The Strongest Link: Libraries and the Web of Linked Data

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Memorial University of Newfoundland

Emerging Technologies in Academic Libraries 2010
Trondheim, Norway - April 2010
What do Libraries need to do?

1. Use the **RDF data model** to publish structured data on the Web.

2. Use **RDF links** to interlink data from different data sources.
Library RDF Converters
MARC to RDF

MARC/MODS RDFizer

This is an utility tool to convert MARC records (both in MARC to a MODS representation and then from MODS to RDF.

How do I use it?

You launch the RDfizer from the command line by giving it records and a folder where to dump the resulting data.

But before you run it, you have to get the source code and b works on all platforms with freely available tools).

How do I get the source code?

You need a Subversion client. Type svn in your shell and set, go to the Subversion web site and get one.
OAI to RDF

OAI-PMH RDFizer

This is an utility tool to convert the metadata contained in an OAI-PMH-capable repository to RDF.

How do I use it?

You launch the RDFizer from the command line by giving it the URL of content repository that supports OAI-PMH and the folder to where you want the harvested RDF to be dumped and the tools does the rest.

But before you run it, you have to get the source code and build it (don't worry, it's easy and works on all platforms with freely available tools).

How do I get the source code?

You need a Subversion client. Type `svn` in your shell and see if you have one.
Dublin Core to RDF

DC Elements
xmlns:dc="http://purl.org/dc/elements/1.1/

DC Terms
xmlns:dcterms="http://purl.org/dc/terms/

DC Abstract Model
xmlns:dcam="http://purl.org/dc/dcam/"
Simile RDFizers

Ok, I'm interested, what RDFizers are there?

Here is the list of the RDFizers that we have built so far:

- **JPEG -> RDF** - scans a folder for JPEG files, parses the EXIF and IPCT metadata found in those files and dumps an RDF/N3 representation of it into a file.
- **MARC/MODS -> RDF** - transforms MARC records from Z39.2 format into MODS and then from MODS to an RDF representation of MODS.
- **OAI-PMH -> RDF** - harvests an OAI-PMH repository and transforms the captured metadata in an RDF representation thru pluggable XSLT stylesheets.
- **OCW -> RDF** - harvests metadata from the MIT OpenCourseWare web site and transforms it into an RDF representation of IEEE LOM.
- **EMail -> RDF** - transforms email mbox files into RDF/XML.
- **BibTeX -> RDF** - transforms BibTeX files into RDF/XML.
- **POM -> RDF** - transforms Maven POM (Project Object Model) files into RDF/N3.
- **DEB -> RDF** - extracts the metadata from a Debian software package and generates an RDF representation.
- **CRW -> RDF** - extracts the metadata from a Canon RAW image file and generates an RDF representation.
- **Flat -> RDF** - converts classic unix text database files, like /etc/passwd, into RDF/N3.
RDF Publishing Tools

• Many popular web publishing tools now have RDF & semantic capabilities.
Semantic Blogging: Zemanta

phrases like the social web, natural language processing, and humanities computing? Yup, putting in those words returned much more relevant related articles. I’ve inserted the top suggestions at the bottom of the post.

The suggested photos include the lovely one that I’ve inserted of the Nidaros Cathedral in Trondheim. I also have several photos of RDF graphs, one of developers working on the semantic version of Drupal, and several pictures of libraries. That’s pretty good, right?

It might be better if I threw in a couple of names. Let’s try Kingsley Idehen, Paul Miller, and Richard Cyganiak, all actively involved in linked data architecture and evangelism. I’m getting some in-text link suggestions, but only for Paul. I’ve added the suggested link - it’s not linking to Cloud of Data as I expected, but Mr. Miller seems to have several blogs on the go right now.
Testing semantic annotation features in Semantic MediaWiki

I set up this account in order to test the semantic tagging features in mediawiki. I'm going to a conference in Trondheim, Norway next week to do a presentation on semantic web/linked data in libraries. The conference is called Emerging Technologies in Academic Libraries (EMTACL). I'm a systems librarian in St. John's Newfoundland, so that's the sort of thing we do for fun.

So far mediawiki has not offered me any semantic annotations, so I will probably have to go and read the docs. Maybe I need to install some browser plugins.

What if I throw in a few phrases like the social web, natural language processing, and humanities computing? Drupal ?? Semantic web? Linked Data?

It might be better if I threw in a couple of names. Let's try Kingsley Idehen, Paul Miller, and Richard Cyganiak, all actively involved in linked data architecture and evangelism.

Biographic data for Tim Berners-Lee

Birth date: 1955-06-08 00:00:00.0
Education: The Queen's College, Oxford
Occupation: Computer Scientist
See also: http://en.wikipedia.org/wiki/Tim_Berners-Lee
Sir Timothy John Berners-Lee, OM, KBE, FRS, FREng, FRSA (London, 8 June 1955), is an
Semantic MediaWiki
Resource Description Framework (RDF)

RDF is a W3C standard for modeling and sharing distributed knowledge based on a decentralized open-world assumption. Any knowledge about anything can be decomposed into triples (3-tuples) consisting of subject, predicate, and object; essentially, RDF is the lowest common denominator for exchanging data between systems.

This module provides comprehensive RDF functionality and interoperability for the Drupal 6.x platform. For more information, read the introductory posting or watch the demo video. Be sure to subscribe to the Semantic Web group on groups.drupal.org to keep up with the latest happenings.

The module requires PHP 5.2 or newer, makes use of the ARC2 library if available, and will integrate with the Views, FeedAPI, Feed Element Mapper, Location, and Services modules if they are installed. For adding SPARQL query support, see the related SPARQL project.

Projects that rely on this module as a dependency include Calais, File Framework, FeedAPI RDF and the Relations and DAV APIs and their spin-offs such as File Relations Server.

This project is being developed by Arto Bendiken, Miglius Alaburda, Ben Lavender, Jeff Miccolis, Frank Febraro and Stéphane Corlosquet. Development has been in part sponsored by OpenBand and MakaluMedia.
Drupal 7 with RDFa

Navigation
- SPARQL endpoint

Users
- Manfred Hauswirth
- Stefan Decker
- Aidan Hogan
- Andreas Harth
- Axel Polleres

Manfred Hauswirth

First name: Manfred
Last name: Hauswirth
Homepage: http://www.manfredhauswirth.org/

Colleagues:
- Aidan Hogan
- Andreas Harth
- Axel Polleres
- Benjamin Melançon
- Stefan Decker

URI: http://data.semanticweb.org/person/manfred-hauswirth
    http://semanticweb.org/id/Manfred_Hauswirth

Organizations:
- Digital Enterprise Research Institute
- National University of Ireland, Galway

RDF
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| **Axel Polleres**  
http://www.polleres.net/foaf.rdf#me | **Transforming co-NP Checks to Answer Set Computation by Means of a Two-Step Approach**  
http://dblp.l3s.de/d2r/resource/publications/conf/agp/EiterP03 | |
| Person | InProceedings |
| Spatial Thing | 2003 |
| Person | |
| **Benjamin Melançon**  
http://srvgal65.deri.ie/projectblogs/node/2#this | **Context Dependent Reasoning for Semantic Documents in Sindice**  
| Person | InProceedings |
| Spatial Thing | polleres-feier |
| Person | |
| **Stefan Decker**  
http://www.deri.ie/about/team/member/Stefan_D | **Axel Polleres' Personal Web Page**  
http://www.polleres.net/ | |
| Person | document |
| Spatial Thing | This is the homepage of Axel Polleres. I currently work as a senior research |
| Person | Galway, where I am affiliated with the Digital Enterprise Research |
| | Institute 2007–06–25 |
| **Aidan Hogan**  
http://sw.deri.org/~aidan/foaf/foaf.rdf#Aidan_H | **debruijn–lausen**  
http://data.semanticweb.org/conference/eswc/2006/paper/debruijn... | |
| Person | paper–119 |
| Spatial Thing | |
| Person | |

NEWFOUNDLAND & LABRADOR, CANADA  WWW.MUN.CA
Library RDF Publishing Tools
Women as Policy Makers: Evidence from a Randomized Policy Experiment in India

Title: Women as Policy Makers: Evidence from a Randomized Policy Experiment in India
Author: Raghabadnra Chattopadhyay; Esther Duflo
Issue Date: 2007-10-05

This data set uses political reservations for women in India to study the impact of women's leadership on policy decisions. Using a dataset we collected on 265 village councils in West Bengal and Rajasthan, we compare the type of public goods provided in reserved and unreserved village's councils. Data sets based upon information provided by GP Prachans, local villagers, and the 1991 Indian Census

Abstract:

URI: http://hdl.handle.net/1721.1/39126
Other Identifiers: hdl:1902.1/USBFNOMLAT
Keywords: gender, decentralization, affirmative action, political economy, gender, decentralization, affirmative action, political economy
Welcome to Mulgara

Mulgara is a scalable RDF database written entirely in Java.
Mulgara is licensed under the Open Software License v3.0.
New code is being contributed using the Apache 2.0 License.

Recent News

Mulgara v2.1.7 has been released. This release introduces interruptible queries, and better matches the SPARQL algebra requirements. For details, please see the release notes. Download from here. - February 16, 2010

Mulgara v2.1.6 has been released. This fixes a regression in nested OPTIONAL operations and introduces new functions, particularly the ARQ function extensions. For details, please see the release notes. Download from here. - December 17, 2009

Mulgara v2.1.5 has been released. SPARQL now correctly supports non-DISTINCT queries, with significant optimizations for UNION. For details, please see the release notes. Download from here. - December 11, 2009

New IRC channel. This is a new port of call for people requiring help with Mulgara. Point your IRC client to irc.freenode.net and join #mulgara. - November 9, 2009
Fedora & RDF

ORA Journal Article: "em> adding emotion to strategy in understanding British Pakistani transnational marriages"

Member of collection Journal Articles

Title: Rishtas: adding emotion to strategy in understanding British Pakistani transnational marriages

Abstract: The popularity of transnational marriages that in most cases involve first cousins or other kin distinguishes Pakistanis from other British South Asian groups. In this article we explain the popularity of such marriages. We seek to complement accounts that stress kinship obligations and socio-economic strategy by showing that transnational marriages are also motivated by the emotional ties of kinship. Central to this analysis is a focus on the Urdu/Panjabi concept of rishtia, which conveys ideas about a 'good' match and about emotional connections between people. Our attention to emotional discourse between siblings, between parents and children and between prospective spouses in the context of marriage arrangements augments the understanding of what is at stake for those involved in transnational marriages. Our analysis also complements accounts that emphasize parental exegesis by offering a multigenerational perspective.

Author: Alison Shaw

Institution
University of Oxford

Faculty/Department
Medical Sciences Division - Public Health

Research Group
Ethox Centre
Fedora & RDF


Link to this archived copy: http://ora.ouls.ox.ac.uk/objects/uuid:96efaceb-fcc8-46db-94c9-c2e0bd99d34d

Relationships for "em>: adding emotion to strategy in understanding British Pakistani transnational marriages":

View full list as RDF in format:
HTML Lite HTML Full RDF/XML N-Triples N3 Turtle

Disclaimer and Data Protection statement  Accessibility statement  Download Copyright guide (100kB PDF)  Take-down procedure and...
3store: Efficient Bulk RDF Storage


Abstract

The development and deployment of practical Semantic Web applications requires technologies for the storage and retrieval of RDF data that are robust and scalable. In this paper, we describe the 3store RDF storage and query engine developed within the Advanced Knowledge Technologies project, and discuss the design rationale and optimisations behind it which enable the efficient handling of large RDF knowledge bases.

Creators: Stephen Harris, Nicholas Gibbins

Item Type: Other

Keywords: H.2.8 Database Applications H.3.3 Information Search and Retrieval I.2.0 Artificial Intelligence, General

Research Group: Intelligence, Agents, Multimedia
Eprints & RDF
Libraries & RDF

- Plenty of tools already exist to allow libraries to expose data as RDF.
- Become aware, experiment, work with vendors to develop semantically compliant tools.
RDF Linking
Linking Hubs
Library Linking Hubs

• Reuse existing URIs for entities & concepts.

• Connect resources to external data published by other data sources.
Subject linking: loc.id.gov

Fjords

URI: <http://id.loc.gov/authorities/sh85048937#concept>

Type: Topical Term

Alternate Labels: Fiords

Broader Terms:
- Coasts
- Glacial landforms

LC Classification: GB454.F5

Created: 1986-02-11

Last Modified: 1987-12-31 12:44:36

Similar concepts from other vocabularies:
- <http://stitch.cs.vu.nl/vocabularies/rameau/ark:/12148/cb12009563w>

Alternate Formats: RDF/XML, N-Triples, JSON
RDF Book Mashup

Book Search Results for “interpretation of dreams freud”

Search for books: interpretation of dreams freud

Note: You can use an RDF-aware user agent (e.g. Browser) to explore the RDF based Linked Data (Metadata) associated

The Interpretation Of Dreams
Sigmund Freud
http://www4.wiwiss.fu-berlin.de/bookmashup/books/8562022489

Signmund Freud's The Interpretation of Dreams - Freud's seminal exploration of human nature (Discus
Sigmund Freud, James Strachey
http://www4.wiwiss.fu-berlin.de/bookmashup/books/

THE INTERPRETATION OF DREAMS - Freud's Seminal Exploration of Human Nature
Sigmund (James Strachey Transl.) Freud
http://www4.wiwiss.fu-berlin.de/bookmashup/books/
**Linked Periodicals Data**

**Work Employment & Society**

http://periodicals.dataincubator.org/journal/work-employment-and-society

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Basic Concepts and Taxonomy of Dependable and Secure Computing

Characterization of So.
Reflections on Industry
Conceptual Model and Architecture
Software Fault Tolerance
Dependability and its Threats
Fundamental concepts of Dependability
Identity-Based Fault Tolerance

Title:
Basic Concepts and Taxonomy of Dependable and Secure Computing

Authors:
Jean-Claude Laprie
Carl Landwehr
Brian Randall
Algirdas Avizienis

Abstract:
This paper gives the main definitions relating to dependability, a generic concept including as special case such

People
Brian Randall
Algirdas Avizienis
Carl Landwehr
Jean-Claude Laprie

Organisations
NEWCASTLE UNIVERSITY
The University of Newcastle upon Tyne
LAAS-CNRS
LABORATORY OF THE ANALYSIS AND THE ARCHITECTURE OF SYSTEMS (LAAS)

Publications
A Family of Trusted Third Party based Fair-Exchange Protocols
Fundamental concepts of dependability
Conceptual Model and Architecture
Dependability and its Threats: A taxonomy

Courses & Materials
Fundamentals of Dependability
Dependability of computer systems
RKBExplorer - Person

Full Name: Jean-Claude Laprie

Works For: LAAS-CNRS

Telephone: +33 5 61 33 78 85
RKBExplorer - Organization
What’s the promise?

• Better, smarter discovery
• Enriched content
• Enhanced personalization
Smarter linking
Disambiguation

Madonna at Raphael's nightclub (NSFW)

Raphael's Madonna (NSFW)

<img src="09821.jpg" alt="madonna">
Related Works to Relationships
Enriched content

http://richard.cyganiak.de/2007/10/ictd/
Enhanced personalization

Julie

Student

History

Hist102

Citation

Is patron type

Has major

Takes course

Has reading
The Holy Grail?
What are the obstacles?

• Trust
• Data ownership
• It’s…well…hard
The largest hurdle to library adoption of Linked Data, though, may not be educational or technological … The sticking point for librarians may be an issue of trust.

- Ross Singer, “Linked Data Now!”
Data ownership

- Digital Archive
- Repository
- Library Catalogue

≠

- Ejournal
- Database
Rocking the foundations

- MARC
- RDA
- DCMI/RDA Task Group
What can we do...now?

- Eric Miller noted in a 2004 talk that libraries have four major roles in the semantic web:
  1. exposing collections – use Semantic Web technologies to make content available;
  2. web'ifying thesaurus/mappings/services;
  3. sharing lessons learned;
  4. persistence.
Exposing collections

http://collections.mun.ca/cgi-bin/oai.exe

<identifier>oai:collections.mun.ca:cnns/1</identifier>
<datestamp>2005-10-17</datestamp>
<setSpec>cnns</setSpec>
</header>
<metadata>
</metadata>
</record>

-<record>
  -<header>
    <identifier>oai:collections.mun.ca:cnns/2</identifier>
    <datestamp>2005-10-17</datestamp>
    <setSpec>cnns</setSpec>
  </header>
  -<metadata>
  </metadata>
</record>
web'ifying thesaurii, etc.

<rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
xmlns:skos="http://www.w3.org/2004/02/skos/core#" xml:lang="en">
  <skos:Concept rdf:about="http://staff.library.mun.ca/staff/staffdir/libweb/controlled/concept/13"/>
  <skos:prefLabel rdf:resource="Borrowing"/>
  <skos:altLabel rdf:resource="Loans"/>
  <skos:scopeNote rdf:resource="http://staff.library.mun.ca/staff/staffdir/libweb/controlled/concept/38"/>
  <skos:narrower rdf:resource="http://staff.library.mun.ca/staff/staffdir/libweb/controlled/concept/103"/>
  <skos:narrower rdf:resource="http://staff.library.mun.ca/staff/staffdir/libweb/controlled/concept/15"/>
  <skos:inScheme rdf:resource="http://staff.library.mun.ca/staff/staffdir/libweb/controlled"/>
</skos:Concept>
</rdf:RDF>
Sharing lessons
Persistence