

SWORD 2.0

Supporting Full Deposit Lifecycles

Richard Jones
Cottage Labs
richard@cottagelabs.com
<http://cottagelabs.com>



What is SWORD?

SWORD is a:

Simple

Web service

Offering

Repository

Deposit

During the development of SWORD it was decided to keep the protocol as simple and lightweight as possible.

What is SWORD?

SWORD is a:

Simple

Web service

Offering

Repository

Deposit

A software interface
that is accessible
using http

What is SWORD?

SWORD is a:

Simple

Web service

Offering

Repository

Deposit



What is SWORD?

SWORD is a:

Simple

Web service

Offering

Repository

Deposit

Agnostic:

DSpace

EPrints

Fedora

Intralibrary

Zentity

???

What is SWORD?

SWORD is a:

Simple

Web service

Offering

Repository

Deposit

Putting things
INTO
a repository

What is the purpose of SWORD?

The purpose of SWORD is to:

Provide an *interoperable interface* that allows *deposits* to be *easily made into repositories*.

The SWORD project

Out of scope:

Packaging

Metadata

Authentication

Authorization

SWORD use cases

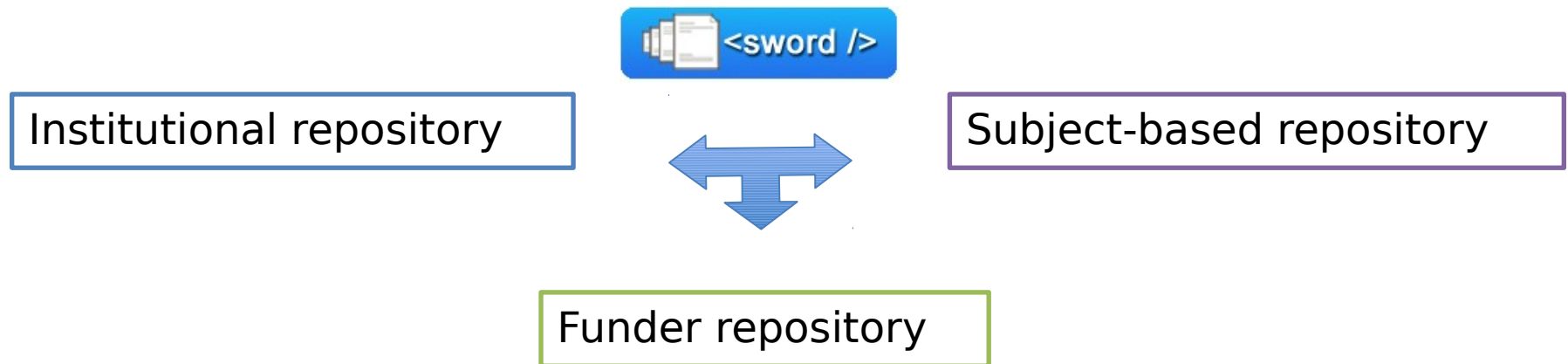
Deposit from a desktop client



e.g. DepositMO

SWORD use cases

Deposit to multiple repositories



e.g. OA-RJ



SWORD use cases

Deposit by lab equipment



SWORD use cases

Repository to repository deposit



SWORD use cases

Publishing system / publisher to repository deposit



e.g. OJS client
Bibapp client



SWORD use cases

Research Information System to repository deposit



e.g. Bibapp client
RePosit project



How does **SWORD** work?



HTTP basics

There are different methods / verbs that we use when interacting with the web:

GET

- Requests a resource

POST

- Create a new resource

PUT

- Update/Replace an existing resource

DELETE

- Delete a resource

SWORD foundations

SWORD is a profile of an existing standard Atom Publishing Protocol (AtomPub)

AtomPub is for publishing content to the web

AtomPub is designed to be extended

AtomPub is used by other systems:

GData (used by Google Docs etc), CMIS



SWORD foundations

SWORD is a profile of an existing standard
Atom Publishing Protocol (AtomPub)

What does this mean?

SWORD isn't re-inventing the wheel

AtomPub clients / APIs can be re-used



Two step process

- 1) Ask the repository's SWORD interface to describe itself
- 2) Use that information to prepare and make a deposit

Introducing: The Service Document

Ask the repository's SWORD interface to describe itself

This is done using a **Service Document**

A service document describes the contract between a user and a repository: what you must provide and what the repository will do in return



How to request a Service Document

Request a service document from the repository

HTTP GET a service document

- Lists the Collections you can deposit into
- Tells you what formats are supported for deposit
- Tells you what will happen to your content

The second step

We have **retrieved** the Service Document

We know **where** we can deposit

We know **what** we can deposit

We know **what will happen** to our deposit

We have **created** a deposit package

We perform the deposit...

Performing a deposit

To perform a deposit:

HTTP POST a file to the deposit URL

- POST /geography-collection HTTP/1.1
- Content-Type: application/zip
- Content-Disposition: filename=MyItem.zip
- Packaging:
<http://purl.org/net/sword/packages/default>

Introducing: The Deposit Receipt

```
<entry xmlns="http://www.w3.org/2005/Atom" xmlns:sword=http://purl.org/net/sword/>
  <title>My Deposit</title>
  <id>info:something:1</id>
  <updated>2008-08-18T14:27:08Z</updated>
  <summary type="text">A summary</summary>
  <generator uri="http://myrepository.ac.uk/engine" version="1.0"/>
  <content type="application/zip"
    src="http://myrepository.ac.uk/geography-collection/deposit1.zip"/>
  <sword:packaging>http://purl.org/net/sword/package/default</sword:packaging>
  <link rel="edit"
    href="http://www.myrepository.ac.uk/geography-collection/my_deposit.atom" />
  <link rel="edit-media"
    href="http://www.myrepository.ac.uk/geography-collection/my_deposit" />
  <link rel="http://purl.net/sword/terms/statement"
    href="http://www.myrepository.ac.uk/geography-collection/my_deposit.rdf" />
</entry>
```



Is there anything else we can do?

YES!

Where SWORD 1.3 leaves off SWORD 2.0
begins...

The deposit lifecycle is more complicated than fire-
and-forget...

Get a package of the item's entire content in our favourite format

```
<entry xmlns="http://www.w3.org/2005/Atom" xmlns:sword=http://purl.org/net/sword/>
  <title>My Deposit</title>
  <id>info:something:1</id>
  <updated>2008-08-18T14:27:08Z</updated>
  <summary type="text">A summary</summary>
  <generator uri="http://myrepository.ac.uk/engine" version="1.0"/>
  <content type="application/zip"
    src="http://myrepository.ac.uk/geography-collection/deposit1.zip"/>
  <sword:packaging>http://purl.org/net/sword/package/default</sword:packaging>
  <link rel="edit"
    href="http://www.myrepository.ac.uk/geography-collection/my_deposit.atom" />
  <link rel="edit-media"
    href="http://www.myrepository.ac.uk/geography-collection/my_deposit" />
  <link rel="http://purl.net/sword/terms/statement"
    href="http://www.myrepository.ac.uk/geography-collection/my_deposit.rdf" />
</entry>
```



Add more content to the item by POSTing more files

```
<entry xmlns="http://www.w3.org/2005/Atom" xmlns:sword=http://purl.org/net/sword/>
  <title>My Deposit</title>
  <id>info:something:1</id>
  <updated>2008-08-18T14:27:08Z</updated>
  <summary type="text">A summary</summary>
  <generator uri="http://myrepository.ac.uk/engine" version="1.0"/>
  <content type="application/zip"
    src="http://myrepository.ac.uk/geography-collection/deposit1.zip"/>
  <sword:packaging>http://purl.org/net/sword/package/default</sword:packaging>
  <link rel="edit"
    href="http://www.myrepository.ac.uk/geography-collection/my_deposit.atom" />
  <link rel="edit-media"
    href="http://www.myrepository.ac.uk/geography-collection/my_deposit" />
  <link rel="http://purl.net/sword/terms/statement"
    href="http://www.myrepository.ac.uk/geography-collection/my_deposit.rdf" />
</entry>
```



PUT new content over the old, or DELETE all the content

```
<entry xmlns="http://www.w3.org/2005/Atom" xmlns:sword=http://purl.org/net/sword/>
  <title>My Deposit</title>
  <id>info:something:1</id>
  <updated>2008-08-18T14:27:08Z</updated>
  <summary type="text">A summary</summary>
  <generator uri="http://myrepository.ac.uk/engine" version="1.0"/>
  <content type="application/zip"
    src="http://myrepository.ac.uk/geography-collection/deposit1.zip"/>
  <sword:packaging>http://purl.org/net/sword/package/default</sword:packaging>
  <link rel="edit"
    href="http://www.myrepository.ac.uk/geography-collection/my_deposit.atom" />
  <link rel="edit-media"
    href="http://www.myrepository.ac.uk/geography-collection/my_deposit" />
  <link rel="http://purl.net/sword/terms/statement"
    href="http://www.myrepository.ac.uk/geography-collection/my_deposit.rdf" />
</entry>
```



Ask the repository to describe the item, and the state it is in

```
<entry xmlns="http://www.w3.org/2005/Atom" xmlns:sword=http://purl.org/net/sword/>
  <title>My Deposit</title>
  <id>info:something:1</id>
  <updated>2008-08-18T14:27:08Z</updated>
  <summary type="text">A summary</summary>
  <generator uri="http://myrepository.ac.uk/engine" version="1.0"/>
  <content type="application/zip"
    src="http://myrepository.ac.uk/geography-collection/deposit1.zip"/>
  <sword:packaging>http://purl.org/net/sword/package/default</sword:packaging>
  <link rel="edit"
    href="http://www.myrepository.ac.uk/geography-collection/my_deposit.atom" />
  <link rel="edit-media"
    href="http://www.myrepository.ac.uk/geography-collection/my_deposit" />
  <link rel="http://purl.net/sword/terms/statement"
    href="http://www.myrepository.ac.uk/geography-collection/my_deposit.rdf" />
</entry>
```



A Banking Analogy

You Deposit your money

You get a Receipt

Your Statement tells you what happened to
your money since

Introducing: The SWORD Statement

It tells you what files were produced when the repository unpackaged your deposit

It tells you what new files have been added to your deposit (e.g. via format migration, mediated deposit, etc)

It tells you where to get the package(s) you originally uploaded

It tells you where in the workflow your item is (or any other state that it might be in). For example, “under review” or “deleted”



Can be an OAI-ORE Resource Map

```
<rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
  xmlns:ore="http://www.openarchives.org/ore/terms/">
  <rdf:Description rdf:about="http://localhost/edit-uri/43/d0">
    <ore:describes rdf:resource="http://localhost/agg-uri/43/d0"/>
  </rdf:Description>
  <rdf:Description rdf:about="http://localhost/agg-uri/43/d0">
    <ore:isDescribedBy rdf:resource="http://localhost/edit-uri/43/d0"/>
    <ore:aggregates rdf:resource="http://localhost/part-uri/43/d0/example.zip"/>
    <sword:originalDeposit rdf:resource="http://localhost/part-uri/43/d0/example.zip"/>
    <sword:state rdf:resource="http://purl.org/net/sword/state/archived"/>
  </rdf:Description>
  <rdf:Description rdf:about="http://localhost/part-uri/43/d0/example.zip">
    <sword:packaging rdf:resource="http://purl.org/net/sword/package/default"/>
    <sword:depositedOn>2011-02-24T19:50:04Z</sword:depositedOn>
    <sword:depositedBy>sword</sword:depositedBy>
  </rdf:Description>
  <rdf:Description rdf:about="http://purl.org/net/sword/state/archived">
    <sword:stateDescription>
      The work has passed through review and is now in the archive
    </sword:stateDescription>
  </rdf:Description>
</rdf:RDF>
```



Tells me where to get my original package

```
<rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
  xmlns:ore="http://www.openarchives.org/ore/terms/">
  <rdf:Description rdf:about="http://localhost/edit-uri/43/d0">
    <ore:describes rdf:resource="http://localhost/agg-uri/43/d0"/>
  </rdf:Description>
  <rdf:Description rdf:about="http://localhost/agg-uri/43/d0">
    <ore:isDescribedBy rdf:resource="http://localhost/edit-uri/43/d0"/>
    <ore:aggregates rdf:resource="http://localhost/part-uri/43/d0/example.zip"/>
    <sword:originalDeposit rdf:resource="http://localhost/part-uri/43/d0/example.zip"/>
    <sword:state rdf:resource="http://purl.org/net/sword/state/archived"/>
  </rdf:Description>
  <rdf:Description rdf:about="http://localhost/part-uri/43/d0/example.zip">
    <sword:packaging rdf:resource="http://purl.org/net/sword/package/default"/>
    <sword:depositedOn>2011-02-24T19:50:04Z</sword:depositedOn>
    <sword:depositedBy>sword</sword:depositedBy>
  </rdf:Description>
  <rdf:Description rdf:about="http://purl.org/net/sword/state/archived">
    <sword:stateDescription>
      The work has passed through review and is now in the archive
    </sword:stateDescription>
  </rdf:Description>
</rdf:RDF>
```



Tells me what state my item is in

```
<rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
  xmlns:ore="http://www.openarchives.org/ore/terms/">
  <rdf:Description rdf:about="http://localhost/edit-uri/43/d0">
    <ore:describes rdf:resource="http://localhost/agg-uri/43/d0"/>
  </rdf:Description>
  <rdf:Description rdf:about="http://localhost/agg-uri/43/d0">
    <ore:isDescribedBy rdf:resource="http://localhost/edit-uri/43/d0"/>
    <ore:aggregates rdf:resource="http://localhost/part-uri/43/d0/example.zip"/>
    <sword:originalDeposit rdf:resource="http://localhost/part-uri/43/d0/example.zip"/>
    <sword:state rdf:resource="http://purl.org/net/sword/state/archived"/>
  </rdf:Description>
  <rdf:Description rdf:about="http://localhost/part-uri/43/d0/example.zip">
    <sword:packaging rdf:resource="http://purl.org/net/sword/package/default"/>
    <sword:depositedOn>2011-02-24T19:50:04Z</sword:depositedOn>
    <sword:depositedBy>sword</sword:depositedBy>
  </rdf:Description>
  <rdf:Description rdf:about="http://purl.org/net/sword/state/archived">
    <sword:stateDescription>
      The work has passed through review and is now in the archive
    </sword:stateDescription>
  </rdf:Description>
</rdf:RDF>
```



User friendly?

Interaction with SWORD is via XML documents

XML is good for machine to machine interfaces

Do users want to read / write XML?



User friendly?

A large, three-dimensional metallic sign spelling the word "NO" in a bold, sans-serif font. The sign is mounted on a dark, textured wall. The lighting is dramatic, coming from the left, which highlights the left side of the letters and casts a strong, dark shadow to the right. The surface of the metal appears slightly worn or brushed.

The answer?

SWORD
clients

An analogy

Using the web:

Do we read and write HTML?

No!

We use a web browser.

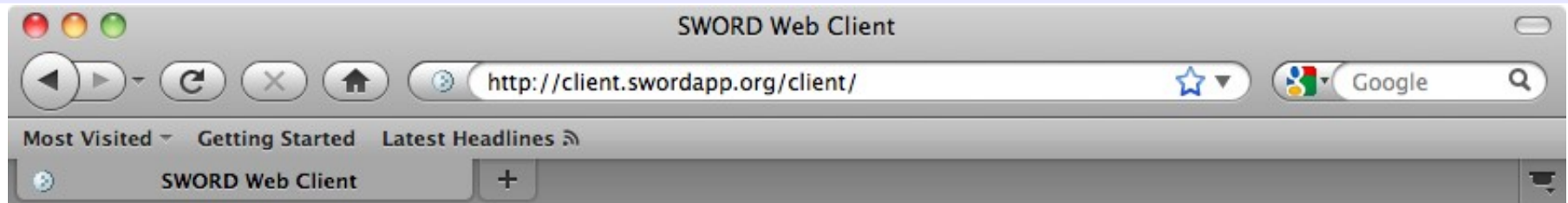


SWORD clients

Three types of SWORD client:

- Machine to machine custom client
 - E.g. custom code to deposit from lab equipment
- General client
 - Deposit any item type to any repository
- Specific client
 - Tailored for an individual use (e.g. e-thesis deposit to repository X, journal article deposit to repository Y)

Online demo client



SWORD Servlet Client - select a service document

This client can access services that conform to the SWORD 1.3 profile.

Select a service document, or enter another URL:

URL:

Other:

Username:

Password:

On behalf of:

[SWORD](#) is a [JISC](#) funded project managed by [UKOLN](#). For further information about SWORD, please visit: www.swordapp.org.



Desktop demo client

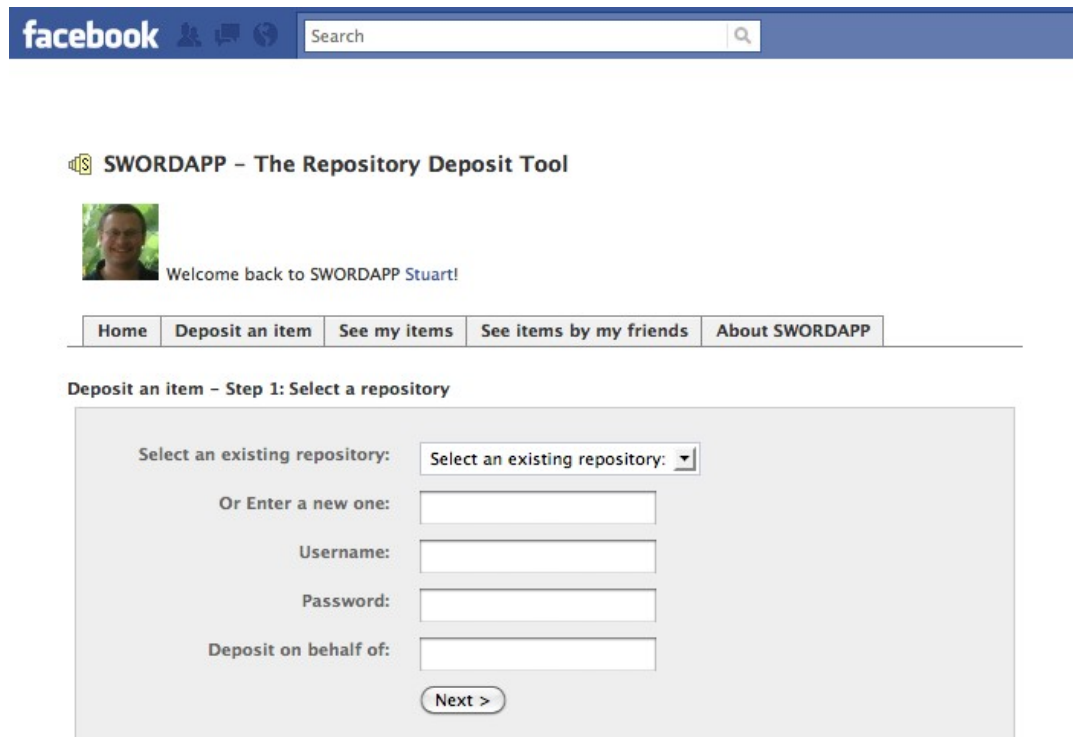
status: Data received for location: <http://dspace.swordapp.org/sword/servicedocument>



Another example

The Facebook SWORD deposit tool

<http://apps.facebook.com/swordapp/>



The screenshot shows the Facebook SWORD deposit tool interface. At the top is the Facebook navigation bar with the 'facebook' logo, navigation icons, and a search bar. Below this is the app header 'SWORDAPP – The Repository Deposit Tool' with a profile picture of a man and a welcome message 'Welcome back to SWORDAPP Stuart!'. A navigation menu contains links: 'Home', 'Deposit an item', 'See my items', 'See items by my friends', and 'About SWORDAPP'. The main content area is titled 'Deposit an item – Step 1: Select a repository'. It contains a form with the following elements: a dropdown menu labeled 'Select an existing repository:', a text input field labeled 'Or Enter a new one:', a text input field labeled 'Username:', a text input field labeled 'Password:', a text input field labeled 'Deposit on behalf of:', and a 'Next >' button.

Facebook client



SWORDAPP – The Repository Deposit Tool



Welcome back to SWORDAPP Stuart!

[Home](#) [Deposit an item](#) [See my items](#) [See items by my friends](#) [About SWORDAPP](#)

Deposit an item – Step 2: Select collection

 **Server details: Connection OK!** ([show details](#))

Please choose from one of the following collections to make your deposit:

Workspace: DSpace SWORD 1.3 Demo

Collection: Data sets (A collection for depositing data sets)

[Deposit into this collection](#)

[See full collection details...](#)

Collection: Research materials (A collection for depositing research materials)

[Deposit into this collection](#)

[See full collection details...](#)

Collection: Teaching materials (A collection for depositing teaching materials)

[Deposit into this collection](#)

[See full collection details...](#)

Collection: Workflow (Collection with workflow)

[Deposit into this collection](#)

[See full collection details...](#)



Facebook client

Home	Deposit an item	See my items	See items by my friends	About SWORDAPP
------	-----------------	--------------	-------------------------	----------------

Deposit an item – Step 3: Item details

Deposit to: <http://dspace.swordapp.org/sword/deposit/123456789/4>
Collection title: Research materials
Abstract: A collection for depositing research materials

Type of item:

Has the item been peer reviewed:

Title:

Abstract:

1st author first name:

1st author surname:

2nd author first name (optional):

2nd author surname (optional):

3rd author first name (optional):

3rd author surname (optional):

Bibliographic citation (optional):

Existing URL for item (optional):

Next >



Facebook client

 **SWORDAPP – The Repository Deposit Tool**



Welcome back to SWORDAPP [Stuart!](#)

[Home](#)[Deposit an item](#)[See my items](#)[See items by my friends](#)[About SWORDAPP](#)

Deposit an item – Step 4: Choose file

Deposit to: <http://dspace.swordapp.org/sword/deposit/123456789/4>

Collection title: Research materials

Abstract: A collection for depositing research materials

User: demo@swordapp.org

Choose file:

Browse...

Deposit

The application performs the packaging (metadata + file)



Facebook client

SWORDAPP – The Repository Deposit Tool



Welcome back to SWORDAPP [Stuart!](#)

[Home](#)[Deposit an item](#)[See my items](#)[See items by my friends](#)[About SWORDAPP](#)

Deposit an item – item deposited!

You have succesfully deposited 'My title' whose URL is now <http://dspace.swordapp.org/jspui/handle/123456789/652>

Deposit from within Microsoft Word

Article Authoring Add-in for Word 2007

<http://research.microsoft.com/en-us/projects/authoring/>

DepositMO project (JISCdepo)

.docx files are actually ‘packages’

- Zip file containing XML files#



SWORD 2.0 Clients/Servers

Clients

PHP (+ Facebook)

Java

Python

Ruby (+ Bibapp)

Servers

DSpace

EPrints

Fedora



SWORD 2.0 Timeline

November – February

Consultation and development of a draft profile and internet drafts

March – May

Client and Server Development



Credits

Original slides by Stuart Lewis stuart@swordapp.org

Additional SWORD 2.0 material by Richard Jones
richard@cottagelabs.com

The SWORD project

<http://swordapp.org/>

Funded by JISC

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

Licence

Creative commons



JISC

