmlui.administrative.eperson.ManageEPeopleMain.search\_para1">Below is the list of E-People that matched your search query. Select the E-People you want to delete and click the delete button to continue or click on an E-Person's email or name to edit them.</message>  
<message key="xmlui.administrative.eperson.ManageEPeopleMain.search\_head">Search results</message>  
<message key="xmlui.administrative.eperson.ManageEPeopleMain.search\_column1"><</message>  
<message key="xmlui.administrative.eperson.ManageEPeopleMain.search\_column2">ID</message>  
<message key="xmlui.administrative.eperson.ManageEPeopleMain.search\_column3">Name</message>  
<message key="xmlui.administrative.eperson.ManageEPeopleMain.search\_column4">Email</message>  
<message key="xmlui.administrative.eperson.ManageEPeopleMain.submit\_delete">Delete E-People</message>  
<message key="xmlui.administrative.eperson.ManageEPeopleMain.no\_results">Your search found no results...</message>

<!-- org.dspace.app.xmlui.administrative.eperson.AddEPersonForm -->  
<message key="xmlui.administrative.eperson.AddEPersonForm.title">Add E-Person</message>  
<message key="xmlui.administrative.eperson.AddEPersonForm.trail">Add E-Person</message>  
<message key="xmlui.administrative.eperson.AddEPersonForm.head1">Create a new user</message>  
<message key="xmlui.administrative.eperson.AddEPersonForm.email\_taken">That email address is in use by another E-Person. Emails must be unique.</message>  
<message key="xmlui.administrative.eperson.AddEPersonForm.head2">New E-Person's information:</message>  
<message key="xmlui.administrative.eperson.AddEPersonForm.error\_email\_unique">Email address must be unique</message>  
<message key="xmlui.administrative.eperson.AddEPersonForm.error\_email">Email address is required</message>  
<message key="xmlui.administrative.eperson.AddEPersonForm.error\_fname">First name is required</message>  
<message key="xmlui.administrative.eperson.AddEPersonForm.error\_lname">Last name is required</message>  
<message key="xmlui.administrative.eperson.AddEPersonForm.req\_certs">Require Certificate</message>  
<message key="xmlui.administrative.eperson.AddEPersonForm.can\_log\_in">Can Log In</message>  
<message key="xmlui.administrative.eperson.AddEPersonForm.submit\_create">Create E-Person</message>

<!-- org.dspace.app.xmlui.administrative.eperson.EditEPersonForm -->  
<message key="xmlui.administrative.eperson.EditEPersonForm.title">Edit E-Person</message>  
<message key="xmlui.administrative.eperson.EditEPersonForm.trail">Edit E-Person</message>  
<message key="xmlui.administrative.eperson.EditEPersonForm.head1">Edit an E-Person</message>  
<message key="xmlui.administrative.eperson.EditEPersonForm.email\_taken">That email address is in use by another E-Person. Emails must be unique.</message>  
<message key="xmlui.administrative.eperson.EditEPersonForm.head2">{0}'s information:</message>  
<message key="xmlui.administrative.eperson.EditEPersonForm.error\_email\_unique">Email address must be unique</message>  
<message key="xmlui.administrative.eperson.EditEPersonForm.error\_email">Email address is required</message>  
<message key="xmlui.administrative.eperson.EditEPersonForm.error\_fname">First name is required</message>  
<message key="xmlui.administrative.eperson.EditEPersonForm.error\_lname">Last name is required</message>  
<message key="xmlui.administrative.eperson.EditEPersonForm.req\_certs">Require Certificate</message>  
<message key="xmlui.administrative.eperson.EditEPersonForm.can\_log\_in">Can Log In</message>  
<message key="xmlui.administrative.eperson.EditEPersonForm.submit\_reset\_password">Reset Password</message>  
<message key="xmlui.administrative.eperson.EditEPersonForm.special\_help">You may also permanently remove this E-Person from the system or reset his/her password. When resetting a password the user will be sent an email containing a special link they can follow to choose a new password.</message>  
<message key="xmlui.administrative.eperson.EditEPersonForm.submit\_delete">Delete E-Person</message>  
<message key="xmlui.administrative.eperson.EditEPersonForm.submit\_login\_as">Login as E-Person</message>

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        <message key="xmlui.administrative.eperson.EditEPersonForm.delete_constraint">This eperson is unable to be deleted
because of the following constraint(s):</message>
        <message key="xmlui.administrative.eperson.EditEPersonForm.delete_constraint.last_conjunction">and</message>
        <message key="xmlui.administrative.eperson.EditEPersonForm.delete_constraint.item">eperson has submitted one or
more items</message>
        <message key="xmlui.administrative.eperson.EditEPersonForm.delete_constraint.workflowitem">eperson has an active
submission workflow</message>
        <message key="xmlui.administrative.eperson.EditEPersonForm.delete_constraint.tasklistitem">eperson has a workflow
task awaiting their attention</message>
        <message key="xmlui.administrative.eperson.EditEPersonForm.delete_constraint.unknown">eperson has an unidentified
constraint within the system</message>

of:</message>
        <message key="xmlui.administrative.eperson.EditEPersonForm.indirect_member">(via group: {0})</message>
        <message key="xmlui.administrative.eperson.EditEPersonForm.member_none">none</message>

<!-- org.dspace.app.xmlui.administrative.eperson.DeleteEPeopleConfirm -->
<message key="xmlui.administrative.eperson.DeleteEPeopleConfirm.title">Confirm E-Person Deletion</message>
<message key="xmlui.administrative.eperson.DeleteEPeopleConfirm.trail">Confirm Delete</message>
<message key="xmlui.administrative.eperson.DeleteEPeopleConfirm.confirm_head">Confirm Deletion</message>
<message key="xmlui.administrative.eperson.DeleteEPeopleConfirm.confirm_para">The following E-People will be
deleted:</message>
        <message key="xmlui.administrative.eperson.DeleteEPeopleConfirm.submit_confirm">Confirm Deletion</message>
        <message key="xmlui.administrative.eperson.DeleteEPeopleConfirm.head_id">ID</message>
        <message key="xmlui.administrative.eperson.DeleteEPeopleConfirm.head_name">Name</message>
        <message key="xmlui.administrative.eperson.DeleteEPeopleConfirm.head_email">Email</message>

<!-- general items for all of the group classes -->
<message key="xmlui.administrative.group.general.group_trail">Manage Groups</message>

<!-- org.dspace.app.xmlui.administrative.group.ManageGroupsMain -->
<message key="xmlui.administrative.group.ManageGroupsMain.title">Manage Groups</message>
<message key="xmlui.administrative.group.ManageGroupsMain.main_head">Group management</message>
<message key="xmlui.administrative.group.ManageGroupsMain.actions_head">Actions</message>
<message key="xmlui.administrative.group.ManageGroupsMain.actions_create">Create a new group</message>
<message key="xmlui.administrative.group.ManageGroupsMain.actions_create_link">Click here to add a new
Group.</message>
        <message key="xmlui.administrative.group.ManageGroupsMain.actions_browse">Browse groups</message>
        <message key="xmlui.administrative.group.ManageGroupsMain.actions_browse_link">Click here to browse all
Groups.</message>
        <message key="xmlui.administrative.group.ManageGroupsMain.actions_search">Search for groups</message>
        <message key="xmlui.administrative.group.ManageGroupsMain.search_help">Groups are searched by any partial match
on their name</message>
        <message key="xmlui.administrative.group.ManageGroupsMain.search_head">Search results</message>
        <message key="xmlui.administrative.group.ManageGroupsMain.search_column1"></message>
        <message key="xmlui.administrative.group.ManageGroupsMain.search_column2">ID</message>
        <message key="xmlui.administrative.group.ManageGroupsMain.search_column3">Name</message>
        <message key="xmlui.administrative.group.ManageGroupsMain.search_column4">Members</message>
        <message key="xmlui.administrative.group.ManageGroupsMain.search_column5">Collection</message>
        <message key="xmlui.administrative.group.ManageGroupsMain.collection_link">View</message>
        <message key="xmlui.administrative.group.ManageGroupsMain.submit_delete">Delete groups</message>
        <message key="xmlui.administrative.group.ManageGroupsMain.no_results">Your search found no results...</message>

<!-- org.dspace.app.xmlui.administrative.group.EditGroupForm -->
<message key="xmlui.administrative.group.EditGroupForm.title">Group Editor</message>
<message key="xmlui.administrative.group.EditGroupForm.trail">Edit group</message>
<message key="xmlui.administrative.group.EditGroupForm.main_head">Group Editor: {0} (id: {1})</message>
<message key="xmlui.administrative.group.EditGroupForm.main_head_new">Group Editor: new group</message>
<message key="xmlui.administrative.group.EditGroupForm.submit_clear">Clear search</message>
<message key="xmlui.administrative.group.EditGroupForm.member">Member</message>
<message key="xmlui.administrative.group.EditGroupForm.cycle">Cycle</message>
<message key="xmlui.administrative.group.EditGroupForm.pending">Pending</message>
<message key="xmlui.administrative.group.EditGroupForm.pending_warn">Note, pending changes are not saved until
you click the save button.</message>
        <message key="xmlui.administrative.group.EditGroupForm.submit_add">Add</message>
        <message key="xmlui.administrative.group.EditGroupForm.submit_remove">Remove</message>
        <message key="xmlui.administrative.group.EditGroupForm.collection_para">This group is associated with collection:
</message>

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    <message key="xmlui.administrative.group.EditGroupForm.label_name">Change group name: </message>
    <message key="xmlui.administrative.group.EditGroupForm.label_instructions">This group is associated with a specific
collection and the name cannot be modified.</message>
    <message key="xmlui.administrative.group.EditGroupForm.label_search">Search members to add: </message>
    <message key="xmlui.administrative.group.EditGroupForm.submit_search_people">E-People...</message>
    <message key="xmlui.administrative.group.EditGroupForm.submit_search_groups">Groups...</message>
    <message key="xmlui.administrative.group.EditGroupForm.no_results">Your search found no results...</message>
    <message key="xmlui.administrative.group.EditGroupForm.epeople_column1">ID</message>
    <message key="xmlui.administrative.group.EditGroupForm.epeople_column2">Name</message>
    <message key="xmlui.administrative.group.EditGroupForm.epeople_column3">Email</message>
    <message key="xmlui.administrative.group.EditGroupForm.epeople_column4"></message>
    <message key="xmlui.administrative.group.EditGroupForm.groups_column1">ID</message>
    <message key="xmlui.administrative.group.EditGroupForm.groups_column2">Name</message>
    <message key="xmlui.administrative.group.EditGroupForm.groups_column3">Members</message>
    <message key="xmlui.administrative.group.EditGroupForm.groups_column4">Collection</message>
    <message key="xmlui.administrative.group.EditGroupForm.groups_column5"></message>
    <message key="xmlui.administrative.group.ManageGroupsMain.groups_collection_link">view</message>
    <message key="xmlui.administrative.group.EditGroupForm.members_head">Members</message>
    <message key="xmlui.administrative.group.EditGroupForm.members_column1">ID</message>
    <message key="xmlui.administrative.group.EditGroupForm.members_column2">Name</message>
    <message key="xmlui.administrative.group.EditGroupForm.members_column3">Email</message>
    <message key="xmlui.administrative.group.EditGroupForm.members_column4"></message>
    <message key="xmlui.administrative.group.EditGroupForm.members_group_name">group: {0}</message>
    <message key="xmlui.administrative.group.EditGroupForm.members_none">This group has no members.</message>
    <message key="xmlui.administrative.group.EditGroupForm.members_pending">[pending]</message>
    <message key="xmlui.administrative.group.EditGroupForm.instructions_para">Remove members</message>
    <message key="xmlui.administrative.group.EditGroupForm.collection_link_para">Remove members</message>

<!-- org.dspace.app.xmlui.administrative.group.DeleteGroupsConfirm -->
<message key="xmlui.administrative.group.DeleteGroupsConfirm.title">Confirm Group Deletion</message>
<message key="xmlui.administrative.group.DeleteGroupsConfirm.trail">Confirm Delete</message>
<message key="xmlui.administrative.group.DeleteGroupsConfirm.head">Confirm Deletion</message>
<message key="xmlui.administrative.group.DeleteGroupsConfirm.para">The following Groups will be
deleted:</message>
    <message key="xmlui.administrative.group.DeleteGroupsConfirm.column1">ID</message>
    <message key="xmlui.administrative.group.DeleteGroupsConfirm.column2">Name</message>
    <message key="xmlui.administrative.group.DeleteGroupsConfirm.column3">E-People</message>
    <message key="xmlui.administrative.group.DeleteGroupsConfirm.column4">Groups</message>

<!-- general items for all of the registries classes -->
<message key="xmlui.administrative.registries.general.format_registry_trail">Format registry</message>
<message key="xmlui.administrative.registries.general.metadata_registry_trail">Metadata registry</message>

<!-- org.dspace.app.xmlui.administrative.registries.DeleteBitstreamFormatsConfirm.java -->
<message key="xmlui.administrative.registries.DeleteBitstreamFormatsConfirm.title">Delete Bitstream
Formats</message>
    <message key="xmlui.administrative.registries.DeleteBitstreamFormatsConfirm.trail">Delete bitstream
formats</message>
    <message key="xmlui.administrative.registries.DeleteBitstreamFormatsConfirm.head">Confirm Deletion</message>
    <message key="xmlui.administrative.registries.DeleteBitstreamFormatsConfirm.para1">Are you sure the format should be
deleted? Any existing bitstreams of this format will be reverted to the unknown bitstream format.</message>
    <message key="xmlui.administrative.registries.DeleteBitstreamFormatsConfirm.column1">ID</message>
    <message key="xmlui.administrative.registries.DeleteBitstreamFormatsConfirm.column2">MIME Type</message>
    <message key="xmlui.administrative.registries.DeleteBitstreamFormatsConfirm.column3">Name</message>

<!-- org.dspace.app.xmlui.administrative.registries.DeleteMetadataFieldsConfirm.java -->
<message key="xmlui.administrative.registries.DeleteMetadataFieldsConfirm.title">Delete Fields</message>
<message key="xmlui.administrative.registries.DeleteMetadataFieldsConfirm.trail">Delete fields</message>
<message key="xmlui.administrative.registries.DeleteMetadataFieldsConfirm.head">Confirm Deletion</message>
<message key="xmlui.administrative.registries.DeleteMetadataFieldsConfirm.para1">Are you <b>absolutely</b> sure
you want to delete these fields? If any items contain metadata for these fields, the field(s) cannot be deleted. You must ensure that no
items use these fields.</message>
    <message key="xmlui.administrative.registries.DeleteMetadataFieldsConfirm.warning">WARNING: </message>
    <message key="xmlui.administrative.registries.DeleteMetadataFieldsConfirm.para2">This will cause an error if any item
contains metadata for these fields.</message>
    <message key="xmlui.administrative.registries.DeleteMetadataFieldsConfirm.column1">ID</message>
    <message key="xmlui.administrative.registries.DeleteMetadataFieldsConfirm.column2">Name</message>
    <message key="xmlui.administrative.registries.DeleteMetadataFieldsConfirm.column3">Scope Note</message>

<!-- org.dspace.app.xmlui.administrative.registries.DeleteMetadataSchemaConfirm.java-->

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<message key="xmlui.administrative.registries.DeleteMetadataSchemaConfirm.title">Delete Schema</message>
<message key="xmlui.administrative.registries.DeleteMetadataSchemaConfirm.trail">Delete schema</message>
<message key="xmlui.administrative.registries.DeleteMetadataSchemaConfirm.head">Confirm Deletion</message>
<message key="xmlui.administrative.registries.DeleteMetadataSchemaConfirm.para1">Are you <b>absolutely</b> sure
you want to delete this schema? If any items contain metadata for fields contained within this schema, the schema cannot be deleted.
You must ensure that no items contain metadata in this schema.</message>
<message key="xmlui.administrative.registries.DeleteMetadataSchemaConfirm.warning">WARNING: </message>
<message key="xmlui.administrative.registries.DeleteMetadataSchemaConfirm.para2">This will cause an error if any item
contains metadata within this schema.</message>
<message key="xmlui.administrative.registries.DeleteMetadataSchemaConfirm.column1">ID</message>
<message key="xmlui.administrative.registries.DeleteMetadataSchemaConfirm.column2">Namespace</message>
<message key="xmlui.administrative.registries.DeleteMetadataSchemaConfirm.column3">Name</message>

<!-- org.dspace.app.xmlui.administrative.registries.EditBitstreamFormat.java -->
<message key="xmlui.administrative.registries.EditBitstreamFormat.title">Bitstream Format</message>
<message key="xmlui.administrative.registries.EditBitstreamFormat.trail">Bitstream format</message>
<message key="xmlui.administrative.registries.EditBitstreamFormat.head1">New bitstream format</message>
<message key="xmlui.administrative.registries.EditBitstreamFormat.head2">Bitstream format: {0}</message>
<message key="xmlui.administrative.registries.EditBitstreamFormat.para1">Provide descriptive metadata about the
bitstream format below. While format names must be unique, MIME types do not need to be. You may have separate format registry
entries for different versions of Microsoft Word, even though the MIME type will be the same for each of them.</message>
<message key="xmlui.administrative.registries.EditBitstreamFormat.name">Name</message>
<message key="xmlui.administrative.registries.EditBitstreamFormat.name_help">A unique name for this format, (e.g.
Microsoft Word XP or Microsoft Word 2000)</message>
<message key="xmlui.administrative.registries.EditBitstreamFormat.name_error">The name field is required.</message>
<message key="xmlui.administrative.registries.EditBitstreamFormat.mimetype">MIME Type</message>
<message key="xmlui.administrative.registries.EditBitstreamFormat.mimetype_help">The MIME type associated with
this format, does not have to be unique.</message>
<message key="xmlui.administrative.registries.EditBitstreamFormat.description">Description</message>
<message key="xmlui.administrative.registries.EditBitstreamFormat.support">Support level</message>
<message key="xmlui.administrative.registries.EditBitstreamFormat.support_help">The level of support your institution
pledges for this format.</message>
<message key="xmlui.administrative.registries.EditBitstreamFormat.support_0">Unknown</message>
<message key="xmlui.administrative.registries.EditBitstreamFormat.support_1">Known</message>
<message key="xmlui.administrative.registries.EditBitstreamFormat.support_2">Supported</message>
<message key="xmlui.administrative.registries.EditBitstreamFormat.internal">Internal</message>
<message key="xmlui.administrative.registries.EditBitstreamFormat.internal_help">Formats marked as internal are are
hidden from the user, and used for administrative purposes.</message>
<message key="xmlui.administrative.registries.EditBitstreamFormat.extensions">File extensions</message>
<message key="xmlui.administrative.registries.EditBitstreamFormat.extensions_help">Extensions are file extensions that
are used to automatically identify the format of uploaded files. You can enter several extensions for each format.</message>

<!-- org.dspace.app.xmlui.administrative.registries.EditMetadataSchema.java -->
<message key="xmlui.administrative.registries.EditMetadataSchema.title">Metadata Schema</message>
<message key="xmlui.administrative.registries.EditMetadataSchema.trail">Metadata schema</message>
<message key="xmlui.administrative.registries.EditMetadataSchema.head1">Metadata Schema: "{0}"</message>
<message key="xmlui.administrative.registries.EditMetadataSchema.para1">This is the metadata schema for "{0}". You
may add new or update existing metadata fields to this schema. Fields may also be selected for deletion or be moved to another
schema. </message>
<message key="xmlui.administrative.registries.EditMetadataSchema.head2">Schema metadata fields</message>
<message key="xmlui.administrative.registries.EditMetadataSchema.column1"></message>
<message key="xmlui.administrative.registries.EditMetadataSchema.column2">ID</message>
<message key="xmlui.administrative.registries.EditMetadataSchema.column3">Field</message>
<message key="xmlui.administrative.registries.EditMetadataSchema.column4">Scope Note</message>
<message key="xmlui.administrative.registries.EditMetadataSchema.empty">No metadata fields</message>
<message key="xmlui.administrative.registries.EditMetadataSchema.submit_delete">Delete fields</message>
<message key="xmlui.administrative.registries.EditMetadataSchema.submit_move">Move fields to another
schema</message>
<message key="xmlui.administrative.registries.EditMetadataSchema.head3">Add new metadata field</message>
<message key="xmlui.administrative.registries.EditMetadataSchema.name">Field Name</message>
<message key="xmlui.administrative.registries.EditMetadataSchema.note">Scope Note</message>
<message key="xmlui.administrative.registries.EditMetadataSchema.note_help">Additional notes about this metadata
field.</message>
<message key="xmlui.administrative.registries.EditMetadataSchema.submit_add">Add new metadata field</message>
<message key="xmlui.administrative.registries.EditMetadataSchema.head4">Update Field: {0}</message>
<message key="xmlui.administrative.registries.EditMetadataSchema.submit_update">Update field</message>
<message key="xmlui.administrative.registries.EditMetadataSchema.error">Error</message>
<message key="xmlui.administrative.registries.EditMetadataSchema.error_duplicate_field">The field name is already in
use, all element and qualifiers must be unique.</message>

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    <message key="xmlui.administrative.registries.EditMetadataSchema.error_element_empty">The field's element is
required.</message>
    <message key="xmlui.administrative.registries.EditMetadataSchema.error_element_badchar">The field's element contains
a bad character. The element may NOT contain: periods, underscores, or spaces.</message>
    <message key="xmlui.administrative.registries.EditMetadataSchema.error_element_tolong">The field's element is too long,
it must be less than 32 characters.</message>
    <message key="xmlui.administrative.registries.EditMetadataSchema.error_qualifier_tolong">The field's qualifier is too
long, it must be less than 32 characters.</message>
    <message key="xmlui.administrative.registries.EditMetadataSchema.error_qualifier_badchar">The field's qualifier
contains a bad character. The qualifier may NOT contain: periods, underscores, or spaces.</message>

<!-- org.dspace.app.xmlui.administrative.registries.FormatRegistryMain.java -->
<message key="xmlui.administrative.registries.FormatRegistryMain.title">Format Registry</message>
<message key="xmlui.administrative.registries.FormatRegistryMain.head">Bitstream format registry</message>
<message key="xmlui.administrative.registries.FormatRegistryMain.para1">This list of bitstream formats provides
information about known formats and their support level. You can edit or add new bitstream formats with this tool. Formats marked as
'internal' are hidden from the user, and are used for administrative purposes.</message>
<message key="xmlui.administrative.registries.FormatRegistryMain.new_link">Add a new bitstream format</message>
<message key="xmlui.administrative.registries.FormatRegistryMain.column1"></message>
<message key="xmlui.administrative.registries.FormatRegistryMain.column2">ID</message>
<message key="xmlui.administrative.registries.FormatRegistryMain.column3">Name</message>
<message key="xmlui.administrative.registries.FormatRegistryMain.column4">MIME Type</message>
<message key="xmlui.administrative.registries.FormatRegistryMain.column5">Support Level</message>
<message key="xmlui.administrative.registries.FormatRegistryMain.internal"><i>internal</i></message>
<message key="xmlui.administrative.registries.FormatRegistryMain.support_0">Unknown</message>
<message key="xmlui.administrative.registries.FormatRegistryMain.support_1">Known</message>
<message key="xmlui.administrative.registries.FormatRegistryMain.support_2">Support</message>
<message key="xmlui.administrative.registries.FormatRegistryMain.submit_delete">Delete formats</message>

<!-- org.dspace.app.xmlui.administrative.registries.MetadataRegistryMain.java -->
<message key="xmlui.administrative.registries.MetadataRegistryMain.title">Metadata Registry</message>
<message key="xmlui.administrative.registries.MetadataRegistryMain.head1">Metadata registry</message>
<message key="xmlui.administrative.registries.MetadataRegistryMain.para1">The metadata registry maintains a list of all
metadata fields available in the repository. These fields may be divided amongst multiple schemas. However, Alexandria requires the
qualified Dublin Core schema. You may extend the Dublin Core schema with additional fields or add new schemas to the
registry.</message>
<message key="xmlui.administrative.registries.MetadataRegistryMain.column1"></message>
<message key="xmlui.administrative.registries.MetadataRegistryMain.column2">ID</message>
<message key="xmlui.administrative.registries.MetadataRegistryMain.column3">Namespace</message>
<message key="xmlui.administrative.registries.MetadataRegistryMain.column4">Name</message>
<message key="xmlui.administrative.registries.MetadataRegistryMain.submit_delete">Delete schema</message>
<message key="xmlui.administrative.registries.MetadataRegistryMain.head2">Add a new schema</message>
<message key="xmlui.administrative.registries.MetadataRegistryMain.namespace">Namespace</message>
<message key="xmlui.administrative.registries.MetadataRegistryMain.namespace_help">Namespace should be an
established URI location for the new schema.</message>
<message key="xmlui.administrative.registries.MetadataRegistryMain.namespace_error">This field is
required.</message>
<message key="xmlui.administrative.registries.MetadataRegistryMain.name">Name</message>
<message key="xmlui.administrative.registries.MetadataRegistryMain.name_help">Shorthand notation for the schema.
This will be used to prefix a field's name (e.g. dc.element.qualifier). The name must be less than 32 characters and cannot include
spaces, periods or underscores.</message>
<message key="xmlui.administrative.registries.MetadataRegistryMain.name_error">This field is required and must be less
than 32 characters and cannot contain any spaces, periods, or underscores.</message>
<message key="xmlui.administrative.registries.MetadataRegistryMain.submit_add">Add new schema</message>

<!-- org.dspace.app.xmlui.administrative.registries.MoveMetadataField.java -->
<message key="xmlui.administrative.registries.MoveMetadataField.title">Move Fields</message>
<message key="xmlui.administrative.registries.MoveMetadataField.trail">Move fields</message>
<message key="xmlui.administrative.registries.MoveMetadataField.head1">Move metadata fields</message>
<message key="xmlui.administrative.registries.MoveMetadataField.para1">Select a target schema where these fields will
be moved. If the target schema already has fields with identical names the fields will not be moved.</message>
<message key="xmlui.administrative.registries.MoveMetadataField.column1">ID</message>
<message key="xmlui.administrative.registries.MoveMetadataField.column2">Name</message>
<message key="xmlui.administrative.registries.MoveMetadataField.column3">Scope Note</message>
<message key="xmlui.administrative.registries.MoveMetadataField.para2">Move to schema: </message>
<message key="xmlui.administrative.registries.MoveMetadataField.submit_move">Move fields</message>

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<!-- general authorization keywords -->
<message key="xmlui.administrative.authorization.general.authorize_trail">Authorization</message>
<message key="xmlui.administrative.authorization.general.policyList_trail">Policy List</message>

<!-- org.dspace.app.xmlui.administrative.authorization.AuthorizationMain -->
<message key="xmlui.administrative.authorization.AuthorizationMain.title">Administer Authorization
Policies</message>
<message key="xmlui.administrative.authorization.AuthorizationMain.main_head">Administer Authorization
Policies</message>
<message key="xmlui.administrative.authorization.AuthorizationMain.actions_head">Item authorizations</message>
<message key="xmlui.administrative.authorization.AuthorizationMain.bad_name">The ID you supplied did not resolve to
an item</message>
<message key="xmlui.administrative.authorization.AuthorizationMain.actions_item_lookup">Look up an item</message>
<message key="xmlui.administrative.authorization.AuthorizationMain.search_help">Items may be found by handle or
internal ID</message>
<message key="xmlui.administrative.authorization.AuthorizationMain.submit_find">Find</message>
<message key="xmlui.administrative.authorization.AuthorizationMain.actions_advanced">Advanced authorizations
tool</message>
<message key="xmlui.administrative.authorization.AuthorizationMain.actions_advanced_link">Click here to go to the
item wildcard policy admin tool</message>
<message key="xmlui.administrative.authorization.AuthorizationMain.containerList_head">Community/collection
authorizations</message>
<message key="xmlui.administrative.authorization.AuthorizationMain.containerList_para">Click on a community or
collection to edit its policies.</message>

<!-- org.dspace.app.xmlui.administrative.authorization.EditContainerPolicies -->
<message key="xmlui.administrative.authorization.EditContainerPolicies.title">Edit Policies</message>
<message key="xmlui.administrative.authorization.EditContainerPolicies.trail">Policies List</message>
<message key="xmlui.administrative.authorization.EditContainerPolicies.main_head_collection">Policies for Collection
"{0}" ({1},ID: {2})</message>
<message key="xmlui.administrative.authorization.EditContainerPolicies.main_head_community">Policies for
Community "{0}" ({1},ID: {2})</message>
<message key="xmlui.administrative.authorization.EditContainerPolicies.main_add_link">Click here to add a new policy.
</message>
<message key="xmlui.administrative.authorization.EditContainerPolicies.submit_add">Add</message>
<message key="xmlui.administrative.authorization.EditContainerPolicies.head_id">ID</message>
<message key="xmlui.administrative.authorization.EditContainerPolicies.head_action">Action</message>
<message key="xmlui.administrative.authorization.EditContainerPolicies.head_group">Group</message>
<message key="xmlui.administrative.authorization.EditContainerPolicies.submit_delete">Delete Selected</message>
<message key="xmlui.administrative.authorization.EditContainerPolicies.group_edit">Edit</message>

<!-- org.dspace.app.xmlui.administrative.authorization.EditItemPolicies -->
<message key="xmlui.administrative.authorization.EditItemPolicies.title">Edit Item's Policies</message>
<message key="xmlui.administrative.authorization.EditItemPolicies.trail">Policies List</message>
<message key="xmlui.administrative.authorization.EditItemPolicies.main_head">Policies for Item {0}
(ID={1})</message>
<message key="xmlui.administrative.authorization.EditItemPolicies.main_para1">With this editor you can view and alter
the policies of an item, plus alter policies of individual item components: bundles and bitstreams. Briefly, an item is a container of
bundles, and bundles are containers of bitstreams. Containers usually have ADD/REMOVE/READ/WRITE policies, while bitstreams
only have READ/WRITE policies.</message>
<message key="xmlui.administrative.authorization.EditItemPolicies.main_para2">You will notice an extra bundle and
bitstream for each item containing the license text for the item.</message>
<message key="xmlui.administrative.authorization.EditItemPolicies.subhead_item">Item Policies</message>
<message key="xmlui.administrative.authorization.EditItemPolicies.subhead_bundle">Policies for Bundle {0}
({1})</message>
<message key="xmlui.administrative.authorization.EditItemPolicies.subhead_bitstream">Bitstream {0} ({1})</message>
<message key="xmlui.administrative.authorization.EditItemPolicies.add_itemPolicy_link">Add a new Item
policy</message>
<message key="xmlui.administrative.authorization.EditItemPolicies.add_bundlePolicy_link">Add a new Bundle
policy</message>
<message key="xmlui.administrative.authorization.EditItemPolicies.add_bitstreamPolicy_link">Add a new Bitstream
policy</message>

<message key="xmlui.administrative.authorization.EditContainerPolicies.no_policies">No policies found for this
object.</message>

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<!-- org.dspace.app.xmlui.administrative.authorization.EditPolicyForm -->
<message key="xmlui.administrative.authorization.EditPolicyForm.title">Edit Policy</message>
<message key="xmlui.administrative.authorization.EditPolicyForm.trail">Edit Policy</message>
<message key="xmlui.administrative.authorization.EditPolicyForm.main_head_new">Create new policy for {0}
{1}</message>
  <message key="xmlui.administrative.authorization.EditPolicyForm.main_head_edit">Edit policy {0} for {1}
{2}</message>
  <message key="xmlui.administrative.authorization.EditPolicyForm.error_no_group">No group selected</message>
  <message key="xmlui.administrative.authorization.EditPolicyForm.error_no_action">No action selected</message>
  <message key="xmlui.administrative.authorization.EditPolicyForm.groups_column4"></message>
  <message key="xmlui.administrative.authorization.EditPolicyForm.groups_column1">ID</message>
  <message key="xmlui.administrative.authorization.EditPolicyForm.groups_column2">Name</message>
  <message key="xmlui.administrative.authorization.EditPolicyForm.groups_column3">Actions for this
resource</message>

  <message key="xmlui.administrative.authorization.EditPolicyForm.set_group">Set</message>
  <message key="xmlui.administrative.authorization.EditPolicyForm.current_group">current</message>
  <message key="xmlui.administrative.authorization.EditPolicyForm.groups_head">Search Results</message>
  <message key="xmlui.administrative.authorization.EditPolicyForm.policy_currentGroup">Select a group</message>
  <message key="xmlui.administrative.authorization.EditPolicyForm.label_search">Search for a group</message>
  <message key="xmlui.administrative.authorization.EditPolicyForm.submit_search_groups">Search</message>
  <message key="xmlui.administrative.authorization.EditPolicyForm.label_action">Select the action</message>

  <!-- org.dspace.app.xmlui.administrative.authorization.AdvacedAuthorizationsForm -->
  <message key="xmlui.administrative.authorization.AdvacedAuthorizationsForm.title">Advanced Policy
Manager</message>
  <message key="xmlui.administrative.authorization.AdvacedAuthorizationsForm.trail">Advanced
Authorizations</message>
  <message key="xmlui.administrative.authorization.AdvacedAuthorizationsForm.main_head">Advanced Policy
Manager</message>
  <message key="xmlui.administrative.authorization.AdvacedAuthorizationsForm.main_para">Allows wildcard additions to
and clearing of policies for types of content within specific collection(s). WARNING - removing READ permissions from items will
make them not viewable!</message>
  <message key="xmlui.administrative.authorization.AdvacedAuthorizationsForm.actions_groupSentence">For all of the
selected groups...</message>
  <message key="xmlui.administrative.authorization.AdvacedAuthorizationsForm.actions_actionSentence">...grant the ability to
perform the following action...</message>
  <message key="xmlui.administrative.authorization.AdvacedAuthorizationsForm.actions_resourceSentence">...for all
following object types...</message>
  <message key="xmlui.administrative.authorization.AdvacedAuthorizationsForm.actions_collectionSentence">...across the
following collections.</message>
  <message key="xmlui.administrative.authorization.AdvacedAuthorizationsForm.actions_policyGroup">Group</message>
  <message
key="xmlui.administrative.authorization.AdvacedAuthorizationsForm.actions_policyAction">Action</message>
  <message key="xmlui.administrative.authorization.AdvacedAuthorizationsForm.actions_policyResource">Content
Type</message>
  <message
key="xmlui.administrative.authorization.AdvacedAuthorizationsForm.actions_policyCollections">Collection</message>
  <message key="xmlui.administrative.authorization.AdvacedAuthorizationsForm.submit_add">Add policies</message>
  <message key="xmlui.administrative.authorization.AdvacedAuthorizationsForm.submit_remove_all">Clear
policies</message>

  <!-- org.dspace.app.xmlui.administrative.authorization.DeletePoliciesConfirm -->
  <message key="xmlui.administrative.authorization.DeletePoliciesConfirm.title">Confirm Policy Deletion</message>
  <message key="xmlui.administrative.authorization.DeletePoliciesConfirm.trail">Confirm Delete</message>
  <message key="xmlui.administrative.authorization.DeletePoliciesConfirm.confirm_head">Confirm Deletion</message>
  <message key="xmlui.administrative.authorization.DeletePoliciesConfirm.confirm_para">The following Policies will be
removed:</message>
  <message key="xmlui.administrative.authorization.DeletePoliciesConfirm.head_id">ID</message>
  <message key="xmlui.administrative.authorization.DeletePoliciesConfirm.head_action">Action</message>
  <message key="xmlui.administrative.authorization.DeletePoliciesConfirm.head_group">Group</message>

  <!-- general edit item messages -->
  <message key="xmlui.administrative.item.general.item_trail">Items</message>
  <message key="xmlui.administrative.item.general.option_head">Edit Item</message>
  <message key="xmlui.administrative.item.general.option_status">Item Status</message>
  <message key="xmlui.administrative.item.general.option_bitstreams">Item Bitstreams</message>
  <message key="xmlui.administrative.item.general.option_metadata">Item Metadata</message>

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<message key="xmlui.administrative.item.general.option_view">View Item</message>

<!-- org.dspace.app.xmlui.administrative.item.AddBitstreamForm -->
<message key="xmlui.administrative.item.AddBitstreamForm.title">Upload Bitstream</message>
<message key="xmlui.administrative.item.AddBitstreamForm.trail">Upload bitstream</message>
<message key="xmlui.administrative.item.AddBitstreamForm.head1">Upload a new bitstream</message>
<message key="xmlui.administrative.item.AddBitstreamForm.bundle_label">Bundle</message>
<message key="xmlui.administrative.item.AddBitstreamForm.bundle.ORIGINAL">Content Files (default)</message>
<message key="xmlui.administrative.item.AddBitstreamForm.bundle.METADATA">Metadata Files</message>
<message key="xmlui.administrative.item.AddBitstreamForm.bundle.THUMBNAIL">Thumbnails</message>
<message key="xmlui.administrative.item.AddBitstreamForm.bundle.LICENSE">Licenses</message>
Licenses</message>
<message key="xmlui.administrative.item.AddBitstreamForm.file_label">File</message>
<message key="xmlui.administrative.item.AddBitstreamForm.file_help">Please enter the name of the file on your
computer corresponding to your item. If you click "Browse...", a new window will appear in which you can locate and select the file
from your computer.</message>
<message key="xmlui.administrative.item.AddBitstreamForm.description_label">Description</message>
<message key="xmlui.administrative.item.AddBitstreamForm.description_help">Optionally, provide a brief description of
the file, for example "<i>Main article</i>", or "<i>Experiment data readings</i>".</message>
<message key="xmlui.administrative.item.AddBitstreamForm.submit_upload">Upload</message>
<message key="xmlui.administrative.item.AddBitstreamForm.no_bundles">You need the ADD & WRITE privilege
on at least one bundle to be able to upload new bitstreams.</message>

<!-- org.dspace.app.xmlui.administrative.item.DeleteBitstreamConfirm -->
<message key="xmlui.administrative.item.DeleteBitstreamConfirm.title">Confirm Deletion</message>
<message key="xmlui.administrative.item.DeleteBitstreamConfirm.trail">Confirm deletion</message>
<message key="xmlui.administrative.item.DeleteBitstreamConfirm.head1">Confirm Deletion(s)</message>
<message key="xmlui.administrative.item.DeleteBitstreamConfirm.para1">Are you sure you want to delete these
bitstreams:</message>
<message key="xmlui.administrative.item.DeleteBitstreamConfirm.column1">Name</message>
<message key="xmlui.administrative.item.DeleteBitstreamConfirm.column2">Description</message>
<message key="xmlui.administrative.item.DeleteBitstreamConfirm.column3">Format</message>

<!-- org.dspace.app.xmlui.administrative.item.ConfirmItemForm -->
<message key="xmlui.administrative.item.ConfirmItemForm.title">Confirm</message>
<message key="xmlui.administrative.item.ConfirmItemForm.trail">Confirm</message>
<message key="xmlui.administrative.item.ConfirmItemForm.head1">Modify item: {0}</message>
<message key="xmlui.administrative.item.ConfirmItemForm.para_delete">Are you sure this item should be completely
deleted? Caution: At present, no tombstone would be left.</message>
<message key="xmlui.administrative.item.ConfirmItemForm.para_withdraw">Are you sure this item should be withdrawn
from the archive?</message>
<message key="xmlui.administrative.item.ConfirmItemForm.para_reinstate">Are you sure this item should be reinstated
to the archive?</message>
<message key="xmlui.administrative.item.ConfirmItemForm.column1">Field</message>
<message key="xmlui.administrative.item.ConfirmItemForm.column2">Value</message>
<message key="xmlui.administrative.item.ConfirmItemForm.column3">Language</message>
<message key="xmlui.administrative.item.ConfirmItemForm.submit_withdraw">Withdraw</message>
<message key="xmlui.administrative.item.ConfirmItemForm.submit_reinstate">Reinstate</message>

<!-- org.dspace.app.xmlui.administrative.item.EditBitstreamForm -->
<message key="xmlui.administrative.item.EditBitstreamForm.title">Edit Bitstream</message>
<message key="xmlui.administrative.item.EditBitstreamForm.trail">Edit bitstream</message>
<message key="xmlui.administrative.item.EditBitstreamForm.head1">Edit Bitstream</message>
<message key="xmlui.administrative.item.EditBitstreamForm.file_label">File</message>
<message key="xmlui.administrative.item.EditBitstreamForm.primary_label">Primary bitstream</message>
<message key="xmlui.administrative.item.EditBitstreamForm.primary_option_yes">yes</message>
<message key="xmlui.administrative.item.EditBitstreamForm.primary_option_no">no</message>
<message key="xmlui.administrative.item.EditBitstreamForm.description_label">Description</message>
<message key="xmlui.administrative.item.EditBitstreamForm.description_help">Optionally, provide a brief description of
the file, for example "<i>Main article</i>", or "<i>Experiment data readings</i>".</message>
<message key="xmlui.administrative.item.EditBitstreamForm.para1">Select the format of the file from the list below, for
example "<i>Adobe PDF</i>" or "<i>Microsoft Word</i>", <b>OR</b> if the format is not in the list, please describe it in the box
below.</message>
<message key="xmlui.administrative.item.EditBitstreamForm.format_label">Selected Format</message>
<message key="xmlui.administrative.item.EditBitstreamForm.format_default">Format not in list</message>
<message key="xmlui.administrative.item.EditBitstreamForm.para2">If the format is not in the above list, <strong>select
"format not in list" above</strong> and describe it in the field below.</message>
<message key="xmlui.administrative.item.EditBitstreamForm.user_label">Other Format</message>

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<message key="xmlui.administrative.item.EditBitstreamForm.user\_help">The application you used to create the file, and the version number (for example, "<i>ACMESoft SuperApp version 1.5</i>").</message>

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<!-- org.dspace.app.xmlui.administrative.item.EditItemBitstreamsForm -->
<message key="xmlui.administrative.item.EditItemBitstreamsForm.title">Item Bitstreams</message>
<message key="xmlui.administrative.item.EditItemBitstreamsForm.trail">Item bitstreams</message>
<message key="xmlui.administrative.item.EditItemBitstreamsForm.head1">Bitstreams</message>
<message key="xmlui.administrative.item.EditItemBitstreamsForm.column1"></message>
<message key="xmlui.administrative.item.EditItemBitstreamsForm.column2">Name</message>
<message key="xmlui.administrative.item.EditItemBitstreamsForm.column3">Description</message>
<message key="xmlui.administrative.item.EditItemBitstreamsForm.column4">Format</message>
<message key="xmlui.administrative.item.EditItemBitstreamsForm.column5">View</message>
<message key="xmlui.administrative.item.EditItemBitstreamsForm.bundle_label"><strong>Bundle:
{0}</strong></message>
<message key="xmlui.administrative.item.EditItemBitstreamsForm.primary_label"> (primary) </message>
<message key="xmlui.administrative.item.EditItemBitstreamsForm.view_link">view</message>
<message key="xmlui.administrative.item.EditItemBitstreamsForm.submit_add">Upload a new bitstream</message>
<message key="xmlui.administrative.item.EditItemBitstreamsForm.submit_delete">Delete bitstreams</message>
<message key="xmlui.administrative.item.EditItemBitstreamsForm.no_upload">You need the ADD &amp; WRITE
privilege on the item and bundles to be able to upload new bitstreams.</message>
<message key="xmlui.administrative.item.EditItemBitstreamsForm.no_remove">You need the REMOVE privilege on the
item and bundles to be able to delete bitstreams.</message>
```

```
<!-- org.dspace.app.xmlui.administrative.item.EditItemMetadataForm -->
<message key="xmlui.administrative.item.EditItemMetadataForm.title">Item Metadata</message>
<message key="xmlui.administrative.item.EditItemMetadataForm.trail">Item metadata</message>
<message key="xmlui.administrative.item.EditItemMetadataForm.head1">Add new metadata</message>
<message key="xmlui.administrative.item.EditItemMetadataForm.name_label">Name</message>
<message key="xmlui.administrative.item.EditItemMetadataForm.value_label">Value</message>
<message key="xmlui.administrative.item.EditItemMetadataForm.lang_label">Language</message>
<message key="xmlui.administrative.item.EditItemMetadataForm.submit_add">Add new metadata</message>
<message key="xmlui.administrative.item.EditItemMetadataForm.para1">PLEASE NOTE: These changes are not
validated in any way. You are responsible for entering the data in the correct format. If you are not sure what the format is, please do
NOT make changes.</message>
```

```
<message key="xmlui.administrative.item.EditItemMetadataForm.head2">Metadata</message>
<message key="xmlui.administrative.item.EditItemMetadataForm.column1">Remove</message>
<message key="xmlui.administrative.item.EditItemMetadataForm.column2">Name</message>
<message key="xmlui.administrative.item.EditItemMetadataForm.column3">Value</message>
<message key="xmlui.administrative.item.EditItemMetadataForm.column4">Language</message>
```

```
<!-- org.dspace.app.xmlui.administrative.item.EditItemStatusForm -->
<message key="xmlui.administrative.item.EditItemStatusForm.title">Item Status</message>
<message key="xmlui.administrative.item.EditItemStatusForm.trail">Item status</message>
<message key="xmlui.administrative.item.EditItemStatusForm.para1">Welcome to the item management page. From here
you can withdraw, reinstate or delete the item. You may also update or add new metadata / bitstreams on the other tabs.</message>
<message key="xmlui.administrative.item.EditItemStatusForm.label_id">Item Internal ID</message>
<message key="xmlui.administrative.item.EditItemStatusForm.label_handle">Handle</message>
<message key="xmlui.administrative.item.EditItemStatusForm.label_modified">Last Modified</message>
<message key="xmlui.administrative.item.EditItemStatusForm.label_in">In Collections</message>
<message key="xmlui.administrative.item.EditItemStatusForm.label_page">Item Page</message>
<message key="xmlui.administrative.item.EditItemStatusForm.label_auth">Item's Authorizations</message>
<message key="xmlui.administrative.item.EditItemStatusForm.label_withdraw">Withdrawn item from the
repository</message>
<message key="xmlui.administrative.item.EditItemStatusForm.label_reinstate">Reinstate item into the
repository</message>
<message key="xmlui.administrative.item.EditItemStatusForm.label_delete">Completely expunge item</message>
<message key="xmlui.administrative.item.EditItemStatusForm.submit_authorizations">Edit Authorizations</message>
<message key="xmlui.administrative.item.EditItemStatusForm.submit_withdraw">Withdraw...</message>
<message key="xmlui.administrative.item.EditItemStatusForm.submit_reinstate">Reinstate...</message>
<message key="xmlui.administrative.item.EditItemStatusForm.submit_delete">Permanently delete</message>
<message key="xmlui.administrative.item.EditItemStatusForm.na">n/a</message>
<message key="xmlui.administrative.item.EditItemStatusForm.sysadmins_only">(system administrators only)</message>
```

```
<!-- org.dspace.app.xmlui.administrative.item.ViewItem -->
<message key="xmlui.administrative.item.ViewItem.title">View Item</message>
<message key="xmlui.administrative.item.ViewItem.trail">View Item</message>
```

```
<!-- org.dspace.app.xmlui.administrative.item.FindItemForm -->
<message key="xmlui.administrative.item.FindItemForm.title">Find Item</message>
<message key="xmlui.administrative.item.FindItemForm.head1">Find Item</message>
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<message key="xmlui.administrative.item.FindItemForm.identifier_label">Internal Item ID/Item Handle</message>
<message key="xmlui.administrative.item.FindItemForm.identifier_error">Unable to resolve identifier.</message>
<message key="xmlui.administrative.item.FindItemForm.find">Find</message>

<!-- general mapper messages -->
<message key="xmlui.administrative.mapper.general.mapper_trail">Item mapper</message>

<!-- org.dspace.app.xmlui.administrative.mapper.MapperMain -->
<message key="xmlui.administrative.mapper.MapperMain.title">Item Mapper</message>
<message key="xmlui.administrative.mapper.MapperMain.head1">Item Mapper - Map Items from Other
Collections</message>
<message key="xmlui.administrative.mapper.MapperMain.para1">Collection: "<strong>{0}</strong>"</message>
<message key="xmlui.administrative.mapper.MapperMain.para2">This is the item mapper tool that allows collection
administrators to map items from other collections into this collection. You can search for items from other collection and map them,
or browse the list of currently mapped items.</message>
<message key="xmlui.administrative.mapper.MapperMain.stat_label">Statistics</message>
<message key="xmlui.administrative.mapper.MapperMain.stat_info"><strong>{0}</strong> of {1}</strong> items in this collection
are mapped in from other collections</message>
<message key="xmlui.administrative.mapper.MapperMain.search_label">Search</message>
<message key="xmlui.administrative.mapper.MapperMain.submit_search">Search Items</message>
<message key="xmlui.administrative.mapper.MapperMain.submit_browse">Browse mapped items</message>
<message key="xmlui.administrative.mapper.MapperMain.no_add">(Requires the collection ADD privilege)</message>

<!-- org.dspace.app.xmlui.administrative.mapper.SearchItemForm -->
<message key="xmlui.administrative.mapper.SearchItemForm.title">Search Items</message>
<message key="xmlui.administrative.mapper.SearchItemForm.trail">Search items</message>
<message key="xmlui.administrative.mapper.SearchItemForm.head1">Search items matching: "{0}"</message>
<message key="xmlui.administrative.mapper.SearchItemForm.submit_map">Map selected items</message>
<message key="xmlui.administrative.mapper.SearchItemForm.column1"></message>
<message key="xmlui.administrative.mapper.SearchItemForm.column2">Collection</message>
<message key="xmlui.administrative.mapper.SearchItemForm.column3">Author</message>
<message key="xmlui.administrative.mapper.SearchItemForm.column4">Title</message>

<!-- org.dspace.app.xmlui.administrative.mapper.BrowseItemForm -->
<message key="xmlui.administrative.mapper.BrowseItemForm.title">Browse Mapped Items</message>
<message key="xmlui.administrative.mapper.BrowseItemForm.trail">Browse mapped items</message>
<message key="xmlui.administrative.mapper.BrowseItemForm.head1">Browsing mapped items</message>
<message key="xmlui.administrative.mapper.BrowseItemForm.submit_unmap">Unmap selected items</message>
<message key="xmlui.administrative.mapper.BrowseItemForm.column1"></message>
<message key="xmlui.administrative.mapper.BrowseItemForm.column2">Collection</message>
<message key="xmlui.administrative.mapper.BrowseItemForm.column3">Author</message>
<message key="xmlui.administrative.mapper.BrowseItemForm.column4">Title</message>
<message key="xmlui.administrative.mapper.BrowseItemForm.no_remove">You need the REMOVE privilege on this
collection to be able to unmap items from this collection.</message>

<!-- General tags for collection management -->
<message key="xmlui.administrative.collection.general.collection_trail">Collections</message>
<message key="xmlui.administrative.collection.general.options_metadata">Edit Metadata</message>
<message key="xmlui.administrative.collection.general.options_roles">Assign Roles</message>

<!-- org.dspace.app.xmlui.administrative.collection.AssignCollectionRoles.java -->
<message key="xmlui.administrative.collection.AssignCollectionRoles.title">Edit Collection Roles</message>
<message key="xmlui.administrative.collection.AssignCollectionRoles.trail">Roles</message>
<message key="xmlui.administrative.collection.AssignCollectionRoles.main_head">Edit Collection: {0}</message>
<message key="xmlui.administrative.collection.AssignCollectionRoles.no_role">none</message>
<message key="xmlui.administrative.collection.AssignCollectionRoles.create">Create...</message>
<message key="xmlui.administrative.collection.AssignCollectionRoles.restrict">Restrict...</message>
<message key="xmlui.administrative.collection.AssignCollectionRoles.help_admins">Collection administrators decide
who can submit items to the collection, withdraw items, edit item metadata (after submission), and add (map) existing items from
other collections to this collection (subject to authorization for that collection).</message>
<message key="xmlui.administrative.collection.AssignCollectionRoles.help_wf_step1">The people responsible for this
step are able to accept or reject incoming submissions. However, they are not able to edit the submission's metadata.</message>
<message key="xmlui.administrative.collection.AssignCollectionRoles.help_wf_step2">The people responsible for this
step are able to edit the metadata of incoming submissions, and then accept or reject them.</message>
<message key="xmlui.administrative.collection.AssignCollectionRoles.help_wf_step3">The people responsible for this
step are able to edit the metadata of incoming submissions, but will not be able to reject them.</message>
<message key="xmlui.administrative.collection.AssignCollectionRoles.help_submitters">The E-People and Groups that
have permission to submit new items to this collection.</message>

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    <message key="xmlui.administrative.collection.AssignCollectionRoles.help_default_read">E-People and Groups that can
read new items submitted to this collection. Changes to this role are not retroactive. Existing items in the system will still be viewable
by those who had read access at the time of their addition.</message>
    <message key="xmlui.administrative.collection.AssignCollectionRoles.default_read_custom">This collection uses custom
default access settings. </message>
    <message key="xmlui.administrative.collection.AssignCollectionRoles.default_read_anonymous">Default read for
incoming items and bitstreams is currently set to Anonymous.</message>
    <message key="xmlui.administrative.collection.AssignCollectionRoles.edit_authorization">Edit authorization policies
directly.</message>
    <message key="xmlui.administrative.collection.AssignCollectionRoles.role_name">Role</message>
    <message key="xmlui.administrative.collection.AssignCollectionRoles.role_group">Associated group</message>
    <message key="xmlui.administrative.collection.AssignCollectionRoles.role_buttons"> </message>
    <message key="xmlui.administrative.collection.AssignCollectionRoles.label_admins">Administrators</message>
    <message key="xmlui.administrative.collection.AssignCollectionRoles.label_wf_step1">Accept/Reject Step</message>
    <message key="xmlui.administrative.collection.AssignCollectionRoles.label_wf_step2">Accept/Reject/Edit Metadata
Step</message>
    <message key="xmlui.administrative.collection.AssignCollectionRoles.label_wf_step3">Edit Metadata Step</message>
    <message key="xmlui.administrative.collection.AssignCollectionRoles.label_submitters">Submitters</message>
    <message key="xmlui.administrative.collection.AssignCollectionRoles.label_default_read">Default read
access</message>
    <message key="xmlui.administrative.collection.AssignCollectionRoles.sysadmins_only"><nobr>(system administrators
only)</nobr></message>

    <!-- org.dspace.app.xmlui.administrative.collection.DeleteCollectionConfirm.java -->
    <message key="xmlui.administrative.collection.DeleteCollectionConfirm.title">Confirm Deletion</message>
    <message key="xmlui.administrative.collection.DeleteCollectionConfirm.trail">Confirm</message>
    <message key="xmlui.administrative.collection.DeleteCollectionConfirm.main_head">Confirm deletion for collection
{0}</message>
    <message key="xmlui.administrative.collection.DeleteCollectionConfirm.main_para">Are you sure collection {0} should
be deleted? This will delete:</message>
    <message key="xmlui.administrative.collection.DeleteCollectionConfirm.confirm_item1">Any items and incomplete
submissions in this collection that aren't contained in other collections</message>
    <message key="xmlui.administrative.collection.DeleteCollectionConfirm.confirm_item2">The contents of those
items</message>
    <message key="xmlui.administrative.collection.DeleteCollectionConfirm.confirm_item3">All associated authorization
policies</message>

    <!-- org.dspace.app.xmlui.administrative.collection.DeleteCollectionRoleConfirm.java -->
    <message key="xmlui.administrative.collection.DeleteCollectionRoleConfirm.title">Confirm role deletion</message>
    <message key="xmlui.administrative.collection.DeleteCollectionRoleConfirm.trail">Confirm</message>
    <message key="xmlui.administrative.collection.DeleteCollectionRoleConfirm.main_head">Confirm deletion for role
{0}</message>
    <message key="xmlui.administrative.collection.DeleteCollectionRoleConfirm.main_para_read">Are you sure you want to
delete this role? Deleting this group will give READ access to all users for all items submitted to this collection from now on. Please
note that this change is not retroactive. Existing items in the system will still be restricted to the members defined by the role you are
about to delete.</message>
    <message key="xmlui.administrative.collection.DeleteCollectionRoleConfirm.main_para">Are you sure you want to
delete this role? All changes and customizations made to the {0} group will be lost and would have to be created anew.</message>

    <!-- org.dspace.app.xmlui.administrative.collection.EditCollectionMetadataForm.java -->
    <message key="xmlui.administrative.collection.EditCollectionMetadataForm.title">Edit Collection Metadata</message>
    <message key="xmlui.administrative.collection.EditCollectionMetadataForm.trail">Metadata</message>
    <message key="xmlui.administrative.collection.EditCollectionMetadataForm.main_head">Edit Collection:
{0}</message>
    <message key="xmlui.administrative.collection.EditCollectionMetadataForm.label_name">Name</message>
    <message key="xmlui.administrative.collection.EditCollectionMetadataForm.label_short_description">Short
Description</message>
    <message key="xmlui.administrative.collection.EditCollectionMetadataForm.label_introduutory_text">Introductory text
(HTML)</message>
    <message key="xmlui.administrative.collection.EditCollectionMetadataForm.label_copyright_text">Copyright text (plain
text)</message>
    <message key="xmlui.administrative.collection.EditCollectionMetadataForm.label_side_bar_text">News
(HTML)</message>
    <message key="xmlui.administrative.collection.EditCollectionMetadataForm.label_license">License</message>
    <message
key="xmlui.administrative.collection.EditCollectionMetadataForm.label_provenance_description">Provenance</message>
    <message key="xmlui.administrative.collection.EditCollectionMetadataForm.label_logo">Upload new logo</message>
    <message key="xmlui.administrative.collection.EditCollectionMetadataForm.label_existing_logo">Current
logo</message>

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    <message key="xmlui.administrative.collection.EditCollectionMetadataForm.label_item_template">Item
template</message>
  <message
key="xmlui.administrative.collection.EditCollectionMetadataForm.submit_create_template">Create...</message>
    <message key="xmlui.administrative.collection.EditCollectionMetadataForm.submit_edit_template">Edit...</message>
    <message key="xmlui.administrative.collection.EditCollectionMetadataForm.submit_delete_logo">Remove
logo</message>
    <message key="xmlui.administrative.collection.EditCollectionMetadataForm.submit_delete">Delete
collection</message>
    <message key="xmlui.administrative.collection.EditCollectionMetadataForm.submit_save">Save updates</message>
    <message key="xmlui.administrative.collection.EditCollectionMetadataForm.sysadmins_only"><no> (system
administrators only)</no></message>

    <!-- org.dspace.app.xmlui.administrative.collection.CreateCollectionForm.java -->
    <message key="xmlui.administrative.collection.CreateCollectionForm.title">Create Collection</message>
    <message key="xmlui.administrative.collection.CreateCollectionForm.trail">Create Collection</message>
    <message key="xmlui.administrative.collection.CreateCollectionForm.main_head">Enter Metadata for a New Collection
of {0}</message>
    <message key="xmlui.administrative.collection.CreateCollectionForm.submit_save">Create</message>

    <!-- org.dspace.app.xmlui.administrative.community.DeleteCommunityConfirm.java -->
    <message key="xmlui.administrative.community.DeleteCommunityConfirm.title">Confirm Deletion</message>
    <message key="xmlui.administrative.community.DeleteCommunityConfirm.trail">Confirm</message>
    <message key="xmlui.administrative.community.DeleteCommunityConfirm.main_head">Confirm deletion for community
{0}</message>
    <message key="xmlui.administrative.community.DeleteCommunityConfirm.main_para">Are you sure community {0}
should be deleted? This will delete:</message>
    <message key="xmlui.administrative.community.DeleteCommunityConfirm.confirm_item1">Any collections in the
community that are not contained in other communities</message>
    <message key="xmlui.administrative.community.DeleteCommunityConfirm.confirm_item2">Any items and incomplete
submissions in this community that aren't contained in other communities</message>
    <message key="xmlui.administrative.community.DeleteCommunityConfirm.confirm_item3">The contents of those
items</message>
    <message key="xmlui.administrative.community.DeleteCommunityConfirm.confirm_item4">All associated authorization
policies</message>

    <!-- org.dspace.app.xmlui.administrative.community.EditCommunityMetadataForm.java -->
    <message key="xmlui.administrative.community.EditCommunityMetadataForm.title">Edit Community
Metadata</message>
    <message key="xmlui.administrative.community.EditCommunityMetadataForm.trail">Metadata</message>
    <message key="xmlui.administrative.community.EditCommunityMetadataForm.main_head">Edit Metadata for
Community {0}</message>
    <message key="xmlui.administrative.community.EditCommunityMetadataForm.edit_authorizations">Edit authorization
policies</message>
    <message key="xmlui.administrative.community.EditCommunityMetadataForm.label_name">Name</message>
    <message key="xmlui.administrative.community.EditCommunityMetadataForm.label_short_description">Short
Description</message>
    <message key="xmlui.administrative.community.EditCommunityMetadataForm.label_introduutory_text">Introductory
text (HTML)</message>
    <message key="xmlui.administrative.community.EditCommunityMetadataForm.label_copyright_text">Copyright text
(plain text)</message>
    <message key="xmlui.administrative.community.EditCommunityMetadataForm.label_side_bar_text">News
(HTML)</message>
    <message key="xmlui.administrative.community.EditCommunityMetadataForm.label_logo">Upload new logo</message>
    <message key="xmlui.administrative.community.EditCommunityMetadataForm.label_existing_logo">Current
logo</message>
    <message key="xmlui.administrative.community.EditCommunityMetadataForm.submit_delete_logo">Remove
logo</message>
    <message key="xmlui.administrative.community.EditCommunityMetadataForm.submit_delete">Delete
community</message>

    <!-- org.dspace.app.xmlui.administrative.community.CreateCommunityForm.java -->
    <message key="xmlui.administrative.community.CreateCommunityForm.title">Create Community</message>
    <message key="xmlui.administrative.community.CreateCommunityForm.trail">Create Community</message>
    <message key="xmlui.administrative.community.CreateCommunityForm.main_head_sub">Enter Metadata for a New
Sub-Community of {0}</message>
    <message key="xmlui.administrative.community.CreateCommunityForm.main_head_top">Edit Metadata for a New Top-
Level Community</message>
    <message key="xmlui.administrative.community.CreateCommunityForm.submit_save">Create</message>

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<!-- org.dspace.app.xmlui.administrative.ControlPanel.java -->
<message key="xmlui.administrative.ControlPanel.title">Control Panel</message>
<message key="xmlui.administrative.ControlPanel.trail">Control panel</message>
<message key="xmlui.administrative.ControlPanel.head">Control Panel</message>
<message key="xmlui.administrative.ControlPanel.option_java">Java Information</message>
<message key="xmlui.administrative.ControlPanel.option_dspace">Alexandria Configuration</message>
<message key="xmlui.administrative.ControlPanel.option_alerts">System-wide Alerts</message>
<message key="xmlui.administrative.ControlPanel.hours">{0} h</message>
<message key="xmlui.administrative.ControlPanel.minutes">{0} m</message>
<message key="xmlui.administrative.ControlPanel.seconds">{0} s</message>
<message key="xmlui.administrative.ControlPanel.java_head">Java and Operating System</message>
<message key="xmlui.administrative.ControlPanel.java_version">Java Runtime Environment Version</message>
<message key="xmlui.administrative.ControlPanel.java_vendor">Java Runtime Environment Vendor</message>
<message key="xmlui.administrative.ControlPanel.os_name">Operating System Name</message>
<message key="xmlui.administrative.ControlPanel.os_arch">Operating System Architecture</message>
<message key="xmlui.administrative.ControlPanel.os_version">Operating System Version</message>
<message key="xmlui.administrative.ControlPanel.runtime_head">Runtime statistics</message>
<message key="xmlui.administrative.ControlPanel.runtime_processors">Available processors</message>
<message key="xmlui.administrative.ControlPanel.runtime_max">Maximum memory</message>
<message key="xmlui.administrative.ControlPanel.runtime_total">Allocated memory</message>
<message key="xmlui.administrative.ControlPanel.runtime_used">Used memory</message>
<message key="xmlui.administrative.ControlPanel.runtime_free">Free memory</message>
<message key="xmlui.administrative.ControlPanel.dspace_head">Alexandria Settings</message>
<message key="xmlui.administrative.ControlPanel.dspace_dir">Alexandria Installation Directory</message>
<message key="xmlui.administrative.ControlPanel.dspace_url">Alexandria Base URL</message>
<message key="xmlui.administrative.ControlPanel.dspace_hostname">Alexandria Host Name</message>
<message key="xmlui.administrative.ControlPanel.dspace_name">Name of the Site</message>
<message key="xmlui.administrative.ControlPanel.db_name">Database Name</message>
<message key="xmlui.administrative.ControlPanel.db_url">Database URL</message>
<message key="xmlui.administrative.ControlPanel.db_driver">JDBC Driver</message>
<message key="xmlui.administrative.ControlPanel.db_maxconnections">Maximum Number of DB Connections in
Pool</message>
<message key="xmlui.administrative.ControlPanel.db_maxwait">Max DB Wait Time</message>
<message key="xmlui.administrative.ControlPanel.db_maxidle">Max Idle Connections</message>
<message key="xmlui.administrative.ControlPanel.mail_server">SMTP Mail Server</message>
<message key="xmlui.administrative.ControlPanel.mail_from_address">From E-mail Address</message>
<message key="xmlui.administrative.ControlPanel.mail_feedback_recipient">Feedback Recipient</message>
<message key="xmlui.administrative.ControlPanel.mail_admin">General Site Administration E-mail</message>
<message key="xmlui.administrative.ControlPanel.alerts_head">System-wide Alerts</message>
<message key="xmlui.administrative.ControlPanel.alerts_warning"><strong>Warning for load balanced
systems</strong>: System-wide alerts are only effective for the node on which it is activated. You need to ensure that each node in the
set receives the activate alert command.</message>
<message key="xmlui.administrative.ControlPanel.alerts_message_label">Alert message</message>
<message key="xmlui.administrative.ControlPanel.alerts_message_default">The system will be going down for regular
maintenance. Please save your work and logout.</message>
<message key="xmlui.administrative.ControlPanel.alerts_countdown_label">Count down</message>
<message key="xmlui.administrative.ControlPanel.alerts_countdown_none">No count down timer</message>
<message key="xmlui.administrative.ControlPanel.alerts_countdown_5">5 minutes</message>
<message key="xmlui.administrative.ControlPanel.alerts_countdown_15">15 minutes</message>
<message key="xmlui.administrative.ControlPanel.alerts_countdown_30">30 minutes</message>
<message key="xmlui.administrative.ControlPanel.alerts_countdown_60">1 hour</message>
<message key="xmlui.administrative.ControlPanel.alerts_countdown_keep">Keep the current count down
timer</message>
<message key="xmlui.administrative.ControlPanel.alerts_session_label">Manage session</message>
<message key="xmlui.administrative.ControlPanel.alerts_session_all_sessions">Continue to allow authenticated
sessions</message>
<message key="xmlui.administrative.ControlPanel.alerts_session_current_sessions">Restrict authentication but maintain
current sessions</message>
<message key="xmlui.administrative.ControlPanel.alerts_session_only_administrative_sessions">Restrict authentication
and kill current sessions</message>
<message key="xmlui.administrative.ControlPanel.alerts_session_note"><strong>Note:</strong> Site administrators are
exempt from session management.</message>
<message key="xmlui.administrative.ControlPanel.alerts_submit_activate">Activate</message>
<message key="xmlui.administrative.ControlPanel.alerts_submit_deactivate">Deactivate</message>
<message key="xmlui.administrative.ControlPanel.activity_head">Current Activity ({0} pages maximum)</message>
<message key="xmlui.administrative.ControlPanel.stop_anonymous">STOP recording anonymous activity.</message>
<message key="xmlui.administrative.ControlPanel.start_anonymous">START recording anonymous activity.</message>
<message key="xmlui.administrative.ControlPanel.stop_bot">STOP recording bot activity.</message>
<message key="xmlui.administrative.ControlPanel.start_bot">START recording bot activity.</message>

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<message key="xmlui.administrative.ControlPanel.activity_sort_time">Time Stamp</message>
<message key="xmlui.administrative.ControlPanel.activity_sort_user">User</message>
<message key="xmlui.administrative.ControlPanel.activity_sort_ip">IP Address</message>
<message key="xmlui.administrative.ControlPanel.activity_sort_url">URL Page</message>
<message key="xmlui.administrative.ControlPanel.activity_sort_Agent">User-Agent</message>
<message key="xmlui.administrative.ControlPanel.activity_anonymous">Anonymous {0}</message>
<message key="xmlui.administrative.ControlPanel.activity_none">No page views have been recorded.</message>

<message key="xmlui.administrative.ControlPanel.select_panel">Use the tabs above to select the information to
display</message>

<!-- org.dspace.app.xmlui.administrative.SystemwideAlerts -->
<message key="xmlui.administrative.SystemwideAlerts.countdown"><strong>In {0} minutes</strong>: </message>

<!-- org.dspace.app.xmlui.administrative.NotAuthorized -->
<message key="xmlui.administrative.NotAuthorized.title">Not Authorized</message>
<message key="xmlui.administrative.NotAuthorized.trail">Not authorized</message>
<message key="xmlui.administrative.NotAuthorized.head">Insufficient privileges</message>
<message key="xmlui.administrative.NotAuthorized.para1a">Your account has insufficient privileges to perform the
requested action. If you feel this is an error or have questions about your privileges, please contact the site's
</message>
<message key="xmlui.administrative.NotAuthorized.para1b">system administrators</message>
<message key="xmlui.administrative.NotAuthorized.para1c">.</message>
<message key="xmlui.administrative.NotAuthorized.para2">Login as another user</message>

<!--!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!

dri2xhtml

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<!-- structural.xml -->
<message key="xmlui.dri2xhtml.structural.footer-promotional">
  <a href="http://di.tamu.edu" id="ds-logo-link">
    <span id="ds-footer-logo">&#160;</span>
  </a>
  <p>
    This website is using Manakin, a new front end for Alexandria created by Texas A&M
    University
    Libraries. The interface can be extensively modified through Manakin Aspects and XSL based
    Themes.
    For more information visit
    <a href="http://di.tamu.edu">http://di.tamu.edu</a> and
    <a href="http://dspace.org">http://dspace.org</a>
  </p>
</message>
<message key="xmlui.dri2xhtml.structural.contact-link">Contact Us</message>
<message key="xmlui.dri2xhtml.structural.feedback-link">Send Feedback</message>

<message key="xmlui.dri2xhtml.structural.head-subtitle">Alexandria/Manakin Repository</message>

<message key="xmlui.dri2xhtml.structural.profile">Profile: </message>
<message key="xmlui.dri2xhtml.structural.logout">Logout</message>
<message key="xmlui.dri2xhtml.structural.login">Login</message>

<message key="xmlui.dri2xhtml.structural.search">Search Alexandria</message>
<message key="xmlui.dri2xhtml.structural.search-advanced">Advanced Search</message>
<message key="xmlui.dri2xhtml.structural.search-in-community">This Community</message>
<message key="xmlui.dri2xhtml.structural.search-in-collection">This Collection</message>

<message key="xmlui.dri2xhtml.structural.pagination-previous">Previous Page</message>

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<message key="xmlui.dri2xhtml.structural.pagination-info">Now showing items {0}-{1} of {2}</message>
<message key="xmlui.dri2xhtml.structural.pagination-next">Next Page</message>

<message key="xmlui.dri2xhtml.structural.link_cc">Creative Commons</message>
<message key="xmlui.dri2xhtml.structural.link_original_license">Original License</message>

<!-- DS-METS-1.0-MODS.xsl -->
<!-- DS-METS-1.0-DIM.xsl -->
<!-- DS-METS-1.0-QDC.xsl -->
<message key="xmlui.dri2xhtml.METS-1.0.no-preview">No preview available</message>
<message key="xmlui.dri2xhtml.METS-1.0.no-title">Untitled</message>
<message key="xmlui.dri2xhtml.METS-1.0.no-author">Unknown author</message>
<message key="xmlui.dri2xhtml.METS-1.0.non-conformant">
    This is not a Alexandria object conformant to the METS 1.0 profile and as such cannot be
    rendered effectively. You can override either the template that handles the general
    case in dri2xhtml to perform the needed function, or create your template to match
    whatever profile you use.
</message>

<message key="xmlui.dri2xhtml.METS-1.0.item-preview">Preview</message>
<message key="xmlui.dri2xhtml.METS-1.0.item-title">Title</message>
<message key="xmlui.dri2xhtml.METS-1.0.item-author">Author</message>
<message key="xmlui.dri2xhtml.METS-1.0.item-abstract">Abstract</message>
<message key="xmlui.dri2xhtml.METS-1.0.item-description">Description</message>
<message key="xmlui.dri2xhtml.METS-1.0.item-uri">URI</message>
<message key="xmlui.dri2xhtml.METS-1.0.item-date">Date</message>
<message key="xmlui.dri2xhtml.METS-1.0.item-publisher">Publisher</message>
<message key="xmlui.dri2xhtml.METS-1.0.item-subject">Subject</message>

<message key="xmlui.dri2xhtml.METS-1.0.item-files-head">Files in this item</message>
<message key="xmlui.dri2xhtml.METS-1.0.item-files-file">Files</message>
<message key="xmlui.dri2xhtml.METS-1.0.item-files-size">Size</message>
<message key="xmlui.dri2xhtml.METS-1.0.item-files-format">Format</message>
<message key="xmlui.dri2xhtml.METS-1.0.item-files-view">View</message>
<message key="xmlui.dri2xhtml.METS-1.0.item-files-description">Description</message>
<message key="xmlui.dri2xhtml.METS-1.0.item-files-viewOpen">View</wbr/>Open</message>
<message key="xmlui.dri2xhtml.METS-1.0.item-no-files">There are no files associated with this item.</message>

<message key="xmlui.dri2xhtml.METS-1.0.size-bytes">bytes</message>
<message key="xmlui.dri2xhtml.METS-1.0.size-kilobytes">Kb</message>
<message key="xmlui.dri2xhtml.METS-1.0.size-megabytes">Mb</message>
<message key="xmlui.dri2xhtml.METS-1.0.size-gigabytes">Gb</message>

<message key="xmlui.dri2xhtml.METS-1.0.license-text">The following license files are associated with this
item:</message>

<message key="xmlui.dri2xhtml.METS-1.0.collection-not-implemented">
    The summaryView of a collection is not currently used or implemented. This can be fixed
    by overriding the dri2xhtml's template named collectionSummaryView.
</message>
<message key="xmlui.dri2xhtml.METS-1.0.community-not-implemented">
    The summaryView of a community is not currently used or implemented. This can be fixed
    by overriding the dri2xhtml's template named communitySummaryView.
</message>

<message key="xmlui.dri2xhtml.METS-1.0.collection-logo-alt">The collection's logo</message>
<message key="xmlui.dri2xhtml.METS-1.0.community-logo-alt">The community's logo</message>
<message key="xmlui.dri2xhtml.METS-1.0.no-logo-alt">No logo</message>
<message key="xmlui.dri2xhtml.METS-1.0.news">News</message>
<message key="xmlui.dri2xhtml.METS-1.0.copyright">Copyright and License</message>

<!-- Internationalization elements specific to the Qualified Dublin Core metadata handler.
DS-METS-1.0-QDC.xsl -->
<message key="xmlui.dri2xhtml.METS-1.0.qdc-not-applicable">
    Qualified Dublin Core (QDC) is not applicable to Alexandria communities and collections at
    this time. When using QDC, you should use the QDC crosswalk for Alexandria items and either
    DIM or MODS for processing of communities and collections.
</message>

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<message key="xhtmlui.dri2xhtml.METS-1.0.header-qdc-elements">Dublin Core elements</message>
<message key="xhtmlui.dri2xhtml.METS-1.0.header-qdc-terms">Dublin Core terms</message>

<!-- Special pioneer model related text, wherever it might end up -->
<message key="xhtmlui.dri2xhtml.pioneer.preview">Preview</message>
<message key="xhtmlui.dri2xhtml.pioneer.date">Date</message>
<message key="xhtmlui.dri2xhtml.pioneer.title">Title</message>
<message key="xhtmlui.dri2xhtml.pioneer.author">Author</message>

<!-- tag used to handle the empty textarea tag added 09/28/2006 -->
<message key="xhtmlui.dri2xhtml.default.textarea.value"> </message>

<!--##### File Format MIME Type Mappings #####-->

<!-- Application-based formats -->
<message key="xhtmlui.dri2xhtml.mimetype.application/marc">MARC record</message>
<message key="xhtmlui.dri2xhtml.mimetype.application/mathematica">Mathematica</message>
<message key="xhtmlui.dri2xhtml.mimetype.application/msword">Microsoft Word</message>
<message key="xhtmlui.dri2xhtml.mimetype.application/octet-stream">Unknown</message>
<message key="xhtmlui.dri2xhtml.mimetype.application/pdf">PDF</message>
<message key="xhtmlui.dri2xhtml.mimetype.application/postscript">Postscript</message>
<message key="xhtmlui.dri2xhtml.mimetype.application/sgml">SGML</message>
<message key="xhtmlui.dri2xhtml.mimetype.application/vnd.ms-excel">Microsoft Excel</message>
<message key="xhtmlui.dri2xhtml.mimetype.application/vnd.ms-powerpoint">Microsoft PowerPoint</message>
<message key="xhtmlui.dri2xhtml.mimetype.application/vnd.ms-project">Microsoft Project</message>
<message key="xhtmlui.dri2xhtml.mimetype.application/vnd.oasis.opendocument.database">OpenOffice Base</message>
<message key="xhtmlui.dri2xhtml.mimetype.application/vnd.oasis.opendocument.formula">OpenOffice Math</message>
<message key="xhtmlui.dri2xhtml.mimetype.application/vnd.oasis.opendocument.graphics">OpenOffice Draw</message>
<message key="xhtmlui.dri2xhtml.mimetype.application/vnd.oasis.opendocument.presentation">OpenOffice Impress</message>
<message key="xhtmlui.dri2xhtml.mimetype.application/vnd.oasis.opendocument.spreadsheet">OpenOffice Calc</message>
<message key="xhtmlui.dri2xhtml.mimetype.application/vnd.oasis.opendocument.text">OpenOffice Writer</message>
<message key="xhtmlui.dri2xhtml.mimetype.application/vnd.openxmlformats-officedocument.presentationml.presentation">Microsoft PowerPoint 2007</message>
<message key="xhtmlui.dri2xhtml.mimetype.application/vnd.openxmlformats-officedocument.spreadsheetml.sheet">Microsoft Excel 2007</message>
<message key="xhtmlui.dri2xhtml.mimetype.application/vnd.openxmlformats-officedocument.wordprocessingml.document">Microsoft Word 2007</message>
<message key="xhtmlui.dri2xhtml.mimetype.application/vnd.sun.xml.calc">OpenOffice Calc (1.x)</message>
<message key="xhtmlui.dri2xhtml.mimetype.application/vnd.sun.xml.draw">OpenOffice Draw (1.x)</message>
<message key="xhtmlui.dri2xhtml.mimetype.application/vnd.sun.xml.impress">OpenOffice Impress (1.x)</message>
<message key="xhtmlui.dri2xhtml.mimetype.application/vnd.sun.xml.writer.global">OpenOffice Writer (1.x)</message>
<message key="xhtmlui.dri2xhtml.mimetype.application/vnd.visio">Microsoft Visio</message>
<message key="xhtmlui.dri2xhtml.mimetype.application/wordperfect5.1">WordPerfect</message>
<message key="xhtmlui.dri2xhtml.mimetype.application/x-dvi">TeX DVI</message>
<message key="xhtmlui.dri2xhtml.mimetype.application/x-filemaker">FileMaker Pro</message>
<message key="xhtmlui.dri2xhtml.mimetype.application/x-java-applet">Java applet</message>
<message key="xhtmlui.dri2xhtml.mimetype.application/x-latex">LaTeX</message>
<message key="xhtmlui.dri2xhtml.mimetype.application/x-photoshop">Photoshop</message>
<message key="xhtmlui.dri2xhtml.mimetype.application/x-tex">TeX</message>

<!-- Audio-based formats -->
<message key="xhtmlui.dri2xhtml.mimetype.audio/basic">Basic Audio</message>
<message key="xhtmlui.dri2xhtml.mimetype.audio/flac">FLAC Audio</message>
<message key="xhtmlui.dri2xhtml.mimetype.audio/m4a">AAC audio</message>
<message key="xhtmlui.dri2xhtml.mimetype.audio/m4a-latm">AAC audio</message>
<message key="xhtmlui.dri2xhtml.mimetype.audio/mpeg">mp3 audio</message>
<message key="xhtmlui.dri2xhtml.mimetype.audio/x-aiff">AIFF audio</message>
<message key="xhtmlui.dri2xhtml.mimetype.audio/x-mpeg">MPEG Audio</message>
<message key="xhtmlui.dri2xhtml.mimetype.audio/x-ms-wma">WMA Audio</message>
<message key="xhtmlui.dri2xhtml.mimetype.audio/x-ms-wmv">WMV Audio</message>
<message key="xhtmlui.dri2xhtml.mimetype.audio/x-ogg">Ogg Vorbis</message>
<message key="xhtmlui.dri2xhtml.mimetype.audio/x-pn-realaudio">RealAudio</message>
<message key="xhtmlui.dri2xhtml.mimetype.audio/x-wav">WAV audio</message>

<!-- Image-based formats -->
<message key="xhtmlui.dri2xhtml.mimetype.image/gif">GIF image</message>
<message key="xhtmlui.dri2xhtml.mimetype.image/jp2">JPEG 2000 image</message>
<message key="xhtmlui.dri2xhtml.mimetype.image/jpeg">JPEG image</message>
<message key="xhtmlui.dri2xhtml.mimetype.image/png">PNG image</message>

```

```
<message key="xmlui.dri2xhtml.mimetype.image/tiff">TIFF image</message>
<message key="xmlui.dri2xhtml.mimetype.image/x-ms-bmp">BMP image</message>
<message key="xmlui.dri2xhtml.mimetype.image/x-photo-cd">Photo CD</message>

<!-- Text-based formats -->
<message key="xmlui.dri2xhtml.mimetype.text/css">CSS file</message>
<message key="xmlui.dri2xhtml.mimetype.text/csv">CSV file</message>
<message key="xmlui.dri2xhtml.mimetype.text/html">HTML</message>
<message key="xmlui.dri2xhtml.mimetype.text/javascript">Javascript</message>
<message key="xmlui.dri2xhtml.mimetype.text/plain">Text file</message>
<message key="xmlui.dri2xhtml.mimetype.text/richtext">RTF file</message>
<message key="xmlui.dri2xhtml.mimetype.text/xml">XML</message>

<!-- Video-based formats -->
<message key="xmlui.dri2xhtml.mimetype.video/avi">AVI video</message>
<message key="xmlui.dri2xhtml.mimetype.video/mjp2">Motion JPEG 2000</message>
<message key="xmlui.dri2xhtml.mimetype.video/mpeg">MPEG video</message>
<message key="xmlui.dri2xhtml.mimetype.video/mpeg2">MPEG-2 video</message>
<message key="xmlui.dri2xhtml.mimetype.video/mp4">MPEG-4 video</message>
<message key="xmlui.dri2xhtml.mimetype.video/quicktime">QuickTime video</message>

</catalogue>
```

## “NEWS” DOCUMENT FOR ALEXANDRIA

This is the news-xmlui file. It appears on the site’s front page. It contains the “welcome” message.

```
<?xml version="1.0" encoding="UTF-8" ?>
<document xmlns="http://di.tamu.edu/DRI/1.0/" xmlns:i18n="http://apache.org/cocoon/i18n/2.1" version="1.1">
<body>
<div id="file.news.div.news" n="news" rend="primary">
<head>Welcome to Alexandria...</head>

<p><figure source="http://explorer.cyberstreet.com/cet4584/digi-library.jpg"> <figure></p>

<p>Alexandria is a personal digital repository at CyberStreet. This set of communities was built by Lesley Peterson as part of an
undergraduate research project at the University of Central Florida.</p>
<p>This repository is based upon the DSpace digital repository. DSpace is a digital service that collects, preserves, and distributes
digital material. Repositories are important tools for preserving an individual’s legacy; they facilitate the preservation of digital
materials.</p>

</div>

</body>
<options/>
<meta>
<userMeta/>
<pageMeta/>
<repositoryMeta/>
</meta>
</document>
```

## CSS STYLE SHEET FOR ALEXANDRIA

```
/*
style.css

Date: $Date: 2010-02-08

Based on: CSS for Reference Theme

Revised by: Lesley Peterson
*/

body {
    font-family: "Trebuchet MS", Arial, Helvetica, sans-serif;
    font-size: .8em;
    text-align: center;
    /*background-color: #EEEEBB;*/
    /*background-color: #F7F7D3;*/
    background: url(../images/parchment.jpg) repeat;
}

h1, h2, h3, h3 {
    color: #006600;
}

a {
    color: #222222;
}

fieldset {
    border: 0px;
}

div#ds-main {
    position: relative;
    margin-top: 5px;
    width: 750px;
    color: inherit;
    background-color: white;
    margin-left: auto;
    margin-right: auto;
    text-align: left;
    padding: 0;
}

div#ds-header {
    width: 100%;
    border: 3px solid #CCCC99;
    padding: 0px;
}

div#ds-header a {
    text-decoration: none;
    color: #222222;
}

div#ds-header a span#ds-header-logo {
    /*width: 190px;*/
    /*height: 80px;*/
    width: 750px;
    height: 100px;
    float: right;
    /*background-image: url("../images/manakin_logo.jpg");*/
    background-image: url("../images/AlexandriaHeader.jpg");
    background-repeat: no-repeat;
    /*background-position: 85% 40%;*/
    color: inherit;
}
```

```

        background-color: white;
    }

div#ds-header h1,div#ds-header h2 {
    display: none;
}

ul#ds-trail {
    position: relative;
    /*margin-top: 80px;*/
    margin-top: 100px;
    margin-bottom: 0px;
    padding: 3px;
    margin-left: 0;
    color: inherit;
    background-color: #FFFCC;
    border-top: 2px solid rgb(245, 245, 216);
}

li.ds-trail-link {
    overflow: hidden;
    display: inline;
    background-image: url("../images/trail.bmp");
    background-repeat: no-repeat;
    background-position: 0% 60%;
    padding-left: 16px;
    margin-top: 2px;
    margin-left: 5px;
    font-weight: 200;
    max-width: 400px;
    line-height: 20px;
}

li.first-link {
    list-style: none;
    background-image: none;
    padding-left: 0;
}

div#ds-user-box {
    width: 300px;
    position: absolute;
    top: 10px;
    left: 12px;
    text-align: left;
}

div#ds-user-box p {
    font-size: 90%;
    color: gray;
    background-color: inherit;
    height: 12px;
    padding: 0px;
    margin: 0px;
}

div#ds-user-box a {
    text-decoration: none;
    /*color: gray;*/
    color: white;
    background-color: inherit;
    height: 12px;
    padding: 0px;
    margin: 0px;
}

div#ds-user-box a:hover {
    text-decoration: underline;
}

```

```

div#ds-body {
    position: relative;
    float: left;
    width: 592px;
    clear: left;
    color: inherit;
    background-color: rgb(255, 255, 253);
    border: 2px solid #CCCC99;
    margin: 15px 0px 0px 0px;
    padding-bottom: 30px;
    padding-left: 5px;
    padding-right: 5px;
}

div#ds-body h1 {
    font-size: 1.5em;
    padding: 10px 0 0 0;
    margin-top: 10px;
    margin-bottom: 5px;
    background-color: inherit;
    font-weight: bolder;
}

div#ds-body h2 {
    font-size: 1.3em;
    padding: 6px 0;
    margin-bottom: 0px;
    background-color: inherit;
    font-weight: bolder;
}

div#ds-body h3 {
    margin-bottom: 15px;
}

ul.ds-progress-list {
    margin: 0 0 10px 0;
    padding: 2px 0px;
    text-align: center;
}

ul.ds-progress-list li {
    font-family: Arial, Helvetica, sans-serif;
    font-weight: bold;
    background-color: #FFF9CC;
    border: 1px solid #CCCC99;
    color: rgb(233, 160, 80);
    overflow: hidden;
    display: inline;
    padding: 4px 3px;
    margin-top: 2px;
    margin-left: 3px;
    max-width: 400px;
    line-height: 20px;
}

ul.ds-progress-list li.button {
    background-color: inherit;
    border: none;
    padding: 1px !important;
    margin-top: 2px;
    margin-left: 0px !important;
}

ul.ds-progress-list li.button input.ds-button-field {
    font-size: smaller;
}

ul.ds-progress-list li.current.button input.ds-button-field {

```

```

        color: rgb(10,175,10);
    }

    ul.ds-progress-list li.disabled.button input.ds-button-field {
        color: rgb(184,184,184);
    }

    ul.ds-progress-list li.current {
        color: rgb(80, 183, 40);
        background-color: inherit;
        border-color: rgb(216, 245, 216);
    }

    ul.ds-progress-list li.arrow {
        border: none;
        background: none;
        font-size: 120%;
        font-weight: normal;
        margin-left: 0px;
        margin-right: 0px;
    }

    ul.alphabet {
        padding-left: 10px;
        padding-top: 0px;
        margin: 5px 0px 0px 0px;
        text-align: center;
    }

    ul.alphabet li {
        list-style: none;
        display: inline;
        margin-right: 5px;
        font-weight: 200;
    }

    ul.alphabet a {
        font-weight: 600;
        color: rgb(100, 100, 50);
        background-color: inherit;
    }

    ul.alphabet a:hover {
        font-weight: 600;
        color: rgb(150, 150, 50);
        background-color: inherit;
    }
    /*
    form.search {
        margin: 0px;
        padding: 0px;
    }

    form.search select {
        max-width: 200px;
    }

    *.collection.search-browse,*.community.search-browse {
        width: 340px;
        float: left;
        margin: 5px 12px 5px 0px;
    }

    form.search fieldset,form.navigation fieldset {
        color: inherit;
        background-color: rgb(255, 255, 245);
        border: 2px solid #CCCC99;
        padding: 5px 5px 5px 5px;
    }*/

```

```

form.search li {
    margin: 0;
    padding: 0px !important;
}

form.navigation input,form.navigation select {
    margin-left: 5px;
}

form.navigation p {
    text-align: center;
}
/*
form.search table {
    margin-top: 5px;
    margin-bottom: 5px;
    border: none;
}

form.search table th {
    padding-top: 2px;
    padding-bottom: 2px;
    text-align: left;
}
*/
div.browse {
    display: none;
}

div.pagination {
    position: relative;
    padding: 0px;
    color: inherit;
    background-color: #FFFFCC;
    border: 2px solid #CCCC99;
    margin: 2px 0px 5px 1px;
}

div.pagination * {
    padding: 0px;
}

div.pagination-masked {
    position: relative;
    color: inherit;
    background-color: #FFFFCC;
    border: 2px solid #CCCC99;
    margin-bottom: 5px;
}

a.previous-page-link {
    position: absolute;
    left: 10px;
    top: 6px;
    color: rgb(100, 100, 50);
    background-color: inherit;
}

p.pagination-info {
    text-align: center;
    margin-left: 125px;
    margin-right: 125px;
}

ul.pagination-links {
    position: relative;
    text-align: center;
    top: -5px;
    width: 360px;
}

```

```

        margin: 0 auto;
        padding: 0;
        line-height: 12px;
    }

    *.pagination-links li {
        list-style: none;
        display: inline;
        margin-right: 5px;
        font-weight: bold;
        font-size: 90%;
    }

    li.page-link a,li.first-page-link a,li.last-page-link a {
        color: rgb(100, 100, 50);
        background-color: inherit;
    }

    li.current-page-link a {
        color: rgb(223, 110, 0);
        background-color: inherit;
    }

    a.next-page-link {
        position: absolute;
        right: 10px;
        top: 6px;
        color: rgb(100, 100, 50);
        background-color: inherit;
    }

    div.detail-view {
        clear: both;
        padding: 5px 5px 5px 6px;
    }

    p.button-list {
        margin-top: 3px;
        padding-bottom: 0;
    }

    ul.collection-browse,ul.community-browse {
        display: none;
    }

    *.collection-search-browse td,*.community-search-browse td {
        white-space: nowrap;
    }

    *.collection-search-browse h4,*.community-search-browse h4 {
        display: none;
    }

    *.collection-search-browse select,*.community-search-browse select {
        width: auto;
        max-width: 200px;
    }

    *.collection-search-browse input,*.community-search-browse input {
        width: auto;
        max-width: 195px;
    }

    *.button-list input {
        width: auto;
    }

    div.ds-logo-wrapper {
        float: right;
        padding: 5px 0px 5px 10px;
    }

```

```

}

p.copyright-text {
    margin-top: 30px;
    font-style: italic;
    text-align: center;
}

div.primary {
    overflow: auto;
    margin-bottom: 20px;
}

.primary .primary {
    margin-bottom: 10px;
}

table {
    clear: both;
    border-spacing: 0px;
    border: 2px solid #CCCC99;
    width: 100%;
}

tr.ds-table-header-row {
    color: inherit;
    background-color: #CCCC99;
}

tr.ds-table-header-row.subheader {
    background-color: rgb(250, 250, 214);
}

th {
    padding: 4px 10px;
}

.subheader th {
    padding-left: 5px;
    font-weight: 100;
}

tr.ds-table-row.odd {
    color: inherit;
    background-color: rgb(252, 252, 232);
}

tr.ds-table-row.even {
    color: inherit;
    background-color: rgb(255, 255, 245);
}

td {
    padding: 3px 10px 5px 10px;
    border: none;
    font-size: inherit;
    background-color: inherit;
    color: inherit;
}

td.ds-table-cell.right {
    text-align: right;
}

*.first-cell {
    vertical-align: middle;
    text-align: center;
}

```

```

.indent {
  padding-left: 35px;
  padding-right: 0;
}
.doubleIndent {
  padding-left: 55px;
  padding-right: 0;
}

th.indent {
  padding-left: 30px;
  padding-right: 0;
}
th.doubleIndent {
  padding-left: 50px;
  padding-right: 0;
}

/* highlight a single row */
tr.ds-table-row.highlight {
  background-color: rgb(216, 245, 216);
}

/* Tables that are actually a result of glossary lists are not rendered
as plain tables are... */
table.ds-gloss-list {
  border: none;
  width: auto;
  font-size: inherit;
}

*.ds-gloss-list td {
  padding: 5px;
}

*.ds-gloss-list-label {
  font-weight: bolder;
}

table.ds-gloss-list td ul {
  list-style-type: none;
  padding: 0px;
  margin: 0px;
}

/* Formatting associated with the "Files in this item" table in the item view */
*.file-list td {
  text-align: center;
}

a.image-link img {
  border: none;
}

span.bold {
  font-weight: bold;
}

span.italics,span.italic {
  font-style: italic;
}

span.underline {
  text-decoration: underline;
}

```

```

div.ds-static-div {
    border: 1px solid white;
    clear: both;
}

ul.ds-artifact-list {
    border: 2px solid #CCCC99;
    padding: 0px;
    list-style-type: none;
    margin: 0px;
    float: left;
    width: 584px;
}

ul.ds-artifact-list li.odd {
    color: inherit;
    background-color: rgb(250, 250, 232);
}

ul.ds-artifact-list li.even {
    color: inherit;
    background-color: rgb(255, 255, 245);
}

ul.ds-artifact-list li {
    float: left;
    clear: both;
    width: 100%;
    padding-bottom: 3px;
    padding-top: 3px;
}

ul.ds-artifact-list li img {
    border: 0px;
}

ul.ds-artifact-list li div {
    float: left;
}

ul.ds-artifact-list li div.artifact-description {
    float: left;
    margin-top: 0px;
    width: 83%;
    padding: 0 5px;
}

ul.ds-artifact-list li div.artifact-title {
    float: none;
    font-family: Arial, Helvetica, sans-serif;
    font-weight: bold;
}

ul.ds-artifact-list li div.artifact-title a:link {
    color: rgb(60,60,230);
}

ul.ds-artifact-list li div.artifact-title a:visited {
    color: rgb(125,50,125);
}

ul.ds-artifact-list li div.artifact-info {
    float: none;
    margin-left: 15px;
}

ul.ds-artifact-list li span.publisher {
    font-style: italic;
}

```

```

ul.ds-artifact-list li div.artifact-preview {
    float: right;
}

/* The composite field voodoo */
span.ds-composite-field {
    display: table-row;
    padding: 2px;
}

*.ds-composite-field.ds-composite-component {
    display: table-cell;
    text-align: left;
    width: auto;
    padding-right: 10px;
}

*.ds-composite-field input,*.ds-composite-field textarea,*.ds-composite-field select {
    margin-right: 5px;
    margin-bottom: -2px;
}

span.composite-help {
    display: block;
    font-size: 80%;
    color: blue;
    background-color: inherit;
    text-align: left;
}

/* Checkboxes and Radio buttons */
fieldset.ds-checkbox-field,fieldset.ds-radio-field {
    border: none;
    margin: 0;
    padding: 0;
}

fieldset.ds-checkbox-field legend,fieldset.ds-radio-field legend {
    display: none;
}

fieldset.ds-checkbox-field label,fieldset.ds-radio-field label {
    display: block;
}

/* The form list and and its components voodoo */ /* Top-level stuff */
fieldset.ds-form-list {
    border: 2px solid #CCCC99;
    padding: 0;
    color: inherit;
    background-color: rgb(255, 255, 245);
    margin-left: 0;
    margin-right: 0;
}

fieldset.ds-form-list.thick {
    border-top: 22px solid #CCCC99;
}

fieldset.ds-form-list ol {
    padding: 0;
    margin: 0;
    width: 100%;
}

fieldset.ds-form-list legend {
    color: #DF6E00;
    background-color: inherit;
}

```

```

        font-size: 115%;
        font-weight: bolder;
        margin-left: 10px;
    }

fieldset.thick legend {
    color: #DF6E00;
    background-color: rgb(255, 255, 245);
    border-top: 2px solid #CCCC99;
    padding-left: 10px;
    padding-right: 30px;
}

/* Top-level stuff for the nested "form" lists */
fieldset.ds-form-sublist {
    border: 1px solid #CCCC99;
    padding: 0;
    margin: 5px;
}

fieldset.ds-form-list ol {
    list-style-type: none;
}

form.ds-interactive-div fieldset.ds-form-sublist ol {
    display: table;
    padding: 0;
    margin: 0;
    width: 100%;
}

form.ds-interactive-div fieldset.ds-form-sublist legend {
    color: #DF6E00;
    font-size: 100%;
    font-weight: bolder;
    margin-left: 10px;
    padding: 0;
    background-color: inherit;
    border: 0;
}

/* Row-level hierarchy */
form.ds-interactive-div li.ds-form-item {
    display: block;
    padding: 5px 0;
    width: 100%;
}

form.ds-interactive-div li.odd {
    color: inherit;
    background-color: rgb(252, 252, 230);
}

form.ds-interactive-div li.even {
    color: inherit;
    background-color: rgb(255, 255, 245);
}

form.ds-interactive-div li.ds-form-item.last {
    border-top: 2px solid #CCCC99;
    color: inherit;
    background-color: rgb(248, 248, 217);
}

form.ds-interactive-div.primary {
    float: left;
    clear: both;
    padding: 0px;
    margin-bottom: 10px;
}

```

```

p {
  padding: 0;
  margin: 6px;
}

fieldset ol {
  float: left;
  clear: both;
}

li.ds-form-item {
  float: left;
  clear: both;
}

div.ds-form-content {
  float: left;
  clear: right;
  display: block;
  padding: 7px;
  width: 400px;
}

span.ds-form-label,label.ds-form-label {
  display: block;
  float: left;
  clear: left;
  padding: 5px 20px 5px 10px;
  width: 115px;
  font-weight: bold;
  vertical-align: middle;
  overflow: hidden;
}

label.ds-composite-component {
  display: block;
  float: left;
  padding: 0px 5px 0 0px;
  font-size: 80%;
  color: blue;
  background-color: inherit;
  text-align: left;
}

span.error {
  display: block;
  font-size: 85%;
  color: red;
  background-color: inherit;
  margin: 0;
}

span.field-help {
  display: block;
  margin-left: 5px;
  font-size: 80%;
  color: gray;
  background-color: inherit;
}

input.error,textarea.error,select.error {
  color: inherit;
  background-color: rgb(255, 245, 245);
  border-color: red;
}

span.composite-help {
  display: block;
  font-size: 80%;
}

```

```

        color: gray;
        background-color: inherit;
        text-align: left;
    }

    div.spacer {
        margin: 0;
        padding: 0;
        line-height: 0px;
        clear: both;
    }

    div#ds-options {
        position: relative;
        float: right;
        width: 135px;
        color: inherit;
        /*background-color: white;*/
        /*background-color: #F7F7D3;*/
        background: url(../images/parchment.jpg) repeat;
        margin: 0px;
        padding: 0px;
        font-size: 95%;
    }

    div.ds-option-set {
        padding: 30px 2px 3px 2px;
        width: 133px;
        margin: -3px 0px 0px 0px;
        color: inherit;
        background-color: #FFF7CC;
        border: 2px solid #CCCC99;
    }

    div#ds-search-option input {
        font-size: 90%;
    }

    div#ds-search-option input.ds-text-field {
        width: 80%;
        margin: 0;
        margin-left: -15px;
        padding: 0;
        position: relative;
        top: -1px;
        left: 8px;
    }

    div#ds-search-option input.ds-button-field {
        width: auto;
        height: 20px;
        margin: 0px;
        padding-left: 2px;
        padding-right: 2px;
        position: relative;
        top: -1px;
        left: 10px;
    }

    div#ds-search-option a {
        position: relative;
        top: -4px;
        left: 4px;
        margin: 0;
        padding: 0;
    }

    form#ds-search-form {

```

```

        font-size: 90%;
    }

    div#ds-options h3 {
        position: relative;
        top: 22px;
        left: 5px;
        margin: 0 2px 0 0;
        padding: 0px;
        color: rgb(223, 110, 0);
        background-color: #FFFFCC;
    }

    div#ds-options h4 {
        margin-top: 0px;
        margin-bottom: 0px;
        color: rgb(210, 100, 0);
        background-color: inherit;
    }

    div#ds-options ul {
        margin: 0px 0px 10px 0px;
        padding: 0px;
    }

    div#ds-options li {
        margin-left: 15px;
        padding: 0px;
        color: rgb(100, 100, 50);
        background-color: inherit;
    }

    input.ds-password-field {
        margin-right: 5px;
    }

    div#ds-footer {
        position: relative;
        margin-top: 10px;
        margin-bottom: 20px;
        /*height: 80px;*/
        height: 25px;
        float: left;
        width: 100%;
        border: 3px solid #CCCC99;
        background-color: #FFFFCC;
    }

    span#ds-footer-logo {
        float: left;
        clear: both;
        height: 80px;
        width: 300px;
        background-image: url("../images/di_logo.jpg");
        background-repeat: no-repeat;
        background-position: 0% 30%;
        color: inherit;
        background-color: white;
        visibility: hidden;
    }

    div#ds-footer p {
        width: 450px;
        position: absolute;
        top: -8px;
        right: 0px;
        text-align: right;
        padding: 5px;
        font-size: smaller;
        visibility: hidden;
    }

```

```

}

div#ds-footer-links {
    position: absolute;
    /*top: 57px;*/
    top: 5px;
    right: 0px;
    padding-right: 5px;
    text-align: right;
    font-size: smaller;
}

div#ds-footer a#ds-logo-link {
    text-decoration: none;
}

div.notice {
    background-color: #FFFFCC;
    border: 1px solid #CCCC99;
    padding: 6px;
    text-align: center;
    margin: 10px 30px 10px 30px;
}

div.notice.success p {
    margin: 0;
    padding: 0;
    font-weight: bold;
    color: rgb(80, 183, 40);
    text-align: center;
}

div.notice.failure p {
    margin: 0;
    padding: 0;
    font-weight: bold;
    color: rgb(213, 80, 40);
    text-align: center;
}

h1.ds-div-head,h2.ds-div-head,h3.ds-div-head {
    clear: both;
}

/* License text display during submission */
div.license-text {
    border: 1px solid #666;
    background-color: #EEE;
    padding: 20px;
    margin: 20px;
    margin-top: 5px;
    font-family: monospace;
    font-size: 125%;
}

div#NoticeTransformer_div_general-message h1.ds-div-head {
    position: absolute;
    top: 11px;
    left: 42px;
    margin: 0;
    padding: 0 5px;
    font-size: small;
}

p.hidden {
    display: none;
}

h1.ds-div-head, h2.ds-div-head, h3.ds-div-head {
    clear:both;
}

```

```

}

span.fade {
  color: gray;
  font-size: 90%;
}

span.fade a {
  color: gray;
  text-decoration: none;
}

span.fade a:hover {
  color: blue;
  text-decoration: underline;
}

span.warn {
  color: red;
  font-weight: bolder;
}

/* System-wide alerts */
div#ds-system-wide-alert {
  background-color: #FFFFCC;
  border: 1px solid #CCCC99;
  padding: 6px;
  margin: 10px 30px 10px 30px;
  color: rgb(213, 80, 40);
}

/* admin tabs */
form.administrative{
  border: 1px solid #CCCC99;
  border-top: 0px;
  width: inherit;
}

form.administrative fieldset{
  margin: 7px;
  width: auto;
}
form.administrative h3{
  margin: 7px;
}
form.administrative table{
  margin: 7px;
  width: auto;
}

form#administrative_item_FindItemForm_div_find-item{
  border: 0px;
  margin-left: 0px;
}

ul.horizontal
{
  font-weight: bold;
  list-style-type: none;
  padding: 0px;
  padding-left: 0px;
  padding-bottom: 24px;
  border-bottom: 1px solid #CCCC99;
  border-left: 1px solid white;
  border-right: 1px solid white;
  margin: 0px;
  margin-left: -1px;
  margin-right: -1px;
}

```

```
width: inherit;
}

ul.horizontal li
{
float: left;
height: 21px;
background-color: rgb(252, 252, 232);
margin: 2px 2px 0px 2px;
border: 1px solid #CCCC99;
}

ul.horizontal a
{
float: left;
display: block;
text-decoration: none;
padding: 4px;
}

ul.horizontal a:hover { background: white; text-decoration: underline;}

ul.horizontal li span.bold a
{
border-bottom: 1px solid white;
background-color: white;
}

ul.horizontal li span.bold a { color: black; }
```

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