

Opening the ILS for Discovery

The Digital Library Federation's ILS-DI initiative

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NISO Tools for Discovery Forum
March 28, 2008




What's the problem?

- **The “Integrated Library System” is looking more and more to users like Yet Another Silo**
 - Acquisitions, Cataloging, Circulation, OPAC all important to have, and to operate in concert
 - But: need to let them work in context with full range of library and researcher tasks and tools
- **We need Integrating Library Systems**
 - Managing a core set of essential data and services
 - Communicating with other applications to make the most of library resources
- **We need practical solutions soon**
 - Our users, libraries, aren't waiting for “built-in” solutions
 - Interface standards allow wide variety, marketplace of discovery applications

FindIt: Local federated search

Library Home • Choose a LIBRARY

 **FindIt!**

human genome Anywhere go

Find databases, e-journals, FAQs, Library webpages...

E-Resources

Databases & Article Indexes


- [Stanford Genomic Resources](#) ⓘ

E-Journals

- [Human Genome News](#) ⓘ

Additional E-Resources

- [Human Genome Project Information](#) (Search Engines & Portals) ⓘ
- [Berkeley Drosophila Genome Project](#) (Search Engines & Portals) ⓘ
- [Stanford Genomic Resources](#) (Search Engines & Portals) ⓘ
- [Human Genome Project Information](#) (Government Information) ⓘ
- [National Human Genome Research Institute - ELSI](#) (Schools & Research Centers) ⓘ

 **More resources in...**

- [Biology](#)
- [Biomedical Research](#)


Journals, Newspapers (Franklin Catalog)

- [Human genome quarterly](#).
- [Human genome quarterly \[microform\]](#).
- [Human genome quarterly \[electronic resource\]](#).
- [Human genome : program report](#).
- [Human genome : program report](#).
- [View more hits...](#)

Vcat Video Catalog

- [Genomes](#) : genetic roots of the [human](#) family

VCat: Special-purpose catalog



VCat
Video Catalog

Search
chinatown
All of these ▾
 DVD only **GO**
[Search hints...](#)
[Advanced search...](#)

> **What's new in VCat?**

> **BROWSE BY:**
Title
People
- Actors
- Directors
Genre
Country
Language
Production Company

15 record(s) found for 'chinatown' all word(s)

Amarilly of Clothes-line Alley (1918)

Available. Van Pelt Video Collection; ask at Circulation Desk. DVD • 1999
Call No. DVD PS3525.A489 A42 1999
"Amarilly is the belle of Clothes-line Alley, a neighborhood near San Francisco's Chinatown. One night after a fight breaks out in the club where she works as a cigarette girl, Amarilly brings an injured socialite home with her. Grateful for her care, he hires Amarilly to clean his apartment and over time begins falling in love with her. But when Amarilly is presented at a posh social gathering, the disastrous results fuel the battle of high and low society."--Container.

At the jazz band ball : early hot jazz, song and dance 1925-1933 (1993)

Available. Van Pelt Library Ormandy Music and Media Center. VHS • 1993
Call No. VHS Music Videorecording 475

Chinatown (1974)

Circulation Review. Van Pelt Video Collection. VHS • 1999
Call No. VHS PN1997 .C4644 1999
Los Angeles private eye Jake Gittes (Nicholson) is approached by a mysterious woman (Dunaway) who wishes to have her husband investigated. As the case unfolds, though, he discovers it to be much more complex and dangerous than he had expected, involving politics, powerful men, and terrible family secrets.

Chinatown (1974)

Available. Shelved at Storage. [Click here to request delivery.](#) VHS • 1999
Call No. VHS PN1997 .C4644 1999
Los Angeles private eye Jake Gittes (Nicholson) is approached by a mysterious woman (Dunaway) who wishes to have her husband investigated. As the case unfolds,

PennTags: Content annotation

PennTags / search / discovery

Everything is miscellaneous : the power of the new digital disorder / David Weinberger. copy

Weinberger, David, 1950- . *Everything is miscellaneous : the power of the new digital disorder / David Weinberger.* 1st ed. 9780805080438 series New York : Times Books, 2007.

Call#: Van Pelt Library HD30.2 .W4516 2007

Call#: Van Pelt Library HD30.2 .W4516 2007

tagged discovery by ockerblo ...on 21-MAR-08

Garden State Discovery Museum copy

tagged libment kids by bmarcell ...on 07-MAR-08

Chemistry: Chemical Synthesis, Drug Discovery, Materials Science, and Stable Isotopes copy

 subscribe to this page

search

related to discovery

- 2 + dlf_spring_2006
- 1 + federated_search
- 1 + licensed_content
- 1 + recommender
- 1 + searching
- 1 + sru
- 1 + strategic_planning

some recent projects

-  Test Project
-  Alternative and Ethnic

PennTags: Content annotation

Location: Van Pelt Library

Call Number: HD30.2 .W4516 2007

Status: Checked Out. Overdue on 03-12-08 (Use BorrowDirect+ or Place Request to Recall)

Location: Van Pelt Library

Call Number: HD30.2 .W4516 2007

Status: Checked Out. Due 09-30-08 (Use BorrowDirect+ or Place Request to recall).

[← previous](#) [next →](#)

Print/Save/Email	
Select Download Format	Full Record <input type="button" value="Print/Save"/> <input type="button" value="Save Search Query"/>
Enter your email address:	<input type="text"/> <input type="button" value="Email"/>
<input type="button" value="Save"/>	<input type="button" value="Save To Bookbag"/>

[Proxy](#) | [Add to PennTags](#) | [Franklin Logout](#)

This resource has been posted in PennTags

Posted by [ockerblo](#) on 03-21-2008

- annotation:

- tags: [discovery](#)

DLA: Facet-based searching

Franklin

Search Collection:

Results

Showing hits **1 - 21** out of **21** [Jump to: First](#) • [Previous](#) • [Next](#) • [Last](#)

A study of Macbeth for the stage.	Neilson, Francis, 1867-	1952
Accepted addresses, or, Proemium poetarum. To which are added, Macbeth travestie, in three acts, and miscellanies /		1813
Selected poems / Macbeth	MacBeth, George	2002
	Shakespeare, William, 1564-1616	1865
Shakespeare's Lady Macbeth :	Gerwig, George	1929
	William, b. 1867	
The tragedy of Macbeth /	Shakespeare, William, 1564-1616	1965
Understanding Shakespeare :	Frieman, Ruth	1964
Shakespeare's dramas of tyranny	McGrail, Mary Ann	1988
Verdi's Macbeth :		1984
Macbeth /	Shakespeare, William, 1564-1616	1971
A textual study of Macbeth	Amneus, Daniel J	1953
Short studies of Shakespeare's plots /	Ransome, Cyril, 1851-1897	1924
Uppisittil og fróðlegu söfnum af Shakespeare :	Sabbadini, Ado, 1898-1954	1954

Currently Used Filters:

- ✖ Query : macbeth

Narrow Results By:

Language

eng	18
ger	3
fre	1
ita	1

Subject all

Shakespeare, William, 1564-1616. Macbeth.	3
Shakespeare, William, 1564-1616 Tragedies.	2
Abbaye de Saint-Wandrille.	1
CHR 1825-1833	1

Name all

Shakespeare, William, 1564-1616	5
---------------------------------	---

Subject maps



Franklin Discovery - from the Penn Library Catalog

BETA



Browsing subject area: **Cataloging, Cooperative** ([About this browser](#))
You can also [browse an alphabetical list](#) from this subject or from:

Cataloging, Cooperative

Broader terms:

- [Centralized processing \(Libraries\)](#)
- [Intellectual cooperation](#)
- [Cataloging](#)

Related terms:

- [Bibliography, International](#)
- [Bibliography, Universal](#)
- [Library cooperation](#)

Narrower terms:

- [Cataloging, Cooperative -- Bibliography](#)
- [Cataloging, Cooperative -- Data processing](#)
- [Cataloging, Cooperative -- Germany \(West\)](#)
- [Cataloging, Cooperative -- United States](#)
- [Cataloging in publication](#)

Filed under: [Cataloging, Cooperative](#)

Full Title	Author	Date
British Library and AACR: report of a study commissioned by the Department of Education and Science; director of study A. H. Chaplin.		1973
International distribution of catalogue cards, present situation and future prospects / [by] R. S. Giljarevskij.	Giliĭ, ai ,revskiiĭ, R. S. (Rudzhero Sergeevich)	1969
Locating books for interlibrary loan, with a bibliography of printed aids which show location of books in American libraries, by Constance M. Winchell.	Winchell, Constance Mabel, 1896-	1930
Goethe und die Weimarer Bibliothek, von Otto Lerche.	Lerche, Otto, 1885-	1929
Fuñnfzehn jahre Koñnigliche und staatsbibliothek, dem scheidenden generaldirektor exz. Adolf von Hamack zum 31. mañrz 1921 uñberreicht von den wissenschaftlichen beamten der		1921

Integration: Lots of possibilities

- **Some big areas we're not addressing**
 - Acquisitions integration (e.g. w/ financial systems)
 - Cataloging integration (e.g. w/ external cataloging partners inside and outside “librarian” community, multiple forms of catalog data beyond MARC)
 - Item management (physical or digital, e.g w/ ERMS)
- **Our focus: Patron discovery, from search to use**
 - Finding relevant resources (discovery)
 - Acquiring them (delivery)
 - Managing their usage (patron services)

The ILS-DI Task Force

- John Mark Ockerbloom, Penn (chair)
- David Bucknum, Library of Congress
- Todd Grappone, USC
- Dave Kennedy, University of Maryland
- Emily Lynema, NC State
- Patricia Martin, California Digital Library
- Dianne McCutcheon, National Library of Medicine
- Terry Reese, Oregon State

ILS-DI Task Force activities

- **Spring 2007**: Open discussion session @ DLF Forum
- **Summer/Fall 2007**: Group formed, work plan laid out, survey conducted, initial rough draft released
- **Winter 2007/8**: Recommendation draft discussed with DLF Forum, revised, feedback more broadly solicited
- **March 2008**: Meeting with vendors and developers; Essential Discovery Interfaces agreed upon
- **March/April 2008**: Draft updated to specify details on Essentials; clarify other functions for interoperability
- **Late spring 2008**: Official recommendation released
- **Beyond?** Recommendation updated, standards adopted, refined as new technologies, functions, tools, implementations emerge

Survey

- **Questions, comments about actual and desired use of the ILS, discovery applications that drew on ILS data and services**
 - Responses solicited on DLF-Announce, Code4lib, Ngc4lib
 - Over 150 responses in one week
- **Current use**
 - Many considering alternatives to current OPAC within 2 years; 1/3 considering FOSS; some looking externally (WC local)
 - Widespread frustration with OPAC interfaces, metadata schemes, resource scope
 - Many okay with ILS' inventory management functions
- **Beyond the OPAC**
 - 3/4 using supplementary discovery applications
 - » Many locally developed
 - Wide variety of interactions with OPAC
 - » Data export most common
- **More detailed survey result summaries on project Wiki**

What we're aiming to do: Recommendation scope

- 1. Improve discovery and use of library resources by supporting an open-ended variety of applications that use the data and services of the ILS**
 - We don't specify the applications, just the interfaces they can use
 - Apps may be local or remote, may use more than just one ILS
- 2. Articulate a clear set of interaction expectations for ILS and application developers**
 - Detailed enough to allow clients to “ignore” implementations, implementers to “ignore” client usage
 - Include requirements, inputs, outputs, exceptions...
- 3. Make recommendations applicable to a wide variety of systems and technologies**
 - Avoid locking in transient fads, One-True-Way paradigm
 - Work at 2 levels: abstract **functions/behaviors**
concrete **bindings**

Functions

Abstract but specific description of service or behavior, not tied to any particular technology

- **Example:**
 - “Return all bibliographic records, with their ids, added to or changed in the ILS since a specified date, in a specified format”
- **Specified: Inputs, outputs, side effects, guarantees, exceptional cases**
- **We also cover some general non-function behaviors**
 - E.g. “Output structured bibliographic data in a configurable pipeline for transforming to display form”
- **Functional areas of interest:**
 - Data aggregation, real-time search/query, patron services, OPAC embed / escape / entry

Bindings

Specific technologies that implement desired functions

- **Examples:**
 - **OAI-PMH profile for exporting bibliographic records using marc21 XML and modified internal bibids**
 - **Cocoon server allowing XSLT to be applied to XML schema of bibliographic data**
- **There can be multiple bindings for any given function**
 - **Preferred:**
 - **Standard protocols and portable data standards**
 - **Less ideal but appropriate in some cases:**
 - **Language-specific object APIs, application handoff conventions**
- **Technology examples:**
 - **OAI-PMH, SRW, NCIP, OpenURL, METS, Java/Perl libraries**
 - **Not enough to name technologies; need to specify how they're used to support the desired function (profiles, etc.)**
 - **The more specific and settled we can make this, the easier to implement**

What we're aiming to do: Recommendation policy

4. Make recommendations, without unreasonable delay, that are feasible to implement in reasonable time and cost

- Keep as simple and modular as possible
- With existing ILS where possible, or new systems
- Aim for ideally one existing-technology binding for each function

5. Work with applications beyond “traditional library” domain

- Researchers use applications Not Invented Here to find, organize, work with information
- Interacting with them amplifies library's reach, impact
- Exploit, but avoid requiring, library-specific technologies

6. Be responsive to the user and developer community

- ~~Shamelessly steal~~ Reuse as much work as we can
- Transparency, reference implementations, open standards all help

Levels of interoperability

- **Level 1: Essential discovery interfaces**
- **Level 2: Basic OPAC supplement**
- **Level 3: Basic OPAC alternative**
- **Level 4: Robust/domain-aware discovery platform**
 - Including functions specific to academic, public, other particular kinds of libraries

- **Goals of group:**
 - Get agreement, detailed specs on Level 1
 - For higher levels, give recommendations and roadmaps, encourage reference implementations, support, standardization

Data aggregation functions

HarvestBibliographicRecords

- And beyond the bare MARC bib record:
 - » HarvestExpandedRecords

- HarvestAuthorityRecords

- Needed for cross-references, etc.

- Selective export options (by date or by record type) supported

- OAI-PMH binding recommended

- Alternatives: web or object API, Atom/RSS, events

Real-time search/query functions

- **Record retrieval and item status:**
 - GetAvailability
 - GetRecords (by id)
 - GetAuthorityRecords (by id)
- **Finding records:**
 - Search
 - Scan
 - SearchCourseReserves
- **Explain**
- **Possible bindings:**
 - SRU/W, OpenSearch
 - Or: web service, Z39.50, object library

Patron information and service functions

- **Patron identification and credentialing:**
 - LookupPatron
 - AuthenticatePatron
- **Patron information:**
 - GetPatronInfo
 - GetPatronStatus
- **Patron services:**
 - Renewals: RenewLoan
 - HoldTitle, HoldItem, CancelHold, RecallItem CancelRecall
 - » (or, more generically, Request*, Cancel*)
- **Security, policy issues can be complex for these functions**
- **Some possible bindings:**
 - NCIP, SIP2 preferred (though may not be fully supported)
 - A simple approach: application handoff

OPAC embed / escape / entry

- **Incoming:**
 - GoToBibliographicRequestPage behavior
- **Outgoing:**
 - OutputRewritablePage behavior
 - OutputIntermediateFormat behavior
- **Some possible bindings:**
 - In: URL templates, OpenURL, REST
 - Out: HTML & Javascript/Ajax, XML&Cocoon (or Ajax),

Level 1: Essential Discovery Interfaces

- **Get bibliographic data out so it can be indexed and searched:**
 - Functions: HarvestBibliographicRecords; HarvestExtendedRecords
 - Recommended binding: OAI-PMH
- **Show which results can be requested now**
 - Function: GetAvailability
 - Recommended binding: REST/HTTP with XML response
- **Let users make requests on them**
 - Behavior: GoToBibliographicRequestPage
 - Recommended binding: URL template (possibly OpenURL)

Higher levels of interoperability

- **Level 2 (Basic OPAC supplement):**
 - Add real-time search
 - (for bindings, SRU promising, as is OpenSearch)
 - Also add authority harvesting, OPAC embed/escape
- **Level 3 (Basic OPAC alternative)**
 - Add direct patron service functions
 - (for bindings, NCIP subset, OpenURL possibilities)
- **Level 4 (Rich / domain specific discovery interface)**
 - Add course reserve search for academic libraries...
 - Add Explain, other reflective, documentation interfaces...
 - Add more options to functions above
- **Though we don't fully specify these, we do give abstract function defs, recommend technologies, and encourage experimentation, implementation, and eventual standardization**

Implementing the recommended interfaces

- **How they could be provided**
 - Libraries/overlays built on top of existing ILSs
 - Interfaces built directly into new versions of ILS
 - Reimagined library systems supporting the interfaces
- **Who could build them**
 - ILS vendors
 - Libraries
 - Application developers/hackers
- **How they should be provided**
 - Fully and openly documented interface binding details
 - Ideally, both service and client implementations in production
 - It also helps to have:
 - » No IP encumbrances (e.g. patent) for general open use
 - » Open source implementation (particularly of client)

Beyond the recommendation

- **Technologies and tools will continue to be developed**
- **User expectations will continue to increase**
- **Updated (and replacement) designs for the ILS will arise**

- **Argues for periodic updates of recommendations to reflect new needs, tools**
 - **But updating overhead needs to be lightweight, while still supporting peer review and fairness**
 - **Would help ILS providers see what users want**
 - **Standards definitions will help**
 - **Is there a sustainability model for this?**

How can you advance these efforts?

- See (and comment in) the ILS-DI wiki:
 - <http://project.library.upenn.edu/confluence/display/ilsapi/Home>
- ILS-DI Google group for discussion:
 - ils-di@googlegroups.com
- Let us know of implementations, documentation of interfaces that follow recommendations
- Official “release 1.0” of recommendations planned for end of April 2008
- Let us know about ideas and interests in working beyond the DLF release
 - Ongoing wiki for sharing ideas, implementations, followups?
 - Bodies to produce, promote, standardization of higher levels? (DLF is more of an incubator and promoter than standards org.)
- My email is Ockerblo@pobox.upenn.edu
 - » Thanks!