Building a Digital Repository on a Shoestring Budget

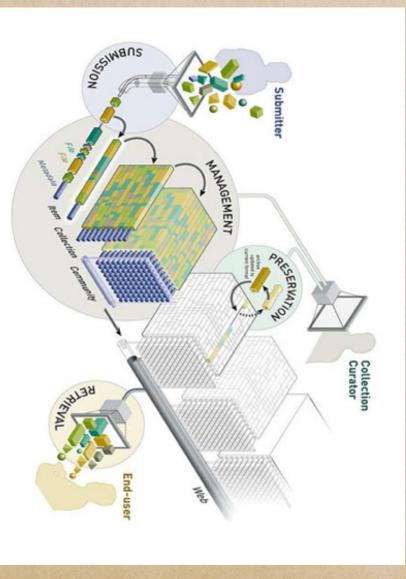
Christinger Tomer University of Pittsburgh

> PALA September 30, 2014

A version this presentation is available at <u>http://www.pitt.edu/~ctomer/shoestring/</u>

Reasons for Building a Digital Repository

Repositories serve various purposes, but in the main they are built to guarantee the availability of and access to select materials. And, like libraries and archives, a more specific purpose is derived from the community that is served.



Types of Digital Repositories

- Digital Archives complaint with archival standards and practices
- **Digital Repositories** compliant with library standards for metadata
- **Digital Asset Management Systems** with standards for records management generally outside the realm of standards for library and archival practice; may comply

Digital Preservation

is, the outputs of a preservation process respects, to what went into that process. should be authentic preserved objects; that ought to be identical, in all essential ultimate outcome of the preservation process What is the goal of digital preservation? The

The Trustworthy Repository

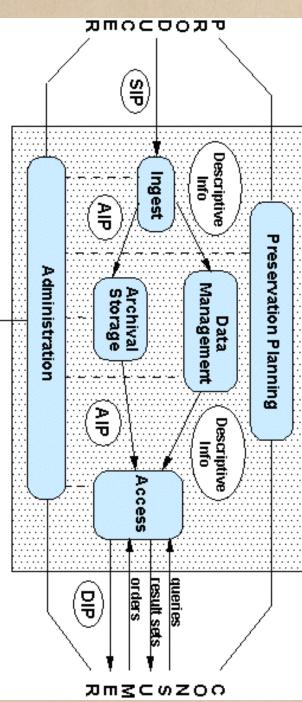
while others may choose to manage the logical and intellectual aspects of a repository while contracting with a third-party provider for its storage and maintenance. Whatever the overall infrastructure, however, to meet expectations all trusted digital repositories must: repositories may take different forms: some institutions may choose to build local repositories managed digital resources to its designated community, now and in the future. Trusted digital A trusted digital repository is one whose mission is to provide reliable, long-term access to

- accept responsibility for the long-term maintenance of digital resources on behalf of its depositors and for the benefit of current and future users;
- have an organizational system that supports not only long-term viability of the repository, but also the digital information for which it has responsibility;
- demonstrate fiscal responsibility and sustainability;
- design its system(s) in accordance with commonly accepted conventions and standards to ensure the ongoing management, access, and security of materials deposited within it;
- establish methods for system evaluation that meet community expectations of trustworthiness
- be depended upon to carry out its long-term responsibilities to depositors and users openly and explicitly; and
- have policies, practices, and performance that can be audited and measured;

Attributes of a Trusted Repository

- Compliance with the Reference Model for an Open Archival Information System (OAIS)
- Administrative responsibility
- Organizational viability
- Financial sustainability
- Technological and procedural suitability
- System security
- Procedural accountability

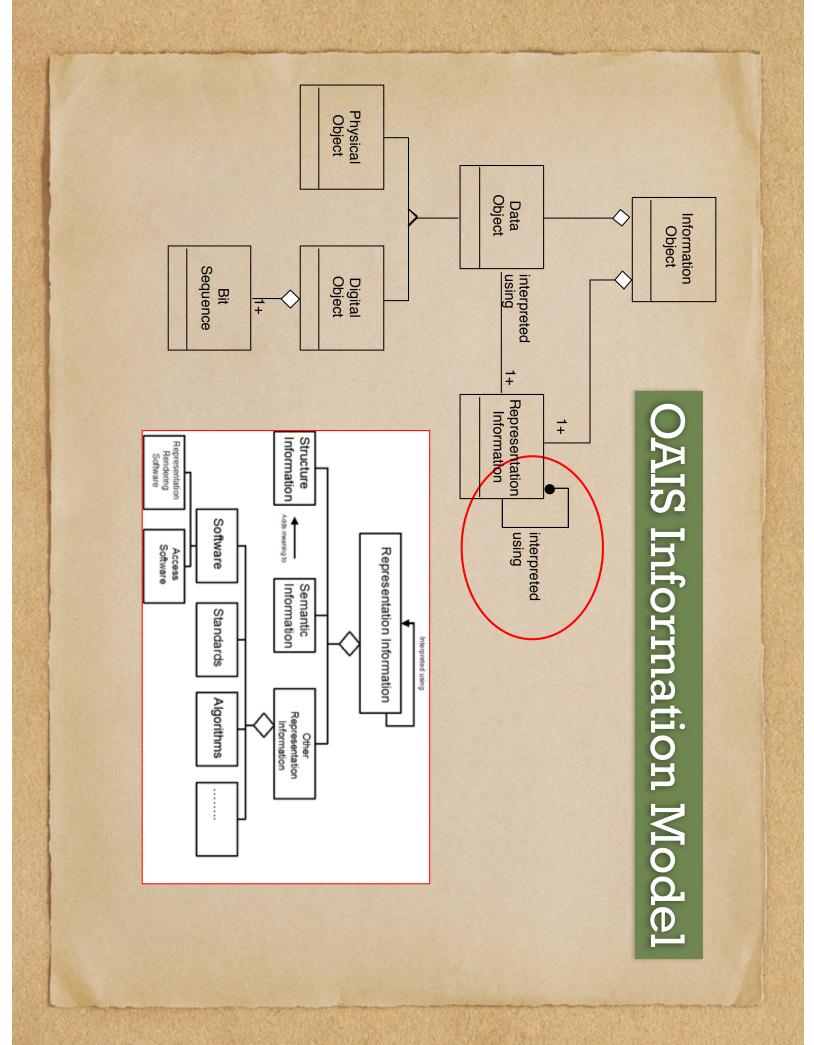
Compliance with the Reference Model for an Open Archival Information System (OAIS)



MANAGEMENT

Source: Procedures Manual for the Consultative Committee for Space Data Systems (2001)

The OAIS Reference Model supplies a common framework, including creation of metadata to support long-term maintenance and access and operations of digital archives. It also provides both a functional model terminology and concepts, for describing and comparing architectures -the specific tasks performed by the repository such as storage or access -and a corresponding information model that includes a model for the



Responsibilities of a Trusted Repository

should assume for the preservation of digital materials. Organizational responsibilities can be shared and how. In summary, the major factors in organizations might share responsibilities through geography or responsibility must be understood at three basic levels: understanding defining the responsibilities of a trusted repository are: disciplines, or format of materials; and understanding which arrangements such as consortial agreements or shared user communities, Research repositories need to understand fully what responsibilities they local requirements and how to meet them; understanding how other

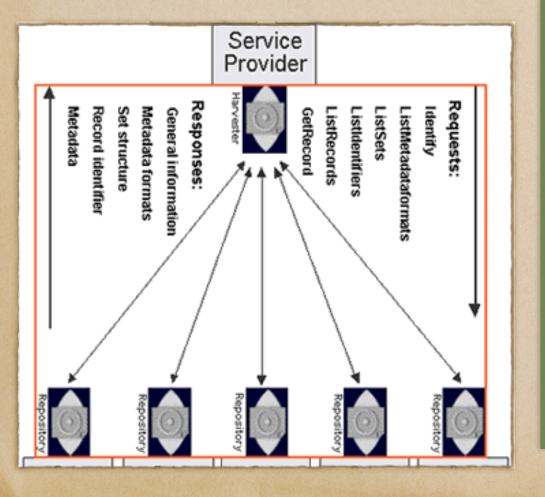
- the scope of collections;
- preservation and lifecycle management;
- the wide range of stakeholders;
- ownership of material and other legal issues; and
- cost implications

A Reliable Digital Repository

- negotiates for and accepts appropriate information from information producers and rights holders;
- obtains sufficient control of the information provided to support long-term preservation;
- determines, either by itself or with others, the users that make up its designated community, which should be able to understand the information provided;
- ensures that the information to be preserved is "independently understandable" to the designated community;
- follows documented policies and procedures that ensure the information is disseminated as authenticated copies of the original or as traceable to the original; preserved against all reasonable contingencies and enables the information to be
- ٠ standard practice in the creation of digital resources, including outreach programs makes the preserved information available to the designated community; and for potential depositors works closely with the repository's designated community to advocate the use of

OAI Protocol for Metadata Harvesting

The Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH) is a protocol developed by the Open Archives Initiative. It is used to collect the metadata descriptions of the records in an archive so that services can be built using metadata from many archives. An implementation of OAI-PMH must support representing metadata in Dublin Core, but may also support additional representations. OAI-PMH uses XML over HTTP. Version is 2.0 was updated in 2008.



Open Source

sufficiently lucrative commercial developers have not viewed it as in this area of computing, largely because community. Open source systems predominate modification and improvement, provided that and makes its source code available for a license — there are many variations — that the improvements revert to the developer allows the software to be used free of charge Open source software is made available under

Key Factors in Adoption and Use

- Compliance with Technical Standards, including OAIS and OAI-PHM
- Workflows
- Import/Export Capabilities
- Extensibility
- Presentation Modes

Cost Factors

- **Labor** setup/startup time is relatively short, but collection building is a labor-intensive process
- server is most appropriate **Computer** — a small-to-medium sized Intel-based
- Disk Storage & Backup storage costs are low and continue to drop, but the storage system should be wholly redundant
- open source options are generally available, but not processing, conversion, etc., of such files will be needed; video, and/or image files, utilities supporting the Other software — For collections that entail audio, always sufficient

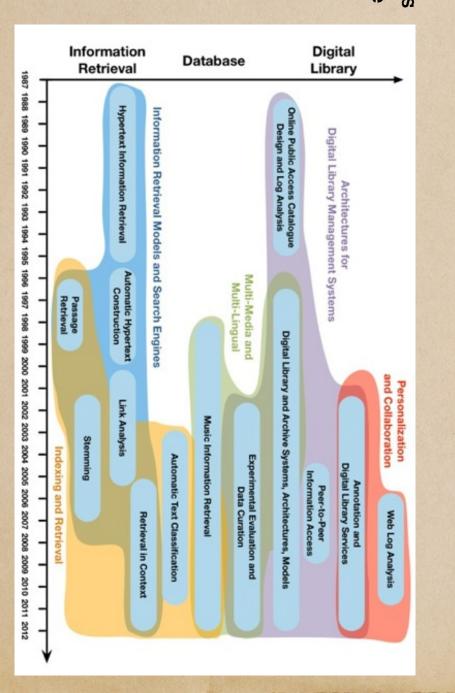
Costs of External Support

- **DuraCloud** basic plan is \$1800 a year, with **1TB** storage
- high end omeka.net — plans range from \$50-999 a unlimited sites, plugins, and themes on the year, with 1-25GB storage and support for
- ePrints Services prices on request



Digital Archive

The digital archive is distinguished by the use of metadata schemes that have been developed within the archival community and by an emphasis on the collection, as opposed to discrete items, as the primary structure for organization and presentation.



Digital Asset Management

Digital asset management systems tend to place less emphasis on the support for formally defined metadata schemes, often relying instead on more ad hoc approaches to description, and more emphasis on the presentation of content.



Digital Repositories

elements, as a basis for description and information provide access to digital objects of various types, and workflows. retrieval, and comparatively more sophisticated they are distinguished by the use of standardized Digital repositories are systems designed to store and metadata schemes, usually based on the Dublin Core

popular. Its customizable workflow, increasing packaging are main reasons extensibility, and support for standardized formatting and because it supports self-archiving. DSpace is also Of the current systems, ePrints is the most popular,

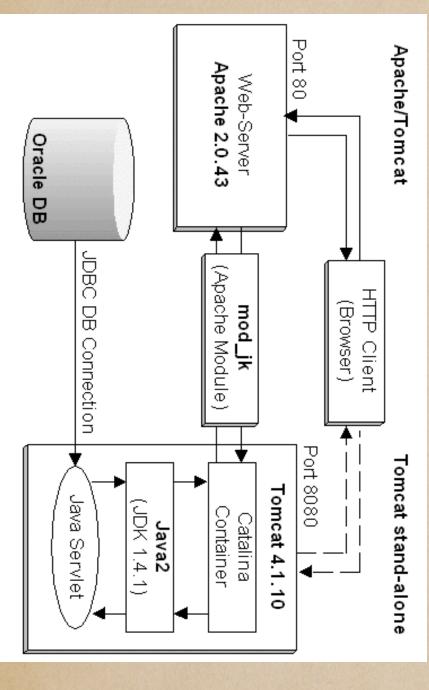
L-A-M-P Model

The LAMP model is the most commonly used configuration, owing to the ease with which the integrated. underlying database and the Web server may



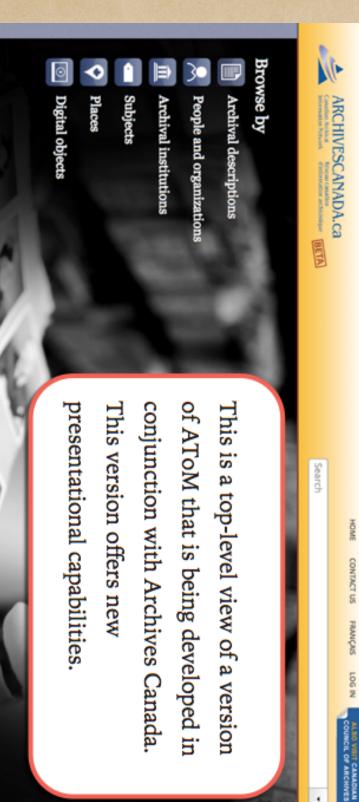
Apache Tomcat

work with open source RDMS such as MySQL and PostgreSQL. Under heavier loads, Tomcat configurations are thought to be more Like LAMP configurations, Apache Tomcat may be configured to



stable

AToM — Access to Memory



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Basic Entry under AToM

atom

Supporting US Education at the University of Pettaburgh
Edit accession record
Basic info
Accession number
2014.09.22/1
I NIS IS THE DASIC ENTRY TORM TOR ATOM,
2014/09/22
supplemented by forms dealing with
administrative and IP issues as well
as provenance and archival
description.
Administrative area
Rights area
Archival description area

Cancel Create

Cancel Create	Administration area	Rights area	Description control area	Access points	Notes area	Allied materials area	Conditions of access and use area	Content and structure area	Context area	Identity area	Support fc
			metadata	and other forms of	pertaining to description	al Cilival Statiual US	prohimal atomatic cappers io:	AToM provides support for			Support for Archival Standards

Template for AtoM's Administrative Area



Authority Records under AToM

Mandates/sources of authority	Functions, occupations and activities	Legal status	Places	History	Description area Dates of existence *	Unotified Identity area	Edit Authority record - ISAAR
	records has been designed to conform to archival standards.	and it forms the basis for the establishment of authority records under AToM. Like other aspects of AToM, the creation of authority	ISAAR is the ISAAR (CPF): International Standard Archival Authority Record for Corporate Bodies, Persons and Families,	This is a fragment of the form for creating authority records.			AR

DSpace

DSpace, which began as a collaboration between MIT and Hewlett-Packard in 2002 and is now maintained by DuraSpace, supports key standards for metadata, packaging, and import/export.

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DSpace Technology

which is based on Apache Cocoon, using XML and XSLT. JSPUI which uses JSP and the Java Servlet API and XMLUI (aka Manakin), stored in a relational database and supports the use of PostgreSQL and system. The metadata, including access and configuration information is and access. The asset store is maintained on a file system or similar storage applications provide interfaces for administration, deposit, ingest, search DSpace is a set of cooperating Java web applications and utility programs that maintain an asset store and an associated metadata store. The Web Oracle database. DSpace currently support two primary web interfaces:

repository domain, such as Open Archives Initiative Protocol for Metadata supports the common interoperability standards used in the Institutional DSpace holdings are made available primarily via a web interface, but it also support faceted search and browse functionality using Apache Solr. Harvesting, SWORD, OpenSearch, and RSS. More recent versions of DSpace also supports the OAI-PMH v2.0, and is capable of exporting METS (Metadata Encoding and Transmission Standard) packages. DSpace

DSpace, with XMLUI

: DSpace Repository

DSpace Home

Kent: DSpace 4.0 at SIS

endeavours of students enrolled in LIS 2610 Library and Archival Computing DSpace is an open source platform, providing digital service that collects, preserves, and distributes digital material This site is named in honor of Allen Kent, one of the founders of the field of information science, and supports the

Communities in DSpace

Select a community to browse its collections

LIS 2610 Library & Archival Computing

Recently Added

Ebola and Hantaviruses

Peters, CJ (FEMS Immunology and Medical Microbiology, 1997)

humans caused by negative- stranded RNA viruses for which we have no vac- cines. These viruses present ... Hantavirus pulmonary syndrome (HPS) and Ebo- la hemorrhagic fever are acute diseases with high mortality rates in

Ebola haemorrhagic fever

Ebola viruses are the causative agents of a severe form of viral haemorrhagic fever in man, designated Ebola Feldmann, Heinz; Geisbert, Thomas W. (The Lancet, 2011-03-05)

haemorrhagic fever, and are endemic in regions of central Africa. The exception is the species Reston Ebola ...

Warfield, Kelly; Bosio, Catharine M.; Welcher, Brent C.; Deal, Emily M.; Mohamadzadeh, Mansour; Schmaljohn, Ebola Virus-like particles protect from lethal Ebola virus infection

The filovirus Ebola causes hemorrhagic fever with 70-80% human mortality. High case-fatality rates, as well as Alan; Aman, M. Javad; Bavari, Sina (PNAS, 2003-12-23)

cnown aerosol infectivity, make Ebola virus a notential global health threat and possible biological warfare ...

Advanced Search Search DSpace 8

Logio

All of DSpace Browse Subjects Litles By Issue Date Authors communities & Collections

My Account

Register Login

Discover

Author Baclot, Thierry (3) Golub. T. R. (4) Sarlow_Jay (2) Aspin, Colin.(2) Armstrong. S. A. (2) Saprio, Jaakko (3) Feldmann, Heinz (3) Fraser, William R. (5)

Beck, Tracy L. (2) ... View More Christensen, Kaare (3)

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The enhancement, also known as "Manakin," was developed at Texas A&M DSpace interface can be enhanced; the most popular

Standard Entry under DSpace

: DSpace Repository

DSpace Home → LIS 2610 Library & Archival Computing → Baltenhol → View Item

Berridge, Kent C Motivation concepts in behavioral neuroscience

Date: 2004-04 URI: http://hdl.handle.net/123456789/576

Abstract:

what limbic brain systems are chiefly evolved to do, i.e., to mediate psychological processes that guide real behavior Concepts of motivation are vital to progress in behavioral neuroscience. Motivational concepts help us to understand interpretation of behavioral neuroscience research. These concepts include homeostasis, sepoints and setting incentives, and reward "iking' versus 'wanting'. and receptors), neural hierarchies, and new concepts from affective neuroscience such as allostasis, cognitive processes, hedonic reactions, incentive motivation, drive centers, dedicated drive neurons (and drive neuropeptide points, intervening variables, hydraulic drives, drive reduction, appetitive and consummatory behavior, opponent This article evaluates some major motivation concepts that have historic importance or have influenced the

Show full item record

Files in this item

Name: Motivation concepts ... Size: 2.245Mb Format: PDF

View/Open

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Context Edit this liters

Advanced Search Search DSpace This Collection

Browse

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Search DSpace

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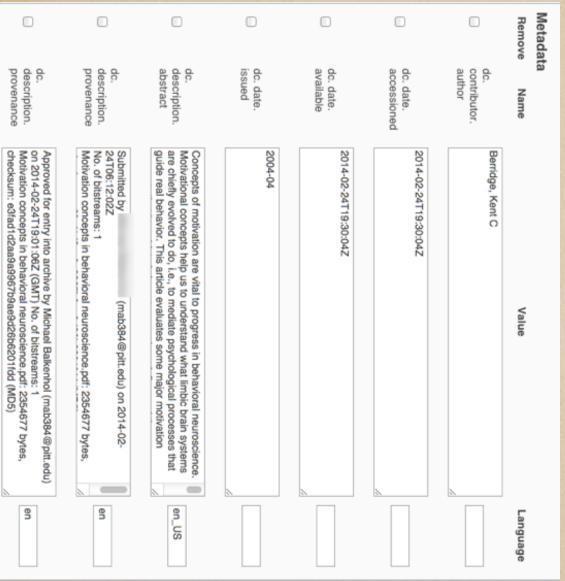
All of DSpace

This item appears in the following Collection(s)

Editing a DSpace Item

Bace Horne Items Item status	DSpace Repository	Profile: Christinger Tomer I Lopout	
Edit Item		Search DSpace	
Item Status Item Bitstreams Ite	Item Metadata View Item Curate	8	
Welcome to the item management page. From here you can withdraw may also update or add new metadata / bitstreams on the other tabs.	Welcome to the item management page. From here you can withdraw, reinstate, move or delete the item. You may also update or add new metadata / bitstreams on the other tabs.	Advanced.Search	
Item Internal ID:	C99	Browse	
Handle:	123456789/576	All of DSpace	
Last Modified:	2014-02-24 14:30:04:619	Communities & Collections	
Item Page:	http://xent.exp.sis.pitt.edu/8080/xmhui/handle/123456789/576	Authors	
Edit item's authorization policies:	Authorizations	Subjects	
Withdraw item from the repository:	Withdraw	My Account	
Move item to another collection:	More	Logout Profile Submissions	
Make item private:	Make it private		
Completely expunge item:	Permanently delete	Administrative Access Control	
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Metadata under DSpace



Default Policies Set

Policies for Collection " (123456789/295,ID: 36)

Click here to add a new policy.

		of accord or an other second se	
	٥	Action	Group
	25743	ADD	COLLECTION_36_WORKFLOW_STEP_3 [Edit]
	25742	ADD	COLLECTION_36_WORKFLOW_STEP_2 [Edit]
	25741	ADD	COLLECTION_36_WORKFLOW_STEP_1 [Edil]
	25740	ADD	COLLECTION_36_SUBMIT [Edit]
	25739	ADMIN	COLLECTION_36_ADMIN [Edit]
	25738	DEFAULT_BITSTREAM_READ	Anonymous [Edit]
	2573T	DEFAULT_ITEM_READ	Anonymous [Edit]
	25736	READ	Anonymous [Edit]
l			

Return

Metadata Fields

Schema metadata fields

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dc.date.updated	dc.date.submitted	dc.date.issued	dc.date.created	dc.date.copyright	dc.date.available	dc.date.accessioned	dc.creator	dc.coverage.temporal	dc.coverage.spatial	<u>dc.contributor</u>	dc.contributor.other	dc.contributor.illustrator	dc.contributor.editor	dc.contributor.author	dc.contributor.advisor	Field
The last time the item was updated via the SWORD	Recommend for theses/dissertations.	Date of publication or distribution.	Date of creation or manufacture of intellectual content if different from date.issued.	Date of copyright.	Date or date range item became available to the public.	Date DSpace takes possession of item.	Do not use; only for harvested metadata.	Temporal characteristics of content.	Spatial characteristics of content.	A person, organization, or service responsible for the content of the resource. Catch-all for unspecified contributors.					Use primarily for thesis advisor.	Scope Note

OAI Harvesting

Control Panel

Java Information DSpace Configuration System-wide Alerts Harvesting Current Activity

Harvest Scheduler Controls Status:

Automatic harvesting is not active. (refresh)

Actions:

Start Harvester Reset Harvest Status

Collections set up for harvesting:

Active harvests:

Queued harvests:

OAI errors:

Internal errors:

Generator Settings ORE source: oai Harvester Settings

> OCLC Research periodically harvests OAI-compliant metadata from the institutional repositories of interested DSpace users. OCLC converts the harvested metadata into a format suitable for re-harvesting by non-OAI services and popular search engines. Specific tasks involved in this process include

- harvesting the DSpace metadata using OAI-PMH
- resolving DSpace handles so that originating institutions can be identified
- making the resulting URLs harvestable by search services such as Google

: DSpace Repository

Kent: DSpace 4.0 at SIS

O'Space is an open source plattom, providing digital service that collects, preserves, and distributes digital material This site is named in honor of Alex Kert, one of the founders of the fields of the found on science, and supports the endeavours of students enrolled in LIS 2610 Library and Archival Computing.

Communities in DSpace

Select a community to browse its collections.

All of DSpace

les & Collections

Titles Subjects Authors By Issue Date Browse

Advanced Search

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Search DSpace

LIS 2610 Library & Archival Computing

Recently Added

Ebola and Hantaviruses

Hantavivus pulmonary syndrome (HPS) and Ebo- la hemorrhagic lever are acute diseases with high mortality rates in humans caused by negative- stranded RNA visues for which we have no vac- cines. These visues present ... Peters, CJ (FEMS Immunology and Medical Microbiology, 1997) Login Begister My Account

Ebola haemorrhagic fever

Ebola viruses are the causative agents of a severe form of viral haemorrhagic fever in man, designated Ebola Feldmann, Heinz; Geisbert, Thomas W. (The Lancet, 2011-03-05) orrhagic lever, and are endemic in regions of central Africa. The exception is the species Reston Ebola ...

Author

Enaner, William R. (5) Golds, T. R. (4) Christensen, Kaare (2) Enktmann, Heister (2) Saarto, Jankeo (2) Armstroop, S. A. (2) Astronop, S. A. (2) Astronop, S. A. (2) Back, Taavy L. (2) Beek, Taavy L. (2) Beek, Taavy L. (2)

Discover

Ebola Virus-like particles protect from lethal Ebola virus infection

The filovirus Ebola causes hemorrhagic fever with 70-80% human mortality. High case-fatality rates, as well as known aerosol infectivity, make Ebola virus a potential global health threat and possible biological v Alan; Aman, M. Javad; Bavari, Sina (PNAS, 2003-12-23) Warfield, Kelly; Bosio, Catharine M.; Welcher, Brent C.; Deal, Emily M.; Moham dzadeh, Mansour; Schmaljohn

Current ebola vaccines

rates of up to 90%. Currently, neither a spec Ebolaviruses cause severe viral hemorrhi Hoenen, Thomas; Groseth, Allison; Feldm

http://kent.exp.sis.pitt.edu:8080/xmlui/

Field immobilization for treatment of

schweinfurthii) at Gombe National Park. Tanzania: findings. challenges. and lessons learned Lonsdorf, Elizabeth; Travis, Dominic; Ssuna, Richard; Lantz, Emma; Wilson, Michael; Gambie, Kathyn; Terle, Karen; Vnthony (2013-01-19) Leendertz, Fablan; Ehlera, Bernhard; Keele, Brandon; Hahn, Beatrice; Thomas, Gillespie; Raphael, Jane; Collins,

Date Issued 2000 - 2014 (274) 1900 - 1999 (25) 1877 - 1899 (21)

diseases are of particular concern, and the costs and benefits of human presence in protected areas with ... medious diseases are widely presumed to be one of the greatest threats to ape conservation in the wid. Humar



DSpace software copyright © 2002-2012 Duraspace

Theme by

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Omeka

Omeka mimics a development model that was devised by a number of open source content management systems, most notably Drupal, embracing a more modular approach to design and development.



system's administrators, and some of which may be deployed on a collectioninstalled and used at the discretion of the and features with extensions that may be by-collection basis Omeka surrounds a core set of functions

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	Embree, Digital Curation Images
	Citation

Dublin Core

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The Phrase Finder, "Image for Tibbo's "Placing the Horse before the Cart: Conceptual and Technical Dimensions of Digital Curation"," Omeka or SS, accessed September 21, 2014, http://S0.17.193.184/omeka/items/show/1093.

Title

Image for Tibbo's "Placing the Horse before the Cart: Conceptual and Technical Dimensions of Digital Curation"

Creator

The Phrase Finder

Source

http://www.phi spylput-the-cart-before-the-horse.html

Format

JPEC Image

Embed

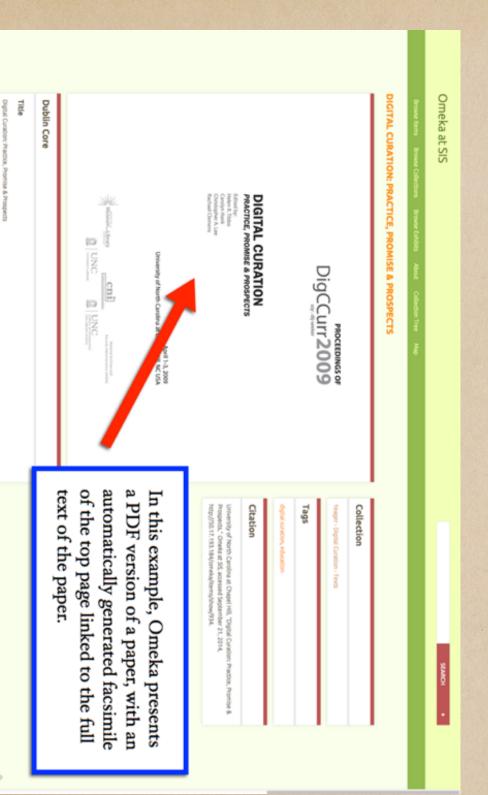
Copy the code below into your web page

<iframe class="omeKa-embed" src="http://50.17.193.184/omeka/items/embed/1093" width="560px" height="315px" frameborder="0" allowfullscreen></iframe>

code for transcluded use. standard format, and embedding on the Dublin Core, a citation in a that it includes a description based entry under Omeka. Please note This is a standard output for an

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Omeka's LC Suggest Module

		turing and	9	Reduct Elements	Мар	Comments	Embedded Items	Collection Tree	LC Suggest	Harvester	Simple Pages OAI-PMH	Exhibits	Tags	Item Types	Collections	Items	Dashboard
Creator				vodu nov	Add Innut	Description							Add Input	Subject			
An entity primarily responsible for making the resource	Digital librariesManagement	Digital librariesCollection development	Digital librariesAccess controlUnited StatesCongresse	Digital librariesAccess controlUnited States	Digital libraries Access control Congresses	Digital librariesAccess controlCanadaCongresses	Digital libraries Access control	Digital libraries		Digital Libraries	Remove Use HTML		Digital curation and cyberinfrastructure	The topic of the resource		Use HTML	
		metadata generation.	standardize this aspect of	Suggest" and helps	piugin module called "LC	This is accomplished via a	matching subject headings.	perform "look ups" of	Library of Congress to	an API published by The	Omeka takes advantage of		Public d Featured	Delete	View Public Page		Save Changes



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The image displays different lenses indicating that educators are now required to become digital curators of a wide scope of disciplines throughout...

Featured Exhibit

TESTING OMEKA

Recently Added Items

IMAGE FOR TIBBO'S "PLACING THE HORSE BEFORE THE CART: CONCEPTUAL AND TECHNICAL DIMENSIONS OF DIGITAL CURATION"



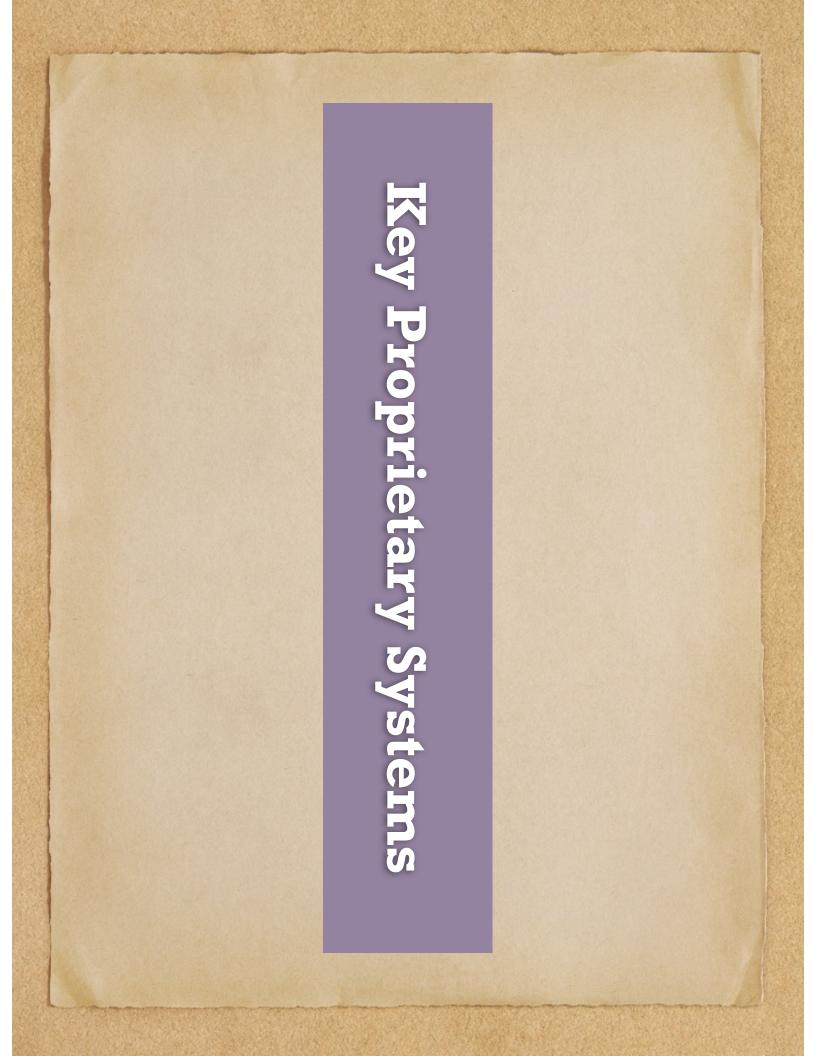
IMAGE FOR DIGITAL CURATION FOR DIGITAL NATIVES



ePrints

- EPrints is a Web and command-line application based on the LAMP architecture (but is written in Perl rather than PHP). It has been successfully run under Linux, Solaris and Mac OS X. A version for Microsoft Windows was released 17 May 2010.
- Version 3 of the software introduced a (Perlbased) plugin architecture for importing and exporting data, converting objects (for search engine indexing) and user interface widgets. Configuring an EPrints repository involves modifying configuration files written in Perl or XML. The appearance of a repository is controlled by HTML templates, CSS stylesheets and inline images. While EPrints is shipped with an English translation it has been translated to other languages through (redistributable) languagespecific XML phrase files. Translations include Bulgarian, French, German, Hungarian, Italian, Japanese, Russian, Spanish and Ukrainian.

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Key Resources & Sites

- AtoM https://www.accesstomemory.org/en/
- CONTENTdm
- DSpace http://www.dspace.org/
- ePrints http://www.eprints.org/software/
- Omeka <u>http://omeka.org/</u>

