

IsoveraDL: Exploring a Sustainable Digital Library Using SaaS and Open Source Software

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Overview

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- Rationale for IsoveraDL, open source, and a Software as a Service delivery model
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Background

- About BioSciEdNet (BEN)
 - BEN is the NSDL biological sciences pathway
 - Organized as a collaborative of 26 professional associations
 - Multiple disparate collections on common metadata standard
 - Commitment to peer-reviewed material
- Speakers
 - Cal Collins – Chief Technology Officer, Isovera, Inc.
 - Susan Musante - Education Programs Manager, AIBS

BEN Portal

<http://www.biosciencednet.org/>

The screenshot shows the BEN Portal website. At the top, there is a navigation bar with links for HOME, ABOUT, K-12 EDUCATORS, COLLEGE FACULTY, CONTRIBUTORS, and SIGN IN. The main header features the BEN BIOSCIEdNET logo and the tagline "DIGITAL LIBRARY PORTAL FOR TEACHING AND LEARNING IN THE BIOLOGICAL SCIENCES". Below the header is a search bar with a dropdown menu for "All Audience Levels" and checkboxes for "FREE records only" and "Visual media only".

USING BEN

- BROWSE BY SUBJECT
- BROWSE BY RESOURCE TYPE
- BROWSE BY AUDIENCE / LEVEL

BEN SCHOLARS

- BEN TECHNOLOGY WIKI
- ISOVERADL WIKI
- CALENDAR

WELCOME

Welcome to the BEN portal, the National Science Digital Library (NSDL) Pathway for biological sciences education. The BEN Portal provides access to education resources from BEN Collaborators and is managed by the American Association for the Advancement of Science (AAAS). Over 14,269 reviewed resources covering 77 biological sciences topics are available. BEN resources can help you engage student interest, shorten lesson preparation time, provide concept updates, and develop curricula that are in line with national standards for content, use of animals and humans, and student safety.

Currently, registration is not required in exchange for access to the wealth of information freely available through the BEN Portal. Users retain the option to **Register** and/or **Login** to join our community of 10,431 biological science educators. Our **privacy policy** provides detailed explanation on what information is collected, protected, and used for users desiring to exercise their option of registration.

SIGN IN [Advanced Search](#)

NEW RESOURCES



VISUAL MEDIA LIBRARY

Teaching STRATEGIES

- Avian Behaviors**
Teach niche partitioning, competitive exclusion, and speciation in the field using natural bird assemblages.
- Avian Niche Partitioning**

SITE MAP | CONTACT | POLICIES

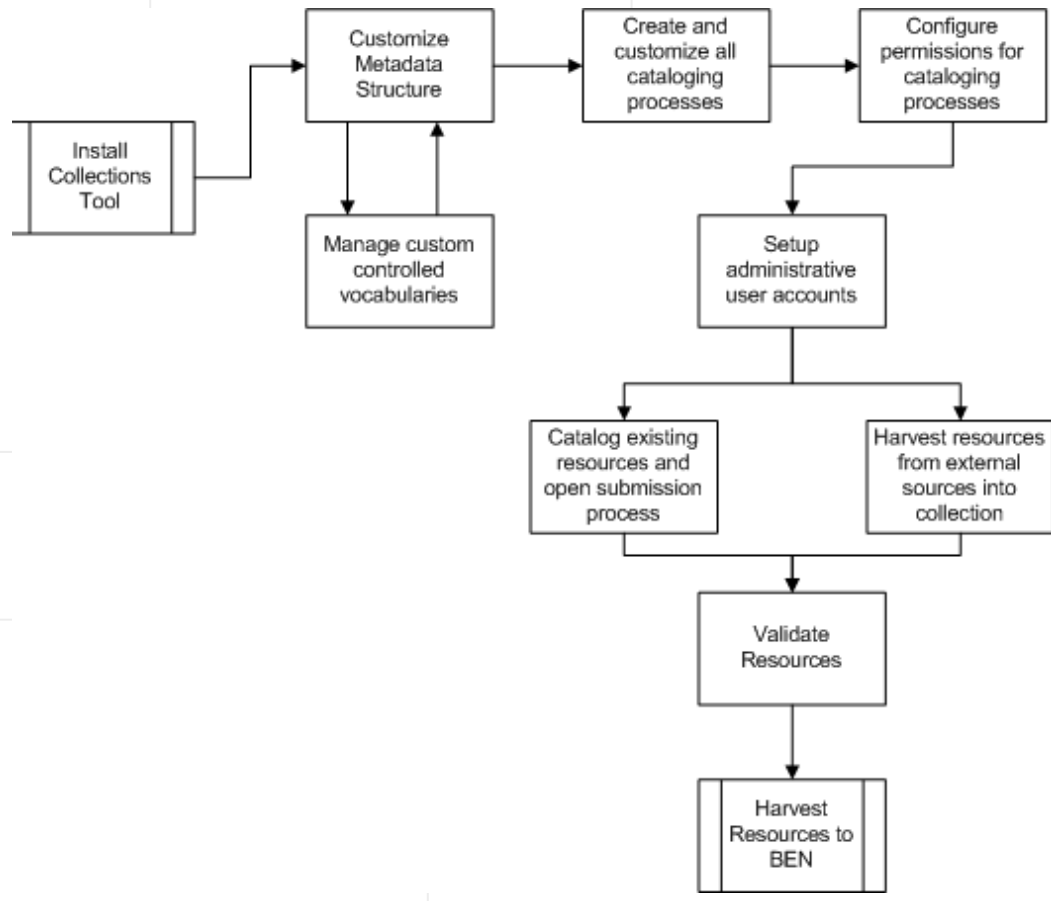
AAAS  **NSDL**

Rationale for IsoveraDL

- Technology start up costs are often a barrier to entry to the Digital Library world
- Solution #1: Create an open source digital library software platform
 - 2006: Released IsoveraDL
 - Allows set up, customization, and management of digital library with little (or zero!) programming knowledge
 - Followed agile development approach with continuous engagement of stakeholders (meetings, conference calls, focus groups, issue tracker, collaborative wiki)

What is IsoveraDL?

- A highly customizable digital library and peer review system
- Metadata, forms, workflow and users all customized and managed through a web interface



How do I use IsoveraDL?

- Anyone can download and use IsoveraDL (open source software)
- Organizations can do their own implementations and customizations of the software

IsoveraDL Demo
 Software for cataloging digital libraries

Home	Catalog	Peer Review	Validate	Authors	Cataloging Forms	Metadata Fields	Controlled Vocabularies	Metadata Records	Basic Search	Advanced Search	Browse	User Profile Management
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Metadata Fields

BEN

[Add a custom metadata field](#)

Field Name	Type	Requirement	Multiplicity	Controlled Vocabulary	Action
<i>General</i>					
Title	String	Required	Single		Edit Can't delete**
General Language	Controlled vocabulary term	Required	Single	Complete ISO Language Codes List	Edit Can't delete**
General Description	String	Required	Single		Edit Can't delete**
Keyword	String	Required	Multiple		Edit Can't delete**
Coverage	String	Not Required	Single		Edit Can't delete**
Structure	Controlled vocabulary term	Not Required	Single	Structure	Edit Can't delete**
Aggregation Level	Controlled vocabulary term	Not Required	Single	Aggregation Level	Edit Can't delete**
<i>LifeCycle</i>					
Version	String	Not Required	Single		Edit Can't delete**
Status	Controlled vocabulary term	Required	Single	Resource Status	Edit Can't delete**

Case Study:

The Ecological Society of America (ESA) www.ecoed.net

- First IsoveraDL implementation (lots of learning!)
- Locally Installed
- Data Migration from old system
- HTML implementation
- Search and Browse

The screenshot shows the homepage of the Ecological Society of America's (ESA) digital library, EcoEdNet. The page features a blue header with navigation links: About, Submit, Community, Education, Contact Us, Login, and Register. The main content area is divided into several sections:

- Header:** Includes the ESA logo, a banner image of a forest, and logos for ben (BiosciEdNet) and NSF.
- Navigation:** Links for About, Submit, Community, Education, Contact Us, Login, and Register.
- What's New:** A section with three bullet points:
 - November 9:** New Drought & Water-Ecosystem Services Collection! In association with ESA's first Millennium Conference, we are debuting a special collection of teaching resources relevant to the meeting theme. We are still accepting submissions for the collection! [Submit by January 15, 2010](#) to add your resource.
 - August 14:** Site upgrade! New features include an Advanced Search and ability to save partially completed submission forms.
 - July 21:** The results of our user survey were published in the July 2009 issue of the *ESA Bulletin*.
- Search our Collection:** A search box with a "Search" button and a link to "Advanced Search".
- Browse our Collection:** A grid of links to various collection categories:
 - [The science of ecology](#)
 - [Populations](#)
 - [Communities](#)
 - [Landscapes and larger scales](#)
 - [Applied ecology](#)
 - [Individuals](#)
 - [Interspecific interactions](#)
 - [Ecosystems](#)
 - [Human impacts](#)
- Add to Collection:** A "Submit" button.
- Footer:** Links for Home, About Us, Contact Us, Copyright, Privacy Policy, and Terms of Use.

Rationale for IsoveraDL SaaS

- Technology operations and maintenance is also a barrier to entry to the Digital Library world
- Solution #2: Implement a Software as a Service (SaaS) architecture based on the IsoveraDL core
 - 2009: Launched hosted infrastructure to provide organizations with a turnkey web space for their collection.
 - Required adaptation of the IsoveraDL to offer as a SaaS solution.
 - Targeted to smaller societies with fewer resources and less pre-existing collections infrastructure

New Model: Software as a Service

(SaaS)

- Instead of installing and maintaining your own software, you 'rent' it. Hosting, installation, maintenance, and upgrades are done centrally.
- SaaS is more than just hosting - "Multi-tenant, Single Platform"
- What are the advantages of using SaaS?
 - Costs amortized (economies of scale)
 - Constant monitoring and maintenance
 - Regular upgrades
- What are the risks of using SaaS?
 - Complex functionality customizations difficult or may not be supported at all (e.g. Use of non LAMP stack platform, HTTPS, new core feature)
 - No access to the back end
 - Data hosted at 3rd party

Current Status

IsoveraDL

- IsoveraDL Wiki: <http://www.biosciencednet.org/isoveradl/doku.php>
 - Download latest release, version 2.3
- Which BEN partners use IsoveraDL?
 - Local Implementations:
 - The Video and Image Data Access (VIDA)
 - The Ecological Society of America (ESA)
 - BioQUEST Curriculum Consortium (BCC)
 - SaaS:
 - BEN General Biology Collection (AAAS)
 - AIBS
 - The Biotechnology Institute (BI)
 - Society of Toxicology

Welcome to IsoveraDL, Collection Administrator

You are authorized for the following tasks. If you would like a higher level of access, please contact the administrator.

Catalog Metadata Records

[ActionBioscience: Provide the URL for and add BEN compliant Metadata Record for the resource](#)

[BioScience: Provide the URL and add BEN compliant Metadata Record for BioScience article](#)

Peer Review Metadata Records

[Perform peer review tasks](#)

Validate Metadata Records

[View all records by validation stage](#)

[Assign unvalidated records](#)

[View assigned validations](#)

Manage Authors

[View the authors directory](#)

Manage Metadata Record Cataloging/Submission Forms

[View all Metadata Record Cataloging/Submission Forms](#)

Manage Metadata Fields

[View metadata fields](#)

[Add a new metadata field](#)

Create a new record

AIBS Metadata Fields

This page contains all of the required fields for a BEN metadata record.

Location*	<input type="text"/>																
Title*	<input type="text"/>																
What language is the resource in?*	English <input type="button" value="v"/>																
Resource summary*	<input type="text"/>																
Keywords*	<input type="text"/> <input type="button" value="Add another"/> <input type="button" value="Remove"/>																
Author or editor*	<table border="1" style="width: 100%;"> <tr> <td>Select Author:</td> <td><input type="button" value="v"/></td> </tr> <tr> <td>First Name:*</td> <td><input type="text"/></td> </tr> <tr> <td>Last Name:*</td> <td><input type="text"/></td> </tr> <tr> <td>Email:</td> <td>editor@actionbioscience.org</td> </tr> <tr> <td>Institution:*</td> <td><input type="text"/></td> </tr> <tr> <td>Department:</td> <td><input type="text"/></td> </tr> <tr> <td>Date of Contribution:*</td> <td> April <input type="button" value="v"/> 23 <input type="button" value="v"/>, 2009 <input type="button" value="v"/> </td> </tr> <tr> <td colspan="2"> <input type="button" value="Add another author"/> <input type="button" value="Remove author"/> </td> </tr> </table>	Select Author:	<input type="button" value="v"/>	First Name:*	<input type="text"/>	Last Name:*	<input type="text"/>	Email:	editor@actionbioscience.org	Institution:*	<input type="text"/>	Department:	<input type="text"/>	Date of Contribution:*	April <input type="button" value="v"/> 23 <input type="button" value="v"/> , 2009 <input type="button" value="v"/>	<input type="button" value="Add another author"/> <input type="button" value="Remove author"/>	
Select Author:	<input type="button" value="v"/>																
First Name:*	<input type="text"/>																
Last Name:*	<input type="text"/>																
Email:	editor@actionbioscience.org																
Institution:*	<input type="text"/>																
Department:	<input type="text"/>																
Date of Contribution:*	April <input type="button" value="v"/> 23 <input type="button" value="v"/> , 2009 <input type="button" value="v"/>																
<input type="button" value="Add another author"/> <input type="button" value="Remove author"/>																	

Name of this Metadata Record Cataloging Form*:	ActionBioscience.org Cataloging Process
Description of this Metadata Record Cataloging Form:	This input process allows you to catalog a BEN metadata record.
Prompt to display to users for adding a record with this process*: e.g., "Add a curriculum record"	ActionBioscience: Provide the URL for ar
Title for Page 1*: The title will be displayed prominently at the top of the page during the cataloging process.	AIBS Metadata Fields
Help text for Page 1: The help text will be displayed below the page title, to guide the user through the cataloging process. HTML is acceptable.	This page contains all of the required fields for a BEN metadata record.

The inputs below allow you to specify the input fields which will appear during the cataloging process on page 1, and how they relate the metadata structure. By clicking the appropriate buttons at the bottom of the screen), you can change the order of pages within t Metadata Record Cataloging Form, add a new field to this page, or remove this page from the input process.

Field 1		Move this field down	Remove this field
Metadata Field*:	Location	Input Type*:	URL without caption or description
Prompt*:	Location	Method*:	visible
Brief Help:		Default:	Location: <input type="text"/>
Extended Help:		Controlled vocabulary:	No controlled vocabularies apply.
Top of the page		Bottom of the page	
Field 2		Move this field up	Move this field down
Metadata Field*:	Title	Input Type*:	Single-line text
Prompt*:	Title	Method*:	visible

Edit Controlled Vocabulary

Name	BEN Subject/Discipline Taxonomy
Short Name Should be a unique name, with only alphanumeric characters, e.g. "resourceType"	discipline**
Description	Life Science Discipline
Terms The general format for the list of terms is: (1) Parent term - (1.1) Child term -- (1.1.1) Grandchild term (2) Another parent term Each line should have exactly one term. Each line should start with zero or more dashes, to indicate the level of depth of the corresponding term; top-level terms have zero dashes. Each term may have an identifier enclosed in parentheses. The identifier should be unique across the controlled vocabulary, and should contain only alphanumeric characters and dots (i.e. the characters A-Z, a-z, 0-9, and ".") In particular, spaces and punctuation (except for periods) are not allowed in the identifier. Every non-top-level term should have exact one more dash than its parent; the number of dashes shouldn't increase by more than one from one level to the next. An example controlled vocabulary is: Biology - (ecology) Ecology -- Water conservation -- (air) Air pollution Chemistry	<ul style="list-style-type: none">(1) Agriculture & Aquaculture(2) Anatomy(3) Anthropology & Archaeology(4) Bacteriology(5) Behavioral Science(6) Biochemistry(7) <u>Biocomplexity</u>(8) Biodiversity(9) Bioengineering(10) Bioethics(11) <u>Bioinformatics</u> <u>Genomics</u> & <u>Proteomics</u>(12) Biophysics(13) <u>Biostatistics</u>(14) Biotechnology(15) Botany & Plant Science(16) Cardiology

Experience so far: Benefits, Challenges, Lessons

- AIBS
 - Customized cataloguing pathways, managing two different publications
 - Setting up and training other users
- Technology/IT Team
 - It is critical to listen to user feedback, collaborate with experts and end users in design process and share best practices
 - Must build robust infrastructure that will be manageable and reliable

Thank You

- Demo of IsoveraDL:
<http://saas.aaas.org/demo/>
- IsoveraDL Wiki:
<http://www.biosciednet.org/isoveradl/doku.php>
- BEN Technology Wiki:
<http://www.biosciednet.org/wiki/doku.php>
- BEN Portal:
<http://www.biosciednet.org/>