

SWAD–Europe requested additional report: Summary of 6 key deliverables, including case studies and reports

Project name:

W3C Semantic Web Advanced Development for Europe (SWAD-Europe)

Project Number:

IST-2001-34732

Workpackage name:

3. Dissemination and Exploitation

Workpackage description:

<http://www.w3.org/2001/sw/Europe/plan/workpackages/live/esw-wp-3.html>

Deliverable title:

Six Key Deliverables

URI:

http://www.w3.org/2001/sw/Europe/reports/six_key_deliverables/

Authors:

Libby Miller

Abstract:

To help ensure the exploitation of the project knowledge, prepare a 1-2 page management summary of 6 key deliverables, including case studies and reports, for publication on the project and other websites.

STATUS:

Completed report published 2004-01-21.

Contents

[Introduction](#)

[\(1\) 8.2: Review of RDF Thesaurus Work](#)

[\(2\) 10.2: Mapping Semantic Web Data with Relational Databases](#)

[\(3\) 12.1.1: Semantic web applications - analysis and selection](#)

[\(4\) 5.1 Schema Technology Survey](#)

[\(5\) 3.7 Second developer workshop report \(Semantic Web calendaring\)](#)

[\(6\) 7.2 Databases, Query, API, Interfaces: report on Query languages](#)

Introduction

Quoting from the Project Technical Plan [\[2.1\]](#):

SWAD-Europe was created to support W3C's Semantic Web Activity, which includes an Advanced Development component to ensure that W3C's formal standards work is complemented by field testing, prototyping and quality assurance activities.


The selection of deliverables below has been made in order to demonstrate the project's ongoing contribution to the W3C's advanced development: SWAD-Europe project members have been working directly with members of industrial, Web, academic and content-creation communities in Europe and further afield to help create the Semantic Web.


We have done this through

- Pre-consensus work within communities feeding into future W3C standards work (8.2, 3.7, 7.2)
- Finding and answering Frequently Asked Questions from developers (10.2, 7.2)
- Reviewing and summarising developments in a particular area (12.1.1, 10.2, 8.2)
- Creating and documenting Open Source software, prototypes and research deliverables

The selection of deliverables below is illustrative of the bulk of the work done within the project. The full list of deliverables from SWAD-Europe is available [\[REPORTS\]](#).

(1) 8.2: Review of RDF Thesaurus Work [\[THES\]](#)


This is a detailed survey of various approaches to describing thesaurus data in RDF. The aim within the project is to provide the requirements for further deliverables including a thesaurus prototype  [\[WP8\]](#). Individuals outside the project looking to implement thesauri in RDF can find here an overview and explanation of the modeling techniques which have been used for RDF thesauri; a review of existing schemas and example data; and a discussion of approaches to handling multilingual data and mapping between thesauri.

This deliverable is an example of how SWAD-Europe can be particularly useful to the wider Semantic Web community: by summarising the main issues in a particular area, the project has laid the groundwork for future work in this area, whether formal standardization work or informal collaborations. Similarly, pre-standardization work in workpackage 7 on RDF query languages (see [below](#)), has fed into discussion of a data-access working group at W3C  [\[DAWG\]](#).

(2) 10.2: Mapping Semantic Web Data with Relational Databases [\[10.2\]](#)

This deliverable is a long and detailed answer to a Frequently Asked Question, namely, what is the best way of storing RDF data in a relational database?

Relational databases are very commonly used in companies and the Open Source community; however the kinds of indices they have do not work well for common RDF storage techniques, and relational database performance is significantly reduced when storing arbitrary RDF or other semi-structured data compared with more standard relational tables.

This deliverable describes some approaches taken to storing RDF data in relational databases in particular projects, including Jena, Parka, RDFSuite, Sesame and TAP; and provides tables showing the schemas used. It is designed both to provide a set of requirements for people who want to use one of these tools, and examples for those who would rather implement their own. Related work includes a workshop on Semantic Web Storage and Retrieval  [\[3.11\]](#), which developed the discussion towards optimisation and common APIs and Query languages.

(3) 12.1.1: Semantic web applications – analysis and selection [\[12.1.1\]](#)



This deliverable is a detailed survey of existing and planned Semantic Web applications and a requirements gathering exercise for two demonstrators. The result was a decision to create a Semantic Web blogging demonstrator and a Semantic Community Portal.

One aim of this deliverable was to maintain relevance in the rapidly changing field of Semantic Web (and Web) technology, by making the selection of demonstrators itself a deliverable rather than detailed in the workplan before the project started. This analysis and selection of deliverables is important because it provides a *recent* overview of the application landscape in the Semantic Web area and can therefore comprise a useful part of the research required for new developers as the area gains in popularity.

The demonstrators themselves are in a sense part of the evaluation of the project itself. A core aim of the SWAD-Europe project is to ensure enough of the tools and understanding are in place to allow practical development of serious semantic applications, and the successes or failures of the demonstrators as well as the documented process of creating them should provide indicators of the state of the tools available.

(4) 5.1 Schema Technology Survey [\[5.1\]](#)

The variety of so-called 'schema languages' for the Web has caused some confusion. This deliverable attempts to place them in context, and explore the state of the art in tools for mapping data between the different approaches.

A key difference between XML schema languages and RDF Schema and OWL derives from the distinction between the different uses of these different schemas languages. W3C XML Schema  [\[W3CXMLS\]](#) is used for syntactic validation of documents, while RDF Schema  [\[RDFS\]](#) does not provide any strong constraints on data either at the document level or at the statement or triple level, but

does enable certain certain inferences to be drawn. OWL [\[OWL\]](#) can enable further inferences and some validation, but again is not document-centric.

This report describes some of these differences in perspective between the XML and RDF/OWL communities, addressing a 'hot topic' within these communities.

(5) 3.7 Second developer workshop report (Semantic Web calendaring) [\[3.7\]](#)

Work on RDF calendar within SWAD-Europe began with a workshop but has led to various pieces of additional work in workpackage 3. The workshop served as a springboard for the development of a community process for creating a schema for iCalendar in RDF, and led to a series of virtual meetings used to develop the vocabulary and create and discuss testcases and software.

The calendar work within workpackage 3 has focussed on ensuring that iCalendar can be roundtripped through RDF, and in documenting best practice on how to combine other vocabularies with the events data. So for example, if someone wishes to state that they are attending a conference, or that a conference is at a particular location, or to make iCalendar data available as RDF, then we hope to provide the information to help them do that.

The RDF version of iCalendar has been created in conjunction with iCalendar tool developers, content creators and Semantic Web developers from all sectors. iCalendar data described in RDF is used in a commercial tool [\[SHERPA\]](#). This work will feed into the proposed Best Practices Working Group at W3C [\[BP\]](#).

(6) 7.2 Databases, Query, API, Interfaces: report on Query languages [\[7.2\]](#)

Many RDF query languages have been developed within RDF toolkits, and many (although not all) are similar in function, consisting of some syntactic representation of an RDF graph with pieces missing, returning a table of variable bindings. This deliverable summarises some of the attributes of RDF query toolkits, and also provides links back to relevant information via an FAQ section.

Ideally, an individual trying to decide which toolkit to use can evaluate them using a series of testcases, so that they can know that if they swap between toolkits they will get the same results. An initial set of testcases was developed in conjunction with other Semantic Web developers as part of this deliverable, and will feed into the work of the proposed Data Access working group if it is created. [\[DAWG\]](#)

References

[3.11] SWAD-Europe Deliverable 3.11: Developer Workshop Report 4 - Workshop on Semantic Web Storage and Retrieval

http://www.w3.org/2001/sw/Europe/reports/dev_workshop_report_4/

[2.1] SWAD-Europe Deliverable 2.1: Project Technical Plan

http://www.w3.org/2001/sw/Europe/reports/proj_tech_plan/

[reports] SWAD-Europe reports

<http://www.w3.org/2001/sw/Europe/reports/intro.html>

[THES] Review of RDF Thesaurus Work

<http://www.w3c.rl.ac.uk/SWAD/deliverables/8.2.html>

[WP8] SWAD-Europe workpackage 8 description

<http://www.w3.org/2001/sw/Europe/plan/workpackages/live/esw-wp-8.html>

[DAWG] Draft RDF Data Access WG Charter

<http://www.w3.org/2003/10/RDF-Query-Charter>

[10.2] SWAD-Europe Deliverable 10.2: Mapping Semantic Web Data with Relational Databases

http://www.w3.org/2001/sw/Europe/reports/scalable_rdbms_mapping_report/

[3.11] SWAD-Europe Developer Workshop Report 4 - Workshop on Semantic Web Storage and Retrieval

http://www.w3.org/2001/sw/Europe/reports/dev_workshop_report_4/

[12.1.1] SWAD-Europe Deliverable 12.1.1: Semantic web applications - analysis and selection

http://www.w3.org/2001/sw/Europe/reports/chosen_demos_rationale_report/hp-applications-selection.html

[5.1] SWAD-Europe Deliverable 5.1: Schema Technology Survey

http://www.w3.org/2001/sw/Europe/reports/xml_schema_tools_techniques_report/

[W3CXMLS] W3C XML Schema

<http://www.w3.org/XML/Schema>

[RDFS] RDF Vocabulary Description Language 1.0: RDF Schema

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

[OWL] OWL Web Ontology Language Overview

<http://www.w3.org/TR/owl-features/>

[3.7] SWAD-Europe Deliverable 3.7: Developer Workshop Report 2 - Semantic Web calendaring

http://www.w3.org/2001/sw/Europe/reports/dev_workshop_report_2/

[SHERPA] eventSherpa (TM)

<http://www.eventsherpa.com/>

[BP] DRAFT: Semantic-Web Best Practices and Deployment (SWBPD) Working Group Charter

<http://www.w3.org/2002/11/swv2/charters/BPcharter>

[7.2] SWAD-Europe Deliverable 7.2: Databases, Query, API, Interfaces report on Query languages

http://www.w3.org/2001/sw/Europe/reports/rdf_ql_comparison_report/
