

Repository Deposit: SWORD

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Overview

This briefing paper introduces the repository deposit protocol known as 'SWORD'. The protocol provides a standardized method to remotely deposit items into a repository.

Background

To make repositories interoperable with each other and with external systems, they must adhere to agreed protocols. In the repository domain there are several standards that are widely implemented and ensure interoperability, the most well known being the Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH), which is used as a common interface for harvesting metadata from repositories.

The lack of a common interface for depositing items into a repository was identified in 2005 and was followed up in 2006 with the convening of a working group to look at the issue of repository deposit. This work culminated in a bid to JISC to formally define and implement a common deposit protocol for repositories. In 2007 the SWORD project was funded and work on the standard began.

What is SWORD?

SWORD stands for Simple Web Service Offering Repository Deposit. At its basic level SWORD allows two types of interaction with a repository:

- I. Query a repository to find out what collections a user can deposit items into
- II. Perform a deposit into a repository collection

Rather than implementing a wholly new standard, SWORD is a profile of the Atom Publishing Protocol (AtomPub). AtomPub is often used by blogging software to allow the remote posting of items into a blog, and also forms the basis of other well-known standards such as the Google Data APIs, GData.

SWORD adapts AtomPub with repository-specific extensions that make it fit with the way we use repositories. This brings the benefit of using a widely-adopted standard, but with the specifics required by the repository domain.

How does SWORD work?

A typical SWORD deposit will take place in two steps. The first step will typically require the user to provide their username and password, which allows the repository software to construct a service document. The service document describes the collections into which a user may deposit items.

Once a user has decided which collection they wish to deposit an item into, they send a file to the deposit URL of that particular collection. The repository will then ingest the item and put it through any workflows that are set up.

Users do not interact with SWORD directly; rather they make use of a client tool, in much the same way as we interact with web sites through a browser. SWORD clients could be:

- Standalone applications
- Integrated into web browsers
- Built into publisher workflows to deposit items automatically into an author's institutional repository
- Incorporated into other software products such as word processors
- Included in web sites such as social networking sites where a deposit could also trigger alerts to colleagues about the new item

One of the benefits of using a standardized protocol such as SWORD for repository deposit is that a user is free to choose which SWORD client to use depending on their working preferences, and an institution is free to choose which repository they implement as all clients and repositories will interoperate. A list of clients and code libraries to write your own clients are available from the SWORD web site.

At the time of writing there are only demonstration clients available, although this situation is expected to improve over the coming year. The SWORD web site will be updated with new clients as they are written.

How can SWORD be used?

There are many scenarios where SWORD could be used, such as:

- A desktop deposit tool: rather than interacting directly with a repository, authors could deposit via a user-friendly desktop application.
- 'Save-As' in a word processor: authors could deposit an item directly into a repository by using a 'Save-As' plugin for their word processor that deposits the item in a repository rather than saving it to a disk.
- Multiple simultaneous deposit: if a user needs to deposit their work in both an institutional and a funder's repository, they could deposit once and SWORD could be used to perform the other deposits.
- Deposit by machines: laboratory equipment might deposit results from an experiment into a repository without requiring human intervention.

What is the difference between SWORD and AtomPub?

SWORD has added a number of extensions to AtomPub to allow it to fit-in with the way repositories work. The extensions are:

1. Allowing a depositor (person or machine) to deposit on behalf of another user. By configuring an optional setting, the depositor can say that they are performing the deposit on behalf of another user. Only if the user has the right to deposit on behalf of that user will the deposit be accepted.
2. Rather than depositing single files, SWORD allows the deposit of a package, along with a description of the package. A package might be a zipped file of metadata and content files, such as an IMS learning resource package.
3. Extra metadata such as collection policies can be described in the service document.
4. There are developer-friendly extensions to request verbose output about what the server has done, and to perform 'noOp' (no operation) deposits which are only tests, and are not actually ingested into the repository.

References & further information :

SWORD web site <http://www.swordapp.org/>

Allinson, J., François, S. and Lewis, S., SWORD: Simple Web-service Offering Repository Deposit, Ariadne, Issue 54, January 2008

<http://www.ariadne.ac.uk/issue54/allinson-et-al/>

SWORD, JISC project web site

http://www.jisc.ac.uk/whatwedo/programmes/programme_rep_pres/tools/sword.aspx

Google Data APIs <http://code.google.com/apis/gdata/>

ATOM, syndication of Web content <http://www.atompub.org>

Repositories Support Project

<http://www.rsp.ac.uk>

The Repositories Support Project (RSP) aims to deliver good practice and practical advice to HEIs to enable the implementation, management and development of digital institutional repositories