

The Web of Data for E-Commerce in One Day

*A Hands-on Introduction to the GoodRelations Ontology,
RDFa, and Yahoo! SearchMonkey*

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Logistics

- 09:00-10:30 Overview and Motivation: Why the Web of Data is Now 20'
Quick Review of Prerequisites 25'
The GoodRelations Ontology: E-Commerce on the Web of Data 45'
- 10:30-11:00 Coffee Break
- 11:00-13:00 The GoodRelations Ontology: E-Commerce on the Web of Data 60'
RDFa: Bridging the Web of Documents with the Web of Data 45'
- 13:00-14:30 Lunch Break
- 14:30-16:00 Expressing GoodRelations in RDFa: A Running Example 25'
Querying the Web of Data for Offerings – SPARQL 10'
Publishing Semantic Web Data: Make Your RDF Available 10'
Hands-on Exercise: Annotating a Web Shop 30'
Querying the Web of Data – Exercises 15'
- 16:00-16:30 Coffee Break
- 16:30-18:00 Yahoo SearchMonkey and Yahoo BOSS 45'
GoodRelations – Advanced Topics 20'
RDFa Advanced Topics 20'
Discussion, Conclusion, Feedback Round 5'
- 31.05.2009

Hands-on Exercises: Creating, Publishing, and Querying

Martin Hepp

Agenda

1. Querying the Web of Data for Offerings – SPARQL
2. Publishing Semantic Web Data: Make Your RDF Available
3. Hands-on Exercise: Annotating a Web Shop
4. Querying the Web of Data – Exercises

Learning Goal

- Learn the basics of the SPARQL query language
- Learn to use SPARQL for commerce data
- Learn how to publish Semantic Web data.

SPARQL

Query Language Endpoint Specification

SPARQL: Query Language Specification

W3C Recommendation



SPARQL Query Language for RDF

W3C Recommendation 15 January 2008

This version:

<http://www.w3.org/TR/2008/REC-rdf-sparql-query-20080115/>

Latest version:

<http://www.w3.org/TR/rdf-sparql-query/>

Previous version:

<http://www.w3.org/TR/2007/PR-rdf-sparql-query-20071112/>

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Please refer to the [errata](#) for this document, which may include some normative corrections.

See also [translations](#).

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<http://www.w3.org/TR/rdf-sparql-query/>

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SPARQL Query Structure

comments

PREFIX gr:<http://purl.org/goodrelations/v1#>

SELECT ?var1 ?var2 **WHERE**

{?var1 rdf:type gr:Offering.

?var1 gr:validThrough ?var2.

FILTER (?date <

"2009-05-25T00:00:00Z"^^xsd:dateTime)}

SPARQL: Matching Literals

```
PREFIX xsd:<http://www.w3.org/2001/XMLSchema#>
```

```
SELECT ?v WHERE {  
  ?v ?p "abc"^^xsd:datatype }
```

SPARQL: Matching Strings

```
PREFIX dc: <http://purl.org/dc/elements/1.1/>
SELECT ?title
WHERE { ?x dc:title ?title
        FILTER regex(?title, "^SPARQL")
      }
```

`^` = Starts with

SPARQL Query

```
# find expired offerings:  
PREFIX gr:<http://purl.org/  
goodrelations/v1#>  
SELECT ?o, ?date WHERE  
{?o rdf:type gr:Offering.  
?o gr:validThrough ?date.  
FILTER (?date <  
"2009-05-25T00:00:00Z"^^xsd:dateTime  
)}
```

SPARQL Query

```
# find label for UPC/EAN "0001067792600"  
PREFIX gr:<http://purl.org/goodrelations/  
v1#>  
PREFIX xsd:<http://www.w3.org/2001/  
XMLSchema#>  
SELECT ?uri, ?label WHERE  
  {?uri rdf:type gr:ProductOrServiceModel.  
  ?uri gr:hasEAN_UCC-13  
  "0001067792600"^^xsd:string.  
  ?uri rdfs:label ?label}
```

Publishing Data on the Semantic Web

Publishing RDF/XML Data on the Web

- Data Delivery Options
- Publish RDF/XML file
- RDFa
- dataRSS

Step 1: Publish File

Save the RDF/XML file under the filename

- [semanticweb.rdf](#)

in the root directory of your Web server so that it becomes available as

- <http://example.org/semanticweb.rdf>

Point to RDF/XML from HTML/XHTML

- Add a link element pointing to this file to the header of your main Web page (or other pages, too):

```
<html lang="en">
  <head>
    <title></title>
    <link rel="meta"
type="application/rdf+xml"
title="RDF/XML data for ***your company
name***" href="http://www.example.org/semanticweb.rdf" />
  </head>
  ...
```


Notify Semantic Web Search Engines

To do so, simply paste the URI

- <http://example.org/semanticweb.rdf>

into the respective fields of the following submission pages:

- <http://pingthesemanticweb.com/>
- <http://sindice.com/main/submit>
- http://swoogle.umbc.edu/index.php?option=com_swoogle_service&service=submit

Yahoo SearchMonkey

Currently considers RDF data only if

- submitted via the (proprietary) dataRSS feed format or if
- embedded inside XHTML pages via RDFa.

<http://www.ebusiness-unibw.org/tools/rdf2datarss/>

Server Configuration

- Rewrite
 - `http://example.org/semanticweb` to
 - `http://example.org/semanticweb.rdf`
- Correct media type `rdf+xml`
 - The content type (media type) of the file returned must be set correctly to `"rdf+xml"`.

Server Configuration

On Apache servers, simply edit
the .htaccess file:

```
#Rewrite rule to serve RDF/XML content from the  
vocabulary URI
```

```
RewriteRule ^semanticweb$ semanticweb.rdf
```

```
#Directive to ensure *.rdf files served as  
appropriate content type
```

```
#if not present in main apache config
```

```
AddType application/rdf+xml .rdf
```

Publishing RDF/XML Data on MS IIS Platforms

- Ionics Isapi Rewrite Filter for IIS 5.0 and IIS 6.0
 - <http://iirf.codeplex.com/>
- Microsoft URL Rewrite Module for IIS 7.0
 - <http://support.microsoft.com/kb/324064>
(Thanks to Christophe Debruyne and Robert Meersman for the hint!)
- ModRewrite
 - <http://www.micronovae.com/ModRewrite/ModRewrite.html>
(Thanks to Sergio Fernández for the link!)

Semantic Sitemaps

- Efficient means of telling a Semantic Web search engine which RDF files are available

<http://sw.deri.org/2007/07/sitemapextension/>

Additional Information

- Cool URIs for the Semantic Web, W3C Interest Group Note 03 December 2008
<http://www.w3.org/TR/cooluris/>

Quizzes

- Why is it important to use the OPTIONAL clause for patterns that cannot be assumed to be found?
- What is a Semantic Sitemap?

Thank you.